Washington State Department of Ecology
Nuclear Waste Program

Dangerous Waste Management Permit

AREVA NP Inc.

(WAD 99082 8402)

Effective Date: February 2, 2010

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
3100 Port of Benton Blvd • Richland, WA 99354 • (509) 372-7950

February 2, 2010

Mr. Chuck Perkins
Richland Site Manager
AREVA NP Inc.
2101 Horn Rapids Road
Richland, Washington 99354

RE: Final Dangerous Waste Management Permit for AREVA NP Inc. (WAD 99082 8402)

Dear Mr. Perkins:

This letter transmits the final status *Dangerous Waste Management* Permit (Permit) that the Department of Ecology (Ecology) prepared in response to your revised Part B Permit Applications, dated February 17, 2009. The Permit is being issued in accordance with the provisions of the Hazardous Waste Management Act, Chapter 70.105, Revised Code of Washington, and the regulations issued in Chapter 173-303, Washington Administrative Code (WAC). This permit becomes effective immediately in accordance with WAC 173-303-840(8)(b)(ii).

Ecology accepted comments on the draft permit from November 2 through December 16, 2009. We received two comments during the 45-day public comment period. No portions of the draft permit have been changed or modified as a result of the comments received during the public comment period. The comments are addressed in the enclosed Response Summary as required by WAC 173-303-840(9).

Ecology appreciates the support that you and your staff have provided. If you have any questions, please contact Jeff Ayres at 509-372-7881.

Sincerely,

Jane A. Hedges
Program Manager
Nuclear Waste Program

Enclosures (3)
cc w/o enc:

Dave Bartus, EPA	Gabriel Bohnee, NPT
Earl Fordham, DOH	Russell Jim, YN
Stuart Harris, CTUIR	Ken Niles, ODOE

Dangerous Waste Management Permit
AREVA NP Inc
Public Comment Period Comments and Responses

RESPONSE SUMMARY

Ecology received the following comments and responds as follows:

Comment No. 1

(Letter sent via US Mail received on November 23, 2009, Attachment 1)

From: Allen Panitch
Sent: November 20, 2009
To: Jeff Ayres, Ecology Nuclear Waste Program

Ecology Response

Thank you very much for your comment. The draft Dangerous Waste Management Permit for AREVA NP Inc. is a separate issue from the licensing requirements by the Nuclear Regulatory Commission (NRC). The state of Washington requires all owners and operators of facilities that treat, store, or dispose of dangerous waste (called TSD facilities) to obtain a permit in accordance with Washington Administrative Code (WAC) 173-303-800. The permit allows the TSD facility to operate without endangering the public health and the environment.

AREVA generates dangerous wastes as part of its NRC licensed fuel making process. The dangerous waste storage areas are being permitted and regulated in strict accordance with the state of Washington and federal regulations and guidelines. AREVA has been safely storing its dangerous or mixed waste according to the interim status requirements set forth in WAC 173-303-400. The permit will replace the current interim status standards and require full compliance with final facility standards, WAC 173-303-806. Please note that the conditions and restrictions placed on facilities, including AREVA, under the final dangerous waste management permit requirements are not substantively different relative to environmental protection than those imposed by the interim status requirements.

Comment No. 2

(Letter sent via email received on December 17, 2009, Attachment 2)

From: David Delk, Alliance for Democracy – Portland Chapter
Sent: December 17, 2009
To: Jeff Ayres, Ecology Nuclear Waste Program

Ecology Response

Thank you very much for your comment. AREVA NP Inc. does not generate any high-level radioactive waste or high-level mixed waste as part of its fuel fabrication process. Even if it did generate such waste, the waste could not be sent to the US Ecology low-level radioactive waste commercial disposal facility, which is not licensed to receive high-level radioactive waste. AREVA does not support any United States Department of Energy cleanup projects at Hanford.

AREVA generates dangerous wastes as part of their Nuclear Regulatory Commission (NRC) licensed fuel making process. The permit will allow AREVA to safely store dangerous or mixed low-level waste on its premises for short periods of time. Permits typically allow for safe storage until the facility accumulates enough waste to economically ship it to another permitted treatment, storage, and disposal facility for ultimate disposal. AREVA's permit does not allow indefinite long term storage or disposal of waste on site. The dangerous waste storage areas are permitted and regulated in strict accordance with the state of Washington and federal regulations and guidelines. AREVA has been safely storing its dangerous/mixed waste according to the interim status requirements set forth in Washington Administrative Code (WAC) 173-303-400. The permit will replace the current interim status standards and require full compliance with final facility requirements, WAC 173-303-806. Please note that the conditions and restrictions placed on facilities, including AREVA, under the final dangerous waste management permit requirements are not substantively different relative to environmental protection than those imposed by the interim status requirements.

Thank you for bringing to our attention the discrepancy regarding our published deadline for this comment period. It was a publishing error and we regret any inconvenience that it may have caused.

Conclusions

No portions of the draft permit have been changed or modified as a result of the comments received during the public comment period.

Attachment 1

DATE 11-20-09

Jeff Lyres, Ecology Nuclear Waste Program
3100 Port of Benton Blvd
Richland, Wa 99354

Sir –

It is beyond my comprehension that the NRC would issue a license to AREVA NP Inc., knowing that the creation of dangerous waste was a natural result of implementing that license, without requiring, as a condition of that license, it demonstrate its ability to safely store, transport and dispose of that waste!!!

I've spent many years dealing w/ Govt contracts, (having retired as Contract Mgr @ Hughes Aircraft) and since costs are involved here, such an open ended agreement would, to me, seem extremely dangerous and potentially a blank check drawn on the tax payers.

Respectfully
Allen

RECEIVED
NOV 23 2009
Department of Ecology
NWP - Richland

Allen Panitch
PO Box 99387 98139 98109
Seattle, WA
PROUD VVA SUPPORTER

PREPARED BY: PAGE

Attachment 2

Ayres, Jeff (ECY)

From: David Delk [davidafd@msn.com]
Sent: Thursday, December 17, 2009 8:09 PM
To: Ayres, Jeff (ECY)
Subject: AREVA permit application to Ecology for interim storage of High Level Nuclear Waste

Dear Jeff Ayres:

We at the Alliance for Democracy do not feel that AREVA should be given any kind of permits or concessions, especially not to store high level waste at Ecology, a waste storage site overseen by the state of Washington at Hanford Nuclear Reservation, no matter for how short a time.

AREVA, grown out of a subsidiary of the French nuclear giant, increasingly has interests in the United States to the detriment of the local population. We are aware that AREVA supports activities by CH2M HILL Hanford Group, Inc. and Flour Daniel Group, Inc. However, the United States nuclear problem, whether from waste or from ongoing nuclear power, must be solved by disentangling of American interests from foreign purveyors of nuclear technology, such as AREVA.

AREVA should be given this permit, especially for ten years as the document states. AREVA must apply for waste storage elsewhere. Foreign nuclear corporations are too embedded in the American nuclear clean-up industry. AREVA has applied to build a nuclear enrichment plant in Idaho Falls, Idaho, which the local inhabitants do not want. This enmeshment in both the clean-up and build up of nuclear waste in the United States by foreign corporations must not be encouraged and AREVA must be phased out across the board.

Sincerely,

David Delk
President, Alliance for Democracy - Portland Chapter

PS: Your date of deadline for commentary is two days apart on two separate documents available to the public. The date of ***December 16*** *is on the* ***FACT SHEET FOR THE HAZARDOUS WASTE MANAGEMENT ACT DRAFT PERMIT FOR DANGEROUS WASTE MANAGEMENT AT AREVA NP INC.*** *The date* ***December 18*** *is in the document our group received announcing this commentary period via email--the 101909 PDF file of the Public Notice dated October 2009. Our comments arriving on December 17 should be included, and some investigation made about why these dates are different.*

Public Comment Period

DEPARTMENT OF ECOLOGY
State of Washington

Nuclear Waste Program — **October 2009**

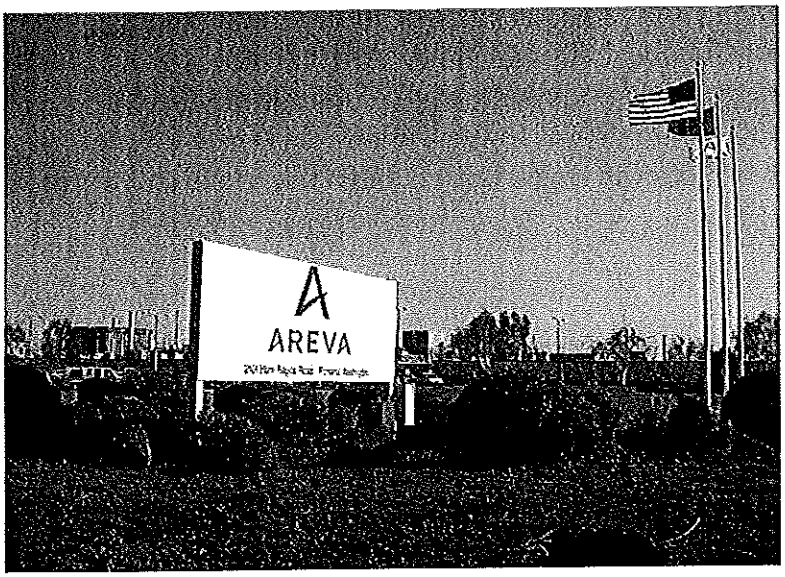
Permit for AREVA NP Inc.

The Department of Ecology invites you to comment on a draft permit for AREVA NP Inc., to store dangerous and mixed wastes at its facility in north Richland.

What is the permit for?

AREVA makes nuclear fuel for commercial nuclear reactors under a license from the Nuclear Regulatory Commission. The process produces dangerous and mixed wastes (wastes with both radioactive and chemically hazardous components). Ecology certified that AREVA's permit application was complete on February 17, 2009.

AREVA is required to have a dangerous waste permit from Ecology that regulates the storage of dangerous and mixed wastes. The permitted units are the Dangerous Waste Storage Facility and the Component Chemical Waste Storage Tank.



AREVA's Nuclear Fuel Fabrication Plant at 2101 Horn Rapids Road, Richland WA 99354

THINGS TO KNOW

Comment period
November 2 – December 18 2009

Ecology's project contact person
Jeff Ayres
509-372-7881
Jayr461@ecy.wa.gov

To review permit and supporting documents, visit:

- Department of Ecology
  Nuclear Waste Program
  3100 Port of Benton Blvd
  Richland, WA 99354
  (Call 509-372-7920 for an appointment)
- www.ecy.wa.gov/programs/nwp/commentperiods.htm
- Richland Public Library
  955 Northgate
  Richland WA 99352

To be added or removed from the mailing list, or to request a public hearing, contact:
Madeleine Brown
509-372-7936
Mabr461@ecy.wa.gov

Special Accommodations:
If you need this publication in an alternate format, call the Nuclear Waste Program at 509-372-7950. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

FACT SHEET FOR THE HAZARDOUS WASTE MANAGEMENT ACT DRAFT PERMIT FOR DANGEROUS WASTE MANAGEMENT AT AREVA NP INC

Department of Ecology, Nuclear Waste Program
3100 Port of Benton Blvd.
Richland, Washington 99354

This fact sheet has been developed by the Washington State Department of Ecology (Ecology) in accordance with the requirements of WAC 173-303-840(2)(f). Its purpose is to present information on Ecology's tentative decision to issue a dangerous and/or mixed waste final facility permit (final permit) to AREVA NP Inc (AREVA) to store dangerous and mixed wastes at its facility in Richland, WA. This fact sheet describes the facility, including AREVA's dangerous and mixed waste storage activities. This fact sheet also summarizes requirements in the proposed permit for design, construction, operation, and closure at the facility. Ecology will make a final decision on this permit after we receive and evaluate public comments.

PERMITTEE: AREVA NP Inc

Site address
2101 Horn Rapids Road, Richland, Washington 99354

EPA/State identification number: **WAD 99082 8402**

This Fact Sheet is divided into four sections:

1.0 The Permitting Process
2.0 Procedures for Reaching a Final Decision on the Draft Permit
3.0 Permit Appeal Process
4.0 AREVA Facility Description and History
5.0 Permit Contents

1.0 THE DANGEROUS WASTE PERMITTING PROCESS

The Washington State Hazardous Waste Disposal Act, Chapter 70.105 Revised Code of Washington (RCW) and the regulations in Chapter 173-303 of the Washington Administrative Code (WAC) regulate the management of dangerous waste in Washington. WAC 173-303-800 specifies that facilities that treat, store, and dispose of dangerous waste must obtain a permit for these activities. AREVA currently stores dangerous and mixed waste at their Richland facility.

Facilities in existence before the implementation of Chapter 173-303 WAC, such as AREVA, were eligible for "interim status." "Interim status" allows the facility to

2.0 PROCEDURES FOR REACHING A FINAL DECISION

The 45-day comment period on Ecology's tentative decision to issue a dangerous waste permit to AREVA and Ecology's State Environmental Policy Act (SEPA) Determination of Non Significance (DNS) runs from November 2, 2009 and ends December 16, 2009.

To receive a copy of the draft permit or SEPA DNS:

- Contact Jeff Ayres at (509) 372-7881 (voice) or at one of the addresses listed below;
- Visit the Ecology web site at – www.wa.gov/ecology/programs/nwp/comment periods/htm;
- Visit the Richland Public Library, at 955 Northgate, Richland, WA 99352.

The process for public notice and involvement for this permit change is in WAC 173-303-840 (3). Comments must be postmarked, hand-delivered, or received by e-mail or fax no later than close of business on December 16, 2009. Direct all comments to:

Jeff Ayres
Department of Ecology
3100 Port of Benton Blvd.
Richland, WA 99354
E-mail: jayr461@ecy.wa.gov
Fax 509-372-7971

Ecology does not plan to hold a public hearing, but if significant public interest is expressed in the tentative permit or SEPA DNS decision, Ecology will conduct a public hearing. Contact Madeleine Brown at Madeleine.Brown@ecy.wa.gov or at the address above if you would like to request a hearing.

Ecology will consider and respond to all written comments submitted by the deadline. After considering the comments, Ecology will make final decisions or make new tentative decisions. If Ecology makes a final decision, it will become effective 30 days after the agency gives final notice of its decision. If there are no comments from the public, then the final decision will be effective as soon the agency gives public notice of the decision. If the agency makes new tentative decisions based on public comments they will be followed by a new comment period.

Ecology's final decisions may be appealed within 30 days of issuance of the final decisions.

All commenters and the permittee will receive a copy of the Responsiveness Summary and a notification of the final permit decision.

4.0 AREVA FACILITY DESCRIPTION AND HISTORY

4.1 Facility Description

AREVA is a nuclear fuel fabrication facility that manufactures nuclear fuel for commercial light water reactors. The AREVA plant started nuclear fuel fabrication operations in1972. The AREVA manufacturing facility occupies approximately 52.6 acres of land located in the Horn Rapids Industrial Park in Richland, WA. AREVA generates both liquid phase and solid phase dangerous and mixed wastes throughout the manufacturing process. The above ground Component Chemical Storage Tank (CCWT) receives liquid acid waste from the pickling of fuel assembly components. The permit allows storage of up to 2000 gallons of this aqueous waste in the CCWT. The permit also allows storage of up to 4500 55-gallon drums in the Dangerous Waste Storage Facility (DWSF). The DWSF manages dangerous and mixed wastes such as air filters, filter cake, paint waste, solvents, and rags, in containers such as drums or steel boxes. Dangerous wastes from CCWT and DWSF are shipped to an approved waste treatment/disposal company for treatment and disposal.

4.2 Dangerous Waste Permit Required

A permit is required for storage of the dangerous and mixed wastes generated at AREVA. The wastes managed by AREVA are related to manufacturing operations. The waste streams that will continue to be produced include 1) solvents and combustible wastes; 2) painting-related wastes; 3) acidic wastes from component pickling operations; 3) chemical and radiologically-contaminated wastes; 4) wastes from laboratory analyses and; 5) waste oils.

Dangerous and mixed wastes are typically stored for short periods of time and disposed through contracts with permitted disposal facilities. AREVA does not receive any dangerous or mixed wastes from off-site sources.

AREVA is a private industry and is subject to the financial assurance requirements in WAC 173-303-620.

5.0 PERMIT CONTENTS

The AREVA Dangerous Waste Management Permit consists of standard and site specific conditions and the following attachments:

Attachment A	Part A of the Permit Application, the Dangerous Waste Permit Forms (Section 1.0 of the Permit Application)
Attachment B	Waste Analysis Plan (Section 3 of the Permit Application)
Attachment C	Inspection Plans (Section 6.0 of the Permit Application)

DANGEROUS WASTE MANAGEMENT PERMIT

AREVA NP INC.

Washington State Department of Ecology
Nuclear Waste Program
3100 Port of Benton Boulevard
Richland, Washington 99354
Telephone: 509.372.7950

This permit is issued in accordance with the applicable provisions of the Hazardous Waste Management Act, Chapter 70.105 & Chapter 70.105D Revised Code of Washington (RCW), and the regulations promulgated there under in Chapter 173-303 Washington Administrative Code (WAC).

PERMITTEE: AREVA NP INC.

SITE ADDRESS: 2101 Horn Rapids Road
Richland, Washington 99354

EPA/State Identification Number: WAD 99082 8402

This permit is effective as of February 2, 2010, and will remain in effect until February 2, 2020, unless revoked and reissued, modified, or terminated under WAC 173-303-830(3) and (5) or continued in accordance with WAC 173-303-806(7).

ISSUED BY: WASHINGTON STATE DEPARTMENT OF ECOLOGY

Jane A. Hedges, Program Manager
Nuclear Waste Program
Washington State Department of Ecology

02/02/2010
Date

TABLE OF CONTENTS

INTRODUCTION

Permittee: AREVA NP INC.EPA/State Identification Number: WAD 99082 8402

Pursuant to Chapter 70.105 & Chapter 70.105D Revised Code of Washington (RCW), the Hazardous Waste Management Act of 1976, as amended, and regulations codified in Chapter 173-303 Washington Administrative Code (WAC): a permit is issued to the Applicant (hereinafter called the Permittee) to operate a Dangerous Waste Storage Facility (DWSF) and a Component Chemical Waste Tank (CCWT) located at 2101 Horn Rapids Road, Richland, Washington, 99354.

Pursuant to RCW 70.105D.030(1)(d), the Washington State Department of Ecology is designated by the Washington State Legislature to carry out state programs authorized by the United States Environmental Protection Agency (EPA) pursuant to the federal Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901 et. seq. as amended. Pursuant to Section 3006 of RCRA, 42 U.S.C. Section 6926, the hazardous waste program in the state of Washington and revisions to that program were authorized as specified by EPA. Ecology has authority to issue this permit in accordance with the authorized program and with RCW 70.105.130 and is responsible for enforcement of all conditions of this permit.

The Permittee must comply with all terms and conditions set forth in this permit and Attachments A through H.

This Dangerous Waste Permit is based on applicable state regulations and statutes in effect on the date of permit issuance and those federal regulations incorporated by reference into these state regulations. Periodically, the state initiates changes to Chapter 70.105 & Chapter 70.105D Revised Code of Washington (RCW), the Hazardous Waste Management Act of 1976, or the implementing regulations. The Permittee may implement more stringent state or federal standards at any time, unless doing so would require Ecology review and approval of construction design or procedures, or would conflict with requirements of this permit. For less stringent provisions, the Permittee must request and receive approval for a permit modification before applying the less stringent requirements.

Any procedure, method, data, or information contained in this document that relates to the radioactive source, byproduct material, or special nuclear components of mixed waste (as defined by the Atomic Energy Act of 1954, as amended) is not included for the purpose of regulating such components under the authority of this permit, Chapter 70.105 or Chapter 70.105D RCW.

The Permittee's failure in the application or during the permit issuance process to fully disclose all relevant facts, or the Permittee's misrepresentation of any relevant facts at any time, are grounds for the termination or modification of this permit or initiation of an enforcement action, including criminal proceedings. The Permittee must inform Ecology of any deviations from the permit conditions. In particular, the Permittee must inform Ecology of any proposed changes that might affect the ability of the Permittee to comply with applicable regulations and permit conditions or that alter any of the conditions of this permit in any way.

The Department of Ecology will enforce all conditions of this permit. Any challenge of a permit condition must be appealed to the Pollution Control Hearings Board in accordance with WAC 173-303-845.

The EPA has the authority to enforce any condition in this permit that is based on federal regulations for which the state of Washington's dangerous waste management program is authorized.

In the event that Ecology does not maintain its authorization for the federal RCRA program, then the EPA becomes the regulatory authority for all permit conditions except those that are state only requirements. In that event, EPA will issue its own separate permit.

LIST OF ATTACHMENTS

The documents listed below are incorporated in their entirety into this permit. Some of the documents are excerpts from the Permittee's Dangerous Waste permit application. Ecology has, as deemed necessary, modified specific language in the permit attachments. These modifications are described in the permit conditions, and thereby supersede the language of the permit application language incorporated by reference. The incorporated permit attachments are enforceable conditions of this permit, as modified by the specific permit conditions.

Attachment A	Part A of the Permit Application, the Dangerous Waste Permit Forms (Section 1.0 of the Permit Application)
Attachment B	Waste Analysis Plan (Section 3 of the Permit Application)
Attachment C	Inspection Plans (Section 6.0 of the Permit Application)
Attachment D	Personnel Training Matrix (Section 8.0, Attachment 8.1 of the Permit Application)
Attachment E	DWSF and CCWT Closure Plans (Section 9.0 of the Permit Application)
Attachment F	AREVA Richland Site Dangerous Waste Contingency Plan (Section 7.0 of the Permit Application)
Attachment G	Tank Integrity Assessment Report (Attachment 4.2 of the Permit Application)
Attachment H	Groundwater Monitoring Plan

DEFINITIONS

All definitions contained in the following are hereby incorporated, in their entirety, by reference into this permit: Chapter 70.105 & Chapter 70.105D RCW; Chapter 173-303 WAC; and Chapter 173-340 WAC, as undertaken in whole or in part to fulfill the role of WAC 173-303-646. If any definitions in the listed rules and laws differ from the definitions in this permit, the permit's definitions prevail.

Where terms are not defined in the regulations or the permit, the meaning associated with such terms is defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

For purposes of this permit, the following definitions apply:

"**Agency**" means the U.S. Environmental Protection Agency, Region 10, and the Washington State Department of Ecology.

"**Component Chemical Waste Tank**" (CCWT) refers to the 2,000 gallon capacity polyethylene tank used to store corrosive pickling process wastes. It is located next to the northwest corner of the component center.

"**Dangerous Waste Storage Facility** (DWSF)" refers to the building located in the southeast corner of the plant constructed to store and manage dangerous and/or mixed waste. The location and description of this building are set forth in Attachment A of this permit.

"**Days**" means calendar days unless otherwise defined for a condition or section of this permit.

"**Ecology**" means the Washington State Department of Ecology (with the address as specified on page one of this permit).

"**EPA**" means the U.S. Environmental Protection Agency, Region 10.

"**Permit**" means the dangerous waste component of the Dangerous Waste Permit, which is issued by the Washington State Department of Ecology pursuant to Chapter 70.105 and Chapter 70.105D RCW and Chapter 173-303 WAC,.

"**Waste Profile**" means a detailed chemical, physical, or biological analysis of a dangerous waste.

LIST OF ACRONYMS

CCWT	Component Chemical Waste Tank
CFR	Code of Federal Regulations
DW	Dangerous Waste
DWSF	Dangerous Waste Storage Facility
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
MTCA	Model Toxics Control Act
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act of 1976, as Amended
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act
USDOT	United States Department of Transportation
WAC	Washington Administrative Code

STANDARD AND GENERAL CONDITIONS

1. EFFECT OF PERMIT

1.1 The Permittee is authorized to store and treat dangerous and mixed waste in accordance with the conditions of this permit, which include applicable requirements of WAC 173-303 WAC specified in the permit, and any self implementing regulations in WAC 173-303, and self implementing statutory provisions and related regulations which are automatically applicable to the Permittee's dangerous waste management activities according to the hazardous waste management act, as amended, or other laws.

1.2 Any storage, treatment, or disposal of dangerous waste that requires a permit under WAC 173-303 is prohibited at this facility unless that activity is authorized by this permit or by Ecology under WAC 173-303-830(4)(e) (temporary authorizations).

1.3 Conducting an activity at the facility that requires a permit under WAC 173-303 and is not authorized by this permit or a temporary authorization under WAC 173-303-830 (4)(e) is subject to enforcement of all applicable state and federal laws and regulations.

1.4 The Permittee is authorized to continue to manage newly regulated dangerous wastes or to continue to use newly regulated dangerous waste management units subject to all limits, conditions and procedures in WAC 173-303-830(4)(g)(i)(A) through (E). For this condition to apply, the unit must have been in existence as a dangerous waste facility with respect to the newly listed or identified waste or newly regulated waste management unit on the effective date of the final rule listing or identifying the wastes, or regulating the unit according to WAC 173-303-830(4)(g)(i)(A).

1.5 Nothing in this permit precludes Ecology from modifying the permit during its term in accordance with WAC 173-303-830(3).

1.6 Pursuant to WAC 173-303-810(8), compliance with this permit during its term constitutes compliance for the purpose of enforcement with chapter 173-303 WAC for waste management activities covered under this permit except as provided for in WAC 173-303-810(8)(a)(i) through (iv). Compliance with this permit does not constitute a defense to any order issued or any action brought under other state or federal laws or regulations.

1.7 The Permittee is subject to requirements in Chapter 173-303 for any activity not authorized by this permit or for activities not subject to a permit under WAC 173-303, including but not limited to generator and transporter requirements at WAC 173-303-170 through -270.

1.8 Issuance of this permit does not convey any property rights of any sort or any exclusive privilege.

1.9 Issuance of this permit does not authorize any injury to persons or property, any invasion of other private rights, or any infringement of state or local law or regulations.

2. PERMIT ACTIONS

2.1 Permit Modification, Revocation, Re-issuance, and Termination.

2.2 This permit may be modified, revoked and reissued, or terminated for cause as specified in WAC 173-303-830(3), and (5).

2.3 Permit modifications at the request of the Permittee must comply with procedures and other requirements of the three-tiered modification system specified in WAC 173-303-830(4).

2.4 The filing of a request by the Permittee for a permit modification, revocation, and re-issuance, termination, notification of planned changes, or anticipated noncompliance, does not stay any permit condition.

3. TRANSFER OF PERMIT

3.1 In accordance with WAC 173-303-810(14)(c), this permit is not transferable to any person except after notice to Ecology.

3.2 This permit may be transferred to a new owner or operator only if it has been modified or revoked and reissued in accordance with WAC 173-303-830(2)(a) and (b) or WAC 173-303-830(3) to identify the new Permittee and incorporate such other requirements as may be necessary.

3.3 Before transferring ownership or operation of the Facility, the Permittee must notify the new owner or operator in writing of the requirements of this permit and chapter 173-303 WAC in accordance with WAC 173-303-290(2).

3.4 In accordance with WAC 173-303-830(2), the Permittee must maintain financial assurance conforming to the requirements of WAC 173-303-620 until Ecology notifies the Permittee that the new owner or operator has demonstrated compliance with the financial requirements.

4. DUTY TO REAPPLY AND PERMIT CONTINUATION

4.1 If the Permittee wishes to continue an activity regulated by the permit after its expiration date, the Permittee must apply for and obtain a new permit. Ecology's review of any application for a permit re-issuance will consider improvements in the state of control and measurement technology, as well as changes in applicable regulations.

4.1.1 To continue an activity allowed by this permit after the permit's expiration date, the Permittee must submit to Ecology a new permit application at least 180 days before this permit's expiration date, unless Ecology grants a later date, provided that such date will never be later than the expiration date of the effective permit. [WAC 173-303-806(6)]

4.1.2 In accordance with WAC 173-303-806(7), if the Permittee submits a timely, complete application and Ecology has not made a final permit determination as set forth in WAC 173-303-840, this permit will remain in effect beyond the permit's expiration date until Ecology makes a final permit determination (issuing or denying a new permit.) [WAC 173-303-806(7)]

4.2 If the Permittee fails to submit a timely, complete application as required under Permit Condition 4.1.1, then those permit terms and conditions necessary to conduct and complete clean closure of the DWSF and CCWT will remain in effect beyond the permit's expiration date until Ecology terminates the terms and/or conditions or the permit is revoked and reissued. [WAC 173-303-806(6), WAC 173-303-810(3), and WAC 173-303 -830(3)]

4.3 The Permittee will notify Ecology, in writing, of any newly discovered releases of dangerous wastes and/or dangerous constituents, including releases from any SWMUs at the Facility, immediately upon discovery or as soon as practicable. This notification will be in accordance with requirements specified in WAC 173-303-145(2).

5. SEVERABILITY

5.1 The provisions of this permit are severable. If any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit are not affected. Invalidation of any state or federal statutory or regulatory provision that forms the basis for any condition of this permit does not affect the validity of any other state or federal statutory or regulatory basis for said condition.

5.2 If a condition of this permit is stayed for any reason, for that condition the Permittee must continue to comply with the related applicable interim status standards in WAC 173-303-400 until final resolution of the stayed condition. The only exception is if Ecology determines compliance with such interim status standards are technologically incompatible with compliance with permit conditions that have not been stayed. [WAC 173-303-815(2)(b)(ii)]

6. DUTIES AND REQUIREMENTS

6.1 Duty to Comply

The Permittee must comply with all conditions of this permit except to the extent, and for the duration, an Emergency Permit under WAC 173-303-804 authorizes such noncompliance. Other than as authorized by an Emergency Permit, any permit noncompliance constitutes a violation of Chapter 173-303 WAC and/or Chapter 70.105 RCW, and is grounds for a) enforcement action, b) termination of permit, c) revocation and re-issuance of the permit, d) modification of the permit, or e) denial of a permit renewal application. [WAC 173-303-810(2)]

6.2 Need to Halt or Reduce Activity Not a Defense

A Permittee who has not complied with this permit, and who subsequently is subject to enforcement actions, may not argue that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. [WAC 173-303-810(4)]

6.3 Duty to Mitigate

The Permittee must take all steps required by Ecology to minimize or correct any adverse impacts on the environment resulting from non-compliance with this permit. [WAC 173-303-810(5)]

6.4 Proper Operation and Maintenance

The Permittee will at all times properly operate and maintain all facilities and all systems of treatment and control which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance/quality control (QA/QC) procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit. [WAC 173-303-810(6)]

6.5 Duty to Provide Information

The Permittee will furnish to Ecology, within a reasonable time, any information Ecology may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee will also furnish to Ecology, upon request, copies of records required to be kept by this permit. [WAC 173-303-810(9)]

6.6 Inspection and Entry

6.6.1 Pursuant to WAC 173-303-810(10), the Permittee must allow authorized representatives of Ecology upon the presentation of credentials to:

6.6.1.1 Enter upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit.

6.6.1.2 Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit.

6.6.1.3 Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit.

6.6.1.4 Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by Chapter 173-303 WAC, including sections of 40 CFR Part 264 that are incorporated by reference into Chapter 173-303 WAC, any substances or parameters at any location under the conditions of this permit.

6.7 Reporting Planned Changes

6.7.1 In accordance with WAC 173-303-810(14)(a), the Permittee must give notice to Ecology as soon as possible of any planned physical alterations or additions to the permitted facility. Such physical alterations or additions must comply with the permit. The Permittee must not manage dangerous waste in the new or physically changed portions of the facility until:

6.7.1.1 The Permittee has submitted to Ecology by certified mail or hand delivery, a letter signed by the Permittee and a registered professional engineer stating the facility has been constructed or modified in compliance with the permit, and either:

6.7.1.1.1 Ecology has inspected the modified or newly constructed facility and finds it in compliance with the permit, or

6.7.1.1.2 Within 15 days of the date of the submission of the certified letter as specified in Permit Condition 6.7.1.1, the Permittee has not received notice from Ecology.

6.7.2 The Permittee must give advance notice to Ecology as soon as possible of any planned changes in the permitted facility or activity that may result in noncompliance with

permit requirements. Such changes require a permit modification pursuant to WAC 173-303-830 before they can be implemented.

6.8 Reporting Noncompliance with the Permit

6.8.1 The Permittee must meet requirements for immediate reporting and written submissions in WAC 173-303-810(14)(f) for noncompliance which may endanger human health or the environment.

6.8.2 In accordance with WAC 173-303-810(14)(g), the Permittee must report any noncompliance not reported under WAC 173-303-810(14)(d), (e), and (f) at the time of the next monitoring report or within six months of the date of noncompliance, whichever is sooner.

6.8.3 The Permittee must meet requirements for reporting and written submissions in WAC 173-303-360(2)(k) and WAC 173-303-380(1)(d).

6.9 Reporting Relevant Facts and Incorrect Information

Pursuant to WAC 173-303-810(14)(h), if the Permittee becomes aware that he/she failed to submit any relevant facts in the permit application, or submitted incorrect information in the permit application or in any report to Ecology, the Permittee must promptly submit the relevant and correct information.

6.10 Reporting Compliance Schedules

Reports of permit compliance or noncompliance or any progress reports on final permit requirements contained in any compliance schedule must be submitted no later than 14 days following each scheduled compliance date.

6.11 Other Reporting

6.11.1 Monitoring Reports: Monitoring results must be reported at intervals specified elsewhere in this permit.

6.11.2 The following reports are required:

6.11.2.1 Annual report as specified at WAC 173-303-390(2).

6.11.2.2 Additional reports as specified at WAC 173-303-390(3).

6.12 Information Repository

6.12.1 The Permittee must establish and maintain an information repository at any time Ecology requires based on the factors set forth in WAC 173-303-281(6)(b). The information repository will be governed by the provisions in WAC 173-303-281(6)((c) through (f)).

7. MONITORING AND RECORDS

7.1 Samples and measurements taken for monitoring must be representative of the monitored activity. [WAC 173-303-810(11)(b)] The method used to obtain a representative sample of the waste to be analyzed must be the appropriate method from WAC 173-303-110, or an equivalent method approved by Ecology.

7.2 As provided at WAC 1730-303-810(11)(c), the Permittee must retain records of all monitoring information for a minimum of three years from the date of the sample,

measurement, report or application. The record retention period may be extended by request of Ecology at any time.

7.2.1 The Permittee must maintain specific monitoring records for longer than three years when that is specified in other parts of this permit.

7.2.2 The Permittee must maintain records from all ground water monitoring wells and associated ground water surface elevations for the active life of the facility.

7.2.3 Pursuant to WAC 173-303-810(11)(d), records of monitoring information must include all of the following:

7.2.3.1 The dates, exact place, and times of sampling or measurements.

7.2.3.2 The individuals who performed the sampling or measurements.

7.2.3.3 The date(s) analyses were performed.

7.2.3.4 The individuals who performed the analyses.

7.2.3.5 The analytical techniques or methods used.

7.2.3.6 The results of such analyses, including the QA/QC results and requirements.

7.3 The Permittee will immediately report to Ecology any release, fire, explosion, natural disaster, or incidents of noncompliance with this permit that may endanger human health or the environment. This reporting will meet the requirements in WAC 173-303-360(2)(d).

7.4 Within 15 calendar days of an incident that requires implementation of the Contingency Plan (Attachment F), the Permittee will submit a written report of the incident to Ecology meeting the requirements of WAC 173-303-360(2)(k) and WAC 173-303-810(14)(f).

7.5 The Permittee will report to Ecology all incidents of noncompliance with this permit, other than incidents specified in permit conditions 7.2, 7.3, and 7.4. These reports will meet the requirements in WAC 173-303-810(14)(g).

7.6 The Permittee must immediately report any noncompliance, which may endanger human health or the environment. Information must be provided orally to Ecology as soon as the Permittee becomes aware of the circumstances. Ecology will require a written submission within five (5) days of any incident. Ecology may waive the written submission requirement in favor of a written report containing a description of the noncompliance pursuant to the requirements of WAC 173-303-810(14)(f).

7.7 If Ecology has waived the written submission requirement in favor of a written report, the written report must be submitted within 15 days. The written submission must contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [WAC 173-303-810(14)(f) & (g)]

7.8 The permittee must maintain records from all ground water monitoring wells and associated ground water surface elevations for the active life of the facility and for the post-closure period. [WAC 173-303-810(11)(e)]

8. SIGNATURE AND CERTIFICATION REQUIREMENTS

8.1 All applications, reports, or information submitted to Ecology must be signed in accordance with WAC 173-303-810(12) and must be certified according to WAC 173-303-810(13).

8.2 Except as otherwise specified in this permit, all applications, reports, notifications or other submissions that are required by this permit to be submitted to Ecology must be sent by certified mail or hand delivered to the following address or other address as specified by the Ecology:

Program Manager, Nuclear Waste Program
Washington State Department of Ecology
3100 Port of Benton Boulevard
Richland, Washington 99354-1670
Telephone: 509.372.7950

A change in this address does not require a permit modification under Chapter 173-303 WAC.

9. CONFIDENTIAL INFORMATION

9.1 Information submitted by the Permittee to Ecology identified as confidential by the Permittee will be treated in accordance with applicable provisions of WAC 173-303-810(15), Chapter 42.56 RCW, and RCW 43.21A.160.

10. WASTE MINIMIZATION

10.1 In accordance with WAC 173-303-380(1)(q), the Permittee must place a certification in the operating record on an annual basis that:

10.1.1 A program is in place to reduce the volume and toxicity of hazardous waste generated to the degree determined by the Permittee to be economically practicable.

10.1.2 Proposed methods of treatment, storage, or disposal are those practicable methods currently available to the Permittee, which minimize the present and future threat to human health and the environment.

10.2 The Permittee must report waste minimization efforts in their annual report as required by WAC 173-303-390(2)(g).

11. PERFORMANCE STANDARDS

11.1 The Permittee will design, construct, operate, and maintain the facility to the maximum extent practicable given the limits of technology in a manner to ensure performance standards in WAC 173-303-283 are met.

12. DOCUMENTS AND RECORDS TO BE MAINTAINED AT THE FACILITY

12.1 The owner or operator of the facility must keep a written operating record at their facility in accordance with WAC 173-303-380. Information must be recorded, as it becomes available, and maintained in the operating record until closure of the DWSF and CCWT. In addition, the following documents must be maintained at the facility:

12.1.1 This permit, including all of its attachments and addenda and all amendments, revisions, and modifications to these documents;

12.1.2 Records required by this permit;

12.1.3 Other permits and approvals that authorize actions that affect safety and environmental protection (including, but not limited to, Air Quality Program registrations, Toxic Substance Control Act [TSCA] authorizations, State Environmental Policy Act [SEPA] decision documents).

13. WASTE ANALYSIS

13.1 The Permittee will comply with the written Waste Analysis Plan in Attachment B.

13.2 The Permittee will track the transfer of containers as they enter or exit the DWSF pursuant to WAC 173-303-370. A description of and the quantity of each dangerous waste received and managed in the DWSF or stored in the CCWT will be maintained in the operating record until closure of the DWSF and CCWT. [WAC 173-303-380]

13.3 The Permittee must have in the operating record an accurate and complete waste description (profile) and quantity certified and dated by AREVA for all wastes accepted at the DWSF or contained in the CCWT as described in WAC 173-303-380; except that Permittee may hold unknown or unidentified wastes, for up to 30 days, while completing a waste profile as in Permit Condition 13.4.

13.4 When the Permittee receives a suspect, or unidentified, waste stream, the Permittee must manage the waste according to the procedures in Permit Condition 22 (Container Management) until a waste profile is completed or waste analysis shows the waste can be identified as having an existing profile. Within 30 days, the Permittee must complete the waste profile and/or determine that the waste can be identified as an existing profile or returned to the generator.

14. PREPAREDNESS AND PREVENTION

14.1 Contingency Plan (Attachment F)

14.1.1 The Permittee will maintain procedures for and conduct waste management activities subject to this permit in emergencies or during sudden or non-sudden releases, which threaten human health and the environment according to the Contingency Plan, included as Attachment F. [WAC 173-303-350(2)]

14.1.2 At all times, the Permittee must designate a qualified person that is thoroughly familiar with all aspects of the facilities contingency plan as the emergency coordinator. The primary emergency coordinator will be identified in the Contingency Plan (Attachment F) as the Incident Commander. [WAC-173-303-360(1)]

14.1.3 The Permittee must immediately carry out the provisions of the Contingency Plan (Attachment F) whenever there is a fire or an explosion at or affecting the DWSF or the CCWT, or a release of dangerous waste or constituents from the DWSF or CCWT to air, soil, or surface or ground water.

14.1.4 The Permittee must test and maintain all emergency equipment located at the DWSF and CCWT as specified in WAC 173-303-340(1)(d).

14.1.5 The Permittee's Contingency Plan (Attachment F) will meet requirements for protection to human health and the environment for potential impacts in the event of an emergency at the DWSF or CCWT in accordance with WAC 173-303-340, -350, -360 and -806(4)(a)(vii).

14.1.6 The Permittee will maintain in the operating record summary reports and details of all incidents that require implementing the Contingency Plan (Attachment F) pursuant to WAC 173-303-380(1)(d) & 360(2)(k) and Permit Condition 7.4.

14.2 The Permittee will ensure that operations at the DWSF and CCWT in response to an emergency will not materially degrade the condition of the DWSF or CCWT. If such degradation of the DWSF or CCWT occurs, the Permittee will restore the DWSF or CCWT to its operating condition.

14.3 In an emergency, and in accordance with Permit Condition 14.1.3, the Permittee will follow the Contingency Plan (Attachment F). If a release of dangerous waste/waste constituents occurs, the following steps will be taken:

14.3.1 Determine the suspect environmental receptor for the constituents, based on the type of event.

14.3.2 Develop sampling parameters based on the waste streams involved in the event; and determine the method of analysis for each parameter.

14.3.3 Obtain samples as necessary.

14.3.4 Determine threshold levels at which clean-up actions must be initiated for each parameter. Threshold levels will be determined based on the Model Toxic Control Act (MTCA), Chapter 173-340 WAC for releases to environmental media (soil, surface water, groundwater, air). For releases to structures, equipment, bases, liners, etc., threshold levels will be a clean debris surface, as defined in 40 CFR. 268.45, incorporated by reference by WAC 173-303-140.

14.3.5 Document all releases and cleanup activities in the operating record.

14.4 The Permittee will comply with the preparedness and prevention requirements as described below in accordance with WAC 173-303-340:

14.4.1 The Permittee will maintain access to communications or alarms. Personnel must have immediate access to telephone, cell phone, or hand-held radios, a fire alarm system either actuated by the installed detectors or manual pull station (the fire alarm will sound locally at the building and at the Central Guard Station), and an alarm system will automatically dispatch the Richland Fire Department. Communication systems and alarm boxes for the CCWT are located inside the facility door of the component center adjacent to CCWT. [WAC 173-303-340(2)]

14.4.2 The Permittee will maintain portable fire extinguishers and spill kits at locations identified in the Contingency Plan, Attachment F.

15. SPILLS AND DISCHARGES INTO THE ENVIRONMENT

15.1 The Permittee must comply with the requirements of WAC 173-303-145 including, but not limited to, notification, mitigation, and control measures specified in WAC 173-303-145 under the following circumstances:

15.1.1 A spill or non-permitted discharge of dangerous waste occurs onto the ground or into the ground water as identified in Attachment F.

15.1.2 A spill or non-permitted discharge of dangerous waste results in emission into the air such that human health or the environment is threatened.

15.1.3 Other spills or discharges occur which threaten human health or the environment.

16. NOTIFICATION PROCEDURES FOR SPILLS/RELEASES

16.1 In the event any of the following spills or a release of a dangerous waste or dangerous constituent occurs, the Permittee must immediately notify Ecology's Central Regional Office Spill/Compliance Section (509.575.2490) initially. This must be followed by a notification to the Ecology permit manager for the AREVA DWSF and CCWT in the Nuclear Waste Program, Richland Office (509.372.7950). This telephone number may change. Such a change is not a permit modification under Chapter 173-303 WAC. Notification is required for the following occurrences:

16.1.1 Any spill and/or release that enters the environment (soil, air, surface water, ground water) causing the Permittee to implement the Contingency Plan (Attachment F); or

16.1.2 Any spill or non-permitted discharge from the DWSF or CCWT that requires notification pursuant to WAC 173-303-145(2)(a) and (b)

16.2 The Permittee must record in the DWSF or CCWT operating record the time, date, and details of any incident that requires implementation of the Contingency Plan (Attachment F). Within 15 days after the incident, the Permittee must submit a written report on the incident to Ecology. Such a report must at a minimum include all items specified in WAC 173-303-360(2)(k).

17. EMERGENCY PROCEDURES FOR NONCOMPLIANCE WITH PERMIT

17.1 The Permittee must implement emergency procedures specified in the Contingency Plan (Attachment F) in the event of an incidence of noncompliance with this permit that could threaten human health or the environment.

17.2 The Permittee must immediately notify Ecology and other appropriate authorities by telephone any circumstances under permit condition 17.1. This notification must meet the requirements in WAC 173-303-360(2)(d).

18. SAMPLING AND ANALYSIS

18.1 The Permittees will sample and analyze constituents in accordance with the Waste Analysis Plan, Attachment B. [WAC 173-303-300]

18.2 The Permittee must allow independent sampling and sample splitting when requested by Ecology.

19. SECURITY

19.1 The Permittee will comply with the following security requirements [WAC 173-303-310]:

19.1.1 The Permittee will maintain a 24-hour security system that is responsible for controlling access onto the active portion of the facility. [WAC 173-303-310(2)(b)]

19.1.2 The Permittee will have posted at each entrance to the DWSF or around the CCWT a sign containing the following information in accordance with WAC 173-303-310(2)(a):

DANGER - UNAUTHORIZED PERSONNEL KEEP OUT

20. GENERAL INSPECTIONS

20.1 The Permittee will inspect the DWSF or CCWT according to the inspection plan in Attachment C.

20.2 Inspection frequency will be at least weekly, and daily whenever containers of regulated wastes are added, removed, moved, or opened within the DWSF or whenever waste is added to the CCWT, or if there is a spill, fire, breach of security, or any human error or natural disaster that could affect the storage area.

20.3 The Permittee will maintain the completed inspection record in the DWSF and CCWT operating records for a period of at least five years from the date of inspection.[WAC 173-303-320].

21. PERSONNEL TRAINING PLAN

21.1 The Permittee must maintain a written training plan and must conduct personnel training according to Attachment D (Training Matrix). [WAC 173-303-330(2)]

21.2 The Permittee must maintain training documents and records in accordance with WAC 173-303-330(3).

21.3 The Permittee will ensure that all personnel requiring training under this plan must successfully complete training within six (6) months after being assigned to work in the DWSF or manage wastes in the CCWT as specified in WAC 173-303-330(1)(c).

21.4 The Permittee will ensure that all employees be supervised by trained personnel until the training is complete [WAC 173-303-330(1)(c)].

21.5 The written training plan will at a minimum include; all forms of introductory and continuing training (i.e., classroom, OJT, field certification) to include frequency and/or periodicity of said training, and competency or evaluation testing, and requirements specific to personnel working in particular facilities. [WAC 173-303-330(2)]

21.6 Refresher training will be provided to ensure personnel maintain an adequate level of proficiency [WAC 173-303-330(1)(b)].

21.7 The Permittee will ensure that all records of training for current employees, Training Plans, and course materials will be kept until the DWSF or CCWT are formally and permanently closed as specified in WAC 173-303-330(3).

21.8 Training records for former employees will be kept for at least three years from the date the employee last worked at the DWSF or CCWT [WAC 173-303-330(3)]. Printed copies of these records are to be made available to state and federal regulators upon request.

21.9 In the event the Permittee fails to comply with elements specified above for training, Ecology may require the Permittee to submit a revised Training Plan for review and modification, comment, or approval. [WAC 173-303-815(2)(b)(ii)]

22. CONTAINER MANAGEMENT

22.1 The Permittee will manage containerized wastes at the DWSF as follows: [WAC 173-303-630]

22.1.1 The Permittee will ensure that all containers remain in good condition in accordance with WAC 173-303-630(2);

22.1.2 The Permittee will ensure that all dangerous waste is compatible with the container in which it is packaged in accordance with WAC 173-303-630(4);

22.1.3 The Permittee will ensure that containers holding dangerous waste must not be opened, handled, or stored in a manner, which may rupture the container or cause it to leak. [WAC 173-303-630(5)(b)]

22.1.4 The Permittee will ensure that the maximum inventory of waste at the DWSF will not exceed the equivalent volume of 4500 55-gallon drums at the DWSF or exceed the maximum volume of 2000 gallons within the CCWT;

22.1.5 The Permittee will ensure containers or the CCWT will be kept closed during storage except when wastes are added or removed. [WAC 173-303-630(5)(a)]

22.1.6 The Permittee will ensure that all containers will be placed such that labels are visible from the aisle;

22.1.7 At least 30 inches of aisle space will be maintained between rows of containers pursuant to WAC 173-303-630(5).

22.2 The Permittee will comply with the container labeling practices at the DWSF as described below in accordance with WAC 173-303-630(3):

22.2.1 Each dangerous waste container is clearly marked with the following information:

22.2.1.1 Contents of the waste container (waste stream name and/or number).

22.2.1.2 The generator's name and address.

22.2.1.3 The major risk(s) associated with the contents of the containers.

22.2.1.4 Ecology Dangerous Waste label.

22.2.2 In addition, prior to shipment, each waste container will be marked with the following:

22.2.2.1 Uniform Hazardous Waste Manifest number.

22.2.2.2 USDOT labels and markings as required.

22.3 The Permittee must remove spilled or leaked waste within secondary containment pursuant to WAC 173-303-630(7)(a)(ii):

22.3.1 Record of each spill or leak of dangerous waste to the secondary containment system that does not prompt implementation of the Contingency Plan (Attachment F) will be entered into the operating record if not removed from the secondary containment system immediately.

22.3.2 Record of each spill or leak of dangerous waste to the secondary containment system that prompts implementation of the Contingency Plan (Attachment F) will be entered into the operating record pursuant to WAC 173-303-360(2)(k).

22.3.3 Notation to the operating record will include the following:

22.3.3.1 Date and time of the occurrence.

22.3.3.2 Location of the discharge and identification of the equipment that caused discharge.

22.3.3.3 Description of materials spilled or leaked.

22.3.3.4 Actions taken to correct the cause of the spill or leak.

22.3.4 The Permittee will maintain an asphalt floor in the DWSF pursuant to WAC 173-303-630(7). Containers storing liquid wastes will be stored on secondary containment pallets.

22.3.5 The Permittee will maintain any load/unload area outside the DWSF paved with concrete and/or asphalt to prevent hazards and contain spills.

23. MANIFESTS

23.1.1 The Permittee will ensure that shipments of dangerous waste shipped to off-site locations are conducted in accordance with applicable State and USDOT regulations. [WAC 173-303-370 and WAC 173-303-180]

23.2 The Permittee will file Manifest discrepancy reports when necessary as specified at WAC 173-303-370(4).

24. CLOSURE

24.1 The Permittee will comply with the Closure Plans in Attachment E pursuant to requirements in WAC 173-303-610 and WAC 173-303-630 (10). Compliance with Attachment E starts when the Permittee "expects to begin closure" pursuant to WAC 173-303-610(2).

24.2 At least 90 days before initiating closure, the Permittee must provide a Notification of Closure pursuant to requirements in WAC 173-303-610(4).

25. POST-CLOSURE

25.1 Pursuant to AREVA's prior closure of its legacy surface impoundment system, the Permittee will conduct post-closure groundwater monitoring according to the requirements of "Compliance Groundwater Monitoring Plan, Version 2.0" (or in accordance with subsequent versions approved by Ecology) in Attachment H. [WAC 173-303-645(2)(b)]

26. LAND DISPOSAL RESTRICTION REQUIREMENTS

26.1 The Permittee will comply with applicable requirements of WAC 173-303-140, which incorporates by reference 40 CFR Part 268.

AREVA NP Inc

Dangerous Waste Application, Part A Form

Attachment A

Rev. 11
5/30/2008

Use the tab key to move from cell to cell in the electronic version of this form.
PLEASE ENTER INFORMATION ONLY IN UNSHADED AREAS.

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Dangerous Waste Permit Application Part A Form

Date Received (Month Day Year)	Reviewed by: Greg C. Davis	Date: 01/19/2010
	Approved by:	Date: 01/19/2010

Please refer to instructions for completing this form.

I. This form is submitted to: (place an "X" in the appropriate box)

	Request modification to a final status permit (commonly called a "Part B" permit)
	Request a change under interim status
X	Apply for a final status permit. This includes the application for the initial final status permit for a site or for a permit renewal (i.e., a new permit to replace an expiring permit).
	Establish interim status because of the wastes newly regulated on: (Date)
	List waste codes:

II. EPA/State ID Number

WAD990828402

III. Name of Facility

AREVA NP INC.

IV. Facility Location (Physical address not P.O. Box or Route Number)

A. Street

2101 Horn Rapids Road

City or Town	State	ZIP Code
Richland	WA	99354

County Code (if known)	County Name
	Benton

B. Land Type	C. Geographic Location: Latitude (degrees, mins, secs)	Longitude (degrees, mins, secs)	D. Facility Existence Date: Month Day Year
P	46 21 3	119 18 20	10 1997

V. Facility Mailing Address

Street or P.O. Box

2101 Horn Rapids Road

City or Town	State	ZIP Code
Richland	WA	99354

Use the tab key to move from cell to cell in the electronic version of this form.

PLEASE ENTER INFORMATION ONLY IN UNSHADED AREAS.

VI. Facility contact (Person to be contacted regarding waste activities at facility)

Name (last)	(first)
Perryman	Jim
Job Title	**Phone Number (area code and number)**
Environmental Engineer	509-375-8452

Contact Address

Street or P.O. Box

2101 Horn Rapids Road

City or Town	State	ZIP Code
Richland	WA	99354

VII. Facility Operator Information

A. Name	Phone Number (area code and number)
AREVA NP INC.	509-375-8100

Street or P.O. Box

2101 Horn Rapids Road

City or Town	State	ZIP Code
Richland	WA	99354

B. Operator Type	C. Does the name in VII.A reflect a proposed change in operator?		
P			Yes
		X	No

If yes, provide the scheduled date for the change: Month Day Year

D. Is the name listed in VII.A. also the owner? If yes, skip to Section VIII.C.		
	X	Yes
		No

VIII. Facility Owner Information

A. Name	Phone Number (area code and number)

Street or P.O. Box

City or Town	State	ZIP Code

B. Owner Type	C. Does the name in VII.A reflect a proposed change in owner?		
			Yes
		X	No

If yes, provide the scheduled date for the change: Month Day Year

IX. NAICS Codes (5/6 digit codes)

A. First	B. Second
3 2 5 1 8	
C. Third	**D. Fourth**

X. Other Environmental Permits (see instructions)

A. Permit Type	B. Permit Number	C. Description
N	CR-IU008	City of Richland industrial wastewater discharge permit
E	ORDER 95-05	Benton Clean Air Authority NOx Synthetic Minor Order
E	WN-I062-1	State of WA Radioactive Materials License
E	AIR02-907	State of WA Radionuclide Air Emissions License
E	SNM-1227	Nuclear Regulatory Commission Site Operating License
E	G-1032	Hanford Low Level Radioactive Waste site use permit
E	01100000024	EnergySolutions (Utah) site access permit (mixed-waste)

XI. Nature of Business (provide a brief description that includes both dangerous waste and non-dangerous waste areas and activities)

The AREVA NP INC (AREVA) nuclear fuel fabrication facility, located in Richland, Washington, manufactures nuclear fuel for commercial light water reactors. The manufacturing process is initiated by the chemical conversion of uranium hexafluoride (UF6) to uranium dioxide (UO2). This conversion process occurs in the Dry Conversion Facility and, in addition to the UO2 powder, produces a uranium-free hydrofluoric acid by-product. In the adjacent UO2 Building the UO2 powder from the conversion process is further processed via a sequence of steps prior to being pressed into pellets. The pellets are loaded into fuel rods, which are in turn combined into bundles, which are the fuel assemblies for nuclear power reactors. In addition to producing finished fuel assemblies, the Richland plant produces intermediate fuel products (powder, pellets) for shipment to other offsite fuel fabrication facilities.

The facility generates both liquid phase and solid phase wastes throughout the manufacturing process as well as in a wide variety of manufacturing and facility support activities. Most of the liquid process waste streams discharge into a tank system for processing prior to discharge to the POTW. Other liquid wastes (cooling water, process water, etc.) are discharged directly to the POTW. All liquid discharges meet the requirements as listed in Industrial Wastewater Discharge Permit CR-IU008.

Solid phase wastes are typically managed in containers (drums, steel boxes) at the Dangerous Waste Storage Facility (DWSF). Waste types generated include dangerous waste, mixed waste (dangerous + radioactive), and low level radioactive waste (LLRW). All dangerous and mixed wastes are stored at the DWSF located in the south east corner of the facility, while certain LLRW may be stored in other areas of the facility. Wastes stored at the DWSF include HEPA and prefilters, filter cake, solvent rags, paint waste, liquid solvents, etc. Dangerous wastes are shipped to an approved waste treatment/disposal company. Approved mixed wastes are sent to Energy Solutions in Clive, UT for treatment (if necessary) and disposal.

Use the tab key to move from cell to cell in the electronic version of this form.
PLEASE ENTER INFORMATION ONLY IN UNSHADED AREAS.

EXAMPLE FOR COMPLETING ITEMS XII and XIII (shown in lines numbered X-1, X-2, and X-3 below): A facility has two storage tanks that hold 1200 gallons & 400 gallons respectively. There is also treatment in tanks at 20 gallons/hr. Finally, a one-quarter acre area that is two meters deep will undergo *in situ vitrification.*

Section XII. Process Codes and Design Capacities								Section XIII. Other Process Codes								
Line Number		A. Process Codes (enter code)			B. Process Design Capacity		C. Process Total Number of Units	Line Number		A. Process Codes (enter code)			B. Process Design Capacity		C. Process Total Number of Units	D. Process Description
					1. Amount	2. Unit of Measure (enter code)							1. Amount	2. Unit of Measure (enter code)		
X	1	S	0	2	1,600	G	002	X	1	T	0	4	700	C	001	In situ vitrification
X	2	T	0	3	20	E	001									
X	3	T	0	4	700	C	001									
	1	S	0	1	1250	Y	001		1							
	2	S	0	2	2000	G	001		2							
	3								3							
	4								4							
	5								5							
	6								6							
	7								7							
	8								8							
	9								9							
1	0							1	0							
1	1							1	1							
1	2							1	2							
1	3							1	3							
1	4							1	4							
1	5							1	5							
1	6							1	6							
1	7							1	7							
1	8							1	8							
1	9							1	9							
2	0							2	0							
2	1							2	1							
2	2							2	2							
2	3							2	3							
2	4							2	4							
2	5							2	5							

Use the tab key to move from cell to cell in the electronic version of this form.
PLEASE ENTER INFORMATION ONLY IN UNSHADED AREAS.

XIV. Description of Dangerous Wastes

Example for completing this section: A facility will receive three non-listed wastes, then store and treat them on-site. Two wastes are corrosive only, with the facility receiving and storing the wastes in containers. There will be about 200 pounds per year of each of these two wastes, which will be neutralized in a tank. The other waste is corrosive and ignitable and will be neutralized then blended into hazardous waste fuel. There will be about 100 pounds per year of that waste, which will be received in bulk and put into tanks.

Line Number	A. Dangerous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Processes (1) Process Codes (enter)	D. Processes (2) Process Description [If a code is not entered in D (1)]
X 1	D 0 0 2	400	P	S 0 1 T 0 1	
X 2	D 0 0 1	100	P	S 0 2 T 0 1	
X 3	D 0 0 2				Included with above
1	D 0 0 1	3000	P	S 0 1	
2	D 0 0 2				Included with above
3	D 0 3 5				Included with above
4	F 0 0 3				Included with above
5	F 0 0 5				Included with above
6	W P 0 2	100	P	S 0 1	
7	D 0 0 3	100	P	S 0 1	
8	F 0 0 2	2500	P	S 0 1	
9	D 0 0 2	4600	P	S 0 1	
10	D 0 0 9	50	P	S 0 1	
11	D 0 0 8	1500	P	S 0 1	
12	D 0 0 6	2000	P	S 0 1	
13	W S C 2	10000	P	S 0 1	
14	W T 0 2	5000	P	S 0 1	
15	F 0 0 3	2500	P	S 0 1	
16	F 0 0 5	1000			Included with above
17	D 0 0 2	2000	G	S 0 2	
18					
19					
20					
21					
22					
23					
24					
25					

XV. Map

Attach to this application a topographic map of the area extending to at least one (1) mile beyond property boundaries. The map must show the outline of the facility; the location of each of its existing and proposed intake and discharge structures; each of its dangerous waste treatment, storage, recycling, or disposal units; and each well where fluids are injected underground. Include all springs, rivers, and other surface water bodies in this map area, plus drinking water wells listed in public records or otherwise known to the applicant within ¼ mile of the facility property boundary. The instructions provide additional information on meeting these requirements. .

XVI. Facility Drawing

All existing facilities must include a scale drawing of the facility (refer to instructions for more detail).

XVII. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment, recycling, and disposal areas; and sites of future storage, treatment, recycling, or disposal areas (refer to instructions for more detail).

XVIII. Certifications

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Operator	Signature	Date Signed
Chuck Perkins, Richland Site Manager Name and Official Title (type or print)		5/30/08
Facility/Property Owner	Signature	Date Signed
Name and Official Title (type or print)		

XIX. Comments

XV. A topographic map has been included. Topographic features at this facility are limited, there is no surface waste with 1/4 mile of the facility property boundary.

XVI. A facility drawing has been included. The Dangerous Waste Storage Facility (DWSF) is located in the south east corner of the facility, see F-3 on the drawing. The Component Center Waste Tank (CCWT) is located on the west side of the facility, see B-4 on the drawing.

XVII. Photographs of the DWSF, CCWT, and an aerial photograph have been included.

Figure 1. Dangerous Waste Storage Facility

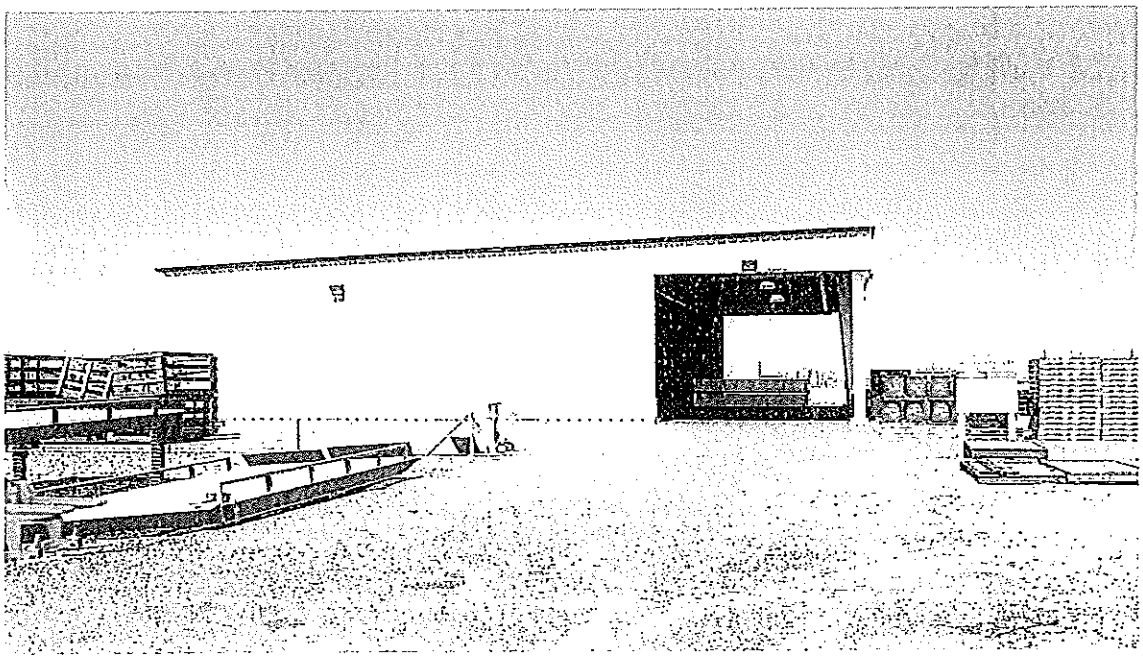


Figure 2. Dangerous Waste Storage Facility

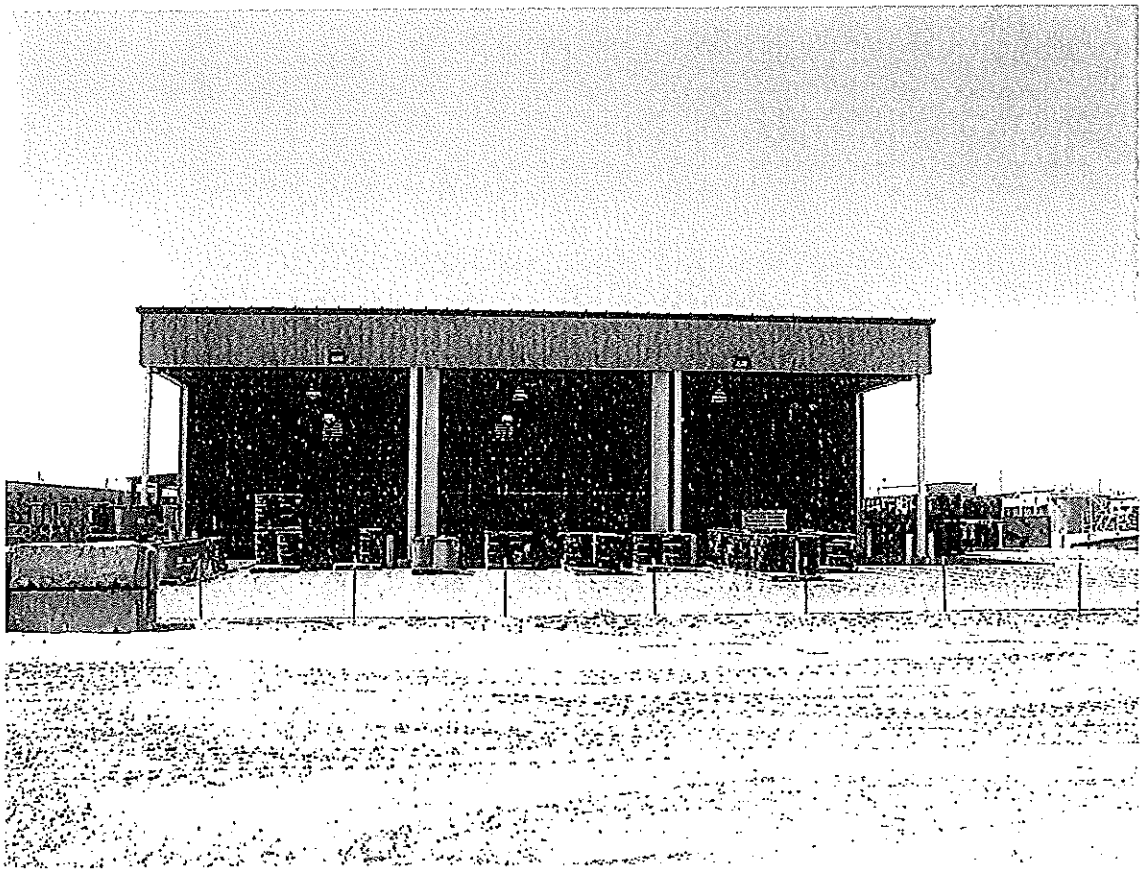


Figure 3. Dangerous Waste Storage Facility

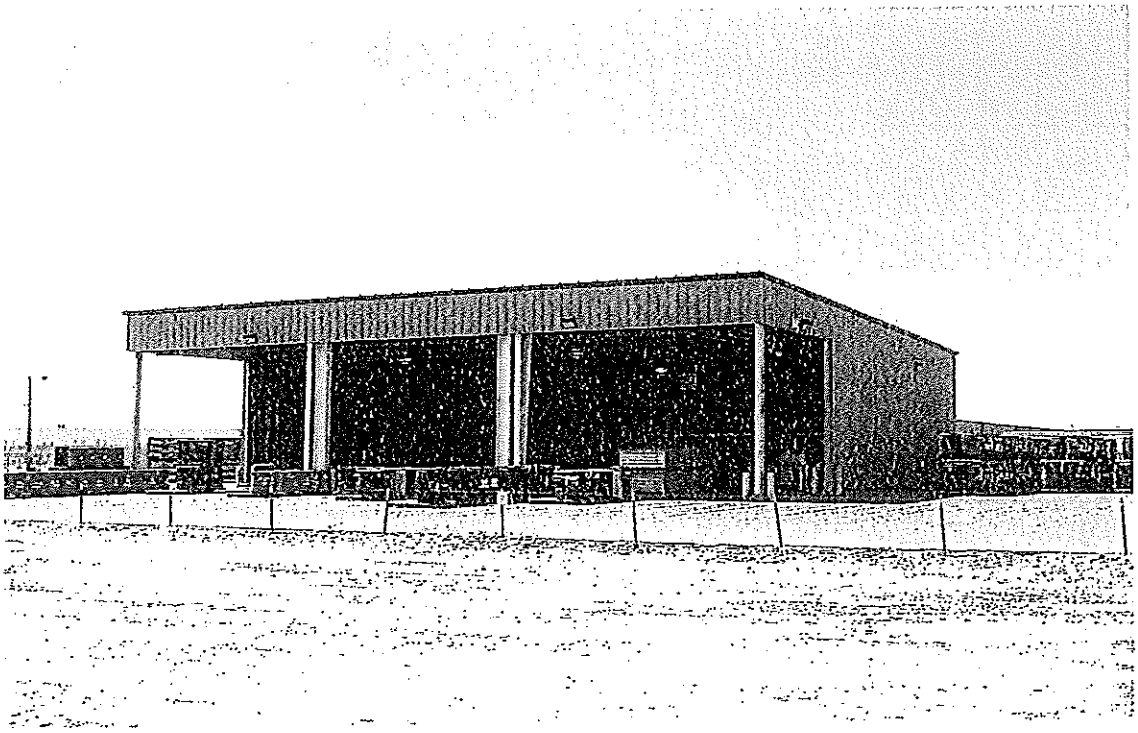


Figure 4. Dangerous Waste Storage Facility

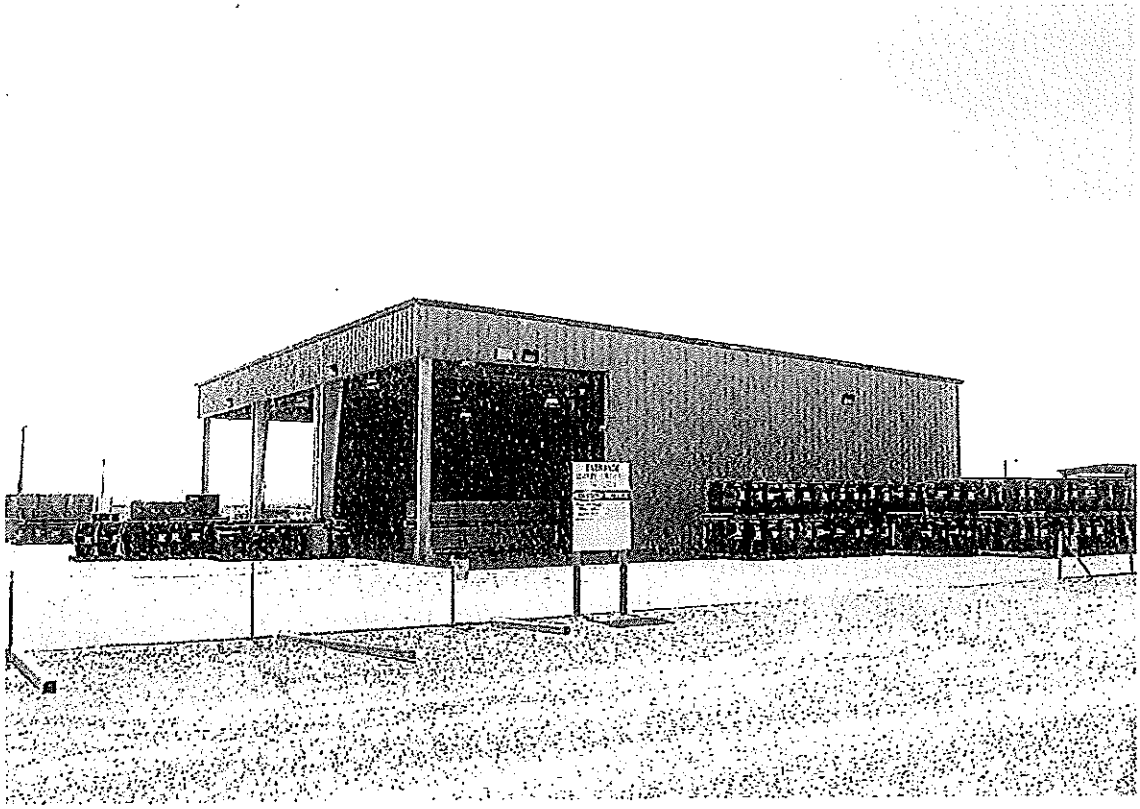
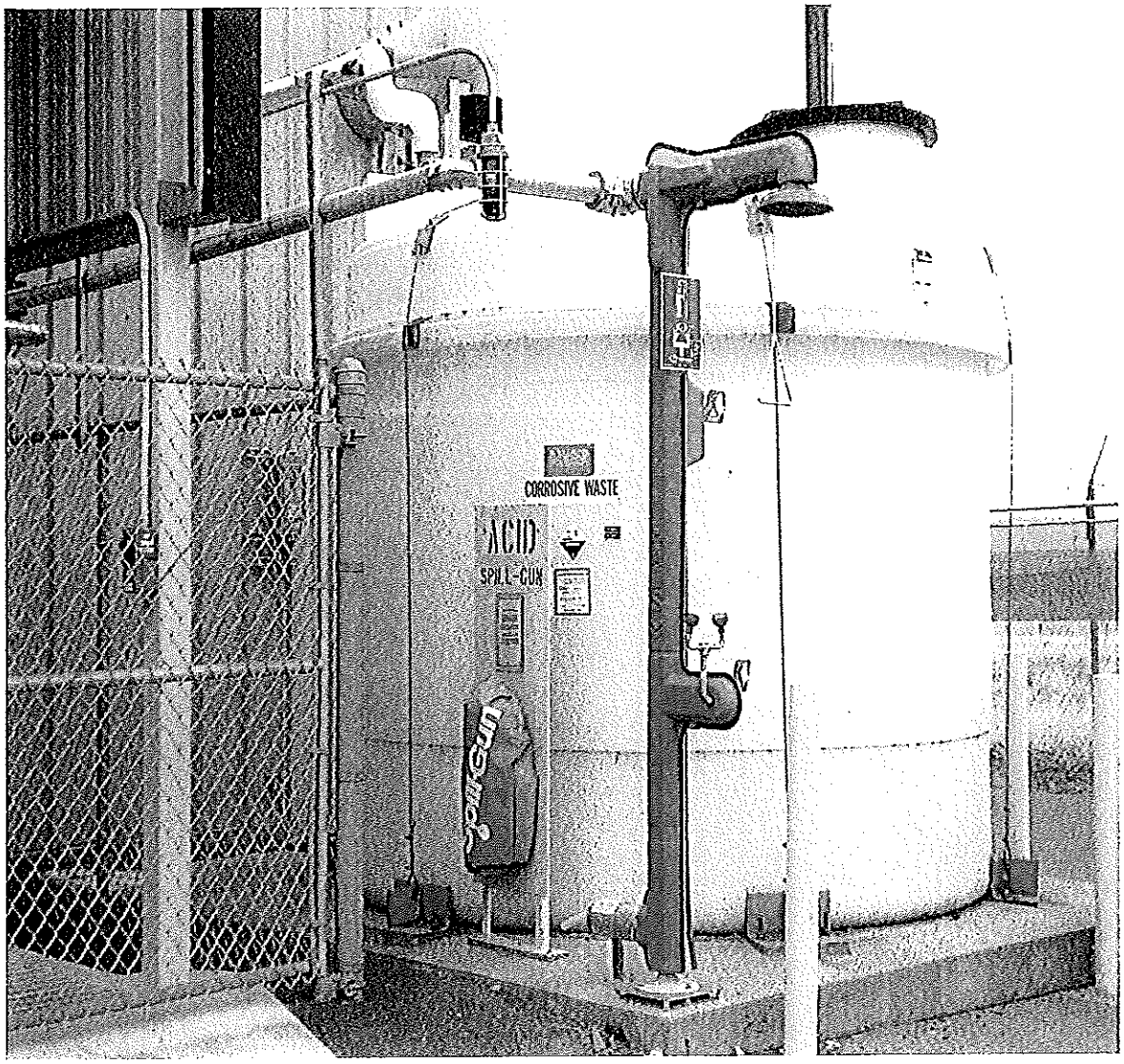


Figure 5. Component Chemical Waste Tank



PROJECTS

Hiro Station

N

OPERATION SCRAP WAREHOUSE #7

DEPLETED URANIUM HEXAFLUORIDE (DUF6) CYLINDER INSPECTION FACILITY

UF6 CYLINDER RECEIVING STORAGE & SCALE HOUSE

UF6 CYLINDER RECEIVING & SHIPPING BLDG

TRANSFER SAFETY SHOWER BLDG

AMMONIA TANKS

NO STORAGE

LAGOON STORAGE

LIQUID NO

AMMONIA EVAPORATOR STORAGE

TEMPERING WATER

CANISTER STORAGE

AMMONIA RECOVERY FACILITY (ARF)

UF6 STORAGE

NITRIC ACID STORAGE

ARF CRUSH STORAGE

CANISTER TOTE LOADING PAD

LAW CRUSH STORAGE SHED

SEA-LAND CONTAINERS

OFFICE BLDG #5

ENGINEERING LABORATORY OFFICE BUILDING (ELOB)

EMERGENCY RESPONSE

LPG PROPANE

GARAGE

OFFICE BLDG #3

OFFICE BLDG #4

OFFICE BLDG #1

VAULT

OFFICE BLDG #2

OFFICE BLDG #2A

SECURITY STATION

NORTH TANK FARM FIRE RACK

CHANGE ROOM

LAGOON TREATMENT BLDG

UF6 CYLINDER STORAGE BLDG

ENERGY DEPT

DE-IONIZED WATER BLDG

AIR COMPRESSOR BLDG

AMERICIUM EXTRACTION BLDG

DAY DECONTAMINATION BUILDING

UF6 LOADOUT STATION

LINE 2 A OFFLINE ADDITION

LINES 1 AND 2 UF6 CYLINDER STORAGE ADDITION

URANIUM OXIDE BUILDING (UOB)

R&D BUILDING & FUELED ASSEMBLY ADDITION

ANALYTICAL LAB ADDITION

R&D BUILDING

WASTE #5

WASTE #5

AIR BALANCE

FLAMMABLE MATERIALS STORAGE BLDG

OIL STORAGE BLDG

ACID & CAUSTIC STORAGE BLDG

EMERGENCY CONTAINERS

DETENTION TANKS

MODULAR EXTRACTION RECOVERY FACILITY

HEAP

SOLID WASTE STORAGE PAD

LIQUID WASTE STORAGE TANKS

LAGOON EVAPORATION RECOVERY AND SOLIDS PROCESSING FACILITY (LERSPF)

CHEMICAL STORAGE BLDG

TRUCKING TANK AND PLATFORM

FLAMMABLE MATERIALS STORAGE BLDG

CARPENTER SHOP STORAGE

CARPENTER SHOP

DUF6 STORAGE FACILITY

FISSILE LANDFILL CONTAINER

PRODUCT DISSOLVENT TEST FACILITY (PDTF)

WASTE STORAGE FACILITY

LANDFILL CONTAINER

FISSILE LANDFILL CONTAINER

SHIPPING CONTAINER REFURBISHMENT FACILITY (SCRF)

SCRF

TRANS COMPACTOR

WASTE #3

EFFICIENCY OPERATIONS CENTER

GUARD STATION

SPECIALTY METALS BUILDING (SMF)

OFFICE BLDG #7

MAINTENANCE SHOP

LAUNDRY

PAINT SHOP ANNEX

LOADING DOCK

PIPE STORAGE

PIPE RACKS

TRUCK LOADING AND UNLOADING AREA

LANDFILL CONTAINERS

LANDFILL CONTAINERS

WASTE #1

WASTE #2

WASTE #3

WASTE COVERED AREA

MACHINE SHOP

LOADING DOCK

LOADING DOCK ANNEX BLDG

CHEMICAL STORAGE BLDG

ETCH WASTE COLLECTION TANK

FISSILE LANDFILL CONTAINERS

WASTE #1 FUEL STORAGE

LANDFILL CONTAINERS

COVERED STORAGE

EXCAVATED FUEL STORAGE BUILDING OFFICE BLDG #9

SOLID WASTE STORAGE PAD

PROPANE

DIESEL

GASOLINE

BUILDING #9 LOADING AREA

SHIPPING CONTAINER STORAGE PAD

FACILITY MATERIAL STORAGE PAD

CARD BOARD BALE STOR

PLANT ENGINEERING STORAGE PAD

0 50 100 200 300 400 500

APPROVED	DRAWN	REVISION DESCRIPTION	REV

AREVA NP Inc.
an AREVA and Siemens company

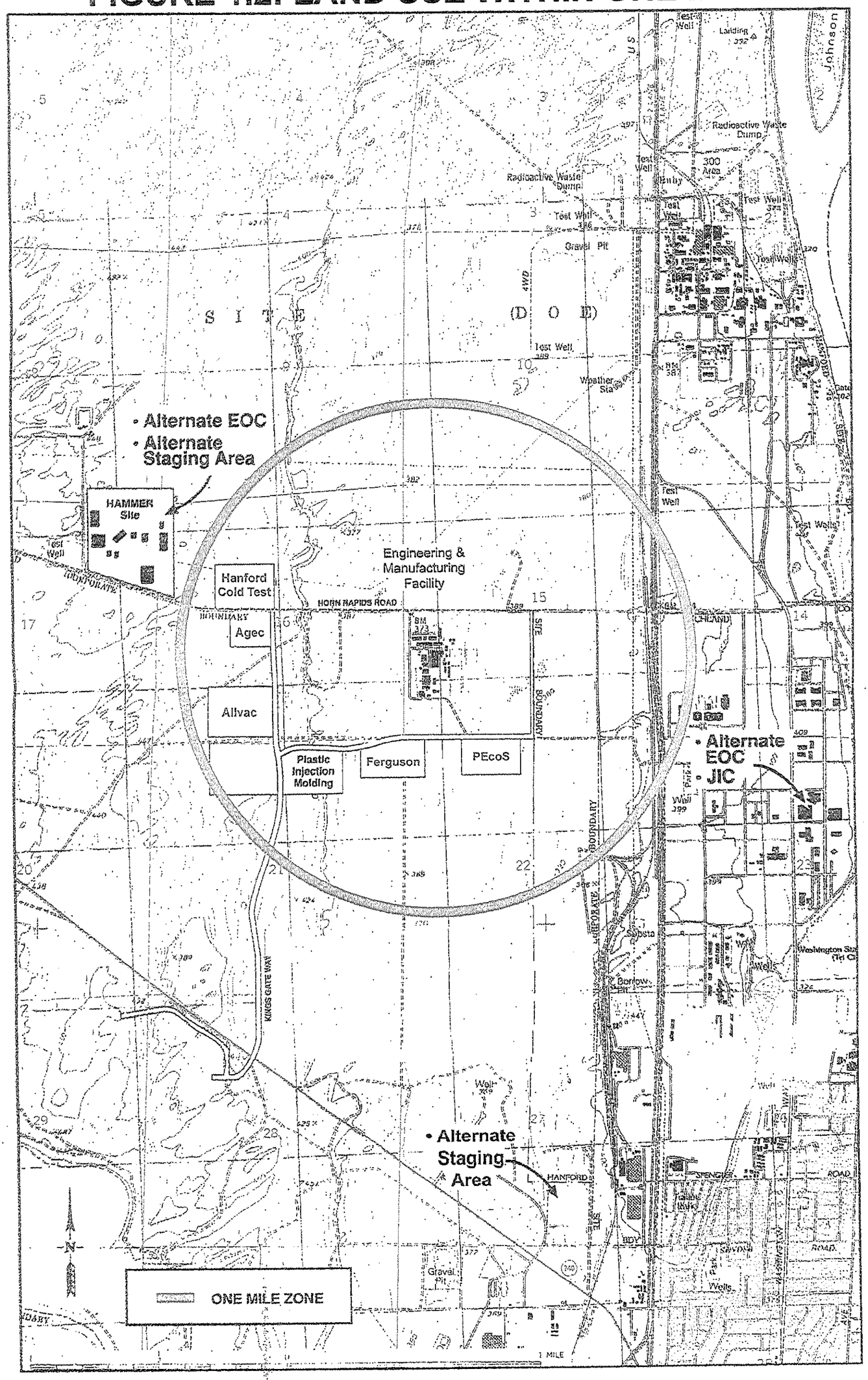
SCALE:	1" = 60'
PN NO.	110001
DATE	NAME
ISSUED 10/30/88	WDB
CHECKED 1/16/06	NKV
APPROVED 1/16/06	ENV
APPROVED	
APPROVED	
NEXT USED ON	

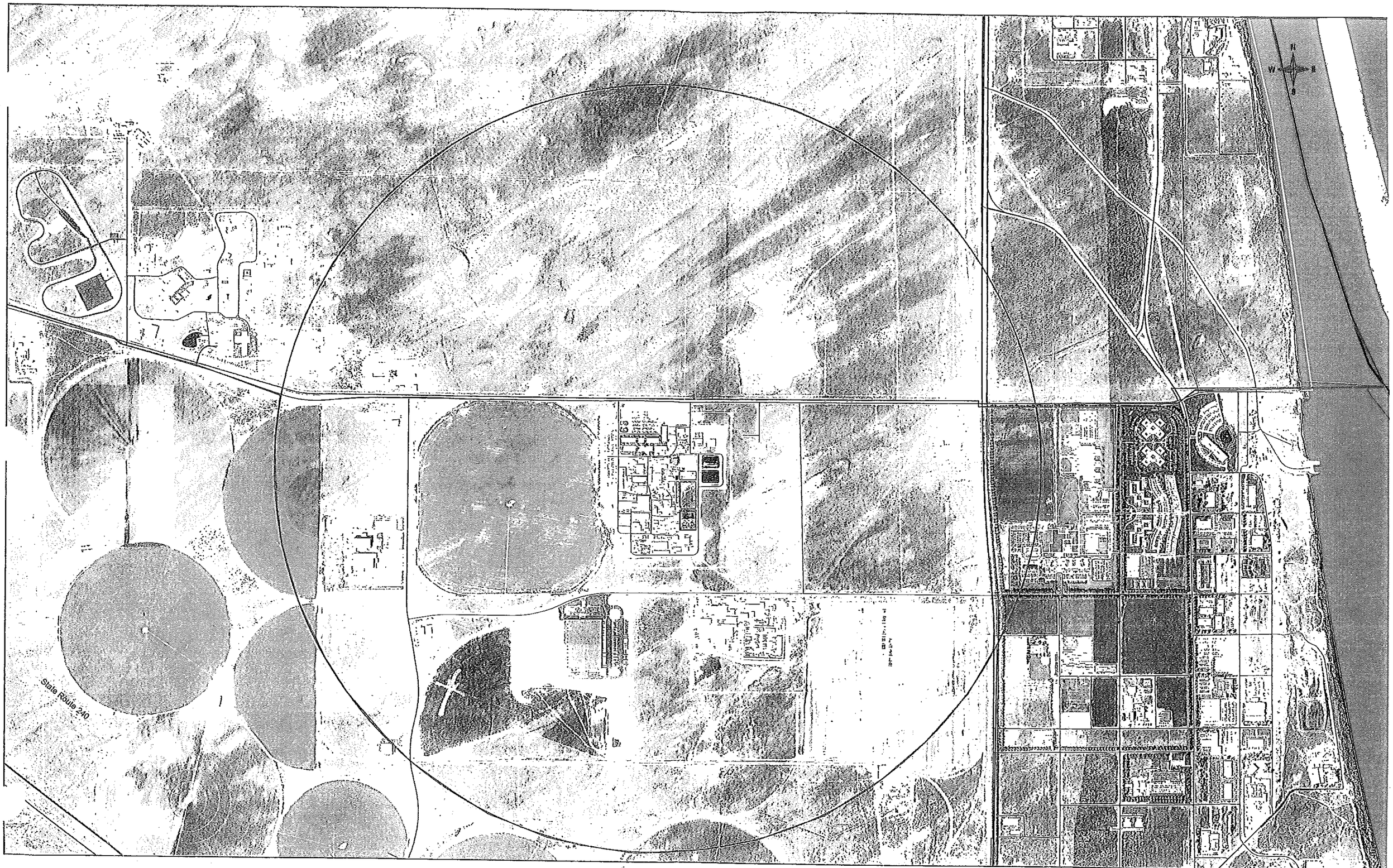
TITLE: AREVA NP SITE GENERAL ARRANGEMENT
SITE PLAN

DRAWING NO. CSA-607,590 | REV 34 | SHEET 2 OF —

...\Smarteam Checkout\60759002.dgn 8/11/2006 9:24:47 AM

FIGURE 1.2: LAND USE WITHIN ONE MILE




N
W
E
S
State Route 240
0.00
0.15
0.30
0.45
0.60
0.75
Miles

AREVA NP Inc

Waste Analysis Plan

Attachment B

EHS&L Document

Waste Analysis Plan

Nature of Changes

Item	Paragraph	Description	Justification
1.	Attachment C	Component Center etching process has been discontinued, lead contaminated with Pu removed, and laboratory metal standards added.	Reflect changes in waste management operations.
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
List Below any Documents, Including Forms & Operator Aids which must be Issued concurrently with this document revision:			

This Document contains a total of 33 pages excluding the signature page generated by Documentum, the document control application software.

DOCUMENT REVIEW/APPROVAL/DELETION CHECKLIST

All new and/or revised procedures shall be approved by the change author, cognizant manager(s) of areas affected by the changes, and by applicable manager(s) of any function that approved the previous revision of the document unless responsibility for such approval has been transferred to another organization. Also, the procedure shall be approved by manager(s) of functional organizations that provide technical reviews with the exception of the Training Department. Finally, Document Control shall verify that the required approvals have been properly obtained and that any documents that must be issued concurrently are ready to be issued.

Minor Changes: If the proposed changes are limited to editorial and/or administrative changes check the box at the right. The document will be routed directly for review by EHS&L without technical review. All applicable approvals must still be obtained.	☐

Document Reviews			Document Approvals	
Purpose/Function of Review	Specify Reviewer(s) (Optional except for change author)	(Check all that apply)	Title of Approver	(Check all that Apply)
Document Control (Automatic)		☒	Document Control (Automatic)	☒
Change Author	JB Perryman	☒	Author	☒
Independent Technical Review	LJ Maas	☒		
Operability Review(s)			Mgr, Richland Operations[1]	☐
Conversion		☐	Mgr, Uranium Conversion & Recovery Operations[1]	☐
Recovery		☐		
Ceramics		☐	Mgr, Ceramic Operations[1]	☐
Rods		☐	Mgr, Rods & Bundles[1]	☐
Bundles		☐		
Transportation		☐		
Components		☐	Mgr, Component Fabrication[1]	☐
Maintenance Review		☐	Mgr, Maintenance[1]	☐
Lab Review		☐	Mgr, Analytical Services[1]	☐
EHS&L Review(s)			Mgr, EHS&L[2]	☐
Criticality		☐	Mgr, Criticality Safety[2]	☐
Radiation Protection		☐	Mgr, Safety, Security & Emergency Preparedness[2]	☐
Safety/Security		☐		
Emergency Preparedness		☐		
MC&A		☐	Mgr, Licensing & Compliance[2]	☒
Transportation		☐		
Environmental	JB Perryman	☒		
BWR Product Eng. Review		☐	Mgr, BWR Product Engineering	☐
BWR Core Engineering Review		☐	Mgr, BWR Core Engineering	☐
Codes and Methods Review		☐	Mgr, Codes and Methods	☐
Proj. Eng. & Design Support Review		☐	Mgr, Proj. Eng. & Design Support	☐
Quality Review		☐	Mgr, Quality	☐
Project & Plant Eng. Review		☐	Mgr, Project & Plant Eng.	☐
Purchasing Review		☐	Mgr, Purchasing	☐
Others:		☐	Mgr, Richland Site/Other	☐
Training & Employee Dev.:[3]		☐	Training & Employee Dev.	☐

[1]Note: If approvals include 2 or more product center managers, the Operations manager can be substituted for the applicable product center managers.

[2]Note: If approvals include 2 or more EHS&L functional managers, the EHS&L manager can be substituted for the applicable EHS&L functional managers.

[3]Note: Training department review is required for all procedures that require or affect a Learning Plan and if additional training materials or curriculum must be revised before issuing procedure.

EHS&L Change Impact Evaluation Form		
Document / ECN No*.: E06-04-006		Change Evaluator: LJ Maas
Does the change potentially impact Criticality Alarm System (CAS) coverage?	☐ Yes ☒ No	If yes, explain:
NRC Pre-Approval Evaluation:		
Is NRC Pre-approval (License Amendment) Needed? (Based on "Yes" answer to any of five questions below). (Based on "No" answer to all five questions below).	☐ Yes ☒ No	
1. Does the change create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 (create high or intermediate consequence events) and that have not previously been described in AREVA NP Inc's ISA Summary?	☐ Yes ☒ No	If yes, explain:
2. Does the change use new processes, technologies, or control systems for which AREVA NP Inc. has no prior experience?	☐ Yes ☒ No	If yes, explain:
3. Does the change remove, without at least an equivalent replacement of the safety function, an item relied on for safety that is listed in the ISA Summary?	☐ Yes ☒ No	If yes, explain:
4. Does the change alter any item relied on for safety, listed in the ISA Summary, that is the sole item preventing or mitigating an accident sequence of high or intermediate consequences?	☐ Yes ☒ No	If yes, explain:
5. Does the change qualify as a change specifically prohibited by NRC regulation, order or license condition?	☐ Yes ☒ No	If yes, explain:
Actions Required Prior to or Concurrent with Change Implementation Evaluation:		
Action		**Explanation**
6. Modification / Addition to CAS system or system coverage documentation	☐ Yes ☒ No	If yes, explain:
7. Acquire NRC pre-approval (license amendment)	☐ Yes ☒ No	If yes, explain:
8. Conduct/modify ISA	☐ Yes ☒ No	If yes, explain:
9. ISA Database Modification	☐ Yes ☒ No	If yes, explain:
10. Modification of other safety program information / underlying analyses (PHA, RHA, FHA, NCSA, etc.)	☐ Yes ☒ No	If yes, explain:
Actions required subsequent to Change Implementation Evaluation:		
11. Update safety program information (PHA,RHA,FHA,NCSA, P&ID)	☐ Yes ☒ No	If yes, explain:

* **If this form exists as a part of a document, the document number is not required.**

1.0 Introduction

This Waste Analysis Plan (WAP) provides guidelines and direction for the sampling, analysis, characterization, and designation of potentially dangerous waste generated at the AREVA NP Inc. (AREVA) facility in accordance with Washington Department of Ecology Dangerous Waste Regulations (WAC 173-303) and U.S. Environmental Protection Agency (USEPA) regulations found in 40 CFR Parts 260 through 270. The WAP is implemented for all wastes that may be dangerous, including those from:

- Waste Generating Sources
  - Production operations
  - Maintenance activities
  - Laboratories
- Waste Management Activities
  - Satellite accumulation areas
  - Container storage areas

The following sections discuss the evaluation of waste analysis data, sampling and analysis methods, quality assurance, and land disposal restriction (LDR) treatment standards. The Facility Description, which describes AREVA's waste generating and waste management units in detail, may be found Section B of AREVA's Dangerous Waste Part B Permit Application.

2.0 Evaluation of Waste Analysis Data

Selected waste parameters are monitored as necessary to ensure that each dangerous waste is sufficiently characterized for safe and proper management. Because all dangerous wastes managed at the AREVA facility are generated on-site, knowledge of the generating process or activity provides a foundation for characterization and designation information of each waste stream and ensures that compatibility issues due to unknown waste characteristics are essentially eliminated. The waste characterization and designation are based on either direct analytical data or application of process or material knowledge. Characterization includes the identification of dangerous constituents, characteristics, and criteria likely to be associated with a dangerous waste and may include applicable references from published scientific, engineering, or product literature. This complete characterization allows for the designation of a waste as either non-regulated (non-dangerous) solid waste, dangerous waste (DW), mixed waste or extremely hazardous waste (EHW).

2.1 WAP Objective

The objective of using the WAP for waste characterization and designation is to ensure proper handling and disposition of waste material. Dangerous wastes are discharged to the City of Richland's wastewater treatment facility in accordance with an industrial wastewater discharge permit; stored in drums at the container storage area; stored in the Component Chemical Waste Tank, or recycled in special units on-site. In addition, AREVA sends both dangerous waste and mixed waste to commercial treatment, storage, and disposal (TSD) facilities. Requirements for disposal at commercial TSD facilities are described in Section 2.3.

2.2 Waste Characterization and Designation

Wastes are identified and segregated at the AREVA facility according to AREVA standard procedures. After a waste is determined to be solid waste, it must be determined if the waste is

a low-level radioactive-contaminated waste and furthermore whether it designates as a chemically dangerous waste. For wastes determined to be either dangerous/low-level radioactive mixed wastes or dangerous wastes, or extremely hazardous wastes, this WAP will be used to determine their ultimate disposition.

The waste designation process (described in WAC 173-303-070 [3]) requires the generator to test the waste in accordance with approved sampling and testing methods (WAC 173-303-110) or apply knowledge of the waste in light of the materials or the process used when such knowledge can be demonstrated to be sufficient for determining whether or not it is designated properly (i.e. process knowledge). Process knowledge can be used to significantly reduce or eliminate the analytical requirements for waste characterization and designation. If a waste is determined to be dangerous, mixed, extremely hazardous, or non-dangerous through the application of process knowledge, no sampling will be required. The procedure for formal waste designation is included as Attachment A.

2.3 Performance Evaluation

AREVA conducts a number of internal audits at frequencies that range from monthly to annually. Audit subject areas include dangerous waste management units, plant effluent monitoring, environmental monitoring, etc. If findings are identified during these audits, AREVA policy is to issue a Condition Report per the internal WebCap Corrective Action System. Condition reports entered into WebCap are assigned a significance level and an issue owner. The level of problem evaluation is keyed to significance level; evaluation results are documented within WebCap. Any identified corrective actions are assigned owners and tracked to completion within the system.

2.4 Commercial TSD Requirements

Commercial TSD facilities require information available from process knowledge (e.g., feed chemicals, reactions, by-products and intermediates, and potential sources of contamination) and a thorough characterization/designation of each waste to ensure proper handling and disposition. This characterization may include the identification of listed solvents, discarded or off-specification chemical products, other organic compounds, and radioactivity levels of the waste. Dangerous waste characteristics and criteria information including flash point, pH, reactivity, toxicity, and persistence data may also be required.

Commercial TSD facilities also require a waste-specific profile (Attachment B). This profile describes the physical properties of the waste (e.g., phase and liquid content), specifies the chemical constituents of concern, and gives a normal range for the concentration of each chemical constituent. Normal ranges in constituent concentrations are specified so that frequently generated waste streams may fluctuate within defined ranges without being classified as off-specification or non-conforming wastes. Completed profile sheets are reviewed to ensure accuracy with corresponding AREVA waste management direction files. Prior to conducting business with any TSD facility, a copy of either their RCRA Part B Permit or other applicable permits/licenses must be reviewed by Licensing & Compliance.

2.5 Waste Data Table

The Waste Data Table, Attachment C, summarizes all necessary waste analysis components as required by regulation and facility procedures, and provides sufficient information to ensure that AREVA properly manages each waste stream. Each routinely generated dangerous waste stream at the AREVA facility has been included on the table, which also includes the following information:

General Information - a general description of the waste and the process or activity generating the waste.

Basis for Hazard Classification – laboratory analysis, field analysis, process knowledge, vendor material safety data sheet (MSDS).

Waste Code – State or federal waste code numbers.

Hazardous Properties of Waste – a listing of the hazardous characteristics or criteria of the waste to ensure safe and proper handling.

Chemical Constituents – a listing of the chemical constituents in the waste.

WMD Number – corresponding Waste Management Direction (WMD) number for that specific waste stream. The WMD is AREVA's waste designation form and each file will contain pertinent waste designation information.

LDR Treatment – Land Disposal Restriction (LDR) treatment standards and final disposition of the waste.

3.0 Sampling and Analysis Methods

Numerous types of sampling equipment and techniques are used in collecting representative samples of wastes. The equipment and technique selected depend upon the physical nature of the waste, the location from which the sample is to be taken, and other constraints (e.g., health and safety precautions, required sample volume, homogeneity/stratification effects). The following sections describe recommended sampling equipment and techniques for various types of waste materials and waste locations. The information in the following section is for reference whenever a new, different, or potentially dangerous waste stream is generated.

3.1 Sampling Equipment

Possible uses of the equipment described below are identified in Attachment D for various waste types and waste locations. Special circumstances or conditions may warrant the use of alternative or modified equipment or methods. Detailed descriptions for the use of each of these sampling devices is presented in SW-846 Chapter 9, Sampling Plans, and in Samplers and Sampling Procedures for Hazardous Waste Streams (EPA-600/2-80-018).

3.1.1 Free-Flowing Liquids and Slurries

- Composite Liquid Waste Sampler (Coliwasa) - The Coliwasa is a device used to sample free-flowing liquids and slurries contained in drums, shallow tanks, pits, and similar containers. This device provides a representative sample of both layered (several immiscible phases) and homogeneous liquid materials. The Coliwasa consists of a glass, plastic, or metal tube equipped with an end closure that can be opened and closed while the tube is submerged in the material to be sampled.
- Weighted Bottle - The weighted bottle samples liquids and free-flowing slurries; however, stratification effects cannot be adequately handled with this device, so it is more useful for homogeneous materials. This sampler consists of a glass or plastic bottle, sinker, stopper, and line that is used to lower, raise, and open the bottle. The specifications for constructing a weighted bottle sampler are contained in ASTM Methods D270 and E300.

- Dipper - A dipper samples liquids and free-flowing slurries. The dipper consists of a glass, plastic, or stainless steel beaker that may or may not be clamped to the end of a pole of suitable length and material that serves as the handle.
- General sample containers - laboratory sample containers may be used to directly collect samples from process lines, proportional samplers, and sample ports. These containers (usually glass or plastic) are available from the selected contract analytical laboratory.
- Other Equipment - Additional equipment is available for a variety of sampling situations. This equipment includes ballers, suction pumps, and positive displacement pumps, all of which may be used to sample liquids in specific situations.

3.1.2 Solids

- Thief - A thief is used to sample dry granules or powdered wastes whose particle diameter is less than one-third the width of the slots. Thiefs consist of two slotted concentric tubes, usually made of stainless steel or brass. The outer tube has a conical pointed tip that permits the sampler to penetrate the material being sampled. The inner tube is rotated to open and close the sampler. Thiefs are available at most laboratory supply stores.
- Auger - An auger samples hard or packed solid wastes or soil. Augers consist of sharpened spiral blades attached to a hard metal central shaft. Augers are generally available at hardware and laboratory supply stores.
- Scoops and Shovels - Scoops and shovels are used to sample granular or powdered material in bins, shallow containers, and conveyor belts. Scoops are available at laboratory supply houses. Flat-nosed shovels are available at hardware stores.
- Other Equipment - Additional equipment may be used as required for a variety of specific sampling situations.

3.1.3 Materials of Construction

As noted in the descriptions of the various types of sampling equipment, there are numerous materials of construction available (e.g., stainless steel, glass, plastics). In most circumstances, the material of construction is dictated by the properties of the waste being sampled. In general, the materials that provide the greatest chemical compatibility are stainless steel, glass, and Teflon. Stainless steel is most suitable for sampling solids and in-situ soils, whereas glass and Teflon are highly suitable for sampling liquids.

Choice of material may be accomplished through published compatibility information (equipment catalogs or material compatibility charts), equipment vendor technical support, or analytical laboratory technical support.

3.2 Sampling Methods

In order to ensure proper management of wastes at the AREVA facility, samples that are representative of the waste material shall be collected. Representative samples should exhibit the average properties and constituents of the whole waste stream or material. Numerous or composite samples may be necessary to define the average properties and constituents for a waste material. At least two samples shall be pulled from each waste material, even if only one of the samples is intended to be submitted for analysis. Guidance for obtaining representative samples from containers, process pipe sampling ports, and other miscellaneous containers is

provided in the following discussions. Where applicable, the methods referenced in WAC 173-303-110(2)(a) will be followed.

3.2.1 Container Sampling

Container (e.g., 5-gallon cans, 55-gallon drums) sampling occurs on an infrequent basis due to the preferred method of sampling waste being at the point of generation. However, container resampling is occasionally performed at the request of waste treatment/disposal companies for the purpose of land disposal restriction (LDR) verification or other company-specific waste profile requirements.

Samples taken for the purpose of LDR verification or waste-specific profile information are generally discrete samples, i.e. one sample per container. If composite sampling is requested, the contents of selected containers are mixed in equal volumes to obtain a representative sample from the waste stream. Standard documentation procedures are followed (see Section 3.6) to ensure proper labeling and handling when transferring from the sampling location to the laboratory. See Section 6.0 for container tracking protocol.

Use of a sampling device such as the Coliwasa (glass) can help determine if a container's contents are homogenous or otherwise stratified. The results of this evaluation can be used to determine whether the contents of a container require mechanical homogenization (mixing, stirring, etc.) or specific phase partition sampling to effectively represent the entire waste volume within the container.

3.2.2 Process and Waste Line Sampling

Most process and waste lines at the AREVA facility are provided with sampling ports. These ports are generally 1/4-inch stainless steel tubing with valve arrangements that allow the material in the line to be sampled directly. Other process or waste lines are equipped with proportional samplers. To manually obtain a sample from a process or waste line, the following procedure should be followed.

- Ensure that the sample container is empty and clean prior to sample collection.
- Eliminate any visible, easily removable solids that may have accumulated or precipitated/crystallized at the discharge end of the sampling port. This will prevent possible contamination of the sample.
- If possible, purge the sampling port line for one to two sample line volumes. This may not be possible in many circumstances, since a waste will be generated and disposal may be difficult. If the sample to be taken is of sufficient volume, this small amount of waste present in the port line may be of little consequence. If there are numerous samples to be taken from the same port, take the larger volume sample first, thereby reducing the effect of the non-purged waste.
- Collect the sample directly from the sample port into the sample container. Only in cases where it is physically impractical to do this should the sample be collected into an intermediate container. This will further reduce the chance of introducing contamination.
- For lines equipped with proportional samplers, remove the collection bottle when full and transfer a portion of the material into a sample bottle.

3.2.3 Miscellaneous Materials Sampling

When sampling contaminated items such as rags, protective equipment, and other miscellaneous materials, it must be determined if the material can be homogenized into a

uniform or nearly uniform mass without affecting the integrity of the sample. If the material can be homogenized, it is done prior to sampling. Following homogenization, a grab sample is taken to retrieve the material. The actual tool utilized for sample collection will depend on the sample form (e.g., fine granular material, chips, etc.).

In situations when the materials to be sampled do not lend themselves readily to homogenization, sampling is aimed at retrieving a portion of the material that would be expected to exhibit a representative degree of contamination. Criteria used to extract a representative sample may include visual examination, operator input, process knowledge, professional experience, etc. The overall intent of the sampling is to obtain a sample that is representative of the entire waste stream. Sampling performed to meet the requirements of this plan will either be conducted or supervised by a qualified dangerous waste specialist.

3.2.4 Rinsate Sampling

To determine the effectiveness of sampling equipment decontamination procedures, it may be helpful to collect a rinsate sample. Sampling equipment is generally decontaminated by scrubbing with a biodegradable commercial detergent (e.g., Liquinox or equivalent), followed by a deionized water rinse. The rinsate sample can then be collected by rinsing the equipment again with deionized water and collecting this water into a sample container. Analytical parameters for the decontamination sample should be the same as those for the sampled material for which the device was previously used.

3.2.5 Additional Sampling/Resampling

If for any reason the samples are damaged, broken, custody is compromised, hold time exceeded, or other circumstances occur which require additional sampling to be performed, resampling shall be conducted in a manner that is consistent with the guidelines outlined in this WAP. It is preferable to take duplicate back-up samples at the time of initial sampling. The duplicate samples must be held in a secured location following chain-of-custody protocols. If it becomes necessary for the duplicate samples to be analyzed, it should be noted on the chain-of-custody form. All applicable hold times and preservation techniques must be adhered to if analysis of duplicate samples is required.

3.3 Sample Containers and Handling

In general, wide-mouth sample containers (usually plastic) will be used for solids. The analytical laboratory will also provide this information when sample containers are ordered for an upcoming sampling event. When contacting the laboratory, extra sample containers should be ordered as a contingency (e.g., broken bottles, additional samples to be taken). Guidelines for sample containers, preservatives, and holding times can be obtained from a contract analytical laboratory or from SW-846.

Prior to the actual sampling event, sample labels should be prepared and affixed to the appropriate sample container. In many cases, sample containers will arrive from the laboratory with sample labels already on the container. These labels will identify the analytical parameters and any added preservatives. If an AREVA sample label will be used, it should be completed and placed on the sample container directly over the laboratory label.

The sample container should be placed immediately in a shipping container (e.g., cooler with ice) if it is to be analyzed by an offsite laboratory (ice is not necessary for some metals and radionuclide analysis, consult with offsite laboratory). Prior to shipping, the cooler should be filled with sufficient packing material to prevent damage to the sample containers. The necessary paperwork should be completed (see Sections 3.6.2 - Sample Field Notes, and

Section 3.6.4 - Chain-of-Custody Record) and the Chain-of-Custody Record should be placed in the shipping container. The shipping container should then be sealed (i.e., custody seal - Section 3.6.5), taped, and shipped for overnight delivery to the designated analytical laboratory. Occasionally, samples may be held in on-site refrigerators if they are locked and chain-of-custody procedures are followed.

Specific guidelines apply to the handling and shipment of radioactive samples. The specific AREVA facility requirements for collecting and shipping radioactive samples are detailed in the AREVA procedures available at the facility. In general, the following requirements must be met:

- samples must be collected in a controlled area,
- samples must be surveyed by a AREVA health and safety technician (HST) before leaving the controlled area,
- Transportation and Logistics, AREVA's packaging and shipping organizations, will complete the required paperwork and properly label and mark the sample package.

3.4 Frequency of Analyses

Chemical waste analysis and/or the application of process knowledge for characterization, designation, and waste profiling will be performed whenever a new waste is generated, if a process change significantly alters the characteristics of an existing waste, for recertification of a waste for disposal at a commercial TSD facility, or for verification purposes at the request of Licensing & Compliance or other pertinent plant personnel. The recertification of dangerous waste required by a commercial TSD facility may include annual chemical waste analysis for verification of existing waste profiles.

3.5 Analytical Methods

Testing methods used will comply with the requirements as included in WAC 173-303-110. Quality control procedures specified by the testing method or an approved equivalent method must be followed in order for the analytical result to be considered valid for designation.

3.6 Documentation

Sample collection and handling are documented through the use of Dangerous Waste Sample Field Notes, Sample Labels, Chain-of-Custody Records, and Custody Seals. These documentation and record-keeping components satisfy the requirements in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication No. SW 846.

3.6.1 Waste Management Direction Form

The Waste Management Direction Form (Attachment E) is used by Licensing and Compliance personnel for direction on the handling of new or recently changed wastes, to specify and clarify sampling and analytical requirements, to designate the waste, and to identify management requirements (e.g., storage, transportation, disposal). This form is also used by warehousing personnel to ensure proper containers are used as well as correct marking and labeling of the container. The procedure for formal waste designation (Attachment A) shall be followed when completing this form.

3.6.2 Sample Field Notes

Field sampling notes document information pertinent to physical sample collection and field measurements. The field notes may include the following data, as appropriate.

- Sampling site description

- Waste location (e.g., container, in-situ soil)
- Waste name on label, if one is present
- Container numbers
- Sample description
- Sampling technique/method and equipment used
- Field measurements
- Observations and notes
- Sketch of sampling site
- Photographs
- Changes to field procedures
- Sampler's signature
- Date and time sampled

These notes are recorded in such a manner that sampling details can be reconstructed without relying on the sampler's memory.

3.6.3 Sample Labeling

The Environmental Sample Label, Attachment F, is affixed to the sample container prior to or at the time of sampling. It is used to prevent misidentification of samples and provides sufficient information to identify the sample. The sample label is typically supplied by the laboratory performing the analyses and includes the following information:

- Company name
- Sample identification
- Date sampled
- Time sampled
- Parameters to be analyzed
- Preservatives used

3.6.4 Chain-of-Custody Record

The Chain-of-Custody Record, Attachment G, documents the history of the sample from the time of collection through delivery to the laboratory and final disposition. Chain-of-custody elements address all aspects of sample collection, laboratory analysis, and final analytical data files. A copy of the pertinent pages of the Sample Field Notes may accompany the Chain-of-Custody Record to the laboratory. The Chain-of-Custody Record contains the following:

- Analysis requested
- Sampler's initials
- Sampler's signature
- Sample identification
- Date sampled
- Date and time of possession
- Time sampled
- Signature(s) of other custodians
- Number of Sample containers
- Custodian's organization

Samples are considered to be in a person's custody if they:

- are in your possession;
- are in your view, after being in your possession;
- are in your possession and you place them in a secured location; or
- are in a designated secure area.

The Chain-of-Custody Record is completed after the samples have been taken and are being prepared for shipment to the laboratory. The record is then placed in the sample shipping container.

3.6.5 Custody Seal

The Custody Seal, Attachment H, is used to detect tampering of the samples during shipment to an off-site laboratory. A single custody seal is placed on a sample shipping container such that opening the lid would destroy the seal. It is not necessary to put custody seals on individual sample containers within a larger shipping container provided the samples are always in the custody of the responsible personnel prior to shipment.

3.6.6 Operating Record Requirements

Licensing and Compliance staff are generally responsible for Waste Analysis Plan sampling, analysis, and record keeping. All original documents are kept on file (hard copy or electronic) as part of the Operating Record (required for dangerous waste management facilities).

4.0 Quality Assurance/Quality Control

Appropriate use of data generated under the wide range of analytical conditions encountered requires reliance on the quality control practices incorporated into the sampling and analytical methods and procedures. As such, quality control must be addressed both in the field and in the laboratory. In the field, quality control means taking a representative sample and maintaining sample integrity. A representative sample is taken by personnel proficient in the use of sampling techniques and equipment. Sample integrity is maintained through the use of proper sample-handling practices, custodial procedures, sampling activity documentation, Environmental Sample Label (Attachment F), Chain-of-Custody Record (Attachment G), and Custody Seal (Attachment H).

Another important factor in maintaining sample integrity is the use of proper sample containers and preservation techniques, as well as adherence to applicable holding times. In the laboratory, quality assurance is performed by meeting the requirements of specific procedures found in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication No. SW 846.

To assist in determining the validity of analytical sampling and its resulting data, established data validation protocols will be followed if required in the applicable Sampling and Analysis Plan. If necessary, validation procedures will be performed by Licensing & Compliance or an outside consultant for verification of the quality of analytical results.

4.1 Laboratory Requirements

AREVA's analytical laboratory is certified by the Washington State Department of Ecology (Ecology) to perform several analyses which are commonly used to characterize various forms of waste media. These analyses include fluoride, ammonia as nitrogen, nitrate as nitrogen, chloride, sulfate, and pH. A Quality Assessment Plan for AREVA is maintained by the analytical laboratory to ensure that sample analytical data is of appropriate quality.

Offsite laboratories that are contracted to perform waste analyses for AREVA should be certified by the Washington State Department of Ecology. If a laboratory is not certified with Ecology, the laboratory should maintain a certification within their respective state for any analysis that is performed. A listing of all certifications shall be obtained prior to using an offsite laboratory for waste analysis to ensure that these minimum requirements are met. A Quality Assessment

Plan or overview of the plan must also be obtained from the contracted laboratory prior to any performed analyses.

An analytical parameters table (Attachment I) summarizes the most common waste analyses that are performed by AREVA and contracted laboratories. Detection limits will be specified for each specific project and are subject to matrix interferences and equipment sensitivity. At a minimum, quality control measures will include one or more of the following:

- Blind duplicates are independent samples that are taken at a specified frequency from the same location at the same time but are labeled as different samples. Blind duplicates are used to measure the variation of both laboratory analyses and sample homogeneity.
- Trip Blanks are sample containers prepared with deionized water and used when sampling volatile organic compounds. Trip blank contamination typically indicates that the source of contamination is the sampling container.
- Equipment rinsate samples are prepared at the end of the sampling activity after the final decontamination of the sampling equipment has been completed. The sampling equipment is rinsed with deionized water, which is collected in a sample bottle and analyzed for the same parameters as the sampling plan requires. Contamination of the sample equipment rinsate indicates that equipment decontamination was not effective.

5.0 LDR Treatment Standards

Wastes resulting from AREVA operations that exceed applicable land disposal restriction (LDR) treatment standards will be sent off site to a commercial TSD facility for treatment prior to disposal, stored on site (in the case of dangerous mixed waste) or, where applicable, treated in tanks per either treatment-by-generator or permit-by-rule guidelines prior to discharge to the Publicly Owned Treatment Works (POTW). The following is a discussion of LDR protocols.

All containerized dangerous wastes managed at the DWSF are either dispositioned to a commercial TSD facility or stored long term on-site (certain dangerous mixed wastes) until ultimate treatment or disposal can be determined. Containerized wastes that are to be shipped offsite to a commercial TSD facility must be accompanied by a specific waste profile (section 2.3), a completed LDR verification form (Attachment J), and be included as an entry on a Hazardous Waste Manifest (Attachment K). The LDR verification form is supplied by the TSD facility and required prior to shipment of waste. Typically, one LDR verification form is required for each waste stream and the form is updated on an annual basis.

6.0 Container Tracking

All wastes managed at the Dangerous Waste Storage Facility are tracked using an extensive electronic database system based on a Microsoft Access platform. The Solid Waste and Hazardous Waste Container Database contains information specific to each individual container onsite at AREVA and is managed by a Uranium Conversion and Recovery engineer. Input for daily or other routine operations such as drum packaging, movement, and storage is typically performed by technicians from the Uranium Conversion and Recovery group. The database serves as a real-time drum tracking tool and establishes a unique manifest for each waste container which includes information such as chemical contents, total grams uranium, date packed, and storage location.

7.0 References

U.S. Environmental Protection Agency. 1980. Samplers and Sampling Procedures for Hazardous Waste Streams. EPA-600/2-80-018, Washington, D.C.

Solid and Hazardous Waste Container Management Database, AREVA NP Inc.

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods. SW-846, Third Edition as Amended by Update III (August 1996), Washington, D.C.

Washington Department of Ecology. 1998. Chemical Testing Methods for Designating Dangerous Waste. WDOE 97-407, Olympia, Washington.

Attachment A

Procedure for Formal Waste Designation

1.0 Purpose and Scope

The purpose of this document is to serve as a guideline for determining if a waste is to be managed as a dangerous waste, which is a waste that is regulated by either the Washington State Department of Ecology as a dangerous waste or the Environmental Protection Agency as a hazardous waste. This document is to be used as a guide for Licensing and Compliance and is not intended to be an all inclusive duplicate of the waste designation sections included in Ecology's Dangerous Waste Regulations, WAC 173-303. If questions arise during the waste designation process, the applicable section(s) of the Dangerous Waste Regulations should be consulted.

2.0 Responsibilities

Licensing and Compliance has the overall responsibility for designating wastes generated at AREVA. Licensing & Compliance along with Uranium conversion and Recovery Operations, Technical Support has the responsibility to ensure that all radiologically contaminated waste is managed and disposed of properly. It is the responsibility of each person/organization to notify Licensing and Compliance before any new chemical is brought onsite that may result in the generation of a waste, and prior to disposal of any non-routine or uncharacterized waste.

3.0 Instructions

When designating a waste, each section listed below shall be evaluated in order to determine if in fact the waste will be designated as a dangerous waste. The corresponding waste number from each section, if applicable, shall be added to the waste which is being designated. There is no need to evaluate section 5.0 of this procedure if a waste number has been previously assigned. The Waste Management Direction (WMD) form is included as Attachment E.

4.0 Federal (RCRA) Waste

Federal (RCRA) Listed Waste
Reference: WAC 173-303-081
Corresponding List: WAC 173-303-9903

Discarded chemical products have to meet the following criteria:

- Unused
- Sole active ingredient (not mixtures)
- Specifically listed in WAC 173-303-9903 in two categories: Acutely Dangerous Chemical Products, which are designated as extremely hazardous waste (EHW); and moderately dangerous chemical products, which are designated as dangerous waste (DW).

Discarded chemical products include:

- Commercial chemical products
- Off-specification chemical products
- Spill cleanup of materials designated as a discarded chemical product
- Residue left in containers of "Acutely Dangerous Chemical Products."

If a waste qualifies as a discarded chemical product, the corresponding waste number shall be entered in the appropriate section of the waste designation form.

4.1 Dangerous Waste Sources (RCRA)

Reference: WAC 173-303-082
Corresponding List: WAC 173-303-9904

Dangerous waste sources are those wastes which consist of spent materials. Specific criteria must be met in order for a waste to be designated as a source waste, such as 100% concentration, etc. Consult section WAC 173-303-9904 for these criteria. Dangerous waste sources are divided into two categories:

- Non-specific sources which are generically listed in WAC 173-303-9904 and given waste numbers F___.
- Specific sources are processes specifically listed in WAC 173-303-9904 and given waste numbers K___.

If a waste qualifies as a dangerous waste source, the corresponding waste number shall be entered in the appropriate section of the waste designation form.

4.2 Federal (RCRA) Waste Characteristics

4.2.1 Characteristic of Ignitability

Reference WAC 173-303-090(5)

An ignitable waste must possess one of the following characteristics:

- Liquid waste with a flashpoint <140F.
- Solid waste capable of ignition through spontaneous combustion, absorption of moisture, etc. and when ignited burns so vigorously that it creates a hazard (e.g. elemental sodium).
- Compressed gases capable of ignition.
- Oxidizer waste as defined in 49 CFR 173.151 (e.g. chlorates, nitrates, permanganates, and inorganic peroxides.)

A waste which possesses one of the characteristics listed above shall be designated as ignitable waste and the D001 waste number shall be entered in the appropriate section of the waste designation form.

4.2.2 Characteristic of Corrosivity

Reference: WAC 173-090(6)

A corrosive waste must possess one of the following characteristics:

- It is aqueous and has a pH<2 or >12.5
- Solids or semi-solids, when mixed with an equal amount of water, produces a solution having an applicable pH (Ecology).
- Corrodes steel at a rate of >0.25 in/yr (6.35mm) @ 130F.

A waste which possesses one of the characteristics listed above shall be designated as corrosive waste and D002 or WSC2 shall be entered in the appropriate section of the waste designation form. The WSC2 waste code is a Washington State-only code.

4.2.3 Characteristic of Reactivity

Reference: WAC 173-303-090(7)

A reactive waste must possess one of the following characteristics:

- A cyanide or sulfide bearing waste
- Water reactive waste which reacts violently with water, forms a potentially explosive mixture with water, or generates toxic gases or fumes when mixed with water.
- Unstable waste which readily undergoes violent change without detonation, detonates or explodes under standard temperature and pressure, or detonates or explodes if subjected to heat or initiating source, or is explosive waste.

A waste which possesses one of the characteristics listed above shall be designated as reactive waste and D003 shall be entered in the appropriate section of the waste designation form.

4.2.4 Characteristic of Toxicity

Reference: WAC 173-303-090(8)

The Toxicity Characteristic Leaching Procedure (TCLP) Test Method (40 CFR 261 Appendix II) is used to determine if a chemical has the ability to leach from a compound, mixture, or solution. The leachate is then submitted for analysis to determine concentrations in the extract.

The results of a TCLP analysis are compared to the Toxicity Characteristics List found in WAC 173-303-090(7). If levels from the TCLP analysis are equal to or greater than the values listed in the table, the waste must be designated as a dangerous waste and the corresponding number from the table entered in the appropriate space on the waste designation form.

5.0 Washington State Dangerous Waste Criteria

5.1 Washington State Toxicity

Reference: WAC 173-303-100

For designation of Washington state toxicity, four test methods are used. The methods are fish LC 50, oral rat LD 50, inhalation rat LC 50, and dermal rabbit LD 50. The required reference to determine these doses can be found in the NIOSH Registry of Toxic Effects of Chemical Substances (RTECS). To determine if a chemical is classified as toxic, the toxicity data from RTECS is compared to the Toxic Category as listed in section WAC 173-303-100(5). After determining the toxicity, the Equivalent Concentration must be calculated using the calculation as it appears on the waste designation form. If the calculation is greater than 0.001%, the chemical shall be managed as WT02, dangerous waste. If the EC calculation is greater than 1.0%, the waste shall be managed as WT01 extremely hazardous waste.

5.2 Washington State Persistent Dangerous Waste

Reference WAC 173-303-100(6)

Persistent dangerous waste is divided into two sections, halogenated hydrocarbons (HH) and polycyclic aromatic hydrocarbons (PAH). The definitions for each of these may be found in the definitions section, WAC 173-303-040. Persistent waste shall be compared to the table as listed in WAC 173-303-100(6) to determine the appropriate waste number, WP01 for EHW, WP02 for DW, and WP03 for PAH. The applicable waste number shall be added to the waste designation form.

5.3 Process Knowledge

Reference WAC 173-303-300

If a detailed analysis of the waste is not needed because there is sufficient process knowledge available to designate the waste, a justification that process knowledge was used as the basis for the waste designation shall be included on the waste management designation form. Process knowledge includes Material Safety Data Sheets, engineering calculations and material balances, or other available generator's knowledge of the waste.

Attachment B

Clean Harbors Environmental Services

WASTE MATERIAL PROFILE SHEET

Clean Harbors Profile No. CH304338

A. GENERAL INFORMATION
GENERATOR EPA ID #/REGISTRATION # WAD990828402 GENERATOR NAME: Areva NP
GENERATOR CODE (Assigned by Clean Harbors) AR1688 CITY Richland STATE/PROVINCE WA ZIP/POSTAL CODE 99354
ADDRESS 2101 Horn Rapids Road PHONE:

CUSTOMER CODE (Assigned by Clean Harbors) AR1688 CUSTOMER NAME: Areva NP
ADDRESS 2101 Horn Rapids Road CITY Richland STATE/PROVINCE WA ZIP/POSTAL CODE 99354

B. WASTE DESCRIPTION
WASTE DESCRIPTION AREVA Profile
PROCESS GENERATING WASTE (Please provide detailed description of process generating waste)

C. PHYSICAL PROPERTIES (at 25C or 77F)

PHYSICAL STATE	NUMBER OF PHASES/LAYERS		VISCOSITY (If liquid present)	COLOR
SOLID WITHOUT FREE LIQUID POWDER MONOLITHIC SOLID LIQUID WITH NO SOLIDS LIQUID/SOLID MIXTURE % FREE LIQUID % SETTLED SOLID % TOTAL SUSPENDED SOLID SLUDGE GAS/AEROSOL	1 2 3 % BY VOLUME (Approx)	TOP 0.00 MIDDLE 0.00 BOTTOM 0.00	1 - 100 (e.g. WATER) 101 - 500 (e.g. MOTOR OIL) 501 - 10,000 (e.g. MOLASSES) > 10,000	

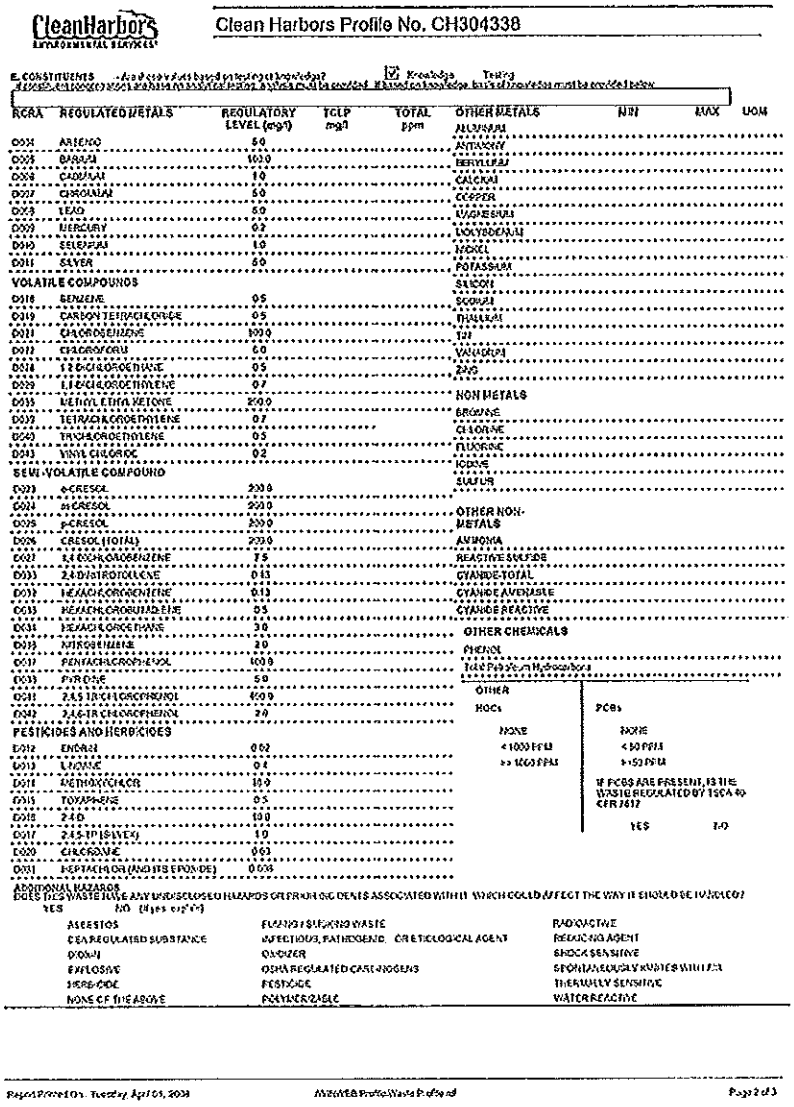
ODOR	BOILING POINT °F (°C)	MELTING POINT °F (°C)	TOTAL ORGANIC CARBON
NONE MILD STRONG Describe	<= 95 (<= 35) 95 - 100 (35-38) 101 - 129 (38-54) >= 130 (>54)	< 140 (<60) 140-200 (60-93) > 200 (>93)	<= 1% 1-9% >= 10%

FLASH POINT °F (°C)	pH	SPECIFIC GRAVITY	ASH	BTU/LB (MJ/kg)
< 73 (<23) 73 - 100 (23-38) 101 - 140 (38-60) 141 - 200 (60-93) > 200 (>93) Actual	<= 2 2.1 - 6.9 7 (Neutral) 7.1 - 12.4 >= 12.5 Actual	< 0.8 (e.g. Gasoline) 0.8-1.0 (e.g. Ethanol) 1.0 (e.g. Water) 1.0-1.2 (e.g. Antifreeze) > 1.2 (e.g. Methylene Chloride)	< 0.1 0.1 - 1.0 1.1 - 5.0 5.1 - 20.0 > 20 Unknown Actual	< 2,000 (<4.6) 2,000-5,000 (4.6-11.6) 5,000-10,000 (11.6-23.2) > 10,000 (>23.2) Actual
			VAPOR PRESSURE (for liquids only)	mmHg

D. COMPOSITION (List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

Chemical MIN – MAX UOM

ANY METAL OBJECTS PRESENT? YES NO
If yes include dimensions:



Clean Harbors Profile No. CH304338

E. CONSTITUENTS — Knowledge ☑ Testing

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D004	ARSENIC	5.0		
D005	BARIUM	100.0		
D006	CADMIUM	1.0		
D007	CHROMIUM	5.0		
D008	LEAD	5.0		
D009	MERCURY	0.2		
D010	SELENIUM	1.0		
D011	SILVER	5.0		
	VOLATILE COMPOUNDS			
D018	BENZENE	0.5		
D019	CARBON TETRACHLORIDE	0.5		
D021	CHLOROBENZENE	100.0		
D022	CHLOROFORM	6.0		
D028	1,2-DICHLOROETHANE	0.5		
D029	1,1-DICHLOROETHYLENE	0.7		
D035	METHYL ETHYL KETONE	200.0		
D039	TETRACHLOROETHYLENE	0.7		
D040	TRICHLOROETHYLENE	0.5		
D043	VINYL CHLORIDE	0.2		
	SEMI-VOLATILE COMPOUND			
D023	o-CRESOL	200.0		
D024	m-CRESOL	200.0		
D025	p-CRESOL	200.0		
D026	CRESOL (TOTAL)	200.0		
D027	1,4-DICHLOROBENZENE	7.5		
D033	2,4-DINITROTOLUENE	0.13		
D031	HEXACHLOROBUTADIENE	0.13		
D032	HEXACHLOROBENZENE	0.5		
D034	HEXACHLOROETHANE	3.0		
D036	NITROBENZENE	2.0		
D037	PENTACHLOROPHENOL	100.0		
D038	PYRIDINE	5.0		
D041	2,4,5-TRICHLOROPHENOL	400.0		
D042	2,4,6-TRICHLOROPHENOL	2.0		
	PESTICIDES AND HERBICIDES			
D012	ENDRIN	0.02		
D013	LINDANE	0.4		
D014	METHOXYCHLOR	10.0		
D015	TOXAPHENE	0.5		
D016	2,4-D	10.0		
D017	2,4,5-TP (SILVEX)	1.0		
D020	CHLORDANE	0.03		
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008		

ALUMINUM			
ANTIMONY			
BERYLLIUM			
CALCIUM			
COPPER			
MAGNESIUM			
MOLYBDENUM			
NICKEL			
POTASSIUM			
SILICON			
SODIUM			
TIN			
VANADIUM			
ZINC			
NON METALS			
BROMINE			
CHLORINE			
FLUORINE			
IODINE			
SULFUR			
OTHER NON-METALS			
AMMONIA			
REACTIVE SULFIDE			
CYANIDE-TOTAL			
CYANIDE AMENABLE			
CYANIDE REACTIVE			
OTHER CHEMICALS			
PHENOL			
Total Petroleum Hydrocarbons			

OTHER

HOCs: NONE; < 1000 PPM; >> 1000 PPM

PCBs: NONE; < 50 PPM; > 50 PPM

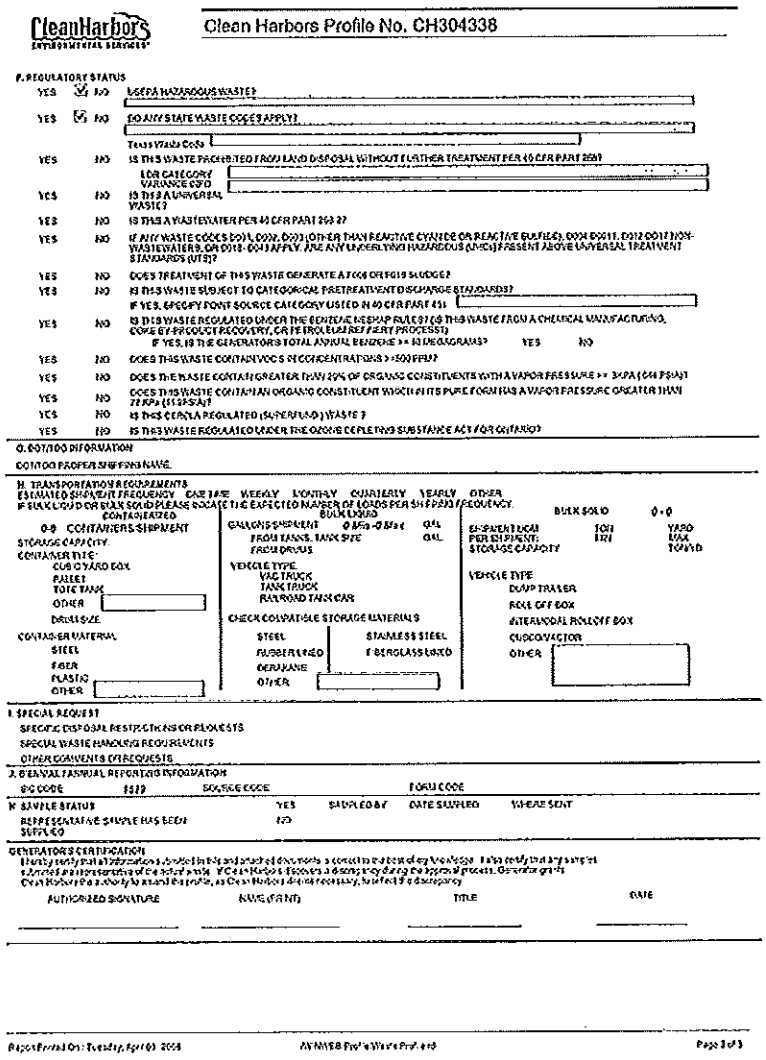
IF PCBS ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761? YES / NO

ADDITIONAL HAZARDS

DOES THIS WASTE HAVE ANY KNOWN OR SUSPECTED HAZARDS OR PROPERTIES ASSOCIATED WITH IT WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED? YES / NO (If yes explain)

ASBESTOS	FLAMMABLE/IGNITABLE WASTE	RADIOACTIVE
CERCLA REGULATED SUBSTANCE	INFECTIOUS, PATHOGENIC OR BIOLOGICAL AGENT	REDUCING AGENT
DIOXIN	OXIDIZER	SHOCK SENSITIVE
EXPLOSIVE	OSHA REGULATED CARCINOGENS	SPONTANEOUSLY COMBUSTIBLE
HERBICIDE	PESTICIDE	THERMALLY SENSITIVE
NONE OF THE ABOVE	POLYMERIZABLE	WATER REACTIVE

Report Printed On: Tuesday, April 06, 2010 — MetaWEB Profile Waste Preferred — Page 2 of 3



CleanHarbors
ENVIRONMENTAL SERVICES

Clean Harbors Profile No. CH304338

F. REGULATORY STATUS

YES ☑ NO — IS IT A HAZARDOUS WASTE?

YES ☑ NO — DO ANY STATE WASTE CODES APPLY?

Texas Waste Code

YES NO — IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?
LDR CATEGORY
VARIANCE CFR

YES NO — IS THIS A UNIVERSAL WASTE?

YES NO — IS THIS A WASTEWATER PER 40 CFR PART 260.2?

YES NO — IF ANY WASTE CODES D001, D002, D003 (OTHER THAN REACTIVE CYANIDE OR REACTIVE SULFIDE), D004-D011, D012-D017 (NON-WASTEWATERS), OR D018 - D043 APPLY, ARE ANY UNDERLYING HAZARDOUS (UHCs) PRESENT ABOVE UNIVERSAL TREATMENT STANDARDS (UTS)?

YES NO — DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?

YES NO — IS THIS WASTE SUBJECT TO CATEGORICAL PRETREATMENT DISCHARGE STANDARDS?
IF YES, SPECIFY POINT SOURCE CATEGORY LISTED IN 40 CFR PART 433

YES NO — IS THIS WASTE REGULATED UNDER THE GENERIC MACT RULE 63? (IS THIS WASTE FROM A CHEMICAL MANUFACTURING, COKE BY-PRODUCT RECOVERY, OR PETROLEUM REFINERY PROCESS?)
IF YES, IS THE GENERATOR'S TOTAL ANNUAL BENZENE >= 10 MEGAGRAMS? YES NO

YES NO — DOES THIS WASTE CONTAIN VOCS IN CONCENTRATIONS > =500 PPM?

YES NO — DOES THE WASTE CONTAIN GREATER THAN 10% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= 3 KPA (.44 PSIA)?

YES NO — DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE GREATER THAN 76 KPa (11 PSIA)?

YES NO — IS THIS CERCLA REGULATED (SUPERFUND) WASTE ?

YES NO — IS THIS WASTE REGULATED UNDER THE OZONE DEPLETING SUBSTANCE ACT (OR CONTAINS)?

G. CONTACT INFORMATION

CONTACT PROFILE SPECIFIC NAME

H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY: ONE TIME WEEKLY MONTHLY QUARTERLY YEARLY OTHER

IF BULK LIQUID OR BULK SOLID PLEASE INDICATE THE EXPECTED NUMBER OF LOADS PER SHIPPED FREQUENCY.

CONTAINERIZED
0-9 CONTAINERS/SHIPMENT
STORAGE CAPACITY
CONTAINER TYPE:
CUB O YARD BOX
PALLET
TOTE TANK
OTHER
DRUM SIZE
CONTAINER MATERIAL
STEEL
FIBER
PLASTIC
OTHER

BULK LIQUID
GALLONS/SHIPMENT 0 Mon-0 Mon GAL
FROM TANKS, TANK SIZE GAL
FROM DRUMS
VEHICLE TYPE
VAC TRUCK
TANK TRUCK
RAILROAD TANK CAR
CHECK COMPATIBLE STORAGE MATERIALS
STEEL STAINLESS STEEL
RUBBER LINED FIBERGLASS LINED
HERCULANE
OTHER

BULK SOLID 0-0
SHIPMENT/LOAD TON
PER SHIPMENT: TRK
STORAGE CAPACITY
YARD
VAX
TOTAL
VEHICLE TYPE
DUMP TRAILER
ROLL OFF BOX
INTERMODAL ROLL OFF BOX
CUDD VACTOR
OTHER

I. SPECIAL REQUEST

SPECIFIC DISPOSAL RESTRICTIONS OR REQUESTS
SPECIAL WASTE HANDLING REQUIREMENTS
OTHER COMMENTS OR REQUESTS

J. BIENNIAL REPORTING INFORMATION

DOT CODE — SOURCE CODE — FORM CODE

K. SAMPLE STATUS — YES — SAMPLED BY — DATE SAMPLED — SAMPLE SENT

REPRESENTATIVE SAMPLE HAS BEEN SUPPLIED — NO

GENERATOR'S CERTIFICATION

I hereby certify that all information submitted in this and all attached documents is correct to the best of my knowledge. I also certify that any sample submitted is representative of the actual waste. If Clean Harbors discovers a discrepancy during the profile process, Generator grants Clean Harbors authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE — NAME (PRINT) — TITLE — DATE

Report Printed On: Tuesday, April 01, 2008 — AVANWEB Profile Worksheet — Page 3 of 3

Attachment C
Waste Data Table

Wastes Generated	Process Generating Waste	Basis for Hazard Classification	Waste Code(s)	Hazardous Properties of Waste	Chemical Constituents/ Analytical Parameters	WMD Number	LDR Treatment	
							Treatment standard	Treatment Facility
Solvent Extraction Raffinate	Solvent Extraction/ Uranium purification	Laboratory Analysis	D002	Corrosive	nitric acid ammonium fluoride calcium fluoride sodium nitrate aluminum nitrate tributylphosphate	SPC 93-01	Deactivation	Ammonia Recovery Facility (ARF) POTW
Solvent Extraction Carbonate Wash	Solvent Extraction/ Uranium Purification	Laboratory Analysis	WT02	State-Toxic	ammonium fluoride sodium fluoride aluminum nitrate tributylphosphate	SPC 93-02	N/A	ARF, POTW
Solvent Extraction Acid Wash	Solvent Extraction/ Uranium Purification	Laboratory Analysis	D002	Corrosive	sodium nitrate nitric acid tributylphosphate	SPC 93-03	Deactivation	ARF, POTW
Solvent Extraction scrubber waste	Solvent Extraction/ Uranium purification	Laboratory Analysis, field analysis	D002	Corrosive	nitric acid	SPC 94-74	Deactivation	ARF, POTW
ADU Scrap Conversion	Scrap "Wet" uranium conversion	Laboratory Analysis	WT02	State-Toxic	ammonium nitrate ammonium hydroxide	SPC 93-12	N/A	ARF, POTW
X-ray fixer solution	Metallurgy Lab X-ray film developing	Laboratory Analysis	WT02	State-Toxic	ammonium thiosulfate	SPC 93-71	N/A	POTW
ARF Effluent	Ammonia Recovery Facility operation	Laboratory Analysis	WT02	State-Toxic	ammonium fluoride sodium fluoride sodium nitrate calcium nitrate aluminum nitrate	SPC 94-68	N/A	POTW
I/X Metals Removal Filter Cake	I/X metals removal cake for disposal	Laboratory Analysis	D006	Toxic	cadmium	SPC 95-70	0.11 mg/l	Offsite TSD

Wastes Generated	Process Generating Waste	Basis for Hazard Classification	Waste Code(s)	Hazardous Properties of Waste	Chemical Constituents/ Analytical Parameters	WMD Number	LDR Treatment	
							Treatment standard	Treatment Facility
I/X Regeneration	I/X Column uranium removal	Laboratory Analysis	WT02	State-Toxic	ammonium carbonate	SPC 94-70 B	N/A	POTW
DIW regeneration effluent	Plant deionized water facility	Laboratory Analysis	D002	Corrosive	sodium hydroxide sulfuric acid	SPC 94-71	Deactivation	PBR, POTW
MURS effluent	ADU Conversion wastes	Laboratory Analysis	WT02	State-toxic	ammonium fluoride ammonium nitrate ammonium hydroxide	SPC 94-84	N/A	ARF feed
Laboratory waste	Plant analytical support	Process knowledge	WT02	State-toxic	sodium fluoride	SPC 96-3	N/A	ARF, POTW
Dry Conversion Facility Effluent	Dry Conversion facility waste effluent	Laboratory Analysis	WT02	State-toxic	sodium fluoride	SPC 94-75	N/A	POTW
Solvent Rags (satellite accumulation)	Miscellaneous degreasing activities	Process knowledge, MSDS sheets	F003 F005 D035	Toxic	xylene acetone toluene MEK	SPC 93-56	30 mg/l 160 mg/l 10 mg/l 33 mg/l	Offsite TSD, DWSF if mixed waste
Solid Paint Waste (satellite accumulation)	Facility painting operations	Process knowledge, MSDS	F003, F005	Ignitable, Toxic	xylene acetone toluene MEK	SPC 94-49	30 mg/l 160 mg/l 10 mg/l 33 mg/l	Offsite TSD, DWSF if mixed waste
Liquid Paint Waste (satellite accumulation)	Facility painting operations	Process knowledge, MSDS	F003, F005, D035	Ignitable, Toxic	xylene acetone toluene MEK	SPC 94-49	30 mg/l 160 mg/l 10 mg/l 33 mg/l	Offsite TSD, DWSFif mixed waste
Freon contaminated filters/sludge	Historic dry cleaning operation	Process knowledge, laboratory analysis	F002	Toxic	Freon	SPC 93-48	30 mg/l	DWSF, mixed waste

Wastes Generated	Process Generating Waste	Basis for Hazard Classification	Waste Code(s)	Hazardous Properties of Waste	Chemical Constituents/ Analytical Parameters	WMD Number	LDR Treatment	
							Treatment standard	Treatment Facility
Nitric acid contaminated "wet" waste (satellite accumulation)	Uranium contaminated waste (mops, filters, rags, etc.) from operations	Process knowledge, field analysis, laboratory analysis	WSC2, WT02	State-only corrosive and toxic	nitric acid	SPC 94-43	N/A	DWSF, Offsite TSD
Ammonia, fluoride contaminated waste (satellite accumulation)	Uranium contaminated waste (mops, filters, rags, etc.) from operations	Laboratory analysis	WT02	State-only toxic	ammonia fluoride	SPC 94-44	N/A	DWSF, Offsite TSD
HEPA and Prefilters (satellite accumulation)	Room air filters for radionuclide control	Laboratory analysis, process knowledge	WT02	State-only toxic	ammonia fluoride nitrates	Location dependent	N/A	Offsite TSD
Lead	Lead collected in satellite containers	Process knowledge	D008	Toxic	lead	WMD 09-07	0.75 mg/l	Offsite TSD
Safety-Kleen petroleum naptha solvent	Cleaning and degreasing in Safety-Kleen supplied equipment	MSDS sheets, vendor information	D039	Toxic	tetrachloroethylene	SPC 00-27	6.0 mg/l	Safety-Kleen
Safety-Kleen immersion cleaner	Cleaning and degreasing in Safety-Kleen supplied equipment	MSDS sheets, vendor information	D006, D008, D039, D040	Toxic	cadmium lead tetrachloroethylene trichloroethylene	SPC 00-27	0.11 mg/l 0.75 mg/l 6.0 mg/l 6.0 mg/l	Safety-Kleen
Hydrofluoric acid contaminated rags (satellite accumulation)	Wiping off HF downlead fittings	Process knowledge	WSC2, WT02	State-only Corrosive	hydrofluoric acid	SPC 96-18	N/A	Offsite TSD

Wastes Generated	Process Generating Waste	Basis for Hazard Classification	Waste Code(s)	Hazardous Properties of Waste	Chemical Constituents/ Analytical Parameters	WMID Number	LDR Treatment	
							Treatment standard	Treatment Facility
Sodium hydroxide contaminated waste	Maintenance and cleanup of sodium hydroxide contaminated equipment	Process knowledge, field testing	WSC2	State-only Corrosive	sodium hydroxide	SPC 97-66	N/A	Offsite TSD
Calcium fluoride filter media	Scrubber on hydrofluoric acid storage tanks	Process knowledge	W702	State-only Toxic	calcium fluoride	SPC 97-58	N/A	Offsite TSD
Isopropyl Alcohol (satellite accumulation)	Miscellaneous cleaning and degreasing	MSDS sheet	D001	Ignitable	isopropanol	SPC 93-52	CMBST	Offsite TSD
Component pickle solution	Component Shop pickling operation	Laboratory analysis, process knowledge	D002	Corrosive	nitric acid aluminum nitrate	SPC 93-08	Deactivation	Offsite TSD
Wax stripper solution (satellite accumulation)	Plant wide floor stripping	MSDS sheet, field analysis	W702	State-only toxic	ethylene glycol monobutyl ether	SPC 93-23	N/A	Offsite TSD
Mercury Contaminated Filter	Fluorescent tube crushing	Laboratory analysis	D009	Toxic	Mercury	WMD 01-29	Meet 268.48 standards	Offsite TSD
Laboratory Metal Standards	Laboratory equipment calibration	Process knowledge	RCRA metals	Toxic, Corrosive	RCRA metals	SPC 92-24	Meet 268.48 standards	Offsite TSD

Attachment D
Suggested Sampling Equipment for Particular Waste Types and Locations

	WASTE LOCATION			
Waste Type	**Drums**	**Tanks**	**Soil**	**Process Sample Ports**
Free-flowing liquids and slurries	Coliwasa	Coliwasa Dipper Weighted bottle	------	Sample bottle
Sludges	Thief Scoop	Thief Scoop	-----	-----
Sand, Soil	Auger Scoop	-----	Auger Scoop	-----
Large grained solids	Auger	-----	Auger	-----
Powders or Granules	Thief Scoop	Thief Scoop	Thief Scoop	-----

Attachment E

Waste Management Direction

AREVA	Waste Management Direction Generator/Traffic Copy

Waste Stream: AREVA - WAP Attachment
Waste Generation: [ ] Batch [X] Routine

WMO Number: 00
Satellite Number: 00

Waste Category

Municipal Waste	[ ]
Dangerous Waste	[ ]
Low Level Radioactive Waste	[ ]
High Count Radioactive Waste	[ ]
Mixed Waste = Dangerous + Radioactive	[ ]

Disposition

Satellite Accumulation	[X]
Dangerous Waste Pad	[ ]
US Ecology	[ ]
	[ ]

Disposal / Management of Waste
Attachment for Waste Analysis Plan

Applicable Procedure:
Procedure Revision Required [ ] Yes [X] No
Inventory Sheet Required [ ] Yes [X] No

Assay Method: N/A
Drum Assay [ ]
Chemical Assay [ ]
HST Survey [ ]

Traffic and Warehousing Information

Proper Shipping Name:
UN No. Packing Group: Hazard Class RQ:
Container Type: [ ] Plastic [ ] Steel Container Size: [ ] Drum Liner
DOT Labels Required [ ] Flammable [ ] Corrosive
[ ] Poison [ ] Oxidizer Other:

Required Labels/Markings

[ ] Toxic WT02 (DW) [ ] WT01 (EHW) [ ]
[ ] Persistent WP02 (DW) [ ] WP01 (EHW) [ ] WP03 (DW) [ ]
[ ] Ignitable D001
[ ] Corrosive D002 [ ] WSC2 [ ]
[ ] Reactive D003
[ ] Hazardous Waste
[ ] Mixed Waste
[ ] Radioactive Waste Transport Markings (Radioactive Material, LSA, n.o.s.)
[ ] TCLP Toxicity - TCLP Constituent:
[ ] Discarded Chemical -
[ ] Source Waste - [ ] Other:
[ ] QC Release [ ] Accumulation Start Date

Waste Processing Technical Support: Date

Environmental Engineer, EHSL: Date

Attachment F

Environmental Sample Label

EAGLE PICHER

ENVIRONMENTAL SCIENCE
& TECHNOLOGY DEPT.
200 B.J. TUNNELL BLVD., MIAMI, OK 74354
1-800-331-7425

Specially Cleaned Sample Container

Lot #:

DATE:	TIME:	COLLECTED BY:

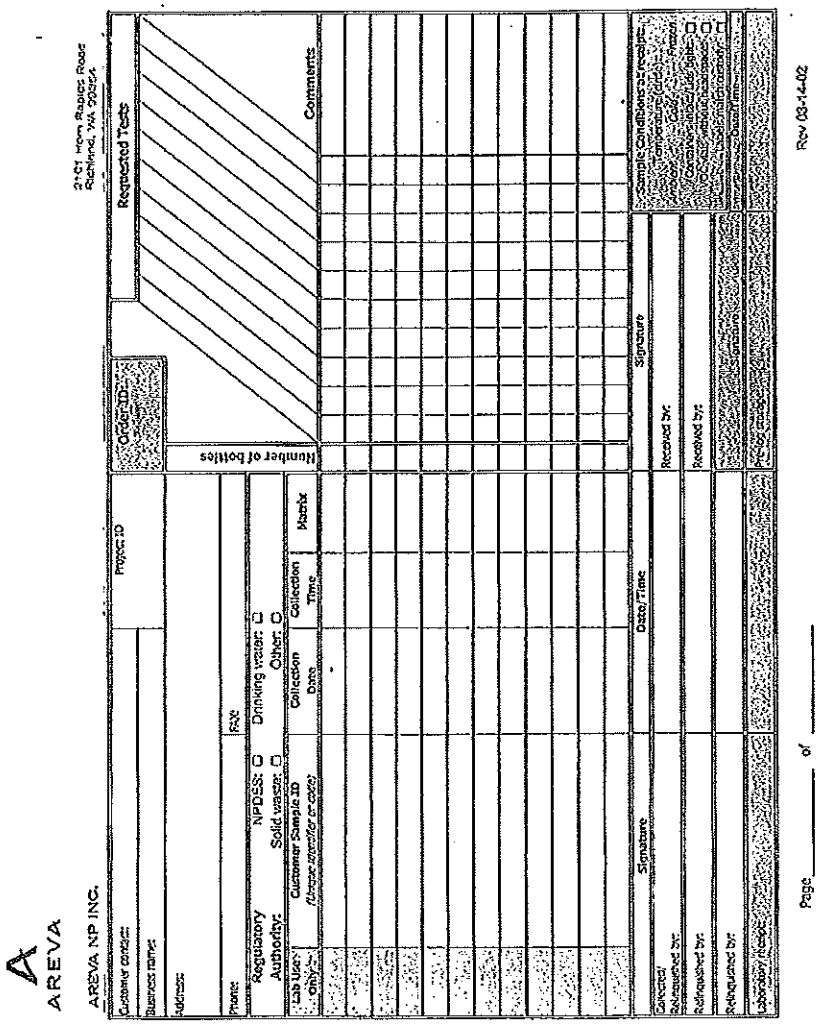
SAMPLING SITE:

SAMPLE TYPE:
☐ Grab ☐ Composite ☐ Other

TESTS REQUIRED:

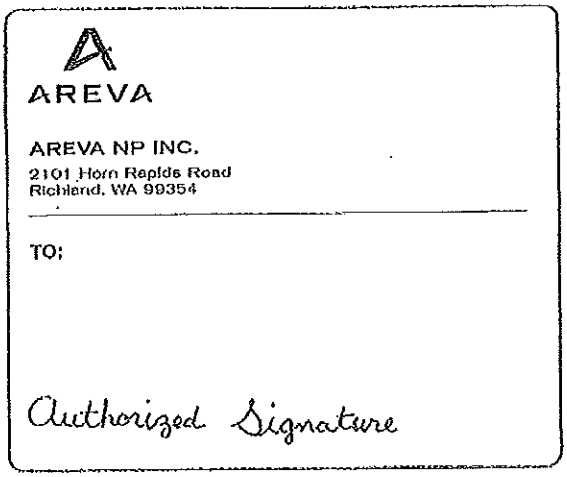
PRESERVATIVE

Attachment G
Chain-of-Custody Record



Attachment H

Custody Seal



Attachment I
Summary of Sample Preservatives, Holding Times, and Analytical Methods

Summary of Sample Preservatives, Holding Times, and Analytical Methods				
Analyte	**USEPA Method**	**Container**	**Preservative (1)**	**Holding Time**
Ammonia as Nitrogen	350.3	250 ml polyethylene or glass	H2SO4 to pH<2 (preserve liquids only) cool 4 C	28 days
Fluoride	300.0	250 ml polyethylene or glass	Cool 4 C	28 days
Nitrate as Nitrogen	300.0	250 ml polyethylene or glass	H2SO4 to pH<2 (preserve liquids only) cool 4 C	28 days
pH	NA	Plastic or Glass	NA	1 day
TCLP Metals	1311, 6000 or 7000 series	250 ml polyethylene or glass	Cool 4 C	180 days, mercury 28 days
TCLP Organics	1311, 8021C, 8260B, 8270C	Liquids 40 mm Glass VOA Vials, solids 250 ml glass	Cool 4 C	14 days to extraction + 14 days for final analysis
Semivolatile Organics	8270 C	Liquids 40 mm glass VOA vials, solids 250 ml glass	Cool 4 C	14 days
Volatile Organics	8260 B	Liquids 40 mm glass VOA vials, solids 250 ml glass	Cool 4 C	14 days

(1) "Cool 4 C" indicates that the sample must be cooled to 4 degrees centigrade
H2SO4 Sulfuric Acid
ml Milliliter
NA Not Applicable
USEPA U. S. Environmental Protection Agency

Attachment J

CleanHarbors
ENVIRONMENTAL SERVICES, INC.

Land Disposal Restriction Notification Form

Page 1 of 1

Print Date: 12/13/2007

MANIFEST INFORMATION

Generator: Areva NP
Address: 2101 Horn Rapids Road
Richland, WA 99354
EPA ID#: WAD990828402

Manifest No
001846068FLE
Sales Order No: D1713920

LINE ITEM INFORMATION

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
1	1	CH277916	NON-WASTEWATER	2 ; This is subject to LDR.

EPA Waste Codes: D001
EPA Waste Subcategory: Ignitables, except High TOC Liquids

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category:
2	1	CH278008	NON-WASTEWATER	2 ; This is subject to LDR.

EPA Waste Codes: D001
EPA Waste Subcategory: Ignitables, except High TOC Liquids

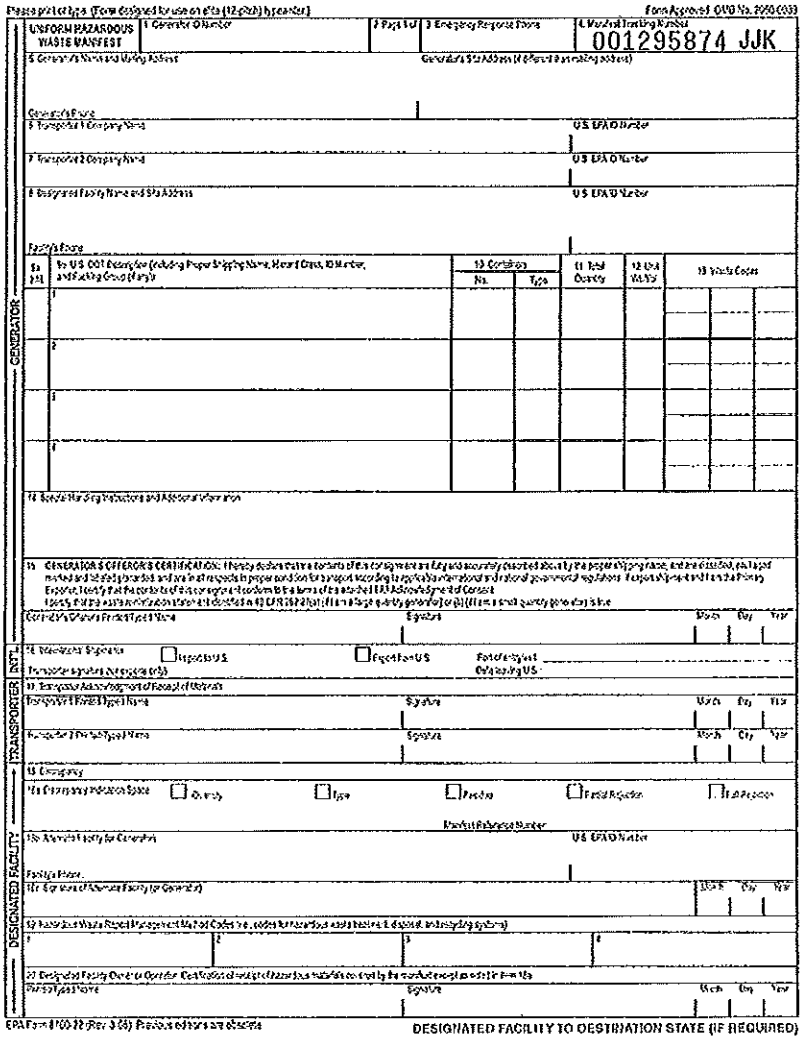
Certification	Applies to Manifest Line Items
Pursuant to 40 CFR 268.7(a), I hereby notify that this shipment contains waste restricted under 40 CFR Part 268	1 2
This waste is not restricted as specified in 40 CFR 268 Subpart D.	3

Waste analysis data, where available, is attached

Signature: _____ Print Name: _____

Title: _____ Date: _____

Attachment K



AREVA NP Inc.

E06 Environmental Protection
E06-04 Miscellaneous Reports

E06-04-006
Version 4.0

Waste Analysis Plan

Date (GMT)	Signed by
09/10/2009 20:14:48	Perryman, James
Authorization/Title	Document Author

09/10/2009 21:28:41	Maas, Loren
Authorization/Title	Licensing & Compliance Manager

09/10/2009 21:39:56	Krzan, Kaela
Authorization/Title	Document Control Approval

AREVA NP Inc

Inspection Plans

Attachment C

C1.0 INSPECTION PLAN

This section demonstrates that all required inspections are conducted, the results recorded, and any necessary corrective actions are implemented in a timely manner.

C1.1 General Inspection Requirements

Dangerous waste is managed in containers of various sizes located throughout the facility in satellite accumulation containers and ultimately at the DWSF. AREVA has procedures in place which include general inspection criteria for the DWSF. The inspections are conducted by AREVA Uranium Conversion and Recovery Technicians at least every 7 days and are documented on an inspection form which is kept on file.

Emergency equipment repositories are maintained throughout the facility (12 as of 5/27/2008). A wide array of monitoring, personal protective, communication, first aid, decontamination, and general emergency response equipment are staged at these repositories. The repositories are inspected on a monthly basis to assure that all equipment is present. The inspections are scheduled via AREVA's computer-based preventive maintenance system (SAP), which also generates the log form utilized to document the inspection. Additional information on emergency equipment most pertinent to the DWSF and CCWT is located in Section 7.0 of this application (Contingency Plan).

AREVA has strategically placed appropriate portable fire extinguishers throughout the facility. These extinguishers are inspected on a monthly and biannual basis as scheduled via SAP. The fire extinguisher inspection procedure includes checklists which are completed at the time of inspection and kept on file.

C1.2 Inspection Log

The weekly stored waste inspection log for the DWSF includes the following data entries:

- the date and time of inspection,
- printed name and handwritten signature of the inspector,
- a notation of any observations made,
- an account of any spills or discharges,
- the date and nature of any repairs,
- proper container labeling and segregation, and
- 30 inch aisle spacing.

The weekly inspection log is maintained by the Uranium Conversion and Recovery Technicians.

Inspection protocol relative to the CCWT is discussed in Section 6.2.5.1, below.

C1.3 Schedule for Remedial Action for Problems Revealed

Consistent with WAC 173-303-320(3), if inspections identify leaks, spills, or liquid in secondary containment at either the DWSF or CCWT, the liquid will be removed and any required cleanup completed on a schedule that prevents hazards to human health and the environment. If corrosion or other obvious structural deficiencies are observed on a container(s), the container(s) in question will be repackaged in a timeframe established by the Environmental Engineer.

If structural or other damage is detected on any portion of the CCWT, including ancillary piping, the tank will be taken out of service immediately.

Response to any leak or spill will be consistent with WAC 173-303-640(7) and, if pertinent, AREVA's Dangerous Waste Contingency Plan (Section 7.0).

C1.4 Specific Process or Waste Type Inspection Requirements

C1.4.1 Container Inspections

Dangerous waste stored in containers is managed at satellite accumulation locations throughout the facility and the DWSF. AREVA has procedures in place to ensure that dangerous and mixed wastes are managed appropriately and inspected. Per AREVA procedure, the inspections are documented and kept on file for a minimum of five years. Satellite container inspections are typically conducted by the Environmental Engineer from within the Licensing and Compliance organization.

The DWSF inspection is conducted by AREVA Uranium Conversion and Recovery Technicians on a weekly basis. Key components of the container inspection include:

- Secondary containment pallets contain no liquid,
- Confirmation that container labels are readable and not obscured,
- Inspection for deteriorating or leaking drums,
- Verification of appropriate aisle space,
- Inspection of emergency equipment.

C1.5 Tank System Inspections and Corrective Actions

C1.5.1 Tank System Inspections

AREVA has a procedure in place which requires inspections to be performed on the CCWT and associated piping each operating day. Inspection requirements include the name of the person performing the inspection, date and

time of the inspection, a notation of any observations made during the inspection, and the date and nature of any repairs or remedial actions taken. The completed inspection log is kept at the facility for at least five years. The CCWT structural integrity assessment as required by WAC 173-303-640 is included as Attachment 4.2.

C1.5.2 Tank System Corrective Actions

In the event that liquid is detected in the interstitial space between the primary CCWT and the secondary tank, the actions taken would include:

- Any flow of waste into the CCWT will be stopped and an inspection of the tank will be performed;
- Waste collected in the interstitial space shall be removed within 24 hours of detection;
- Within 24 hours or the earliest practicable time, remaining wastes will be removed from the primary tank, if necessary, to prevent further leaking and to allow for any required repairs to the primary tank;
- If the cause of the leak (not a spill, overfill, etc.) is determined to be from the primary tank due to tank failure, fitting failure, or other structural type defect requiring extensive repairs, an independent engineering assessment of the tank shall be completed before the tank is returned to service.

C2.0 Preparedness and Prevention Requirements

C2.1 Equipment Requirements

The following sections describe the internal and external communications system and the emergency equipment required.

C2.1.1 Internal Communications

AREVA operates an internal telephone system, a plant public address system, cellular phones, and two-way radios for internal communications. Telephones are located throughout the facility, allowing rapid communication in the event of an emergency. A telephone is located on the south wall of the DWSF and adjacent to the CCWT in the component etch/pickle work area. Emergency situations are communicated to the Security Officer in the Central Guard Station. An internal emergency number (8111) provides direct access to the Central Guard Station. Security guards have direct access to all communication systems, including the plant public address system.

C2.1.2 External Communications

Primary communication to outside response agencies is by telephone. Operational tests of the telephones are conducted daily by routine use and response; agencies' telephone numbers are verified quarterly by Plant Security.

Alternate communications to response agencies is by radio to the emergency dispatch center servicing Richland and other local jurisdictions. The staff at that location could provide telephone patch or relay to distant emergency response organizations. Operational tests of the radio link are conducted daily by Plant Security.

C2.1.3 Emergency Equipment

Portable fire extinguishers, fire control equipment, spill control equipment, and decontamination equipment are maintained at the DWSF. Located adjacent to the CCWT is an acid-neutralizing spill gun and emergency safety shower. In addition to these, similar equipment is located at other areas throughout the facility in emergency equipment repositories. Emergency equipment most

pertinent to the DWSF and CCWT is listed by location in the AREVA Dangerous Waste Contingency Plan (Section 7.0).

C2.1.4 Water for Fire Control

Water supply is provided by the City of Richland. Both water pressure and volume are adequate for water hose streams, foam producing equipment, and automatic sprinklers. There are two separate city water supply lines to the AREVA facility.

C2.2 Aisle Space Requirement

AREVA maintains adequate aisle space (30" minimum) to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation.

C3.0 Preventive Procedures, Structures, and Equipment

C3.1 Unloading/loading Operations

AREVA does not receive dangerous/hazardous wastes from offsite. However, AREVA does receive, on a periodic basis, containerized wastes which are classified as low level (radioactive) combustible waste which is destined for onsite incineration. These drums are not managed at the DWSF.

Waste loading operations consist of loading waste drums directly from storage at the DWSF to the contracted waste company's truck. The drums are stored on pallets that are lifted into the truck with a fork lift. Once inside the truck, the drums are secured and the pallets returned to the DWSF.

Waste downloading at the CCWT consists of connecting the contracted waste company's truck to the CCWT and pumping the contents directly into the tanker; there is no intermediate storage of the liquid waste. The downloading is a continuously manned process conducted in accordance with a site management control procedure.

C3.2 Run-off

A significant portion of the DWSF is covered. The remaining area is sloped to prevent stormwater run-on. All containers on the uncovered portion of the DWSF are stored on pallets to prevent contact with stormwater and contain only wastes with no free-standing liquids.

The CCWT is a fully contained, double walled tank that sits above-grade on a concrete pad.

C3.3 Water Supplies

The operation of the DWSF and CCWT do not impact water supplies. Piped domestic water is received from offsite (City of Richland). Local groundwater does not serve as a water supply source.

C3.4 Equipment Failure and Power Outage

AREVA has four emergency diesel generators which would supply sufficient electricity to continue plant operations in the event of a power failure.. In addition, several portable generators are maintained at the AREVA facility and may be used as necessary (i.e., to operate pumps or other emergency equipment) in the event that a power supply outlet is not readily available.

C3.5 Personal Protective Equipment

AREVA has procedures in place to ensure that appropriate personal protective equipment is used by all personnel working at the DWSF. The level of protection is selected to be commensurate with the work being performed. Enhanced personal protective equipment (respiratory protection, clothing, etc.) is maintained for use by emergency response personnel. At a minimum for any waste drum movement at the DWSF or inspection activities associated with the CCWT, safety glasses and steel-toed shoes are required. Additional personal protective equipment may be required, commensurate with the activity performed.

C4.0 Prevention of Reaction of Ignitable, Reactive, and/or Incompatible Wastes

C4.1 Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste

Smoking is not permitted at the AREVA facility other than in designated smoking areas. None of these designated areas are near the DWSF or CCWT. Additionally, AREVA has a procedure which includes requirements for all cutting and welding that may be conducted outside of the dedicated maintenance areas of the facility.

All ignitable waste is stored under the covered portion of the DWSF which blocks direct sunlight and prevents excessive temperatures.

The CCWT does not store ignitable or reactive wastes; no reactive wastes are stored at the DWSF.

C4.2 Precautions for Handling Ignitable or Reactive Waste and Mixing Incompatible Wastes

General precautions for handling ignitable or reactive wastes and mixing incompatible wastes at the DWSF are documented in AREVA Procedures. The CCWT receives waste which is hard-piped directly from the generating processes which minimizes the opportunity to add incompatible wastes.

C4.3 Ignitable or Reactive Wastes in Tanks

This section is not applicable.

C4.4 Incompatible Wastes in Containers

General precautions for storing ignitable or reactive wastes in containers and mixing incompatible wastes are documented in AREVA Procedures. Instruction regarding incompatible waste storage and adequate separation/spacing are addressed in the operating procedures.

AREVA NP Inc

Personnel Training Matrix

Attachment D

Attachment D.1

Dangerous Waste Management Training Matrix			
Worker Classification	**Work Station**	**Job Description**	**Training Requirements**
All Manufacturing Employees	NA	NA	Site Access Training - Initial Site Access Training - Refresher Safety, Environmental, or MC&A Incident Notifications Procedure
Dangerous Waste Generators	Throughout Manufacturing Facility	Generate dangerous wastes at workstations/ activities throughout the plant and place wastes in appropriate satellite accumulation containers.	Contaminated Waste Generator Requirements Procedure and associated Standard Work Instruction (SWI) flow diagram Satellite Accumulation Area Control Procedure
Waste Packager	Waste Segregation and Packaging Waste Assay System UO2 Decon & Volume Reduction	Waste packaging, assaying, and volume reduction of radioactive contaminated waste, including mixed waste, for eventual disposal.	Solid Waste Packaging Procedure Waste Assay Operation Procedure Waste Volume Reduction and Packaging Facility Procedure
Waste Handler	Waste Handling, Movement and Storage Waste/Hazardous Shipment Preparation	Low Level Radioactive Waste (LLRW), dangerous waste and mixed waste handling, storage, and shipment preparation. Includes operation of the Dangerous Waste Storage Facility (DWSF).	Mixed/Dangerous Waste Handling and Storage Procedure Shipping, Receiving, & Storage Operations Procedure Satellite Accumulation Area Control Procedure DOT Hazmat Employee Training Procedure for Preparing LLRW, Mixed Waste, Hazardous Waste and Hazardous Material Shipments Bulk Chemical Loading and Unloading

Dangerous Waste Management Training Matrix			
Worker Classification	**Work Station**	**Job Description**	**Training Requirements**
			Procedure Dangerous Waste Contingency Plan
Component Etch/ Pickle Technician	Etch Room	Performs operations which include the generation and collection of spent dangerous waste solutions in Component Chemical Waste Tank.	Component Pickle Procedure Dangerous Waste Contingency Plan
Dangerous Waste Specialist	NA	Professional-level dangerous waste management duties including but not limited to: waste designation, procedure creation/revision, auditing for compliance, preparation of regulatory submittals (permits, plans, etc.); direction of dangerous waste training program.	Contaminated Waste Generator Requirements Procedure and associated SWI Satellite Accumulation Area Control Procedure Procedure for Regulatory Reporting of Hazardous Substance Releases Dangerous Waste Training Plan Waste Analysis Plan DWSF and Component Chemical Waste Tank Closure Plans Dangerous Waste Contingency Plan
Dangerous Waste Shippers (Logistics)	NA	Prepare required paperwork and perform appropriate overchecks to assure shipment of dangerous waste and radioactive/dangerous mixed wastes in compliance with U.S. DOT regulations.	Radioactive Material Shipping Standard Procedure Logistics Shipping Guidelines Procedure Logistics Waste Shipping Guidelines Procedure Procedure for Regulatory Compliance Oversight on Regulated Hazardous

Dangerous Waste Management Training Matrix			
Worker Classification	**Work Station**	**Job Description**	**Training Requirements**
			Material, Hazardous Waste, & Class 7 (Radioactive) Material Shipments
Emergency Responders	Plant Emergency Response Team	First responders to onsite plant emergencies which may include chemical and waste leaks/spills, fires, personal injury, etc.	Advanced First Aid Training Hazardous Material Spill and Decontamination Training Self Contained Breathing Apparatus Training Hands On Fire Extinguisher Training Drager Surveys for Chemical Concentrations Procedure Dangerous Waste Contingency Plan Implementing Procedures

AREVA NP Inc

DWSF and CCWT Closure Plans

Attachment E

E1.0 CLOSURE PLAN / FINANCIAL ASSURANCE FOR CLOSURE

[WAC 173-303-806(4)(A)(XII), 610(2) - (6)]

This chapter describes the performance standards and closure activities associated with closure of AREVA's Dangerous Waste Storage Facility (DWSF) and Component Chemical Waste Tank (CCWT). Both storage units will be closed in accordance with WAC 173-303-610 and in consideration of Ecology's Guidance for Clean Closure of Dangerous Waste Units and Facilities, Publication #94-111.

AREVA's Closure Plan for the DWSF, E06-04-005, is included as Attachment E1.1. The Closure Plan for the CCWT, E06-04-009, is included as Attachment E1.2.

Attachment E1.1

Closure Plan for the Dangerous Waste Storage Facility (E06-04-005)

EHS&L Document

Closure Plan for the Dangerous Waste Storage Facility

Nature of Changes

Item	Paragraph	Description	Justification
1.	Entire document	Convert from "interim status" closure plan to "final status" closure plan with updated information on: ➢ Regulatory basis ➢ Facility description ➢ Inventory description ➢ Inventory disposition pathways ➢ Closure costs	Required to support Part B permit application for final status under Ecology's Dangerous Waste Regulations
2.			
3.			
4.			
List Below any Documents, including Forms & Operator Aids which must be issued concurrently with this document revision:			

This Document contains a total of 31 pages excluding the signature page generated by Documentum, the document control application software.

DOCUMENT REVIEW/APPROVAL/DELETION CHECKLIST

All new and/or revised procedures shall be approved by the change author, cognizant manager(s) of areas affected by the changes, and by applicable manager(s) of any function that approved the previous revision of the document unless responsibility for such approval has been transferred to another organization. Also, the procedure shall be approved by manager(s) of functional organizations that provide technical reviews with the exception of the Training Department. Finally, Document Control shall verify that the required approvals have been properly obtained and that any documents that must be issued concurrently are ready to be issued.

Minor Changes: If the proposed changes are limited to editorial and/or administrative changes check the box at the right. The document will be routed directly for review by EHS&L without technical review. All applicable approvals must still be obtained. ☐

Document Reviews			Document Approvals	
Purpose/Function of Review	Specify Reviewer(s) (Optional except for change author)	(Check all that apply)	Title of Approver	(Check all that Apply)
Document Control (Automatic)		☒	Document Control (Automatic)	☒
Change Author	LJ Maas	☒	Author	☒
Independent Technical Review	JB Perryman	☒		
Operability Review(s)			Mgr, Richland Operations[1]	☐
Conversion		☐	Mgr, Uranium Conversion & Recovery Operations[1]	☒
Recovery	WA Koglin	☒		
Ceramics		☐	Mgr, Ceramic Operations[1]	☐
Rods		☐	Mgr, Rods & Bundles[1]	☐
Bundles		☐		
Transportation		☐		
Components		☐	Mgr, Component Fabrication[1]	☐
Maintenance Review		☐	Mgr, Maintenance[1]	☐
Lab Review		☐	Mgr, Analytical Services[1]	☐
EHS&L Review(s)			Mgr, EHS&L[2]	☐
Criticality		☐	Mgr, Criticality Safety[2]	☐
Radiation Protection		☐	Mgr, Safety, Security & Emergency Preparedness[2]	☐
Safety/Security		☐		
Emergency Preparedness		☐		
MC&A		☐	Mgr, Licensing & Compliance[2]	☒
Transportation		☐		
Environmental	JB Perryman	☒		
BWR Product Eng. Review		☐	Mgr, BWR Product Engineering	☐
BWR Core Engineering Review		☐	Mgr, BWR Core Engineering	☐
Codes and Methods Review		☐	Mgr, Codes and Methods	☐
Proj. Eng. & Design Support Review		☐	Mgr, Proj. Eng. & Design Support	☐
Quality Review		☐	Mgr, Quality	☐
Ops. Projects & Planning Review		☐	Mgr, Ops. Projects & Planning	☐
Others:		☐	Mgr, Richland Site/Other	☐
Training & Employee Dev.:[3]		☐	Training & Employee Dev.	☐

[1]Note: If approvals include 2 or more product center managers, the Operations manager can be substituted for the applicable product center managers.

[2]Note: If approvals include 2 or more EHS&L functional managers, the EHS&L manager can be substituted for the applicable EHS&L functional managers.

[3]Note: Training department review is required for all procedures that require or affect a Learning Plan and if additional training materials or curriculum must be revised before issuing procedure.

EHS&L Change Impact Evaluation Form		
Document / ECN No*.: E06-04-005	Change Evaluator: LJ Maas	
Does the change potentially impact Criticality Alarm System (CAS) coverage?	☐ Yes ☒ No	If yes, explain:
NRC Pre-Approval Evaluation:		
Is NRC Pre-approval (License Amendment) Needed? (Based on "Yes" answer to any of five questions below). (Based on "No" answer to all five questions below).	☐ Yes ☒ No	
1. Does the change create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 (create high or intermediate consequence events) and that have not previously been described in AREVA NP Inc's ISA Summary?	☐ Yes ☒ No	If yes, explain:
2. Does the change use new processes, technologies, or control systems for which AREVA NP Inc. has no prior experience?	☐ Yes ☒ No	If yes, explain:
3. Does the change remove, without at least an equivalent replacement of the safety function, an item relied on for safety that is listed in the ISA Summary?	☐ Yes ☒ No	If yes, explain:
4. Does the change alter any item relied on for safety, listed in the ISA Summary, that is the sole item preventing or mitigating an accident sequence of high or intermediate consequences?	☐ Yes ☒ No	If yes, explain:
5. Does the change qualify as a change specifically prohibited by NRC regulation, order or license condition?	☐ Yes ☒ No	If yes, explain:
Actions Required Prior to or Concurrent with Change Implementation Evaluation:		
Action		**Explanation**
6. Modification / Addition to CAS system or system coverage documentation	☐ Yes ☒ No	If yes, explain:
7. Acquire NRC pre-approval (license amendment)	☐ Yes ☒ No	If yes, explain:
8. Conduct/modify ISA	☐ Yes ☒ No	If yes, explain:
9. ISA Database Modification	☐ Yes ☒ No	If yes, explain:
10. Modification of other safety program information / underlying analyses (PHA, RHA, FHA, NCSA, etc.)	☐ Yes ☒ No	If yes, explain:
Actions required subsequent to Change Implementation Evaluation:		
11. Update safety program information (PHA,RHA,FHA,NCSA, P&ID)	☐ Yes ☒ No	If yes, explain:

* **If this form exists as a part of a document, the document number is not required.**

1.0 Introduction

This Closure Plan applies to the Dangerous Waste Storage Facility (DWSF) at the AREVA NP Inc. (AREVA) nuclear fuel fabrication facility in Richland, WA. The DWSF has been operated to-date under interim status facility standards but is now the subject of a Part B permit application for final facility status. This updated closure plan, along with the most recent closure cost estimate for the facility, is being submitted in conjunction with that application in accordance with WAC 173-303-806 (xiii) and (xv).

Construction of the DWSF to final facility standards was completed in November 1996. The facility was placed into service in October 1997 and is covered by the site's existing Part A permit. The DWSF provides pad storage for containerized (drummed or boxed) dangerous wastes, nearly all of which are solid-phase and are also classified as mixed wastes due to their contamination with uranium from the plant's uranium fuel manufacturing activities.

This updated closure plan preserves the closure approach set forth in earlier interim status closure plans for this facility – an approach successfully employed in the Ecology-approved closure of AREVA's historic storage pad, a predecessor to the current DWSF. Approximately 85 percent of the total costs for closure of the DWSF are associated with disposal of the stored waste inventory, with the residual costs being associated with the facility structure itself (surveying, sampling, decontamination, certification, etc.). The closure cost estimate addresses both the inventory and facility-associated closure costs. The Richland site will have an ongoing need for the DWSF. As such, closure of the DWSF is not projected to happen until the time of overall plant closure.

1.1 Regulatory Basis

AREVA's DWSF constitutes a dangerous waste management unit (DWMU) requiring a written closure plan in accordance with WAC 173-303-610(3) and in consideration of Ecology's Guidance for Clean Closure of Dangerous Waste Facilities.

1.2 General Closure Approach

This Closure Plan provides the procedures to be employed to achieve clean closure of the DWSF at AREVA's Richland facility. Dangerous waste closure activities covered under this plan will include disposition (processing/disposal) of the wastes stored at the facility and decontaminating and/or removing container storage components (plastic containment pallets and wooden pallets). Clean closure will further require decontamination/removal of any asphalt that is contaminated above specified closure levels. Closure of the DWSF will include an initial 100% radiological survey of the asphalt and adjacent soil as a sensitive preliminary screening tool to identify areas of potential waste release. Based on the results of this initial screening survey, asphalt removal, investigative soil sampling, and soil removal, followed by confirmation soil sampling, will be conducted as necessary. Any remediated debris or media (asphalt, soil) will be evaluated for disposition per the requirements of AREVA's NRC license and Ecology's WAC 173-303 regulations. All removed materials will be disposed of accordingly. As previously indicated, anticipated level of effort (and costs) for facility remediation at time of closure are expected to be low. This is based on the strict waste management protocols, backed by frequent periodic inspections.

1.3 Closure Objectives

The closure performance standard for dangerous waste management units is listed in WAC 173-303-610(2). This standard requires AREVA to close the DWSF in a manner that:

- Minimizes the need for further maintenance;
- Controls, minimizes, or eliminates to the extent necessary to protect human health and the environment, post-closure escape of dangerous waste, dangerous constituents, leachate, contaminated runoff, or dangerous waste decomposition products to the ground, surface water, groundwater, or the atmosphere; and
- Returns the land to the appearance and use of surrounding land areas to the degree possible given the nature of the previous dangerous waste activity.

This Closure Plan has been developed to guide implementation of closure activities designed to achieve this performance standard and to certify the closure as complete and consistent with the regulatory requirements for clean closure. Impacts to the soil quality, if any, resulting from operation of the DWSF will be determined as part of the closure activities. The numeric cleanup levels for the soils will be calculated according to MTCA Method B unrestricted release closure levels. Decontamination/removal of container storage unit structures and associated soils will be completed as necessary to achieve closure objectives.

1.4 Closure Plan Overview/Organization

This Closure Plan has been prepared in accordance with applicable Ecology regulations and guidance. The plan is organized into four chapters as follows:

- Introduction (Chapter 1.0)
- Facility Information (Chapter 2.0)
- Closure Procedures for Dangerous Waste Storage Facility (Chapter 3.0)
- Schedules, Costs, and Certification (Chapter 4.0)

2.0 Facility Information

This section provides information describing the Richland plant site, its facilities, and its operational history.

2.1 Facility Description

This section provides information on the AREVA facility. Section 2.1.1 describes the facility location; Section 2.1.2, the operational history; Section 2.1.3, land use and zoning; and Section 2.1.4, a facility description.

2.1.1 Facility Location

The AREVA facility is located at 2101 Horn Rapids Road just within the northern limits of the city of Richland in Benton County, Washington. The facility definition includes the active manufacturing facility within a fenced area of approximately 53 acres. The land surrounding the facility (which is also owned by AREVA) is generally undeveloped, or in the case of land west of the facility, leased for agricultural purposes.

The facility is located within 320 acres of land owned by AREVA which is within the Horn Rapids Industrial Park. The property is situated at approximately latitude N46°21'003" and longitude W119°18'020" in Sections 15 and 16 of Township 10N, Range 28E, Willamette Meridian. The facility itself is located in the southwest quarter of Section 15 (15-SW/4).

The property is geographically situated within the Pasco Basin in the northern portion of the Columbia Plateau, east of the Cascade Mountains. The Yakima River passes approximately 2

miles to the west, and the Columbia River is approximately 1.5 miles to the east. The nearest residential areas are 1.5 miles to the southwest.

2.1.2 Operational History

The nuclear fuel fabrication plant has been in actual operation since the early 1970's. From 1969-72 the plant was constructed and operated by an operating unit of Jersey Enterprises, Inc. known as Jersey Nuclear Company. Jersey Enterprises, Inc. was a subsidiary of Standard Oil of New Jersey. Jersey Nuclear Company was incorporated in 1972 as Jersey Nuclear Company Inc. In 1983, Jersey Nuclear Company Inc. changed its name to Exxon Nuclear Company, Inc. By Stock Purchase Agreement dated December 31, 1986, Siemens Capital Corporation purchased Exxon Nuclear Company, Inc. from Exxon. Exxon Nuclear Company, Inc. changed its name to Advanced Nuclear Fuels Corporation on January 15, 1987, to Siemens Nuclear Power Corporation on August 1, 1991, and to Siemens Power Corporation (SPC) on July 10, 1992. On February 1, 2001, SPC changed its name to Framatome ANP Richland Inc., coinciding with the merger of the former-SPC's parent company, Siemens AG, with that of the French company, Framatome S.A. On March 19, 2001, Framatome ANP Richland Inc. became a wholly owned subsidiary corporation of Framatome ANP, Inc., the U.S. nuclear operations corporation for the joint venture. On September 1, 2001, Framatome ANP Richland, Inc. merged into, and took the name of, its parent company, Framatome ANP, Inc. Lastly, effective March 15, 2006, Framatome ANP, Inc. changed its name to AREVA NP Inc. Throughout its history, the AREVA facility has operated under a license from the U.S. Nuclear Regulatory Commission (NRC).

2.1.3 Land Use and Zoning

Land use in the general area is agricultural, residential, industrial and commercial, and, to a lesser extent, recreational. The region's agricultural lands are primarily north and east of the Columbia River and south of the Yakima River and are used for dry-land and irrigated crop production and livestock grazing. The incorporated area of Richland is the closest center of residential land use. Regional industrial activities are associated predominately with agriculture or the U.S. Department of Energy's Hanford Site. Commercial usage consists primarily of retail establishments. Recreational land uses in the area include hunting in the unincorporated areas and leisurely pursuits normally associated with incorporated residential areas.

The area immediately surrounding the AREVA property is relatively undeveloped. AREVA owns the adjacent property to the east, west, and south of the facility. With the exception of land to the west which AREVA leases for agricultural purposes, this property is undeveloped and forms a buffer ranging from approximately 500 feet to ¼ mile wide between the facility and other privately owned land. The U.S. Department of Energy-owned Hanford Site lies north and east of the AREVA property and includes three current CERCLA National Priorities List (NPL) sites (the 100-, 200-, 300- Areas) and one former NPL site (the 1100 Area). The 1100 Area is divided into three operable units: 1100-EM-1, 1100-EM-2, and 1100-EM-3. The boundaries of the 1100-EM-1 Operable Unit abut AREVA's property on the north and east. The Horn Rapids Landfill (HRL), which lies in the 1100-EM-1 Operable Unit, lies directly north of the AREVA facility across Horn Rapids Road. The HRL was investigated as a potential source of soil and ground-water contamination (USDOE 1993). The South Pit portion of the HRL lies less than 500 feet northeast of the active portion of the AREVA facility and immediately south of Horn Rapids Road on undeveloped AREVA property. The rest of the 1100 Area in the vicinity of the AREVA property is undeveloped. Further to the south, land use consists of Hanford operations support.

To the south and west of the AREVA property as well as on AREVA property west of the plant, irrigated agricultural activities are conducted by Tony Czebotar Farms. To the southeast, Pacific Eco Solutions (PEcoS) operates a commercial low-level radioactive waste supercompactor. PEcoS is also Part B permitted to thermally treat radioactively contaminated RCRA and PCB wastes. Other neighboring facilities within a one-mile radius include Ferguson Enterprises (0.6 miles SW), Plastic Injection Molding (0.8 miles SW), Allvac-Richland (1.0 miles SW), Applied Geotechnical Engineering and Construction (1.0 mile W), and Hanford Cold Test Facility (1.0 mile NW).

The AREVA property is zoned M-2, Heavy Manufacturing Use. The land surrounding the AREVA property is zoned as follows:

- Federal Hanford Site to the north, northeast, and northwest. The Benton County portion of the Hanford Site, including the eastern half of the 1100 Area, is currently zoned as unclassified. Land use is restricted to activities associated with the nuclear industry; non-nuclear-related activities may be allowed upon approval of U.S. Department of Energy (USDOE) (Benton County Code, Title 11, Ordinance No. 62).
- Agricultural (AG) to the west and southwest.
- Medium industrial (I-M) or heavy manufacturing (M-2) to the east and south.

2.1.4 Facility Description

The primary activity at the AREVA facility is the manufacture of fuel assemblies for commercial nuclear power reactors. Intermediate fuel products may also be supplied, namely uranium dioxide (UO2) powder and UO2 pellets. Manufacturing of these fuel products and associated support activities occur in a number of structures. Key facilities and the primary processes/ activities which occur in each of them are described below.

- Dry Conversion Facility Chemical conversion of UF_6 to uranium dioxide (UO_2) powder and mechanical processing of the powder (powder preparation) for subsequent pellet pressing.
- UO_2 Building Pressing of UO_2 powder into pellets and subsequent pellet sintering and grinding. Loading of finished pellets into fuel rods and assembly of fuel rods and associated hardware into fuel bundles. Loading of products (powder, pellets, fuel rods, assemblies) for shipment. Recovery of uranium via the ammonium diuranate (ADU) process. Bulk UO_2 storage. Analytical laboratory and UF_6 cylinder washing activities.
- Specialty Fuels (SF) Building Production of UO_2 fuel pellets (blending, pressing, sintering, grinding) containing neutron absorber additive. Fuel rod fabrication activities. Housing of the Solid Waste Uranium Recovery (SWUR) incinerator.
- Engineering Laboratory Operations (ELO) Building Dissolution and solvent extraction processing of uranium fuel scrap and other uranium containing residues for removal of contaminants and recovery of uranium. Laboratory facilities for research and development activities in support of fuel fabrication and related functions.
- Ammonia Recovery Facility (ARF) Recovery of ammonium hydroxide and uranium from liquid process effluents. Temporary tank accumulation of liquid process effluents.
- Modular Extraction Recovery Facility (MERF) Sorting and recovery of uranium from contaminated solid wastes.

- Product Development Test Facility (PDTF) Hydraulic, heat transfer, and mechanical/ seismic testing of fuel assemblies.
- Machine Shop Mechanical component operations.
- Shipping Container Refurbishment Facility Maintenance, cleaning and painting of product shipping containers; mechanical fabrication activities.
- Maintenance Shop Maintenance craft shops and offices.
- North Tank Farm Tank storage of liquid chemical feed and product materials (hydrofluoric acid, anhydrous and aqua ammonia, sodium hydroxide, nitric acid, nitrogen)
- Carpenter Shop Carpentry/Painting activities.
- Fuel Services Building (Building 9) Miscellaneous production support activities, including computer operations. Fuel bundle defabrication activities.
- UF_6 Cylinder Recertification Facility Testing and inspection for the recertification of UF_6 cylinders.

3.0 Closure Procedures for the Dangerous Waste Storage Facility

3.1 Waste Management Unit Description Summary

The waste management unit addressed in this Closure Plan consists of the DWSF located in the southeast corner of the fenced AREVA facility as shown in Figure 1. Information regarding the physical configuration and operation of the container storage unit is presented below.

Solid-phase mixed wastes (radioactive wastes which also designate as chemically dangerous under Ecology regulations) from plant operations are stored primarily in 55-gallon drums and to a lesser extent in large metal boxes. All containers (drums) with free liquids present are stored on secondary containment pallets. The DWSF is also used to store non-dangerous, radioactive wastes in drums and boxes.

The base of the DWSF is constructed of minimum 2-inch thick asphalt pavement. The covered area of the facility is partially bermed and sloped to prevent stormwater run-on. In addition all containers that are stored at the DWSF are elevated on pallets or skids to prevent contact with stormwater. The DWSF is inspected on a weekly basis at a minimum, with an annual summary of any spill/cleanup events compiled and kept on file by Environmental, Health, Safety & Licensing (EHS&L). These summaries document a continued lack of chemical or radiological contamination of the DWSF structures.

All containers used to store wastes at the DWSF are strong-tight containers appropriate for the type of waste stored. The container material is selected to be compatible with the waste contained, which in most cases translates into steel drums or boxes. Containers used to store nitric acid-contaminated wastes are made of high density polyethylene (HDPE), which is compatible with the waste stored.

3.2 Waste Inventory Description

A range of dangerous wastes originating from the various on-site processes and legacy operations is stored at AREVA's DWSF. Based on successful efforts to minimize the ongoing generation of mixed wastes and to find disposal options for certain legacy wastes, wastes stored at the pad are decreasing with respect to type and overall volume.

Table1 provides a summary of the major categories of dangerous (primarily mixed) wastes stored at the DWSF. Table 1 also provides a summary of the chemical constituents present in each type of waste. Data associated with the containerized dangerous wastes were derived from chemical analyses of the wastes for the purpose of formal designation and through process knowledge (i.e., knowledge of the feed chemicals for a particular process and an understanding of the chemical reactions which occur so that the components of the process waste stream are known). This waste constituent knowledge provides the necessary information for the selection of analytical parameters to be utilized in the waste pad closure process.

As indicated in Table 1, the primary waste categories managed at the DWSF are mixed waste filter cakes, used ventilation system filters, nitric acid-contaminated media, and organic wastes/solvent-contaminated wastes. Filter cakes are generated via the dewatering of sludges and slurries using filter presses, primarily in the uranium recovery operations in the Engineering Laboratory Operations Building. In addition to these currently generated filter cakes, some legacy filter cakes left over from past lagoon inventory processing activities are stored at the DWSF. These legacy filter cakes are used to dilute down currently generated filter cakes to meet disposal site radiological acceptance criteria. The filter cakes typically designate as state-only toxic and/or state-only corrosive.

Mixed waste used ventilation system filters are generated in radioactive material processes that also utilize hazardous chemicals, e.g., the ammonium diuranate (ADU) chemical conversion line. The filters include high efficiency particulate absolute (HEPA) filters and the pre-filters that protect the HEPAs. These fillers typically designate as state-only toxic and/or corrosive.

Nitric acid-contaminated media consist primarily of sock/cartridge filters removed from process systems handling nitric acid-based uranium solutions. A secondary minor stream includes rags and other solid wastes that have contacted nitric acid-based uranium solutions via spill cleanups, maintenance, etc. These nitric acid-contaminated mixed wastes designate as state-only toxic and corrosive.

Organic wastes/solvent-contaminated wastes are a combination of currently generated wastes (radiologically contaminated paint wastes and solvent rags) and legacy wastes (e.g., radiologically contaminated Freon sludges and organic liquids). Successful efforts to minimize current generation and to dispose of legacy wastes have significantly diminished this waste category. These wastes typically designate for F-listed solvents, state-only toxicity, or corrosivity. Certain of these wastes are liquids and therefore are stored on secondary containment pallets.

3.3 Maximum Inventory Disposition Pathways and Costs

As described in Section 1.2, "General Closure Approach", closure of the DWSF will proceed beginning with the removal, processing, and disposal of all stored wastes. Pathways for the disposition of wastes currently managed at the DWSF have become more straightforward for a number of reasons, most notably successes in eliminating/minimizing mixed waste generation across the site; completion of the processing of a significant inventory of legacy wastes for uranium recovery in the plant's Modular Extraction/Recovery Facility (MERF); and continued expansion of viable commercial treatment options for certain other legacy wastes. The site's most significant mixed waste streams (filter cakes and ventilation filters) are directly disposable at AREVA's contracted mixed waste disposal site. The other significant segment are those wastes being held with no currently identified disposal option. As previously noted, this is becoming a steadily smaller segment due to successes in waste minimization and in locating viable treatment/disposal options.

Table 2 provides volumes and costs for disposition of the current inventory managed at the DWSF. The volume of waste amenable to direct offsite shipment varies somewhat as wastes are accumulated for shipment, and then shipped. The volume in Table 2 is considered typical but also somewhat conservative in that the legacy lagoon treatment-related filter cakes are being steadily worked off and not replaced. The volume of wastes with no identified disposal option is more likely to decrease (due to success in identifying disposal options) than to increase (due to very low current generation rates).

3.4 DWSF Closure

The following sections address methods for closing the DWSF. Container storage unit components that will be investigated include asphalt, surface soil directly adjacent to the asphalt pad (minimum 18" or as needed to characterize detected contamination), and soil underlying the asphalt pad if an initial radiological survey or past annual DWSF evaluations indicate an area of interest or the location of a past spill. The closure approach mirrors the closure approach previously approved for, and successfully implemented at, the historic waste pad.

3.4.1 Dangerous Waste Storage Facility

Waste that has historically been stored on the DWSF is contaminated with uranium, which, because of its physical properties, is an excellent indicator constituent. Uranium is a long-lived radioactive element that is not subject to degradation or volatilization; emits alpha, beta, and gamma radiation; and, when spilled on asphalt, has shown that it is not significantly mobile. In AREVA's typical waste forms, the uranium is either in the form of uranium oxides or other uranium-bearing compounds. In documented releases to asphalt, uranium has demonstrated a pattern of very localized contamination with no migration through the asphalt to the underlying soil. The majority, albeit infrequent number, of historic documented failures of waste containers at AREVA have been from nitric acid-contaminated wet waste, which contains soluble uranium in the form of uranyl nitrate (UN) or its associated soluble salt–uranyl nitrate hexahydrate (UNH). Containers containing uranium as insoluble uranium oxide powder have an even more infrequent history of leakage and any uranium released would be even less likely to dissipate or migrate. All documented spill sites are cleaned and/or fully remediated as required when the spill occurred.

To capitalize on these excellent indicator characteristics of uranium, a radiological screening survey capable of detecting beta and gamma radiological contamination from uranium will be performed on the structural surface areas of the DWSF. Alpha radiation will not be used as a screening tool because of probable matrix interferences. The entire asphalt pad will be surveyed, including the soil that is directly adjacent to the edges of the asphalt pad. The radiological survey will be performed by qualified health and safety technicians under the technical guidance of a health physicist or radiological safety supervisor using a Ludlum Floor Monitor, Model 239-1F (Figure 2) or instrument with equivalent or better detection capabilities. The instrument will be calibrated using known standards. A chalk line grid will be set up prior to the radiological survey to ensure that the total surface area of the DWSF is covered by the survey.

Testing with the Ludlum Floor Monitor has shown that the instrument's detection capabilities are sufficient to detect uranium on asphalt in quantities as small as 0.8 gram uranium. A test was performed with the Ludlum Floor Monitor using a standard solution with a known amount of uranium. The standard solution is utilized to represent a release of uranium-contaminated mixed waste liquid from a drum onto the surface of the DWSF. (In reality, very few drums on the DWSF contain liquids and those that do are on double containment pallets. Drums of solid-phase wastes are not double contained but are far less likely to release their contents if

breached). The solution was poured onto a piece of asphalt and allowed to absorb into the asphalt until there was no visible moisture on the surface. The instrument was then pushed over the contaminated area of the asphalt; the survey meter response was over 25 times the background level.

The average uranium content of the waste containers stored at the DWSF is approximately 150 grams of uranium per container. This uranium is intimately mixed with the chemical constituents responsible for designation of these wastes as dangerous (mixed) wastes. With a detection capability of 0.8 g of uranium on asphalt, the Ludlum Floor Monitor has the capability to detect a very small release of mixed dangerous chemical/radioactive material from a stored waste container.

Any contaminated areas above a radiological threshold that are found during the initial screening of the DWSF and associated soils will be marked and investigated upon completion of the initial radiological survey. If contamination is found on the asphalt pad, the affected asphalt and 6" of peripheral asphalt will be marked and removed by hand or using standard construction equipment. After removal, the contaminated asphalt will be designated and managed appropriately. The soil underlying any removed asphalt will be surveyed for radiological contamination. If radiological contamination of the soil is detected, a soil sample will be collected and analyzed for the chemical parameters listed in Table 3. These parameters were selected based on the chemical constituents present in the containerized wastes stored at the DWSF (see Table 1). If soil removal is necessary, the contaminated soil and 6"of peripheral soil will be removed, designated, and managed appropriately. The location of all radiologically contaminated areas will be recorded in a field notebook and noted on a detailed diagram of the DWSF.

Any soil contaminated above established MTCA Method B unrestricted release levels will be excavated and evaluated per WAC 173-303 and NRC guidelines prior to disposal.

3.4.2 Solvent Contaminated Wastes

Solvent-contaminated oil, solvent rags, and Freon 113 wastes have historically been managed at the DWSF. These wastes are radiologically (uranium) contaminated mixed wastes that contain chemical constituents not present in wastes stored on other non-covered portions of the DWSF. These drums, as with all containers on the pad, are monitored via weekly inspections, at a minimum, and are stored under a covered portion of the DWSF. Those that contain liquids are stored on double containment pallets. No additional organics analyses will be performed on this area of the facility unless a spill of a drum containing these constituents was released directly to the asphalt. Such a spill would be documented in the DWSF operating log as well as in spill files maintained by EHS&L In the event expanded sampling is necessary, the list of parameters to be analyzed is included in Table 4.

3.4.3 Removal of Contaminated Soil

Soil that is contaminated above MTCA Method B numeric unrestricted release levels will be excavated by hand or standard construction equipment and placed in either 55 gallon drums or 90-cubic foot steel burial boxes. Soil that is excavated will be evaluated per WAC 173-303 and NRC requirements and managed appropriately.

3.4.4 Sampling Parameters

The lists of analytical parameters (Tables 3 and 4) are based on process knowledge and formal designations of the waste that is, or has been, stored at the DWSF. Appendix A, the Sampling and Analysis Plan for the DWSF, includes justification of chosen sampling parameters.

3.5 Subsoil Verification Sampling

Subsoil verification sampling will be performed only in the event that analytical results from a soil sample exceed the MTCA Method B unrestricted release cleanup levels. Verification sampling will be performed after contaminated soil has been removed to ensure that clean closure limits have been met.

This sampling phase will involve collecting samples from the uppermost three inches of subsoil from the remediated area and submitting them for confirmation analysis as outlined in the Sampling and Analysis Plan in Appendix A. Samples will be submitted for the same analytes as previously analyzed from that location. Verification sampling will follow any necessary remediation activity. All parameters will be below MTCA clean closure levels using unrestricted release cleanup levels before closure is determined to be complete.

3.6 Containerization and Transport

Any soil or asphalt that is removed will be placed in strong tight containers. If the soil or asphalt designates as a dangerous non-radioactive waste per WAC 173-303, it will be shipped via private waste transporter to a licensed waste treatment or disposal facility. Any radioactive non-dangerous soil or asphalt will be used as fill in boxes to be buried at the U.S. Ecology landfill facility located on the Hanford Reservation. Any soil or asphalt that is determined to be a mixed waste (radioactive with dangerous waste constituents) will be containerized and shipped to an appropriate mixed waste treatment/disposal facility. All waste disposal will be conducted in accordance with Ecology and NRC regulations.

3.7 Ancillary Closure Activities

3.7.1 Groundwater Monitoring

AREVA has historically conducted groundwater monitoring on up to seventeen monitoring wells per quarter. Of these seventeen monitoring wells, thirteen are downgradient from the DWSF. Current groundwater contamination is attributed to past liquid releases from a legacy impoundment system and associated underground waste lines. This impoundment system has been successfully closed in accordance with Ecology clean closure criteria. Groundwater monitoring will continue as a means to verify the long term effectiveness of this cleanup action. Past groundwater sampling results have not implicated operation of the DWSF as a source of groundwater contamination. Groundwater monitoring is not required for the sake of the DWSF operations.

3.7.2 Security Systems

AREVA's facility perimeter fences, video surveillance equipment, and locked access gates restrict unauthorized entry to the operating portions of the facility. Twenty-four hour guards regulate access to the facility through all entrances. AREVA employees and contractors are issued badges. Any person entering the facility must present a badge for access and all vehicles must pass a visual inspection. All personnel on-site are required to display their badges at all times for identification.

4.0 Schedules, Costs, and Certification

4.1 Closure Schedule and Certification

Activity	Schedule
Initiation of Section 3.4 closure activities at DWSF	Within 60 days of Plan approval
Completion of closure activities at DWSF	Within 120 days of Plan approval
Closure certification for DWSF	Within 150 days of Plan approval

4.2 Closure Cost Estimate

The costs for closure of AREVA's containerized dangerous waste storage facility will be the inventory disposition costs (see Table 2) plus the costs associated with characterizing and remediating (as required) the physical structures (asphalt, containment pallets, etc.) and soil. Closure costs associated with the physical structures are depicted in Tables 5 and 7 for labor and non-labor costs, respectively. As discussed earlier in Section 1, the costs reported in this closure plan for the DWSF are the disposition costs for the stored waste inventory plus the physical structure/environmental closure costs (which are relatively minor compared to the inventory costs). The total costs, with contingency, are summarized below and reflect the total amount for which AREVA must provide financial assurance related to its containerized dangerous waste storage pad activities.

Table 2 Maximum Inventory Disposition Costs	$506,876
Table 5 Container Storage Area Closure Labor Costs	$22,922
Table 7 Container Storage Area Closure Non-Labor Costs	$62,305
Subtotal	$592,103
Contingency (10%)	$59,210
TOTAL	$651,313

4.3 Financial Assurance Mechanism for Closure

Financial assurance for closure activities at AREVA's Richland nuclear fuel fabrication facility is provided by a letter of credit and associated standby trust agreement. These financial assurance instruments are on file with Ecology's Hazardous Waste and Toxics Reduction Program office.

4.4 Closure Certification

AREVA will submit to Ecology by registered mail, certification that the waste management unit has been closed in accordance with the specifications of this Closure Plan per the closure certification schedule provided in Section 4.1. The closure certification will be signed by the appropriate company official and signed and stamped by an independent qualified registered professional engineer.

Table 1 Primary Containerized Dangerous Wastes Stored at DWSF

Waste Type	Chemical Constituents
Mixed Waste Filter Cakes	State-Only Corrosive, Ammonium Nitrate, Ammonium Fluoride
Mixed Waste HEPA Filters	Ammonium Nitrate, Ammonium Fluoride, State-Only Corrosive
Mixed Waste Prefilters	Ammonium Nitrate, Ammonium Fluoride, State-Only Corrosive
Nitric Acid Contaminated Media	Nitric Acid, Ammonium Hydroxide, State-Only Corrosive
Organic/Solvent Contaminated Wastes	F-Listed Solvents (Acetone, MEK, Freon, etc.), State-Only Toxicity (e.g., ethylene glycol, TBP, corrosivity)

Table 2 Inventory Disposition Pathways and Costs

Disposition Pathway	Volume, ft^3	Total Cost, $
Direct disposal at contracted mixed waste disposal site	1,412	238,229
No current disposal option	247	268,647
TOTAL	1,659	506,876

Table 3 Analytical Parameters List

Analyte	SW-846 Method	Container	Preservative	Hold Time
Fluoride (soluble)	340.2	8 oz. Glass	Cool 4 C	7 days extraction 28 days analysis
Nitrate/Nitrite as N (soluble)	300.0	8 oz. Glass	Cool 4 C	7 days extraction 48 hours analysis
Ammonia/Ammonium as N (soluble)	350.3	8 oz. Glass	Cool 4 C	7 days extraction 48 hours analysis
Gross alpha/beta	900.0	8 oz. Glass	Cool 4 C	6 months

Table 4 Expanded Analytical Parameters List

Analyte	SW-846 Method	Container	Preservative	Hold Time
Fluoride (soluble)	340.2	8 oz. Glass	Cool 4 C	7 days extraction 28 days analysis
Nitrate/Nitrite as N (soluble)	300.0	8 oz. Glass	Cool 4 C	7 days extraction 48 hours analysis
Ammonia/Ammonium as N (soluble)	350.3	8 oz. Glass	Cool 4 C	7 days extraction 48 hours analysis
Gross alpha/beta	900.0	8 oz. Glass	Cool 4 C	6 months
Acetone	8260	8 oz. Glass	Cool 4 C	14 days
Freon 113 1,1,2-Trichloro-1,2,2-Trifluoroethane)	8260	8 oz. Glass	Cool 4 C	14 days
Methyl Ethyl Ketone	8260	8 oz. Glass	Cool 4 C	14 days
Xylene	8260	8 oz. Glass	Cool 4 C	14 days
Toluene	8260	8 oz. Glass	Cool 4 C	14 days
RCRA Metals	1311	8 oz. Glass	Cool 4 C	6 months

Table 5 Dangerous Waste Storage Facility Closure Labor Costs

Work Category	Work Activity	Labor Required, Days	Labor Cost, $*
Planning and Preparation	Preparation and submittal of regulatory required plans and documents	Safety Eng., 10	4,490
	Development of internal work plans and safety plans	Safety Eng., 2	898
	Procurement of special equipment	Field Eng., (avg.), 2	584
	Special training for remediation workers	Safety Eng., 1 Field Eng., (min.), 1 Laborer (semi-skilled), 1	449 227 340
	Environmental characterization survey-radiological and chemical	Field Eng., (avg.), 4 Field Eng., (min.), 10 Laborer (semi-skilled), 4	1,168 2,270 1,360
Decontamination/Demolition	Surveying and spot removal of contaminated asphalt	Field Eng., (avg.), 1 Laborer (semi-skilled), 2	227 680
	Decontamination of 20 double containment pallets	Field Eng., (min.), 5	1,135
Restoration	Spot replacement of contaminated asphalt previously removed	Laborer (semi-skilled), 3	1,020
Final Survey	Conduct of final radiation survey; collection of follow-up chemical samples	Field Eng., (min.), 30 Field Eng., (avg.), 2 Laborer (semi-skilled), 2	6,810 584 680
Total Labor Costs			22,922

* Costs are based on Worker Unit Cost Schedule provided as Table 6.

Table 6 Worker Unit Cost Schedule* - Dangerous Waste Storage Facility

Labor Cost Component	Safety Engineer	Field Engineer (Avg.)	Field Engineer (Min.)	Laborer (Semi-Skilled)
Salary & Fringe ($/yr.)	81,994	53,414	41,454	60,778
Overhead Rate (%)	29.3	29.3	29.3	32.3
Profit on labor (%)	10	10	10	10
Total Cost Per Year, $	116,620	75,970	58,960	88,450
Total Cost Per Work Day, $**	449	292	227	340

* Data derived from RS Means Environmental Remediation Cost Data, 11th Edition, 2005 and RS Means Building Construction Cost Data, 64th Edition, 2006.

** Based on 260 work days per year.

Table 7 Dangerous Waste Storage Facility Closure Non-Labor Costs

Cost Category	Cost Component Description	Unit Cost, $	Total Cost, $
Packing Material	Six 55-gal drums for packaging of contaminated asphalt	15	90
Disposal	Disposal of 45 ft^3 of contaminated asphalt	227/ft^3	10,215
Equipment/Supplies	Radiation screening instrument	10,000	10,000
Laboratory	Analysis of 48 samples for radiological and non-radiological chemical constituents for characterization and final surveys	250	12,000
Miscellaneous	Ecology closure certification NRC final survey		10,000 20,000
Total Non-Labor Costs			62,305

Figure 1 Dangerous Waste Storage Facility

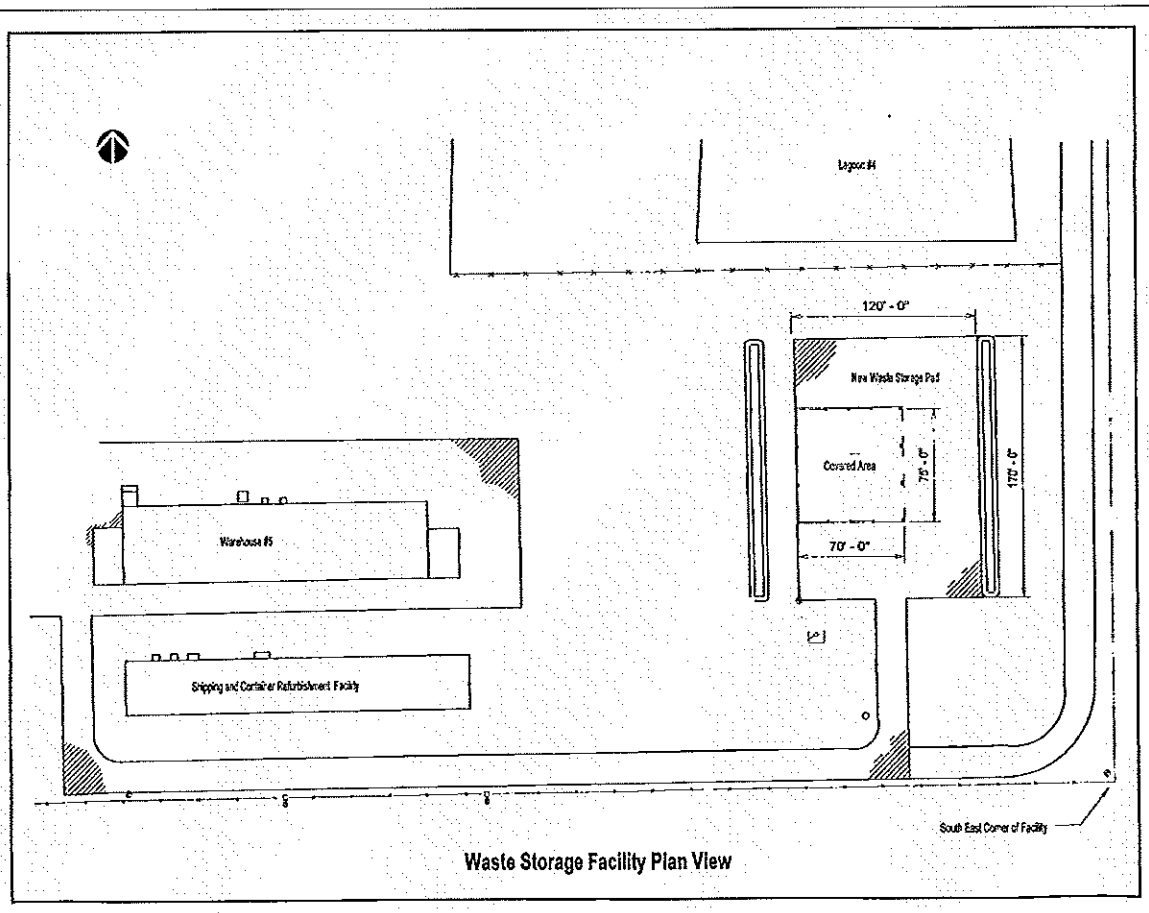


Figure 2 Ludlum Gas Proportional Radiological Survey Instrument

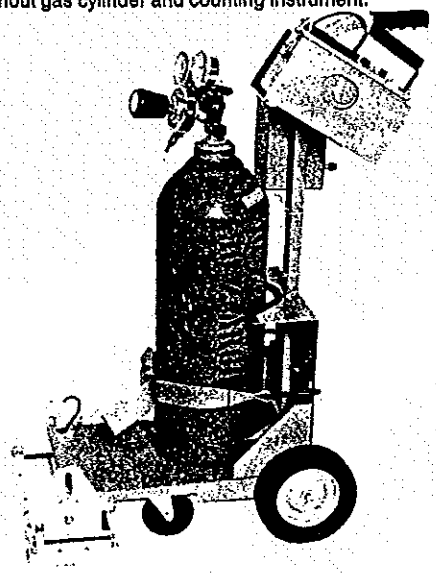
LUDLUM MEASUREMENTS, INC.
P.O. Box 810 / 501 Oak Street
SWEETWATER, TEXAS 79556
Phone: 800/622-0828(USA), 915/235-5494 FAX: 915/235-4672

SPECIALIZED INSTRUMENTS

MODEL 239-1F **FLOOR MONITOR**

INDICATED USE: Alpha, Beta, Gamma monitoring.
DETECTOR SIZE: 18.250"L X 6.250"W X 0.75"D.
ACTIVE AREA: 425 cm^2.
WINDOW MATERIAL: Please specify one of the following:
a) 0.4 mg/cm^2 (1 layers metalized mylar) for alpha, beta & gamma.
b) 0.8 mg/cm^2 (2 layers metalized mylar) for alpha, beta & gamma.
c) 3.9mg/cm^2 (1 layer metalized mylar, one layer 3.5 mg/cm^2 mylar) for beta & gamma.
d) 7.9mg/cm^2 (1 layer metalized, mylar one layer 7.5 mg/cm^2 mylar) for gamma.
Please note: If window thickness is not specified, type b) will be used on detector.
WINDOW PROTECTIVE SCREEN: 73% open.
ADJUSTABLE HEIGHT: Detector adjusts from 0.125" to 3" from floor.
OPERATING VOLTAGE: Alpha - 1000-1200 volts. Beta/Gamma - 1600-1800 volts at 2 mV input sensitivity.
EFFICIENCY: Alpha - 35 %; Beta - 50% (Sr-98 and Y-90); Gamma - 1 %. Efficiencies are expressed in 2pi geometry and calculated with probe height fixed at 3/16" distance from floor.
GAS RECHARGE: Unit may be operated without gas flow. (Flush at 220 cc/min for 10 min. and recharge every 2 hours.)
CONNECTOR: series "C" type.
FLOW METERS: Adjustable IN - 0-240 cc/min. OUT flowmeter 0-240 cc/min.
QUICK-CONNECTS: Swagelock, 1/8" mpt to 1/4" OD tubing.
GAS CYLINDER BRACKET: Integral bracket accepts up to a number 2 bottle (9" diameter x 26"H).
Note: Gas cylinder is not included.
COUNTER: LMI Model 12 Count Ratemeter. See specs on page 2 of this catalog. Optional: LMI Model 2221 Scaler/Ratemeter or the Model 2350 Data Logger. See specs in this catalog.

CART:
Construction - rugged 1" square steel tubing.
Handle height - 3.5 feet.
Length - 17" including wheels but excluding handle.
Wheel size - rear 8" and front 3" swivel.
Finish: Computer beige polyurethane paint.
Weight: 25 lbs. without gas cylinder and counting instrument.



SAMPLING AND ANALYSIS PLAN
CLOSURE OF THE DANGEROUS WASTE STORAGE FACILITY
AREVA NP INC.
RICHLAND, WASHINGTON

1.0 Sampling Objectives

The objective of this Sampling and Analysis Plan (SAP) is to evaluate the environmental conditions of asphalt pavement and soils directly adjacent to or underlying the Dangerous Waste Storage Facility (DWSF) in light of Washington State's Model Toxic Control Act (MTCA, Chapter 173-340 WAC) and Dangerous Waste Regulations (Chapter 173-303 WAC). This SAP establishes the procedures for sampling and analysis of debris, soils or other contaminated media that may be discovered during closure of the DWSF.

2.0 Organization Responsibilities

The project manager is responsible for project oversight, which includes: ensuring the project is performed according to this SAP, determining sampling locations, field oversight of all activities related to this SAP, maintaining detailed field notes, acting as the laboratory contact, and producing the final report. The project manager will be a qualified engineer from the Environmental Health, Safety, and Licensing (EHS&L) group at AREVA NP Inc. (AREVA). All sampling equipment needed to complete this project will be supplied by EHS&L.

3.0 Project Schedule

This SAP will be implemented by AREVA with all phases of the onsite work being overseen by a designated project manager. Closure of the DWSF will be implemented per timeline requirements as listed in Ecology's Guidance for Clean Closure of Dangerous Waste Facilities (#94-111), Section 7.0. The key factor in closing the DWSF will be the processing and/or disposal of the existing inventory at the time of closure. A schedule for closure is included in Section 4.1 of the Closure Plan.

4.0 Quality Assurance

The overall quality assurance objective is to ensure that data of known and defensible quality are obtained during the study. To achieve that objective, all field activities related to sampling will be conducted in accordance with the methods described herein.

Analytical data generated by the sampling and analysis activities will be validated to ensure that the precision and accuracy of laboratory analytical results were within established guidelines. Collection of quality control samples is discussed in the following section.

5.0 Sampling

Waste that has historically been stored at AREVA's DWSF is contaminated with uranium, which, because of its physical properties, is an excellent indicator surrogate constituent. Uranium is a long-lived radioactive element that is not subject to degradation or volatilization; emits alpha, beta, and gamma radiation; and, when spilled on asphalt, has demonstrated that it is not mobile. In even its common soluble forms (uranyl nitrate or its salt, uranyl nitrate hexahydrate), uranium releases have demonstrated a pattern of very localized contamination with no migration through the asphalt to the underlying soil.

Because uranium is an excellent indicator of a possible release, any areas that are radiologically contaminated, including 6" of peripheral asphalt, will be investigated as possible release sites. A radiological screening survey capable of detecting beta and gamma radiological contamination from as little as 0.8 gram of uranium will be performed on the entire surface area of the DWSF. Alpha radiation will not be used as a screening tool because of probable matrix interferences. The area to be surveyed includes the asphalt at the DWSF and the 18" of soil that is directly adjacent to the edges of the asphalt pad. The radiological survey will be performed by qualified health and safety technicians under the guidance of a health physicist or radiological safety supervisor using the gas proportional Ludlum Floor Monitor, Model 239-IF (Figure 1) or an instrument with equivalent or better detection capabilities. The instrument shall be calibrated using known standards. A chalk line grid will be set up prior to the radiological survey to ensure that the total surface area of the DWSF is covered by the survey.

Investigation of radiological hot spots will include removal of contaminated asphalt and surveying underlying soil. If soil is radiologically contaminated, a sample will be taken and analyzed for the parameters listed in either Table 8 or Table 9, depending on the location of the sample. Soil from directly beneath any radioactively contaminated asphalt under the covered portion of the DWSF will be analyzed for the parameters listed in Table 9 only if a known release of solvent contaminated waste is known to have occurred. All liquid bearing wastes are stored on secondary containment pallets. Radioactively contaminated soil under other areas of the DWSP will be analyzed for the parameters listed in Table 1.

Sampling parameters are based on process knowledge of the waste streams that are stored at the DWSF. A discussion of those waste types is provided in Section 3.2 of the Closure Plan, including information on the chemical constituents associated with those wastes. In addition to the noted chemical constituents, the wastes are contaminated with uranium from the plant's uranium fuel fabrication activities.

5.1 Sampling Procedures

The following procedures are to be used by all field personnel when conducting soil or asphalt sampling activities in conjunction with the closure of the DWSP. All field activities will be documented in a bound field notebook using a pen with permanent ink. Information to be recorded in the notebook includes the following:

- Date
- Weather conditions
- Names of field team members
- Times of site arrival and departure
- Documentation of all field activities
- Any equipment malfunction
- An accurate depiction of the survey grid lines
- Sampling locations
- Sample information
- The location of all radiologically contaminated areas (per section 3.4.1)
- Odd or unusual occurrences
- Site visitors

The field notebook will be signed by the Field Supervisor at the end of each day of fieldwork. The sampling procedures are outlined in the following sections.

5.2 Sampling Locations

The radiological survey will consist of setting up a chalk line grid with the lines spaced 18" apart on the asphalt of the DWSF. The first 18" of soil directly adjacent to the DWSF will also be marked to ensure that the total surface area is covered by the survey. The Ludlum Floor Monitor will then be pushed over the entire gridded area at a speed that will be determined by the responsible health physicist or radiological safety supervisor. Any locations that are determined to be radiologically contaminated will be marked and further investigated upon completion of the survey. Any soil that is underlying radiologically contaminated asphalt which requires removal will be surveyed with the Ludlum Floor Monitor after the asphalt has been removed, and sampled if necessary.

The number of soil samples taken is dependent upon the number of radiologically contaminated areas that are detected during the survey of the entire DWSF and adjacent areas. All soil locations that are radiologically contaminated will have discrete grab samples taken from the uppermost three inches of soil.

Actual sampling locations will be recorded for future reference by measuring the distance between the sampling location and a minimum of three fixed reference points and recording these measurements in the field notebook. A sketch will be drawn to indicate the location relative to these structures. Photographs will be taken at each sampling location.

5.3 Sampling Parameters and Frequency

One soil sample will be collected from each sampling location and submitted to the laboratory for analysis. All soil samples taken from areas other than the covered storage area will be analyzed for the constituents listed in Table 8. All samples of soil and asphalt taken from the covered portion of the DWSF in areas that have had documented spills of solvent contaminated wastes will be analyzed for the constituents listed in Table 9.

After samples have been taken, sampling locations will be covered with plastic to prevent rainwater or other contaminants from entering the sampling location. Upon return of the sample results, if no contamination is found above MTCA Method B unrestricted release levels, the sample locations will be backfilled. If sample results show that contamination is present above the MTCA Method B unrestricted release levels, additional soil will be removed and confirmatory sampling will be performed. This process will continue until sample results show that the contamination levels are below the MTCA Method B cleanup limits. All soil that is removed will be evaluated per WAC 173-303 and NRC requirements and managed appropriately.

5.4 Sample Collection

Soil samples will be collected from the uppermost three inches of exposed soil after the asphalt is removed. The asphalt will be removed using standard construction equipment. If soil is not covered by asphalt, the uppermost three inches of exposed soil will be sampled. The samples will be collected by hand using a decontaminated stainless steel scoop and placed in eight-ounce glass sample containers provided by the laboratory. The glass sample containers will be filled to the lip to minimize head space. Disturbance to the soil samples shall be minimized as much as possible. Any samples collected for analysis of semi-volatile constituents will be collected first at each sampling location to minimize loss during sample collection. The volume of soil required for each type of laboratory analysis is specified in Tables 8 and 9.

If necessary, asphalt samples will be collected by coring the asphalt with a small coring tool. The asphalt samples will either be placed in glass or plastic containers.

5.5 Sample Documentation

A sample identification label which identifies the sample number, date and time of sampling, matrix, and initials of sampling personnel will be completed and affixed to each sample container immediately after that container has been filled with soil. An example of a sample label is provided in Figure 4. The sample will be sealed in a resealable plastic bag and stored in a cooler with ice.

5.6 Quality Control Samples

Quality control samples will consist of blind duplicates, trip blanks, and equipment rinsate blanks. Equipment rinsate blanks will be collected at the beginning and end of each day by pouring ultra-pure water from AREVA's analytical laboratory over the decontaminated stainless steel sampling scoop and filling sample bottles for analysis.

Trip blanks will be prepared by the laboratory and will not be opened during sampling. One pair of trip blanks will be placed in each cooler that contains samples to be analyzed for volatile or semi-volatile organic analytes.

6.0 Decontamination Procedures

All sampling equipment will be decontaminated prior to use and after sampling at each location to avoid chemical cross-contamination of field samples. Equipment will be decontaminated by washing with a laboratory-grade, nonphosphate detergent and rinsing with deionized water. All field personnel will wear clean nitrite or vinyl gloves when conducting sampling and decontamination procedures.

7.0 Sample Handling And Shipment Procedures

A summary of the sample handling procedures, including types of bottles and preservatives required for each type of soil analysis is provided in Tables 8 and 9. All soil samples will be stored in a cooler with ice immediately after collection. The cooler of filled sample containers, along with sufficient ice to effectively cool the samples during shipment, will be transported by overnight courier to the selected laboratory for analysis. The selected laboratory shall be accredited under WAC 173-50.

7.1 Chain of Custody Procedures

All samples will remain in the custody of the sampling personnel during each sampling day. At the end of each sampling day and prior to the transfer of the samples for offsite shipment, chain-of-custody entries will be made for all samples using a Chain-of-Custody form (Figure 5). One Chain-of-Custody form will be completed for each cooler of samples. All information on the Chain-of-Custody form and the sample container labels will be checked against the sampling log entries, and the samples will be recounted before transferring custody. Upon transfer of custody, the Chain-of -Custody form will be signed by the project manager, sealed in plastic, and placed inside the sample cooler.

A signed, dated custody seal (Figure 6) will be placed over the lid opening of the sample cooler to indicate if the cooler is opened during shipment. All Chain-of-Custody forms received by the laboratory must be signed and dated by the laboratory's sample custodian.

The custodian at the laboratory will note the condition of each sample received as well as questions or observations concerning sample integrity. The sample custodian will also maintain a sample tracking record that will follow each sample through all stages of laboratory processing. The sample tracking records must show the date of sample extraction and sample

analysis. These records will be used to determine compliance with holding time limits during laboratory audits and data validation.

7.2 Data Validation

Analytical results will be reviewed and validated. Appropriate data qualifier codes will be applied to those data for which quality control parameters do not meet acceptable standards. Data quality acceptance criteria are specified in the U.S. Environmental Protection Agency (USEPA) Laboratory Data Functional Guidelines.

8.0 Confirmatory Sampling

Any confirmatory sampling that may be conducted will be performed in accordance with the protocols established in this SAP. All guidelines and procedures will be adhered to as implemented in this SAP.

9.0 Reporting

The results of this sampling and analysis plan will be reported to Ecology following data validation and evaluation of the laboratory analytical results.

Table 8 Summary of Sampling Requirements

Analyte	SW-846 Method	Container	Preservative	Hold Time
Fluoride (soluble)	340.2	8 oz. Glass	Cool 4 C	7 days extraction 28 days analysis
Nitrate/Nitrite as N (soluble)	300.0	8 oz. Glass	Cool 4 C	7 days extraction 48 hours analysis
Ammonia/Ammonium as N (soluble)	350.3	8 oz. Glass	Cool 4 C	7 days extraction 48 hours analysis
Gross alpha/beta	900.0	8 oz. Glass	Cool 4 C	6 months

Table 9 Summary of Sampling Requirements - Expanded List

Analyte	SW-846 Method	Container	Preservative	Hold Time
Fluoride (soluble)	340.2	8 oz. Glass	Cool 4 C	7 days extraction 28 days analysis
Nitrate/Nitrite as N (soluble)	300.0	8 oz. Glass	Cool 4 C	7 days extraction 48 hours analysis
Ammonia/Ammonium as N (soluble)	350.3	8 oz. Glass	Cool 4 C	7 days extraction 48 hours analysis
Gross alpha/beta	900.0	8 oz. Glass	Cool 4 C	6 months
Acetone	8260	8 oz. Glass	Cool 4 C	14 days
Freon 1 1 3 (1,1,2-Trichloro - 1,2,2-Trifluoroethane)	8260	8 oz. Glass	Cool 4 C	14 days
Methyl Ethyl Ketone	8260	8 oz. Glass	Cool 4 C	14 days
Xylene	8260	8 oz. Glass	Cool 4 C	14 days
Toluene	8260	8 oz. Glass	Cool 4 C	14 days
RCRA Metals	1311	8 oz. Glass	Cool 4 C	6 months

Figure 3 Ludlum Gas Proportional Radiological Survey Instrument

LUDLUM MEASUREMENTS, INC.
P.O. Box 810 / 501 Oak Street
SWEETWATER, TEXAS 79556
Phone: 800/622-0828(USA), 915/235-5494 FAX: 915/235-4672

SPECIALIZED INSTRUMENTS

MODEL 239-1F **FLOOR MONITOR**

INDICATED USE: Alpha, Beta, Gamma monitoring.
DETECTOR SIZE: 18.250"L X 6.250"W X 0.75"D.
ACTIVE AREA: 425 cm^2.
WINDOW MATERIAL: Please specify one of the following:
a) 0.4 mg/cm^2 (1 layers metalized mylar) for alpha, beta & gamma.
b) 0.8 mg/cm^2 (2 layers metalized mylar) for alpha, beta & gamma.
c) 3.9mg/cm^2 (1 layer metalized mylar, one layer 3.5 mg/cm^2 mylar) for beta & gamma.
d) 7.9mg/cm^2 (1 layer metalized, mylar one layer 7.5 mg/cm^2 mylar) for gamma.
Please note: If window thickness is not specified, type b) will be used on detector.
WINDOW PROTECTIVE SCREEN: 73% open.
ADJUSTABLE HEIGHT: Detector adjusts from 0.125" to 3" from floor.
OPERATING VOLTAGE: Alpha - 1000-1200 volts. Beta/Gamma - 1600-1800 volts at 2 mV input sensitivity.
EFFICIENCY: Alpha - 35 %; Beta - 50% (Sr-98 and Y-90); Gamma - 1 %. Efficiencies are expressed in 2pi geometry and calculated with probe height fixed at 3/16" distance from floor.
GAS RECHARGE: Unit may be operated without gas flow. (Flush at 220 cc/min for 10 min. and recharge every 2 hours.)
CONNECTOR: series "C" type.
FLOW METERS: Adjustable IN - 0-240 cc/min. OUT flowmeter 0-240 cc/min.
QUICK-CONNECTS: Swaglock, 1/8" mpt to 1/4" OD tubing.
GAS CYLINDER BRACKET: Integral bracket accepts up to a number 2 bottle (9" diameter x 26"H).
Note: Gas cylinder is not included.
COUNTER: LMI Model 12 Count Ratemeter. See specs on page 2 of this catalog. Optional: LMI Model 2221 Scaler/Ratemeter or the Model 2350 Data Logger. See specs in this catalog.

CART:
Construction - rugged 1" square steel tubing.
Handle height - 3.5 feet.
Length - 17" including wheels but excluding handle.
Wheel size - rear 8" and front 3" swivel.
Finish: Computer beige polyurethane paint.
Weight: 25 lbs. without gas cylinder and counting instrument.

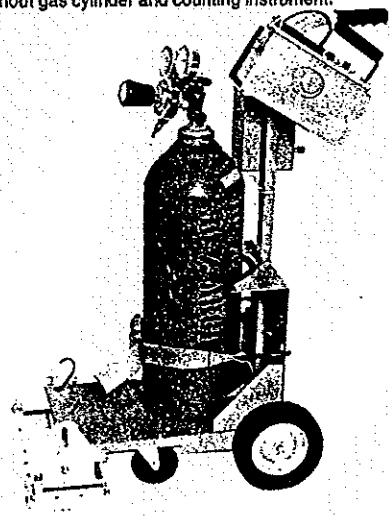


Figure 4 Sample Label

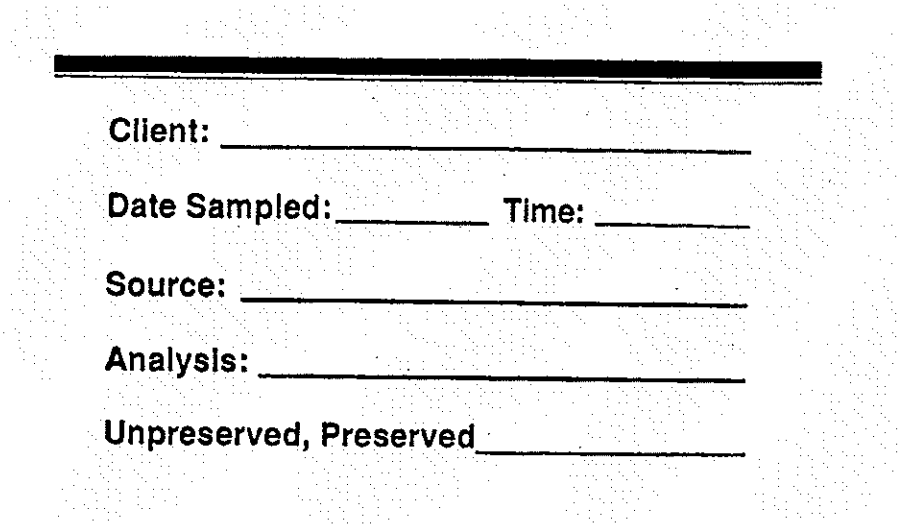


Figure 5 Chain of Custody Form

AREVA

AREVA NP INC.

2101 Horn Rapids Road
Richland, WA 99354

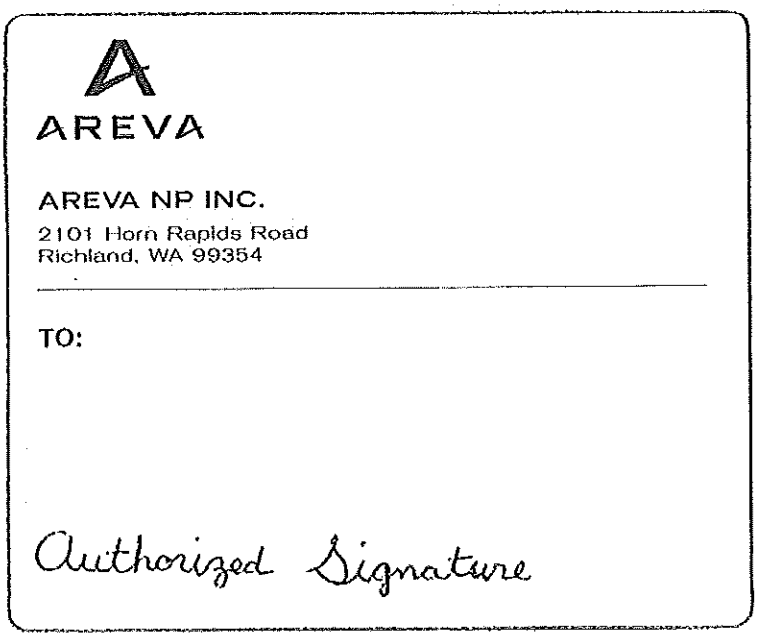
Customer contact:			Project ID		Order ID:	Requested Tests
Business name:						
Address:					Number of bottles	
Phone:		FAX:				
Regulatory Authority:	NPDES: ☐ Solid waste: ☐	Drinking water: ☐ Other: ☐				
Lab Use Only	Customer Sample ID (Unique identifier or code)	Collection Date	Collection Time	Matrix		Comments

Signature	Date/Time	Signature	Sample Conditions at receipt:
Collected/ Relinquished by:		Received by:	Temperature (circle): Ambient Cold Frozen
Relinquished by:		Received by:	Containers intact/Lids tight: ☐ VOC vials without headspace: ☐ Labels match custody: ☐
Relinquished by:		Signature	Date/Time
Laboratory receipt:		Pre-log storage:	

Page ______ of ______

Rev 03-14-02

Figure 6 Chain of Custody Seal



AREVA NP Inc.

E06 Environmental Protection
E06-04 Miscellaneous Reports

E06-04-005
Version 2.0

Closure Plan for the Dangerous Waste Storage Facility

Date (GMT)	Signed by
05/17/2007 20:13:03	Maas, Loren
Authorization/Title	Document Author

05/17/2007 20:13:48	Maas, Loren
Authorization/Title	Licensing & Compliance Manager

05/23/2007 22:59:58	Gallacher, Vince
Authorization/Title	Conversion & Recovery Manager

05/24/2007 15:26:10	McGrath, Kaela
Authorization/Title	Document Control Approval

Attachment E1.2

Closure Plan for the Component Chemical Waste Tank (E06-04-009)

EHS&L Document

Closure Plan for the Component Chemical Waste Tank

Nature of Changes

Item	Paragraph	Description	Justification
1.	Sections 2.2, 2.3, 3.1, and 3.2	Revised to remove discussions of, and references to, the etch process.	Etch process has been permanently discontinued.
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

List Below any Documents, including Forms & Operator Aids which must be issued concurrently with this document revision:		

This Document contains a total of 22 pages excluding the signature page generated by Documentum, the document control application software.

DOCUMENT REVIEW/APPROVAL/DELETION CHECKLIST

All new and/or revised procedures shall be approved by the change author, cognizant manager(s) of areas affected by the changes, and by applicable manager(s) of any function that approved the previous revision of the document unless responsibility for such approval has been transferred to another organization. Also, the procedure shall be approved by manager(s) of functional organizations that provide technical reviews with the exception of the Training Department. Finally, Document Control shall verify that the required approvals have been properly obtained and that any documents that must be issued concurrently are ready to be issued.

Minor Changes: If the proposed changes are limited to editorial and/or administrative changes check the box at the right. The document will be routed directly for review by EHS&L without technical review. All applicable approvals must still be obtained. ☐

Document Reviews			Document Approvals	
Purpose/Function of Review	Specify Reviewer(s) (Optional except for change author)	(Check all that apply)	Title of Approver	(Check all that Apply)
Document Control (Automatic)		☒	Document Control (Automatic)	☒
Change Author	LJ Maas	☒	Author	☒
Independent Technical Review	JB Perryman	☒		
Operability Review(s)			Mgr, Richland Operations[1]	☐
Conversion		☐	Mgr, Uranium Conversion & Recovery Operations[1]	☐
Recovery		☐		
Ceramics		☐	Mgr, Ceramic Operations[1]	☐
Rods		☐	Mgr, Rods & Bundles[1]	☐
Bundles		☐		
Transportation		☐		
Components		☐	Mgr, Component Fabrication[1]	☐
Maintenance Review		☐	Mgr, Maintenance[1]	☐
Lab Review		☐	Mgr, Analytical Services[1]	☐
EHS&L Review(s)			Mgr, EHS&L[2]	☐
Criticality		☐	Mgr, Criticality Safety[2]	☐
Radiation Protection		☐	Mgr, Safety, Security & Emergency Preparedness[2]	☐
Safety/Security		☐		
Emergency Preparedness		☐		
MC&A		☐	Mgr, Licensing & Compliance[2]	☒
Transportation		☐		
Environmental		☒		
BWR Product Eng. Review		☐	Mgr, BWR Product Engineering	☐
BWR Core Engineering Review		☐	Mgr, BWR Core Engineering	☐
Codes and Methods Review		☐	Mgr, Codes and Methods	☐
Proj. Eng. & Design Support Review		☐	Mgr, Proj. Eng. & Design Support	☐
Quality Review		☐	Mgr, Quality	☐
Project & Plant Eng. Review		☐	Mgr, Project & Plant Eng.	☐
Purchasing Review		☐	Mgr, Purchasing	☐
Others:		☐	Mgr, Richland Site/Other	☐
Training & Employee Dev.:[3]		☐	Training & Employee Dev.	☐

[1]Note: If approvals include 2 or more product center managers, the Operations manager can be substituted for the applicable product center managers.

[2]Note: If approvals include 2 or more EHS&L functional managers, the EHS&L manager can be substituted for the applicable EHS&L functional managers.

[3]Note: Training department review is required for all procedures that require or affect a Learning Plan and if additional training materials or curriculum must be revised before issuing procedure.

EHS&L Change Impact Evaluation Form		
Document / ECN No*.: E06-04-009		Change Evaluator: LJ Maas
Does the change potentially impact Criticality Alarm System (CAS) coverage?	☐ Yes ☒ No	If yes, explain:
NRC Pre-Approval Evaluation:		
Is NRC Pre-approval (License Amendment) Needed? (Based on "Yes" answer to any of five questions below). (Based on "No" answer to all five questions below).	☐ Yes ☒ No	
1. Does the change create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 (create high or intermediate consequence events) and that have not previously been described in AREVA NP Inc's ISA Summary?	☐ Yes ☒ No	If yes, explain:
2. Does the change use new processes, technologies, or control systems for which AREVA NP Inc. has no prior experience?	☐ Yes ☒ No	If yes, explain:
3. Does the change remove, without at least an equivalent replacement of the safety function, an item relied on for safety that is listed in the ISA Summary?	☐ Yes ☒ No	If yes, explain:
4. Does the change alter any item relied on for safety, listed in the ISA Summary, that is the sole item preventing or mitigating an accident sequence of high or intermediate consequences?	☐ Yes ☒ No	If yes, explain:
5. Does the change qualify as a change specifically prohibited by NRC regulation, order or license condition?	☐ Yes ☒ No	If yes, explain:
Actions Required Prior to or Concurrent with Change Implementation Evaluation:		
Action		**Explanation**
6. Modification / Addition to CAS system or system coverage documentation	☐ Yes ☒ No	If yes, explain:
7. Acquire NRC pre-approval (license amendment)	☐ Yes ☒ No	If yes, explain:
8. Conduct/modify ISA	☐ Yes ☒ No	If yes, explain:
9. ISA Database Modification	☐ Yes ☒ No	If yes, explain:
10. Modification of other safety program information / underlying analyses (PHA, RHA, FHA, NCSA, etc.)	☐ Yes ☒ No	If yes, explain:
Actions required subsequent to Change Implementation Evaluation:		
11. Update safety program information (PHA,RHA,FHA,NCSA, P&ID)	☐ Yes ☒ No	If yes, explain:

* **If this form exists as a part of a document, the document number is not required.**

Table of Contents

1.0 Introduction

This Closure Plan applies to the Component Chemical Waste Tank (CCWT) at the AREVA NP Inc. (AREVA) nuclear fuel fabrication facility in Richland, WA. The CCWT has been operated to-date as a less than 90-day accumulation tank in accordance with WAC 173-303-200. Based on the volume of the CCWT (2000 gallons) and the comparatively low waste generation rate of the process feeding the tank, the 90-day accumulation limit has typically necessitated emptying of the tank by a contracted waste treatment/disposal vendor when the tank is at 20% or less of capacity. Operating the tank as a permitted dangerous waste management unit will serve to limit the hazards and costs associated with unnecessarily frequent tank pump-outs.

1.1 *Regulatory Basis*

The CCWT constitutes a dangerous waste management unit requiring a written closure plan in accordance with WAC 173-303-610(3), including applicable requirements of WAC 173-303-640(8).

1.2 *Closure Performance Standard and General Closure Approach*

The closure performance standard for dangerous waste management units is listed in WAC 173-303-610(2). This standard requires AREVA to close the CCWT in a manner that:

- Minimizes the need for further maintenance;
- Controls, minimizes, or eliminates to the extent necessary to protect human health and the environment, post-closure escape of dangerous waste, dangerous constituents, leachate, contaminated runoff, or dangerous waste decomposition products to the ground, surface water, groundwater, or the atmosphere; and
- Returns the land to the appearance and use of surrounding land areas to the degree possible given the nature of the previous dangerous waste activity.

This Closure Plan has been developed to achieve this performance standard and to allow certification of the closure as complete and consistent with the requirements for clean closure.

AREVA's general approach for closure of the CCWT in a manner that complies with the performance standard for clean closure is as follows:

- Decontaminate all debris surfaces potentially contaminated with dangerous waste to meet the Alternative Treatment Standards for Hazardous Debris (40 CFR 268.45 Table 1).
- For debris surfaces where the "clean debris surface" as defined in the Alternative Treatment Standards" cannot be achieved or conclusively demonstrated, debris may be sampled and analyzed in accordance with an approved sampling and analysis plan to demonstrate that the debris does not exhibit a dangerous waste characteristic or criterion and therefore no longer requires management as a dangerous waste.
- Potentially contaminated debris not amenable to decontamination or post-decontamination inspection/analysis (e.g. small bore piping, valves) will be disposed offsite in accordance with regulations.
- Rinsates derived from the decontamination processes will be disposed of offsite in conjunction with the final tank waste inventory (see Sect. 2.4). Any residual rinsates generated after disposition of the final tank inventory will be collected in suitable containers and sampled for waste designation purposes and disposed of accordingly.

- Based on the tank-in-tank construction of the CCWT, no contamination of the supporting concrete slab with dangerous waste constituents is anticipated. Similarly, based on construction and placement of the CCWT, no contaminated environmental media (soil, groundwater) is reasonably anticipated.

The overall closure process for the CCWT is described below in Section 3.0, Closure Activities.

2.0 Waste Management Unit Description

2.1 *Facility Setting*

The CCWT is located outside of the northwest corner of the Component Center, which in turn is located on the western edge of the AREVA nuclear fuel fabrication facility. A map showing the location of the Component Center and supporting CCWT within the approximately 53-acre fenced AREVA site is provided as Figure 1.

The AREVA facility is located at 2101 Horn Rapids Road just within the northern limits of the City of Richland in Benton County, Washington. The fenced facility is a sub-portion of 320 acres of land owned by AREVA within the Horn Rapids Industrial Park. The plant, which manufactures fuel assemblies for commercial nuclear power reactors and intermediate fuel products for other fuel fabrication facilities, has been in operation since the early 1970s. Now owned by AREVA, the plant has also operated under a number of prior owners/names, most notably Exxon and Siemens. Throughout its operating history, and owing to its processing of special nuclear material [low (<5%) - enriched uranium], the AREVA facility has operated under a license from the U.S. Nuclear Regulatory Commission (NRC).

2.2 *CCWT Description*

The CCWT (Figure 2) is located outdoors just outside of the component pickling area (pickling room), which in turn is located in the northwest corner of the AREVA Component Center. The CCWT is actually a tank-within-a-tank system - a 2000 gallon inner tank and a 3500 gallon external containment tank. Both tanks are made of high density cross-linked polypropylene for full compatibility within the contained waste solutions. The tanks are situated on a 6-inch thick reinforced concrete monolithic slab with thickened perimeter edges. Pipes and fittings associated with the tank are stainless steel or polypropylene and located above-ground. A leak detection system with alarm capability is installed to detect any release of liquids from the inner tank into the containment tank. The CCWT has been provided with review and certification by an independent, qualified registered professional engineer as called for in WAC 173-303-640(2).

2.3 *Waste Inventory Description*

The CCWT manages liquid chemical wastes from the component pickling area within the AREVA Component Center. The chemical wastes are derived from the pickling process, a chemical process applied to stainless steel components to remove any free iron from the component surfaces and impart a corrosion-resistant oxide coating. The components processed consist of the metallic hardware parts (tie plates, rod end caps, spacer components, etc.), exclusive of cladding, used to fabricate nuclear fuel assemblies.

The pickling process utilizes a chemical dip tank. The pickling solution is a combination of deionized water, nitric acid (1-2 Molar), oxalic acid (~5%), and an organic surfactant/wetting agent (<1%). Cycle time for the components is typically about 40 minutes. Batches of spent pickling solution (~27 gallons ea.) are pumped to the CCWT approximately every 2-3 weeks. Between batches the tank is rinsed with water, with the rinsate also routed to the CCWT.

The waste managed in the CCWT is designated as D002, Corrosive.

2.4 *Maximum Inventory Disposition*

The corrosive liquid wastes managed in the CCWT are disposed of via a contracted offsite waste disposal contractor. No onsite pre-conditioning or treatment is required. The capacity of the inner tank which contains the waste is 2000 gallons; however the tank is managed to less than 85 percent of capacity (1700 gallons) via electronic level indication, with alarm capability. For the sake of closure planning, the full 2000 gallons will be utilized to account for the water rinsate that will be generated from the washdown of the tank interior and the annular cavity between the inner and outer tanks (see Section 3.0, Closure Activities, below). The disposal cost for the final tank inventory including washdown rinsate is included in Table 2 of Section 5.1, Closure Cost Estimate.

3.0 **Closure Activities**

This section addresses activities that will be completed during closure of the CCWT. The following activities are described:

- Removal of wastes and waste residues (Section 3.1)
- Decontamination of debris surfaces (Section 3.2)
- Removal of tanks and associated piping (Section 3.3)
- Cleaning of concrete support pad (Section 3.4)
- Confirming clean closure (Section 3.5)
- Sampling and analysis and constituents to be analyzed (Section 3.6)
- Role of the independent registered professional engineer (Section 3.7)
- Closure certification (Section 3.8)

3.1 *Removal of Wastes and Waste Residues*

AREVA will remove all dangerous waste and waste residues from the CCWT by pumping the wastes into the tanker truck of a contracted offsite dangerous waste disposal vendor. This is the routine procedure for emptying the CCWT. Pumping the tank contents via the installed pumpout piping typically leaves a liquid heel. This heel will be pumped out via a portable pump and flexible tubing. The pickle process wastes are accepted by the disposal vendor based on an approved waste profile on file with the vendor.

3.2 *Decontamination of Debris Surfaces*

Waste solutions managed within the CCWT and its associated piping are acidic (low pH) aqueous solutions; deposits on the interior of piping and the waste tank are not anticipated. After pumping of the final batches of pickling solutions to the CCWT, the small process dip tank will be flushed with copious amounts of water. This water will be pumped to the CCWT via the installed transfer piping. (This has been the standard procedure after all batch pumpouts; transfer lines have no history of containing waste solutions for an appreciable amount of time.) The amounts of water utilized for the final system flushing will significantly exceed volumes typically utilized for routine batch pumpouts. Flushing of the transfer lines to a residue-free surface is anticipated. The rinsate from the final transfer line flushing will be part of the final CCWT inventory removed as described in 3.1, above.

Prior to the final CCWT pumpout, the annular space between the inner and outer tanks will be high pressure-washed with water (pressure washer or fire hose). Access will be gained through the removable cover on the north edge of the outer tank top as well as an additional similarly-

sized access hole that will be cut through the outer tank top near its south edge. If deemed necessary, additional access holes can be easily cut. Water from the initial rinse will be pumped into the CCWT via a portable pump and flexible tubing. Once this pumping is complete, the pump will be removed and the high pressure washing of the annular space (floor, outside of inner tank, inside of outer tank) will be repeated. This second batch of wash water will also be pumped to the CCWT. Based on the limited opportunity for the annular space to have received waste solutions, the consecutive high-pressure washes are anticipated to result in residue-free surfaces. The rinsate from the annular space washings will be part of the final CCWT inventory removed as described in 3.1, above.

Lastly, the interior surfaces of the CCWT itself will be decontaminated. This will occur immediately after the final inventory pumpout described in 3.1, above. As in the case of the between-tank annular space, the interior of the CCWT will be decontaminated via an initial high-pressure water wash; pumpout of the initial wash rinsate, in this case to the waste vendor tanker; and a second high-pressure water wash, followed by pumpout to the vendor tanker. Both pressure washings will utilize copious amounts of water and are anticipated to produce residue-free interior tank surfaces. Passage of the rinse water through the pumpout piping is also anticipated to effectively decontaminate that piping.

3.3 *Removal of Tanks and Associated Piping*

Following completion of the decontamination activities described in 3.2 above, all liquid transfer piping associated with the CCWT will be dismantled and removed. The exterior tank will be dismantled in-place by cutting it into readily handled sections (~3 ft. by 3 ft.) using a reciprocating power saw. Once the exterior tank has been effectively cut away, the interior tank will be similarly cut-up in place using a reciprocating power saw.

3.4 *Cleaning of the Concrete Support Pad*

Based on the double containment afforded by the tank-in-tank configuration of the CCWT, no release of waste solutions to the concrete support pad is reasonably expected. Some staining of the pad related to seepage of rain water and associated dust/dirt underneath the outer tank may be encountered. Pressure washing of the pad may be conducted for cosmetic reasons; containment/collection of the rinsate should not be necessary.

3.5 *Confirming Clean Closure*

When the decontamination activities described in Section 3.2 are complete, AREVA anticipates that the high pressure water sprays and water washing (40 CFR 268.45 Table 1, 1e and 2a, respectively) will have decontaminated the pertinent debris surfaces (piping interiors, tank walls/floors) to a clean debris surface as defined in the Alternative Treatment Standards for Hazardous Debris. Visual inspection, documented via field notes and photos as appropriate, will be used to confirm achievement of the performance standard.

As indicated in Section 1.2, Closure Performance Standard and General Closure Approach, for surfaces where the clean debris surface criterion cannot be demonstrated (e.g., excessive surface staining), sampling and analysis may be employed to demonstrate that the debris does not exhibit a dangerous waste characteristic, in this case, corrosivity, and therefore no longer requires management as a dangerous waste. AREVA's Sampling and Analysis Plan (SAP) that would be applied is described in Section 3.6 of this Closure Plan, and is included as Appendix A.

Lastly, potentially contaminated debris not amendable to decontamination or post-decontamination inspection/analysis (e.g. small bore piping, valves) will be conservatively designated and disposed of off-site in accordance with regulations.

3.6 *Sampling and Analysis and Constituents to be Analyzed*

A detailed SAP supporting this Closure Plan has been included as Appendix A. As previously discussed and based on the tank-within-a-tank construction of the CCWT unit and its placement on a thick, easily inspected concrete pad, contamination of environmental media (soil, groundwater) is not reasonably anticipated. Accordingly, utilization of the Appendix A SAP may only be required if the clean debris surface criterion as defined in 40 CFR 268.45 Table 1 cannot be demonstrated (e.g. excessive surface staining) for certain debris surfaces, or portions thereof. The SAP will include the following:

- Statement of objectives
- Assignment of organizational responsibility
- Project schedule
- Identification of chemical constituents/characteristics to be analyzed
- Procedures for sample collection and labeling
- Analytical methods
- Procedures for sample handling and chain-of-custody
- Procedures for decontamination of sampling equipment
- Quality assurance measures
- Provisions for reporting of data

Constituents/characteristics to be analyzed are based on a review of the wastes managed in the CCWT and are identified in the SAP. This review will be repeated at the future date at which AREVA notifies Ecology of its notification to begin closure. If deemed necessary based on this review, AREVA will submit a revised SAP and will not begin sampling and analysis until the revised SAP is reviewed and approved by Ecology.

3.7 *Role of the Independent Registered Professional Engineer*

An independent qualified registered professional engineer will become familiar with the closure activities for the CCWT by reviewing this plan, observing field activities, and reviewing records. Key activities to be observed and/or reviewed shall include but not be limited to:

- removal of wastes and waste residues,
- decontamination of debris surfaces,
- inspections to determine achievement of the clean debris surface performance standard,
- management of removed wastes and decontamination residuals,
- implementation of the SAP, if required, and
- results of laboratory analysis.

When closure is complete, the engineer will sign and stamp AREVA's certification of clean closure.

3.8 *Closure Certification*

Within 60 days of completion of closure activities on the CCWT, AREVA will, in accordance with WAC 173-303-610(6), submit to Ecology, by registered mail, certification that the unit has been

closed in accordance with this closure plan. The certification will be signed by the appropriate company official and will also be signed and stamped by the independent qualified registered professional engineer who has monitored AREVA's implementation of the CCWT Closure Plan. AREVA will assemble, retain, and, as requested, submit to Ecology documentation supporting the certification. That information will include, but not be limited to:

- field notes and photographs documenting the closure activities,
- a description of any minor deviations from the plan and justification for these deviations,
- documentation of final disposition of dangerous wastes and treatment residuals,
- data resulting from implementation of the SAP, if required,
- a summary of activities and data observed/reviewed by the independent registered professional engineer, and
- a description of what the unit area looks like now that closure has been completed.

4.0 Closure Schedule and Timeframe

Notification of intent to close the CCWT will be sent to Ecology at least 45 days before initiating closure activities. Completion of closure activities will occur within 180 days. If the notification to Ecology includes a revised version of this closure plan or its accompanying SAP, the 180 day closure period will commence upon Ecology's approval of the revised plan and/or SAP. As provided in Section 3.8 above, closure certification will be submitted to Ecology within 60 days of completion of the closure activities.

5.0 Cost of Closure

5.1 *Closure Cost Estimate*

The information presented in this section for implementing the Closure Plan has been prepared in accordance with WAC 173-303-620(3). The following conservative assumptions were used in developing the cost estimate:

- A third party will be used to conduct closure activities.
- Inventory in the CCWT at the time of closure will be the total tank capacity, i.e. 2,000 gallons.
- Achievement of a clean debris surface will not be possible for some or all of the tank surfaces and thus the SAP (Appendix A) will need to be utilized to demonstrate that these tank surfaces do not exhibit the dangerous waste characteristic of corrosivity.
- Effective decontamination of interior pipe surfaces will not be able to be conclusively demonstrated, thus necessitating disposal of the piping as dangerous waste.
- Although eventual release of the tank structural materials from dangerous waste regulation is anticipated, the tanks will be dismantled in a manner that will not allow for their sale or re-use in another application. The tanks will be disposed of offsite as industrial waste.
- The closure activities will be overseen by an independent qualified registered professional engineer.

The costs for closure of the CCWT will consist primarily of the costs for disposal of the final tank inventory; labor costs for decontaminating debris surfaces (piping, tanks); labor costs for dismantling the tanks and associated piping; labor costs and analytical costs for enactment of

the sampling and analysis plan; disposal costs for the tank materials and piping; and costs for procuring the services of the independent registered professional engineer. These costs are presented below in Table 1, CCWT Closure Labor Costs, and Table 2, CCWT Closure Non-Labor Costs. The Table 1 labor costs are in turn based on the worker unit costs provided in Table 3, Worker Unit Cost Schedule.

The total costs taken from Tables 1-3 are summarized below and reflect the total amount for which AREVA must provide financial assurance relative to closure of the CCWT.

Total Labor Costs (Table 1)	$5,607
Total Non-Labor Costs (Table 2)	$9,175
Subtotal	$14,782
Contingency (10%)	$1,478
TOTAL	$16,260

The closure cost estimate will be adjusted annually for inflation in accordance with WAC-303-620(3)(c).

5.2 *Financial Assurance for Closure*

Financial assurance for closure will be provided by a letter of credit and associated standby trust agreement. Letter of Credit No. SB 22.300 is currently on-file with the Washington Department of Ecology's Hazardous Waste and Toxics Reduction Program office. The amount of the letter of credit will be maintained so as to cover the estimated closure costs plus contingency for the CCWT as well as AREVA's other permitted treatment, storage, or disposal facility - its Dangerous Waste Storage Facility (DWSF) dedicated to storage of containerized dangerous wastes.

5.3 *Financial Assurance for Liability*

AREVA will provide financial assurance for third-party liability coverage for sudden accidental occurrences as called for in WAC 173-303-620(8)(a) via a letter of credit. Letter of Credit No. SB 22.301 is currently on-file for this purpose with Ecology's Hazardous Waste and Toxics Reduction Program office.

Table 1 CCWT Closure Labor Costs

Work Activity	Labor Required, Days	Labor Cost, $*
Decontamination (high pressure washing) of tank/piping surfaces	General Laborer, 2	670
Dismantling of tank piping, valves, etc.	Pipefitter, 1 Electrician, 0.5	620 264
Dismantling of inner and outer tanks	General Laborer, 2	670
Inspection/sampling of debris surfaces	Environmental Engineer, 0.5	508
Packing/manifesting of offsite shipments (tank materials, piping, valves)	General Laborer, 1 Environmental Engineer, 0.5	335 508
Preparation of regulatory submittals	Environmental Engineer, 2	2,032
Total Labor Costs		5,607

* Costs based on Worker Unit Cost Schedule provided as Table 3.

Table 2 CCWT Closure Non-Labor Costs

Cost Component	Unit Cost, $	Total Cost, $
Vendor charges for pickup/disposal of final tank inventory (process waste and decontamination solutions)	1.98/gal + truck, driver, and mileage fees	6,487
Laboratory analyses of 8 tank/piping debris samples for solid corrosivity	20/sple.	160
Offsite disposal of 15 ft^3 of piping, valves, etc. (solid corrosive dangerous waste)	24.50/ft^3	368
Offsite disposal of 1.28 tons of tank materials (industrial waste)	47/ton	60
Services of independent registered professional engineer		1,900
Miscellaneous equipment/supplies	-	200
Total Non-Labor Costs		9,175

Table 3 Worker Unit Cost Schedule

Labor Cost Component	General Laborer	Pipefitter	Electrician	Environmental (Senior Project) Engineer
Salary & Fringe ($/hr)	29.26	54.24	46.19	-
Overhead Rate (%)	30	30	30	-
Profit on Labor (%)	10	10	10	-
Total Costs per Hour, $	41.84	77.56	66.05	127
Total Cost per Work Day, $	335	620	528	1,016

Notes:

- Salary and fringe rates for laborers and crafts derived from February 2008 Davis-Bacon Building Wage Rates for State of Washington, Benton County (Wage Determination WA11, Building).
- Overhead rate (average fixed + general) derived from R.S. Means, Building Construction Cost Data, 64th Edition, 2006.
- Environmental Engineer rate derived from currently contracted (2008) environmental engineering firm.

APPENDIX A - Sampling and Analysis Plan for Closure of the Component Chemical Waste Tank (CCWT) at the AREVA NP Inc. Richland Fuel Fabrication Facility

1.0 Sampling Objective

The objective of this sampling and analysis plan (SAP) is to evaluate decontaminated debris from closure of the CCWT to demonstrate that the debris does not exhibit the dangerous waste characteristic of corrosivity, thereby no longer requiring management as a dangerous waste. As noted in the closure plan for the CCWT, debris surfaces will have been previously decontaminated via high pressure water sprays/flushing in order to achieve a clean debris surface as defined in 40 CFR 268.45 Table 1. Demonstration of a clean debris surface will allow release of the debris from dangerous waste management. Implementation of this SAP will be necessary only to the extent that there is debris for which a clean debris surface was not achieved (e.g., excessive staining) or cannot be verified via inspection (e.g., certain piping). Based on the anticipated achievement of clean debris surfaces, required implementation of this SAP is not anticipated.

2.0 Organizational Responsibility

The project manager for implementation of this SAP will be a qualified professional from the Environmental, Health, Safety, and Licensing (EHS&L) organization within AREVA. The project manager's responsibilities will include: ensuring the project is performed according to this SAP; selection/collection of samples; maintenance of field notes; acting as the laboratory interface; and producing a final report.

3.0 Project Schedule

The SAP will be implemented, if necessary, in conjunction with the closure of the CCWT. An overall schedule and timeline for closure of the CCWT is provided in Section 4.0 of the CCWT Closure Plan.

4.0 Constituents/Characteristics to be Analyzed

As discussed in Section 2.3 of the Closure Plan, the wastes managed in the CCWT designate solely due to their corrosivity (D002). Accordingly, this SAP is limited to the collection of solid debris samples for the evaluation of state-only solids corrosivity. This testing will be conducted in accordance with SW846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Method 9045.

5.0 Sample Collection and Labeling

Sample collection will involve the cutting of small pieces of material from the potentially contaminated surfaces of larger pieces of debris, e.g. approximately 3 ft. by 3 ft. sections of tank wall or no greater than 6 foot sections of piping. As previously discussed, implementation of this SAP will only occur if certain of the debris does not meet, or cannot be effectively inspected to demonstrate that it meets, the clean debris surface criterion of 40 CFR 268.45 Table 1. Sections of tank walls or piping meeting the clean debris surface criterion will not require sampling. Samples will be collected as follows:

Sample Type	No. Samples	Instructions
Tank material	5	From five individual sections of tank material exhibiting staining
Piping	3	From three individual sections of piping exhibiting staining or not able to be visually inspected

Samples of the tank material will be collected via a small hand saw or alternatively, using a sharpened wood chisel and mallet. Piping samples will be collected via a hand saw. Efforts will be made to preserve a surface area to mass ratio for the sample that is representative of the material being sampled. Sections of tank material or piping sampled will be labeled sequentially via an indelible marker; this number will also be recorded on the plastic sample bottle into which the sample is placed. An example of a sample label is provided as Figure 3.

In addition to the information recorded on the sample label, any other pertinent information needed to describe or characterize the sampled material or the sample itself will be recorded in the field notes.

6.0 Analytical Method

As noted in Section 4.0, above, the debris samples will be analyzed for solids corrosivity in accordance with Method 9045 of SW846. This method involves soaking the sample in a volume of water in milliliters equal to the weight of the sample in grams for one hour. The water is then measured for pH via a calibrated pH meter. The debris sample is determined to be non-corrosive if the pH of the water is greater than 2 but less than 12.5.

7.0 Decontamination of Sampling Equipment

All sampling equipment contacting the sampled debris surfaces will be decontaminated prior to use and between samples by washing with a laboratory-grade, non-phosphate detergent and rinsing with deionized water. All field personnel will wear clean nitrile or vinyl gloves when conducting sampling and decontamination procedures.

8.0 Sample Handling and Chain of Custody

Samples collected and labeled as outlined in Section 5.0 will be placed in a cooler with ice immediately after collection. The cooler of filled sample containers, along with sufficient ice to effectively cool the samples during transport, will be shipped via overnight courier to the contracted laboratory. The selected laboratory will be accredited under WAC 173-50.

All samples will remain in the custody of the sampling personnel during each sampling day. At the end of each sampling day and prior to the transfer of the samples for offsite shipment, chain-of-custody entries will be made for all samples using a Chain-of-Custody form (Figure 4). One Chain-of-Custody form will be completed for each cooler of samples. All information on the Chain-of-Custody form and the sample container labels will be checked against the sampling log entries, and the samples will be recounted before transferring custody. Upon transfer of custody, the Chain-of-Custody form will be signed by the project manager, sealed in plastic, and placed inside the sample cooler.

A signed, dated custody seal (Figure 5) will be placed over the lid opening of the sample cooler to indicate if the cooler is opened during shipment. All Chain-of-Custody forms received by the laboratory must be signed and dated by the laboratory's sample custodian.

The custodian at the laboratory will note the condition of each sample received as well as questions or observations concerning sample integrity. The sample custodian will also maintain

a sample tracking record that will follow each sample through all stages of laboratory processing. These records will be used to determine compliance with holding time limits during laboratory audits and data validation.

9.0 Quality Assurance Measures

The collection of solid debris samples and their follow-on analysis for corrosivity are not amenable to many of the traditional sampling and analysis quality assurance measures, i.e. blind duplicates; trip blanks; equipment rinsates; and laboratory spikes, and percent recoveries. The laboratory utilized will be accredited under WAC 173-50. For the sake of data quality assurance, AREVA will request copies of the laboratory's calibration data associated with the pH measurements.

10.0 Data Reporting

The results of the SAP will be reported to Ecology as part of the closure certification package.

Figure 1 Site Map

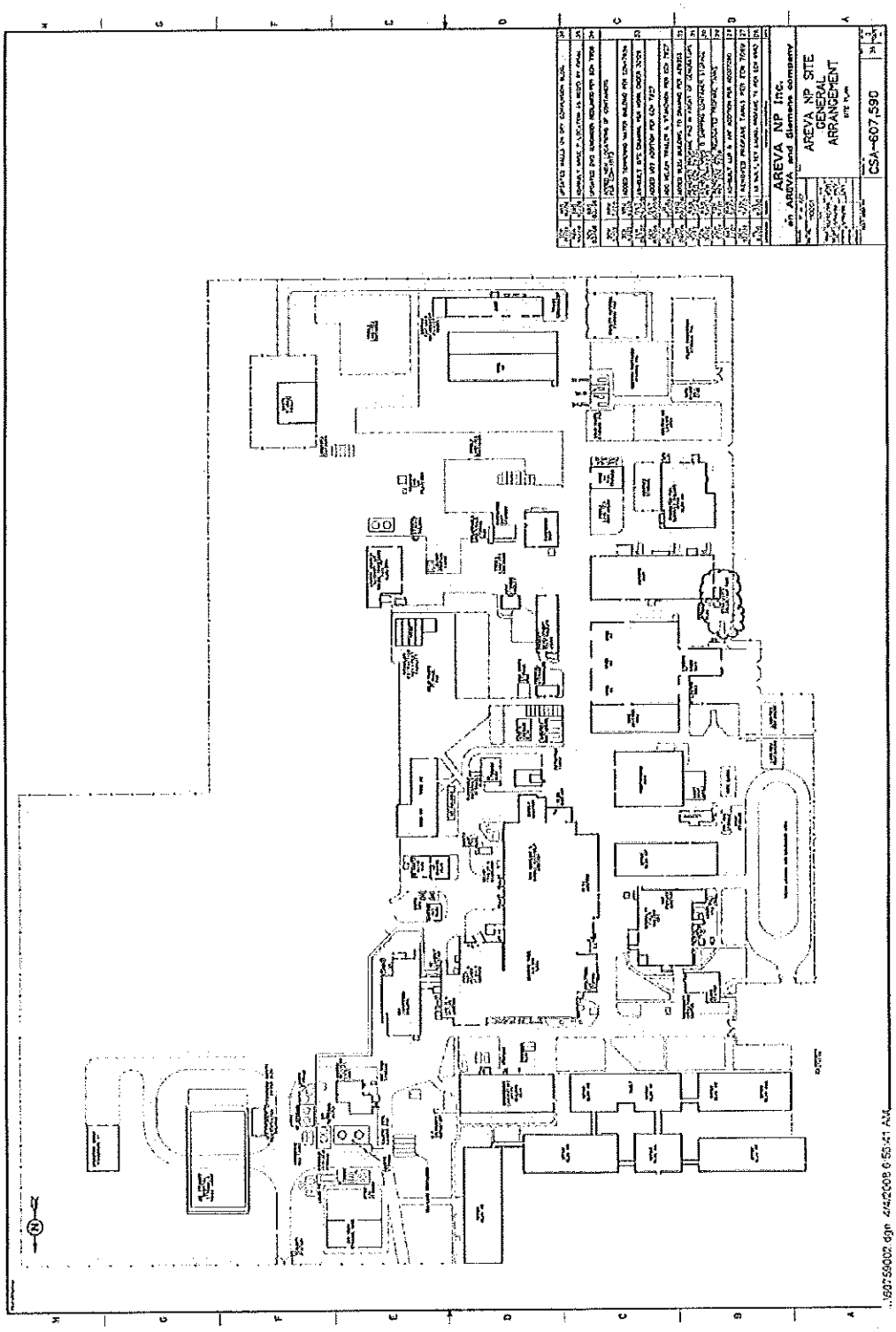


Figure 2 Photo of CCWT

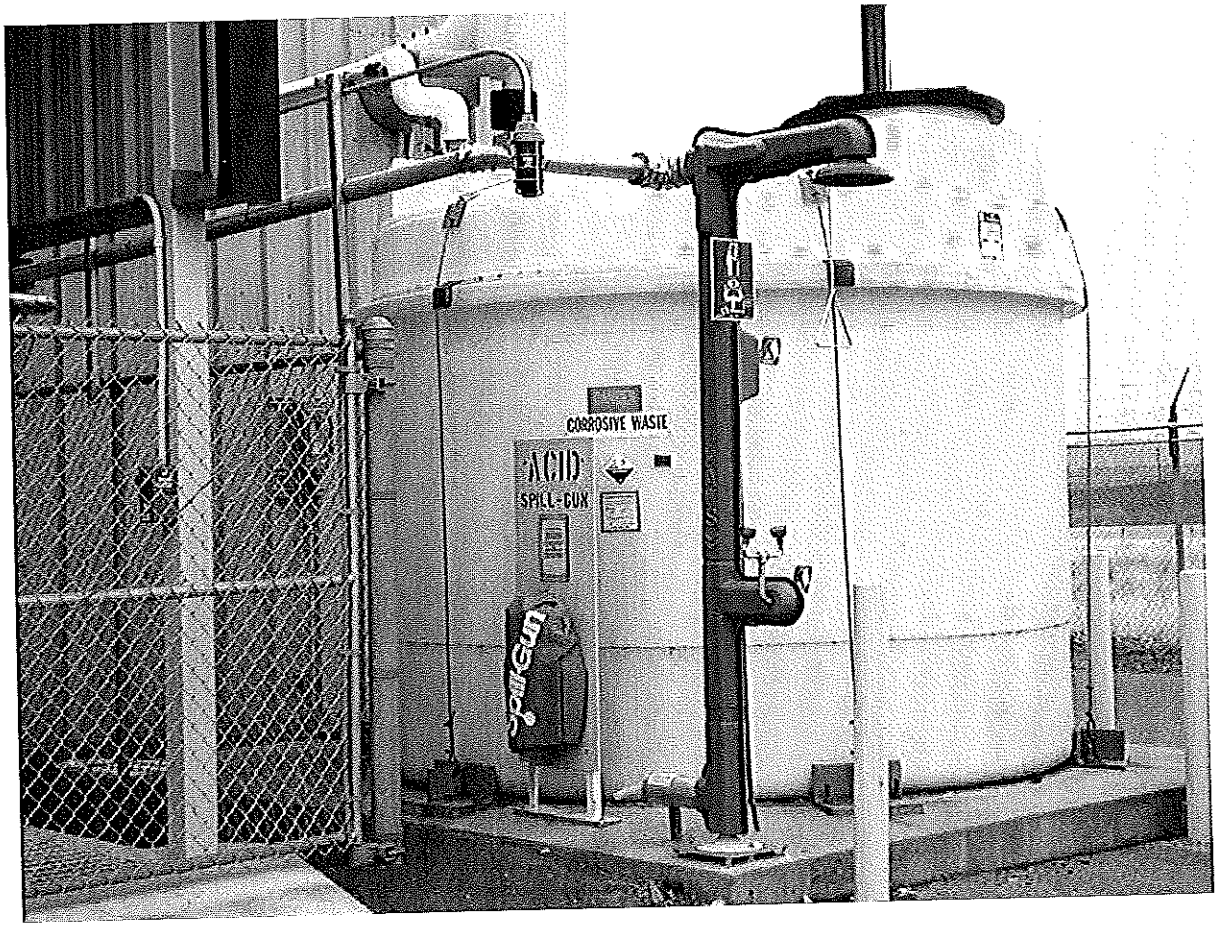


Figure 3 Sample Label

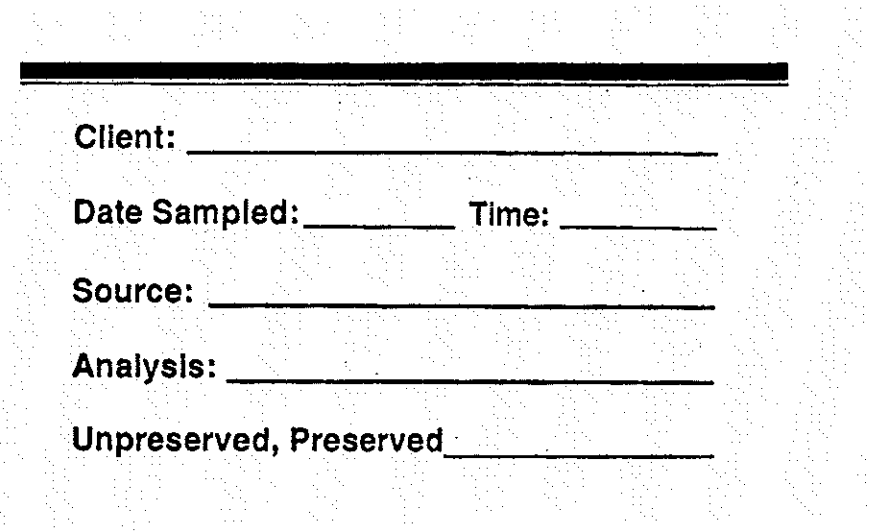


Figure 4 Chain of Custody Form

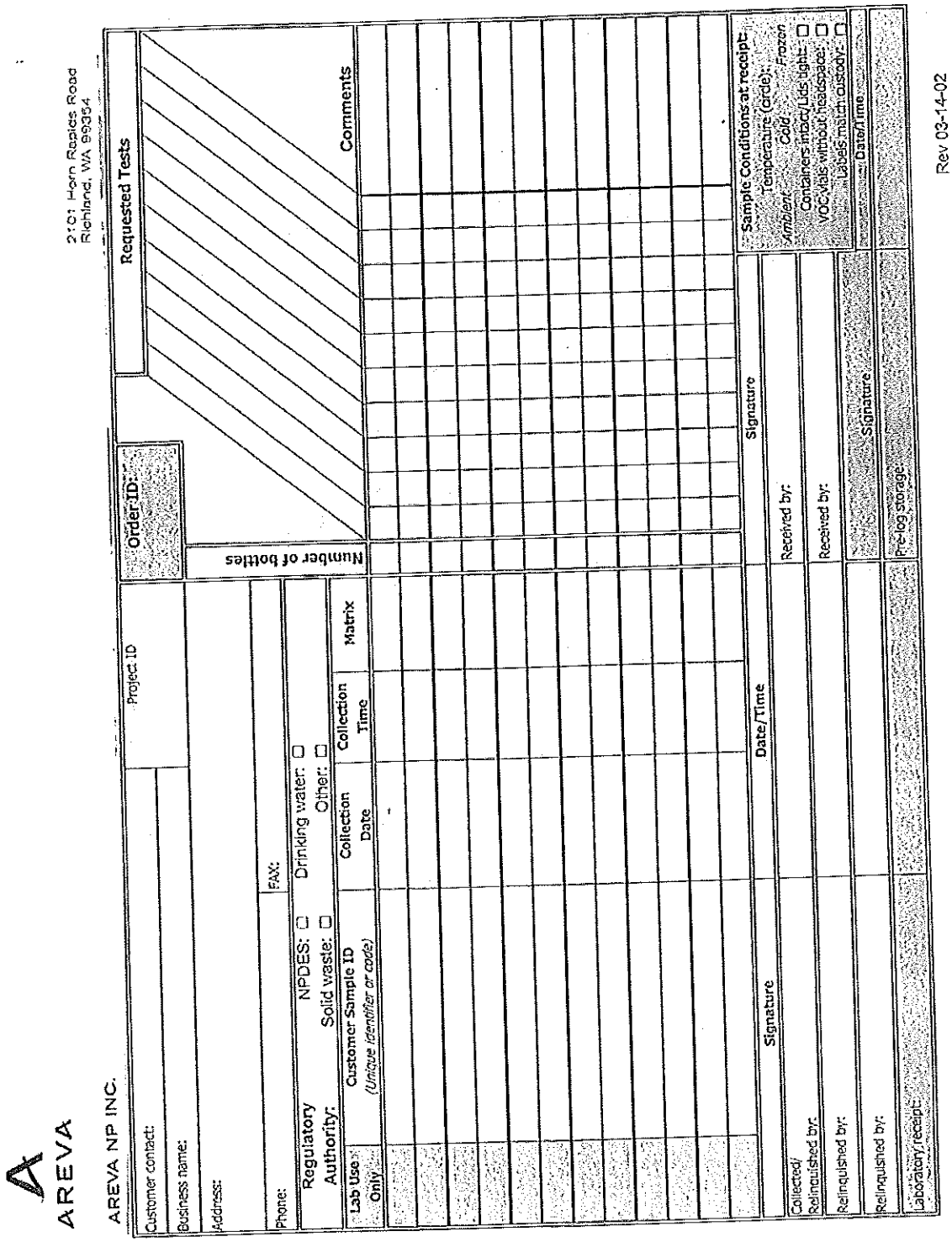
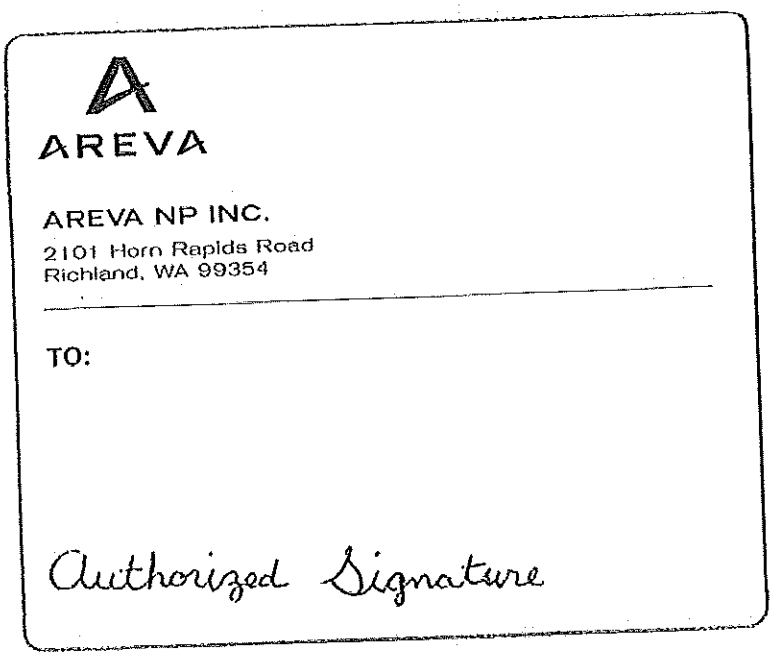


Figure 5 Chain of Custody Seal



AREVA NP Inc.

E06 Environmental Protection
E06-04 Miscellaneous Reports

E06-04-009
Version 2.0

Closure Plan for the Component Chemical Waste Tank

Date (GMT)	Signed by
08/31/2009 18:21:44	Maas, Loren
Authorization/Title	Document Author

08/31/2009 18:22:23	Maas, Loren
Authorization/Title	Licensing & Compliance Manager

08/31/2009 18:32:58	Watkins, Terra
Authorization/Title	Document Control Approval

AREVA NP Inc

AREVA Richland Site Dangerous Waste Contingency Plan

Attachment F

EHS&L Document

AREVA Richland Site Dangerous Waste Contingency Plan

Nature of Changes

Item	Paragraph	Description	Justification
1.	Entire Document	Revised to reflect elimination of etch process	Etch process permanently discontinued.
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
List Below any Documents, Including Forms & Operator Aids which must be issued concurrently with this document revision:			

This Document contains a total of 19 pages excluding the signature page generated by Documentum, the document control application software.

DOCUMENT REVIEW/APPROVAL/DELETION CHECKLIST

All new and/or revised procedures shall be approved by the change author, cognizant manager(s) of areas affected by the changes, and by applicable manager(s) of any function that approved the previous revision of the document unless responsibility for such approval has been transferred to another organization. Also, the procedure shall be approved by manager(s) of functional organizations that provide technical reviews with the exception of the Training Department. Finally, Document Control shall verify that the required approvals have been properly obtained and that any documents that must be issued concurrently are ready to be issued.

Minor Changes: If the proposed changes are limited to editorial and/or administrative changes check the box at the right. The document will be routed directly for review by EHS&L without technical review. All applicable approvals must still be obtained. ☐

Document Reviews			Document Approvals	
Purpose/Function of Review	Specify Reviewer(s) (Optional except for change author)	(Check all that apply)	Title of Approver	(Check all that Apply)
Document Control (Automatic)		☒	Document Control (Automatic)	☒
Change Author	LJ Maas	☒	Author	☒
Independent Technical Review	JM Deist	☒		
Operability Review(s)			Mgr, Richland Operations[1]	☐
Conversion		☐	Mgr, Uranium Conversion & Recovery Operations[1]	☐
Recovery		☐		
Ceramics		☐	Mgr, Ceramic Operations[1]	☐
Rods		☐	Mgr, Rods & Bundles[1]	☐
Bundles		☐		
Transportation		☐		
Components		☐	Mgr, Component Febrication[1]	☐
Maintenance Review		☐	Mgr, Maintenance[1]	☐
Lab Review		☐	Mgr, Analytical Services[1]	☐
EHS&L Review(s)			Mgr, EHS&L[2]	☐
Criticality		☐	Mgr, Criticality Safety[2]	☐
Radiation Protection		☐	Mgr, Safety, Security & Emergency Preparedness[2]	☐
Safety/Security	TJ Tate	☒		
Emergency Preparedness	JM Deist	☒		
MC&A		☐	Mgr, Licensing & Compliance[2]	☒
Transportation		☐		
Environmental	JB Perryman	☒		
BWR Product Eng. Review		☐	Mgr, BWR Product Engineering	☐
BWR Core Engineering Review		☐	Mgr, BWR Core Engineering	☐
Codes and Methods Review		☐	Mgr, Codes and Methods	☐
Proj. Eng. & Design Support Review		☐	Mgr, Proj. Eng. & Design Support	☐
Quality Review		☐	Mgr, Quality	☐
Project & Plant Eng. Review		☐	Mgr, Project & Plant Eng.	☐
Purchasing Review		☐	Mgr, Purchasing	☐
Others:		☐	Mgr, Richland Site/Other	☐
Training & Employee Dev.:[3]		☐	Training & Employee Dev.	☐

[1]Note: If approvals include 2 or more product center managers, the Operations manager can be substituted for the applicable product center managers.

[2]Note: If approvals include 2 or more EHS&L functional managers, the EHS&L manager can be substituted for the applicable EHS&L functional managers.

[3]Note: Training department review is required for all procedures that require or affect a Learning Plan and if additional training materials or curriculum must be revised before issuing procedure.

EHS&L Change Impact Evaluation Form		
Document / ECN No*.: E06-07-011	Change Evaluator: LJ Maas	
Does the change potentially impact Criticality Alarm System (CAS) coverage?	☐ Yes ☒ No	If yes, explain:
NRC Pre-Approval Evaluation:		
Is NRC Pre-approval (License Amendment) Needed? (Based on "Yes" answer to any of five questions below). (Based on "No" answer to all five questions below).	☐ Yes ☒ No	
1. Does the change create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 (create high or intermediate consequence events) and that have not previously been described in AREVA NP Inc's ISA Summary?	☐ Yes ☒ No	If yes, explain:
2. Does the change use new processes, technologies, or control systems for which AREVA NP Inc. has no prior experience?	☐ Yes ☒ No	If yes, explain:
3. Does the change remove, without at least an equivalent replacement of the safety function, an item relied on for safety that is listed in the ISA Summary?	☐ Yes ☒ No	If yes, explain:
4. Does the change alter any item relied on for safety, listed in the ISA Summary, that is the sole item preventing or mitigating an accident sequence of high or intermediate consequences?	☐ Yes ☒ No	If yes, explain:
5. Does the change qualify as a change specifically prohibited by NRC regulation, order, or license condition?	☐ Yes ☒ No	If yes, explain:
Actions Required Prior to or Concurrent with Change Implementation Evaluation:		
Action		**Explanation**
6. Modification / Addition to CAS system or system coverage documentation	☐ Yes ☒ No	If yes, explain:
7. Acquire NRC pre-approval (license amendment)	☐ Yes ☒ No	If yes, explain:
8. Conduct/modify ISA	☐ Yes ☒ No	If yes, explain:
9. ISA Database Modification	☐ Yes ☒ No	If yes, explain:
10. Modification of other safety program information / underlying analyses (PHA, RHA, FHA, NCSA, etc.)	☐ Yes ☒ No	If yes, explain:
Actions required subsequent to Change Implementation Evaluation:		
11. Update safety program information (PHA,RHA,FHA,NCSA, P&ID)	☐ Yes ☒ No	If yes, explain:

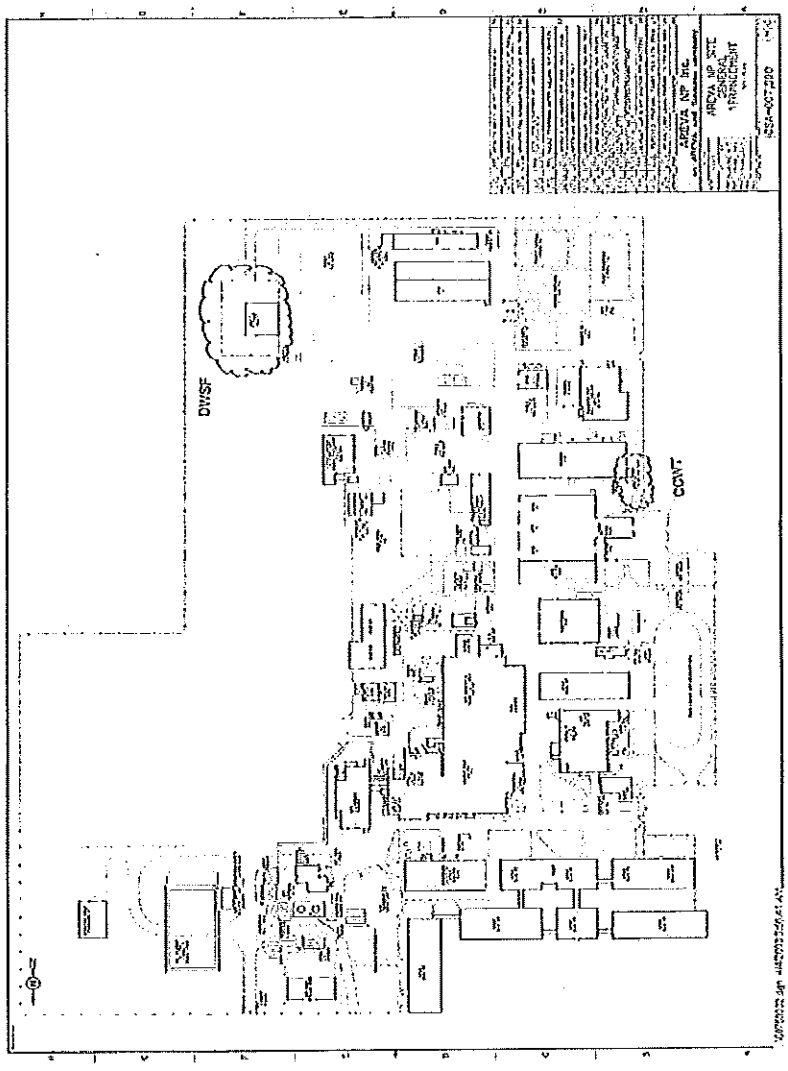
* **If this form exists as a part of a document, the document number is not required.**

1.0 General Information

1.1 *Purpose/Scope*

This Dangerous Waste Contingency Plan applies to the AREVA NP Inc. nuclear fuel fabrication facility located at 2101 Horn Rapids Road, Richland, Washington. The plan has been formulated to meet the requirements of WAC 173-303-350 and considers applicable guidance in Section G of the Washington State Department of Ecology's (Ecology's) Dangerous Waste Permit Application Requirements (Publication No. 95-402; June 1996). The purpose of this plan is to lessen the potential impact on the public health and the environment in the event of any emergency circumstance, including a fire, explosion, or unplanned sudden or non-sudden release of dangerous waste or dangerous waste constituents to air, soil, surface water, or groundwater from either of the site's two permitted dangerous waste management units. Those units are the Dangerous Waste Storage Facility (DWSF) - a container storage unit located in the southeast corner of the AREVA site - and the Component Chemical Waste Tank (CCWT) - a 2000 gallon capacity tank-in-tank unit located outside the northwest corner of the AREVA Component Center on the western edge of the AREVA site. A site plan showing the locations of the DWSF and CCWT is provided as Figure 1.

Figure 1 DWSF and CCWT Locations



1.2 *Facility Description*

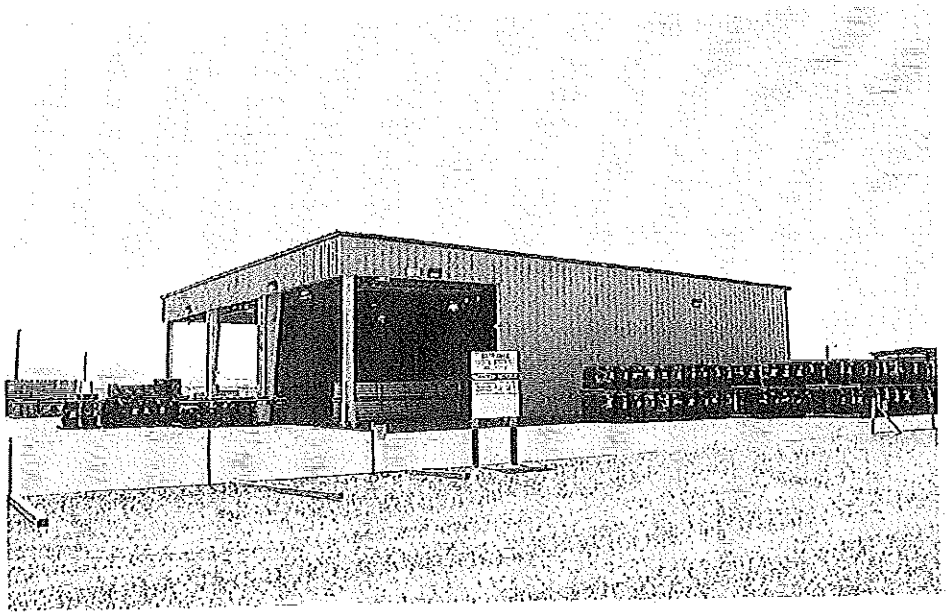
The overall mission of the AREVA Richland facility is the manufacture of nuclear fuel products for use in commercial nuclear power reactors. Products typically produced at the plant include uranium dioxide powder, uranium dioxide pellets, and finished nuclear fuel assemblies composed of fuel rods loaded with uranium dioxide pellets. In support of that mission the site includes, within its approximately 55 acre fenced portion, a number of major processing facilities along with a variety of supporting facilities (storage warehouses, maintenance shops, waste treatment/storage facilities, office/administrative buildings, etc.). The layout of those facilities is shown in Figure 1.

1.2.1 Dangerous Waste Storage Facility (DWSF)

Site activities (production, maintenance, waste management, etc.) produce a number of solid wastes that designate as dangerous wastes under Ecology's dangerous waste regulations. In many cases these dangerous wastes also contain uranium and thus are classified as mixed wastes (chemically and radiologically regulated). The DWSF provides an isolated engineered facility at which these containerized wastes, typically drums but in some cases waste boxes, can be stored on an interim basis prior to final disposition offsite. For a limited number of containers the DWSF provides long-term storage while final disposal options are sought.

The DWSF consists of an approximately 170' x 120', minimum 2-inch thick asphalt pad on which an approximately 70' x 75' roofed, three-sided building has been placed. The covered area of the facility is partially bermed and appropriately sloped to prevent storm water run-on. All containers stored at the DWSF are elevated on pallets or skids to prevent contact with storm water. All drums with free liquids present, albeit limited in number, are stored on secondary containment pallets. Containers stored at the DWSF are strong-tight containers appropriate for the type of waste stored. The facility and containers are inspected on a weekly basis at a minimum and routinely surveyed under AREVA's radiation protection program. A photograph of the DWSF, and in particular the covered portion, is provided as Figure 2.

Figure 2 Dangerous Waste Storage Facility

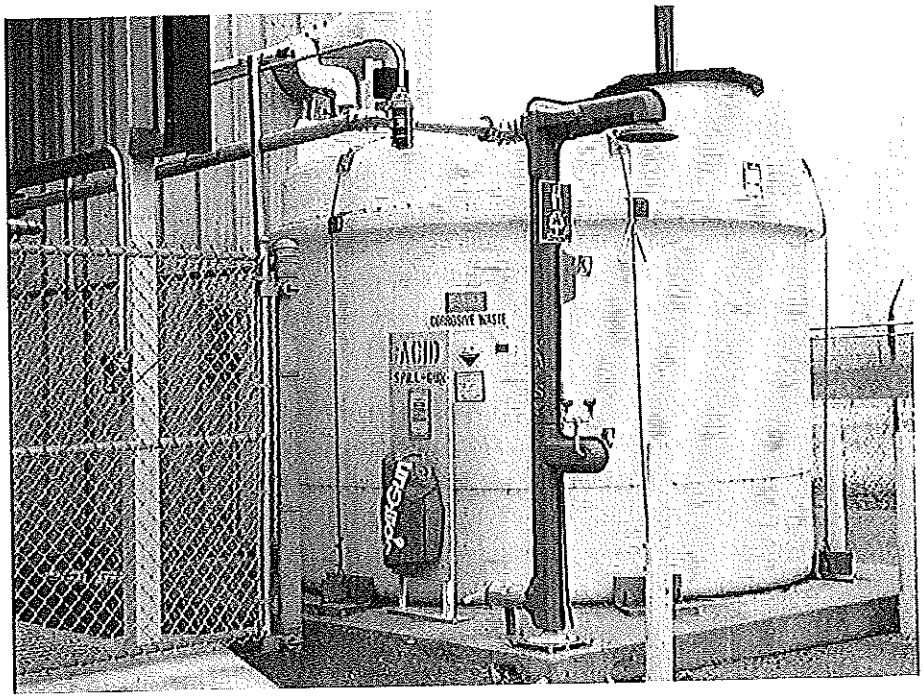


1.2.2 Component Chemical Waste Tank (CCWT)

The CCWT provides interim storage of liquid chemical wastes from a dip tank-based process (component pickling) applied to small metallic components used in the manufacture of fuel rods and fuel assemblies. The wastes designate as D002 Corrosive under Ecology's Dangerous Waste Regulations and are ultimately dispositioned via tanker truck to an offsite waste treatment/disposal contractor.

The CCWT is a tank-in-tank system - a 2000 gallon inner tank and a 3500 gallon external containment tank. Both tanks are made of high density cross-linked polyethylene for full compatibility with the waste solutions. The tanks are situated on a 6-inch thick reinforced concrete monolithic slab with thickened perimeter edges. Pipes and fittings associated with the tanks are stainless steel or polyethylene and located above ground. The inner tank is managed to less than 85 percent capacity via electronic level indication with alarm capability. A leak detection system with alarm capability is installed to detect any release of liquids from the inner tank into the outer containment tank. A photograph of the CCWT is provided as Figure 3.

Figure 3 Component Chemical Waste Tank



2.0 Emergency Coordinators

Coordination and direction of on-the-scene emergency response measures at the AREVA site are the responsibility of the Incident Commander (IC). The IC position is staffed on a rotating basis from a designated cadre of senior plant staff; coverage by an assigned IC is provided 24 hours per day, 7 days a week. In responding to an emergency, the IC is the commander of the Plant Emergency Response Team (PERT). The PERT is a specially trained group of professional and technical company employees that includes key operational and maintenance personnel, health and safety technicians, and at least one representative from each major operating facility containing radioactive or hazardous materials.

AREVA ICs are senior members of the PERT and as such receive the full complement of emergency response and health and safety training provided yearly to the PERT. In addition the ICs shall be thoroughly familiar with facility operations and activities, the location and properties of hazardous materials and wastes handled onsite, the location of key records and information pertinent to emergency response, the overall layout of the facility, and all aspects of this contingency plan.

Contact information (names, addresses, office and home phone numbers) for the IC On-Duty, as well as for all backup ICs, can be attained on a 24-hour, 7 day per week basis by calling the AREVA 24-hour response number at 509-375-8259.

Authority for the IC to conduct his assigned duties and to commit the necessary resources to implement this contingency plan are granted by the Richland Site Manager, who serves as the site's overall Plant Emergency Director. Duties of the IC are as follows:

- on-the-scene management of PERT personnel;
- search and rescue;
- first aid to emergency victims, with possible transfer to an ambulance for transport offsite;
- re-entry and recovery operations;

- incipient stage fire fighting;
- incipient stage chemical spill control;
- requesting offsite assistance for emergency situations deemed beyond the capabilities/ resources of the PERT;
- establishment of a unified command post for those situations in which the Richland Fire Department has been called in; and
- upon termination of the emergency, securing of the area, completion of After Action Reports, and supervision of cleaning and restoration of emergency equipment and supplies.

As noted above, there may be emergency situations beyond the capabilities and resources of the PERT for which the Richland Fire Department is called in. The Fire Department has jurisdictional authority to assume incident command responsibilities, including decisions to call in additional hazmat response capabilities such as the Tri County Hazardous Materials Response Team. In these situations, the AREVA IC will work in a supportive or co-command role via a unified command center. Additional information on AREVA's coordination agreements for offsite assistance is provided in Section 6.0 below.

3.0 Circumstances Prompting Implementation

3.1 *General Criteria*

Although AREVA will respond as appropriate to all releases of dangerous wastes or dangerous waste constituents, formal implementation of this contingency plan is reserved for dangerous waste-driven emergencies. For the purpose of this plan, **emergency** refers to a fire, explosion, or sudden or non-sudden release of dangerous waste or dangerous waste constituents to the environment, i.e. the air, soil, surface water, or groundwater, that constitutes a threat to the public health or the environment. **Threat** in turn depends on (1) the characteristics of the material, (2) the amount spilled, (3) whether immediate containment occurs, and (4) the environmental media involved. Characteristics of a threat could include any of the following:

- an individual, as a result of exposure, seeking or requiring medical services;

- potential for the material to enter water, including surface water, groundwater, storm drains, or ditches;
- releases to the air in concentrations or quantities sufficient to harm people, animals, or plants; or
- a spill to soil that cannot be quickly controlled, contained, or cleaned up.

Incidental releases of dangerous wastes or dangerous waste constituents that can be absorbed, neutralized, or otherwise controlled by AREVA personnel such that an actual or reasonably anticipated threat to the public health or the environment is not present are not considered to be emergencies. Responses to such events will not be considered as implementation of this contingency plan.

3.2 *Implementation for the DWSF*

The probability for an emergency as defined in 3.1, above, to occur at the DWSF is very low. This is due to a number of factors including the small volumes of the containers (typically 55 gallons), the nature of the contained wastes (typically solids; some liquids in drum quantities on containment pallets), the non-combustibility of the DWSF structure, the effectiveness of frequent inspections in detecting non-sudden releases, and the lack of any significant number of plausible scenarios to release the contents of multiple containers on a catastrophic basis. Nonetheless, as a conservative assumption, this contingency plan will address the possibility for the simultaneous release of wastes from a number of containers via a fire or physical accident, allowing for the potential release of dangerous wastes or dangerous waste constituents to the air or, via runoff, to the surrounding soil. Emergency procedures for the response to such scenarios are discussed in Section 4.0, below.

3.3 *Implementation for the CCWT*

This contingency plan addresses the catastrophic release of the contents of the CCWT and runoff of the liquids across the surrounding asphalt to adjacent soil. Release of liquids to the soil via cracks in the asphalt would constitute a smaller secondary pathway to the environment. The probability for such an occurrence is very low due to the materials of construction of the CCWT, its tank-in-tank design, its placement on a raised slab protected by bollards, and the relative lack of combustible materials around the tank or within adjacent portions of the Component Center. Such a release is nonetheless conservatively postulated via a physical

accident (e.g., vehicle impact) or facility fire. Emergency procedures for the response to a catastrophic liquid release are discussed in Section 4.0, below.

4.0 Emergency Response Procedures

4.1 *Emergency Response at the DWSF*

Dangerous waste-driven emergencies at the DWSF will be responded to by the AREVA PERT under the leadership of the on-duty AREVA IC. Emergencies triggering the implementation of this contingency plan will involve releases of dangerous wastes or dangerous waste constituents to the environment (air, soil, surface water, or groundwater) that involve an actual or reasonably anticipated threat to the environment or public health. Incidental releases as defined in 3.1, above, will typically be responded to by plant operating personnel under the direction of line management and safety personnel; such responses, even if involving PERT, do not constitute emergencies or implementation of this contingency plan.

AREVA maintains a PERT response procedure directing emergency response at the DWSF. The procedure addresses:

- Onsite notifications via the fire alarm system or the 8111 plant emergency number;
- Requests for offsite assistance;
- Evacuation protocol;
- Incipient firefighting;
- Hazardous materials identification;
- Spill curtailment/containment; and
- Follow-up actions

4.2 *Emergency Response at the CCWT*

Dangerous waste-driven emergencies at the CCWT will be responded to by the AREVA PERT under the leadership of the on-duty AREVA IC. Emergencies triggering the implementation of this contingency plan relative to the CCWT will involve only those releases of waste liquids that pose an actual or reasonably anticipated threat to the environment (air, soil, surface, water, or

groundwater) or the health of the public. Incidental releases (see 3.1, above) will typically be responded to by plant operating personnel under the direction of line management and safety personnel; such responses, even if involving PERT, do not constitute emergencies or implementation of this contingency plan.

AREVA maintains a PERT response procedure directing emergency response at the CCWT. The procedure addresses the same elements as addressed by the PERT response procedure for the DWSF, as listed in 4.1, above.

5.0 Emergency Equipment

AREVA maintains emergency response equipment throughout the site, near potential sites of use and at strategically located repositories. Emergency equipment pertinent to the DWSF and CCWT is listed in Table 1, attached.

6.0 Coordination Agreements

AREVA maintains coordination agreements with key outside agencies that may be called upon to provide assistance in the event of an emergency. These agreements are formalized in memoranda of understanding maintained on-file at AREVA and the participating agency. The agencies and their supporting roles are listed below. It should be noted that these agencies have been enlisted to provide support for the full range of emergencies postulated for AREVA's nuclear fuel fabrication site. Support for emergencies related to the DWSF or CCWT would primarily involve the Richland Fire Department with its firefighting and its extended hazardous material response capabilities.

Agency	Services
Richland Fire Department	Firefighting; hazardous materials response
Richland Police Department	Law enforcement; tactical response; explosives detection
Benton County Emergency Services	Emergency communications; emergency response mutual aid
Franklin County Emergency Management	Emergency communications
Kadlec Medical Center	Medical treatment
U.S. Department of Energy	Alternate emergency operations center; emergency communications
Energy Northwest	Alternate emergency operations center; emergency equipment; emergency field personnel; Joint Information Center

AREVA is a restricted access facility and therefore all offsite personnel responding to the site will be met by, and work in close coordination with, AREVA plant personnel. Responders providing on-the-scene field support will work in conjunction with the AREVA PERT under the direction of the AREVA IC, or possibly under the direction of a unified AREVA/Richland Fire Department command center.

Advance preparation for potential offsite responders is provided via an annual familiarization meeting/tour. Invited parties include pertinent regulatory agencies, key emergency response organizations, and Richland facility neighbors. In addition, the Richland Fire Department and Benton and Franklin County EOCs have been provided with copies of the site's overall Emergency Plan and Pre-Emergency Plan. The Pre-Emergency Plan provides facility maps and for each facility, including the DWSF and the Component Center, a physical facility description, typical occupancy levels, a summary of radioactive/hazardous material inventories, and a listing of fire protection equipment.

First-line medical response at AREVA is provided by the plant's health and safety technicians (HSTs) who, as members of PERT, receive annual advanced first aid training. Members of PERT as well as the AREVA IC will interface with responding medical personnel relative to known or potential radioactive or chemical exposures to accident victims. This includes emergency responders involved in transporting victims to the hospital. If the victim is radiologically contaminated, an HST will accompany the accident victim to the hospital.

7.0 Evacuation Plan

Both the DWSF and the CCWT are outdoor facilities, although the DWSF does include a large 70' x 75' roofed, three-sided enclosure. The CCWT does not constitute an occupied workstation; the DWSF is typically unoccupied but may have personnel present during waste container additions/removals, waste shipment preparatory activities, and inspections.

Due to the nature and limited quantities of the dangerous waste and dangerous waste constituents managed at the DWSF and CCWT, the need for personnel evacuations would be unlikely and limited to onsite personnel, even for circumstances triggering the implementation of this contingency plan.

For fire-related releases, the evacuation signal is a fire alarm. For the DWSF, the fire alarm can be activated by a manual pull-station located in the southeast corner of the covered structure or by heat detectors at ceiling level at numerous locations within that structure. The alarm also is relayed to the continuously monitored Central Guard Station, indicating the existence and location of the alarm. For the CCWT, manual fire alarm pull-boxes and overhead heat detectors are located throughout the adjacent Component Center, including a pull-box just inside the door of the immediately adjacent pickling room. As in the case of the DWSF, Component Center fire alarms are electronically relayed to the Central Guard Station.

For fires, standard practice is to evacuate to a location well clear of the affected facility, upwind, and out of the way of emergency responders. Personnel are trained to this protocol via annual site safety training and periodic fire drills.

Non-fire-driven emergencies requiring implementation of this contingency plan would be reported via dialing the Central Guard Station at 8111. Protective measures, including any evacuation instructions, would be conveyed via the plant public address system, audible throughout the plant site at indoor and outdoor locations. Plant phone sets are located throughout the Component Center, including within the pickling room. A single phone is located in the DWSF, adjacent to the fire alarm pull-station. Local facility evacuation instructions would typically match those related to a fire, i.e., clear of the facility, upwind, and out of the way of emergency responders.

Although not foreseen to be needed for the DWSF or CCWT, the site has an established total site evacuation protocol, which includes designated staging areas in the west parking lot.

Evacuation instructions would be conveyed via the public address system. Full site evacuations are conducted on a periodic basis in conjunction with criticality alarm drills.

8.0 Follow-up Actions (Reports, Recordkeeping, Certifications)

8.1 *Recording Contingency Plan Implementation*

Incidents requiring implementation of this contingency plan relative to the DWSF or CCWT must be recorded in the plant operating record, including documentation of time, date, and other pertinent details of the incident. This may be accomplished via the completion/filing of a spill report in accordance with plant procedures.

8.2 *Reporting Contingency Plan Implementation*

Within fifteen (15) days of an emergency requiring implementation of this contingency plan relative to the DWSF or CCWT, a written report must be filed with the Department of Ecology. The report must include the information called for in WAC 173-303-360(2)(k). For the CCWT, the report must also contain the information in 173-303-640 (7)(d)(ii) - see 8.3, below.

8.3 *Notification Prior to Restart*

Prior to restart of the DWSF or CCWT after an emergency requiring implementation of this contingency plan, Ecology and appropriate local authorities must be notified that the requirements in 173-303-360(i) have been complied with, namely that wastes potentially incompatible with the released materials are not managed until cleanup procedures are completed and affected emergency equipment is cleaned and fit for its intended use.

8.4 *Follow-up Actions for Releases from/Repairs to the CCWT*

WAC 173-303-640(7) imposes certain follow-up actions relative to leaks or spills from, or repairs to, the CCWT by virtue of its being a tank system.

8.4.1 CCWT Releases to the Environment

Per WAC 173-303-640(7)(d)(i), releases to the environment from the CCWT must be reported immediately to Ecology in accordance with 173-303-145 and, if exceeding a CERCLA reportable quantity, to the National Response Center in accordance with 40 CFR Part 302. Provisions for this reporting are included in the site's procedure for regulatory reporting of hazardous substance releases.

Releases to the environment from the CCWT reported to Ecology under 173-303-145 must be reported to Ecology via a 30-day follow-up report containing the information called for in 173-303-640(7)(d)(ii). If the release constituted an emergency requiring the implementation of this contingency plan, this report must be made within 15 days of discovering the release.

8.4.2 Certification of Major Repairs to the CCWT

If the CCWT has been repaired in accordance with 173-303-640(7)(e) because it has leaked or become otherwise unfit for use and those repairs have been extensive [per 173-303-640(7)(f)], the system must not be returned to service until its integrity has been certified by an independent, qualified, registered, professional engineer. This certification must be submitted to Ecology within seven days after returning the CCWT to use.

Table 1 Emergency Equipment for the DWSF and CCWT

Item	Application	Location
Telephone(s)	Emergency communication to Central Guard Station	SE corner of DWSF; throughout Component Center
Fire alarm pull stations	Fire alarm activation	SE corner of DWSF; throughout Component Center, including just inside door to Pickling room
Ceiling-mounted heat detectors	Fire alarm activation	Throughout DWSF structure and Component Center
Public address system speakers	Receipt of emergency instructions	Indoor/outdoor locations throughout site
Fire extinguishers	Incipient firefighting	NE and SE corner of DWSF; throughout Component Center; including Pickling room
Safety shower	Emergency decontamination	Adjacent to CCWT
Plastic drums/chemical totes	Emergency receipt of CCWT liquids	Historic waste storage pad/north tank farm
Drum overpacks and spare drums	Repackaging/overpacking of leaking/damaged drums at DWSF	Historic waste storage pad
Absorbent pigs/bulk absorbent media	Spill containment and absorption	DWSF Chemical Cleanup Kit (NE corner of DWSF); Essential Materials Warehouse; Emergency Equipment Repositories
Liquid transfer pumps	Liquid removal from CCWT or DWSF drums	DWSF Chemical Cleanup Kit (NE corner of DWSF); Maintenance Spare Parts facility
Personal protective equipment (goggles, boots, shoe covers, face shields, coveralls)	Personal protection during spill response/cleanup	DWSF Chemical Cleanup Kit (NE corner of DWSF); HST offices; Essential Materials Warehouse
Drum tourniquet	Emergency drum repair	DWSF Chemical Cleanup Kit
Acid spill kits	Acid spill response	At CCWT and inside Pickling room
Spill-X Acid Spill Extinguisher Unit	Acid spill neutralization and containment	At CCWT; Emergency Equipment Repositories
Respiratory protection equipment	Personnel protection during emergency response	HST offices; Emergency Equipment Repositories
Chemical foam trailer	Foaming surfaces of spill pools	UNH Storage Warehouse
Radiological survey equipment	Radiological characterization of spills/releases	HST offices
Chemical survey equipment (meters, detector tubes)	Chemical characterization of spills/releases	Industrial Hygiene office, HST offices, EOC repository

AREVA NP Inc.

E06 Environmental Protection
E06-07 Ecology - Required Plans

E06-07-011
Version 2.0

AREVA Richland Site Dangerous Waste Contingency Plan

Date (GMT)	Signed by
08/31/2009 17:32:34	Maas, Loren
Authorization/Title	Document Author

08/31/2009 17:58:09	Maas, Loren
Authorization/Title	Licensing & Compliance Manager

08/31/2009 18:05:58	Davis, Wendy
Authorization/Title	Document Control Approval

Following are Key Milestones for the Review and Comment Process.

Description and delivery	Date
Distribute Task Assignment	1-20-10
Jeff Lyon to provide review and comment staff with feedback, answer questions	Throughout review process
Provide status on review.	February 4, @ 2 – 3 PM
Assign lead for comment binning and consolidation	February 8, 1 – 2 PM
Review comments and discuss path forward.	February 18, 2010
Jeff Lyon to communicate issues to EIS Core team	Week of February , 22

AREVA NP Inc

Tank Integrity Assessment Report

Attachment G

VISTA
ENGINEERING TECHNOLOGIES

November 19, 2008

AREVA NP Inc.
2101 Horn Rapids Road
Richland WA, 99354
Attn: Jim Perryman

Subject: Tank Integrity Assessment Report for Areva Component Chemical Waste Tank System

Dear Mr. Perryman:

Vista Engineering Technologies, LLC is pleased to submit the attached Tank Integrity Assessment Report for Areva Component Chemical Waste Tank System prepared per the requirements of WAC 173-303-640, Tank Systems.

The attached report details the inspections conducted during the week of 9/22/08 on the subject tank, and provides the independent assessment and certification statement for the tank system pursuant to WAC 173-303-810(13)(a) per our service agreement.

If you have any questions, please do not hesitate to call me directly at (509) 737-1377.

Sincerely,

11/19/08

James T. Lovelady, PE
Senior Engineer

VISTA ENGINEERING TECHNOLOGIES, L.L.C.
1355 Columbia Park Trail • Richland, WA 99352 • (509) 737-1377 • Fax (509) 737-1383 • www.vistaengr.com

VET-1583-RPT-001

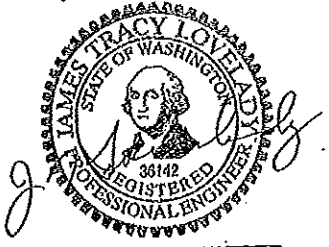
Tank Integrity Assessment Report for Areva Component Chemical Waste Tank System

Summary:

The results of the independent Tank Integrity Assessment performed by Vista Engineering Technologies, LLC on behalf of Areva are presented below. Results of the assessment demonstrate that the Component Chemical Waste Tank System (inner and outer tank assemblies) is structurally sound with required seismic restraints and protective bollards present and in good repair. Full capacity leak tests demonstrate that there are no leaks within either of the tank assemblies or from any tank wall thru-fittings. Interfacing equipment, piping, and supports are adequately designed to prevent inadvertent loads into the Polyethylene tank assemblies. The indication and alarm systems are verified as operative and in current calibration. The Component Chemical Waste Tank System satisfies the requirements of WAC 173-303, and the installation will continue to satisfy those requirements for a two year period prior to re-examination, assuming the procedures, processes and stored chemicals associated with the containment system remain unchanged during that period.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

11/19/08
James T. Lovelady, PE



EXPIRES 10/17/2010

VISTA ENGINEERING TECHNOLOGIES

1355 Columbia Park Trail
Richland, WA 99352
(509) 737-1377
www.vistaengr.com

Existing Containment Tank Design:

The Component Chemical Waste Tank System inspected during this independent assessment has been in place and in use since October 1994. The double containment on-ground system consists of two high density cross-linked polyethylene tanks produced by Poly Cal Plastics, in accordance with ASTM D1998-91. The inner tank is identified as stock number 09-U, (7'-5" OD, 7'-2" H) with a capacity of 2000 gal. The outer tank is constructed of two sections using stock number SP-882-XL (10'-0" OD). The two sections are mated together above the containment level using a bolted flange.

The dual tanks are secured to an outdoor 6" thick reinforced concrete slab on grade. Six embeds are installed equally spaced around the bottom of the outer tank to prevent lateral movement during a seismic event. Seismic restraint cables are attached to the embeds on the bottom end, and join together at a common ring which rests on the center of the tank top.

Bollards are installed around the slab to protect the tank and exterior piping from inadvertent damage from factory traffic on the adjacent paved areas.

The tank vent is adequately sized and free flowing. The vent is connected to a scrubber system, such that fresh air is drawn continuously into the tank, with the vent gasses processed through the scrubber. The system is constructed to prevent positive pressure in the tank.

Dangerous Characteristics of the Waste(s):

The vessel is used for temporary storage of process effluent. The components of the effluent are dilute Nitric acid, dilute Ammonium Nitrate, and dilute Hydrochloric Acid.

Corrosion Resistance:

The containment system is constructed of cross-linked polyethylene. Industry standards and Manufacturer recommendations confirm that the tank material is appropriate for the waste contained. Pipes and fittings connected to the vessel are either stainless steel or polypropylene.

Integrity Assessment:

WAC 173-303-640 of the Washington Administrative Code points to the Washington State Department of Ecology Publication No. 94-114, "*Guidance for Assessing and Certifying Tank Systems that Store and Treat Dangerous Waste,*" as a reference for conducting independent assessments of Tank systems. This document was used to develop the following sequence of inspections to satisfy the requirements of the WAC.

VET-1583-RPT-001

1. Visual Inspection:

Due to the age of the polyethylene tank, greater than 10 years, the obvious concern was to examine the tank for environmental stress cracking due to UV exposure and the chemical makeup of the typical contents stored in the tank. The inner tank and interstitial were first pumped out and flushed with fresh water and pumped as dry as possible. The method used to identify environmental stress cracking (surface crazing) was to use a water based, felt tip marker to stain selected 2-3 sq in areas for detailed inspection. The applied "stain" is wiped off the surface prior to drying, leaving any stress cracking highlighted. Tank manufacturers specify this method be used when sacrificial coupons are not installed during the initial tank installation, and it is standard industry practice.

Efficacy of the method was verified on the outer tank top prior to proceeding: since the exterior tank lid has been exposed to the environment since the system was installed, it was expected to show signs of ultraviolet degradation. While the inspection did demonstrate evidence of environmental stress cracking on the tank top surface, it was mild based on experience inspecting similar tank installations. The surface remains smooth and there is minimal discoloration. Once validated, the same procedure was used to inspect the tank walls, the tank bottoms, areas near fittings or outlets, any edges or seams, and areas of concern exposed during the gross visual inspection.

Entry into the inner tank was not an option due to the geometry of the installation. The inspection method described above was repeated on a total of twelve locations on the inner tank surface using a boroscope/video system to examine the stained surface for stress cracking (four at the tank bottom, two at the bottom radius, two at tank seams, and four random locations on vertical tank walls). No chemical stress cracking or degradation was identified. The top of the inner tank was accessible with no extraordinary means. Examination of four separate locations on the inner tank top showed no signs of chemical or environmental degradation. This is an expected result due to the inner tank being effectively shaded by the outer tank.

Access to the interstitial was arranged for examination of the outer wall of the inner tank and the inner wall of the outer tank. Eight locations on each of these walls were stained and inspected with no stress cracking found. Four locations on the outer tank bottom (bottom of the interstitial) were examined, with no anomalies noted.

The exterior surface of the outer tank walls were examined in detail--since the outer tank lid showed signs of stress cracking, it was likely that the vertical walls of the outer tank would be similarly impacted from environmental exposure. Sixteen separate areas were examined, and no indication of cracking, crazing, or degradation was noted. A single surface anomaly at the upper seam (5'-8") on the side of the tank nearest the Component Center Fan Room did absorb stain, but it was determined to be a result of the manufacturing process. Examination of this location from the interstitial side showed a virgin surface. Subsequent leak testing showed no change in appearance of the anomaly and no indication of any leakage.

2. Leak test

   The inner tank was filled to 100% full (77" above tank bottom) with fresh water and allowed to sit over night. Since the interstitial was rinsed and pumped dry prior to filling the inner tank, it would capture any leakage from the inner tank providing positive indication of a pass or fail condition. No leaks were indicated during the test, and there was no localized bulging of the tank walls confirming structural integrity of the inner tank.

   With the inner tank still filled, the interstitial was filled with fresh water to just below the fill level of the inner tank (74" above tank bottom) to prevent compressive loads on the inner tank. The tanks were again allowed to sit over night to allow any leaks to accumulate and be noticed. No leaks were indicated during the test, and no localized bulging of the outer tank was noted, confirming structural integrity of the outer tank/secondary containment vessel. The contained volume within the tank system during the leak test sequence equates to an additional 1600 gallons of fluid, or 80% above the design capacity of 2000 gallons for the primary tank.

3. Level / Leak Indication Systems

   The leak test of the inner tank allowed for a practical test of the tank level indication system. With the tank in the 100% full condition, the indication system indicated 87% full, with the audible alarm set to trigger at 85%. Investigation into the anomaly showed that the capacitive liquid level probe was corroded due to prolonged exposure to the chemical contents of the tank. A replacement probe was subsequently installed and calibrated correcting the condition. A copy of the new calibration sheet was provided as evidence of the repair after the new probe was installed and verified.

   During inspection of the interstitial, a checkout of the leak indication system was performed. The leak system has two separate channels, with the as-found condition demonstrating that only one channel was operating. The reason for the failure of the second channel was corrosion of the probe wire. The condition was corrected and both channels were verified as indicating a "leak" independently prior to exiting the interstitial.

4. Mechanical Connections:

   a.) Seismic restraints, foundation attachments, and wear plates between the restraint cables and the outer tank top were all intact and in satisfactory condition.
   b.) The concrete pad is in good condition with only typical surface cracking present. There are no indications of uneven settling.
   c.) There is no evidence of leakage of the interfacing piping system.
   d.) The vent system is clear and free flowing. The system is adequately designed to prevent positive pressure within the tank system.
   e.) All connections to the tank are "flexible" and do not introduce loads into the tank.

Conclusions:

The Component Chemical Waste Tank is structurally sound and capable of safely storing the effluent from the Areva Component Center Processes. The chemical constituents of the effluent are dilute enough that there is no physical evidence of degradation of the inner (primary) storage tank. The primary tank is totally contained with the outer (secondary containment) tank, and is adequately protected from environmental degradation. If the conditions and processes used at the Component Center remain unchanged, and the effluent remains similar to its historical make up, the primary tank can be expected to remain adequate for another two years, after which reassessment is recommended.

The tank top of the secondary containment vessel is beginning to show signs of UV degradation. At this point in time, stress cracking is minor, with very little or no stain being drawn into surface imperfections. The surface remains smooth with very little discoloration. Since the tank top is not part of the secondary containment system (it serves as a cover preventing rain from entering the interstitial and is attached via a non-fluid tight bolted flange connection to the tank) it is not an issue for containment. The underside surface of the outer tank top remains a virgin surface. The outer tank walls of the secondary containment vessel show no signs of chemical or environmental degradation. The outer tank was filled to 180% of the primary tank containment volume during the leak test procedure confirming structural integrity of the vessel. The secondary containment vessel can be expected to remain adequate for another two years, after which reassessment is recommended, with particular emphasis on the condition of the outer tank top due to environmental exposure.

The tank level indicator has been recently replaced due to corrosion effects, so it is recommended that the unit be examined closely during its periodic calibrations to address corrosion issues and ensure proper operation. Likewise, the leak detector wires are subject to corrosion, so it is an obvious recommendation to initiate a scheduled activity to check these probes for corrosion during periodic maintenance.

The Areva Component Chemical Waste Tank satisfies all Washington State Department of Ecology requirements specified in WAC 173-303. Any change in the Component Center processes producing effluent stored in this tank or in the chemical makeup of the effluent should prompt an internal Areva review to determine its potential impact on the containment system. It is recommended that the inspection interval be placed at two years for this tank system due to the age of the system.

References:

1. WAC 173-303, Dangerous Waste Regulations.
2. Publication No. 94-114, *"Guidance for Assessing and Certifying Tank Systems that Store and Treat Dangerous Waste,"* Washington State Department of Ecology, 1994.
3. ASTM D1998-94, "Standard Specification for Polyethylene Upright Storage Tanks," American Society for Testing and Materials, 1994.

AREVA NP Inc

Ground Water Monitoring Plan

Attachment H

EHS&L Document

Compliance Groundwater Monitoring Plan

Nature of Changes

Item	Paragraph	Description	Justification
1.	3.2	Added paragraph to discuss nitrate monitoring	Address Ecology request.
2.	5.1.1	Added sentence to cover informational monitoring for nitrate.	Address Ecology request.
3.	Table 3	Added sampling requirements for nitrate.	Address Ecology request.
4.	Table 3	Updated fluoride analysis methodology information.	Reflect current practice.
5.			
6.			
7.			
8.			
9.			
10.			
List Below any Documents, including Forms & Operator Aids which must be issued concurrently with this document revision:			

This Document contains a total of 27 pages excluding the signature page generated by Documentum, the document control application software.

DOCUMENT REVIEW/APPROVAL/DELETION CHECKLIST

All new and/or revised procedures shall be approved by the change author, cognizant manager(s) of areas affected by the changes, and by applicable manager(s) of any function that approved the previous revision of the document unless responsibility for such approval has been transferred to another organization. Also, the procedure shall be approved by manager(s) of functional organizations that provide technical reviews with the exception of the Training Department. Finally, Document Control shall verify that the required approvals have been properly obtained and that any documents that must be issued concurrently are ready to be issued.

Minor Changes: If the proposed changes are limited to editorial and/or administrative changes check the box at the right. The document will be routed directly for review by EHS&L without technical review. All applicable approvals must still be obtained.	☐

Document Reviews			Document Approvals	
Purpose/Function of Review	Specify Reviewer(s) (Optional except for change author)	(Check all that apply)	Title of Approver	(Check all that Apply)
Document Control (Automatic)		☒	Document Control (Automatic)	☒
Change Author	JB Perryman	☒	Author	☒
Independent Technical Review	LJ Maas	☒		
Operability Review(s)			Mgr, Richland Operations[1]	☐
Conversion		☐	Mgr, Uranium Conversion & Recovery Operations[1]	☐
Recovery		☐		
Ceramics		☐	Mgr, Ceramic Operations[1]	☐
Rods		☐	Mgr, Rods & Bundles[1]	☐
Bundles		☐		
Transportation		☐		
Components		☐	Mgr, Component Fabrication[1]	☐
Maintenance Review		☐	Mgr, Maintenance[1]	☐
Lab Review		☐	Mgr, Analytical Services[1]	☐
EHS&L Review(s)			Mgr, EHS&L[2]	☐
Criticality		☐	Mgr, Criticality Safety[2]	☐
Radiation Protection		☐	Mgr, Safety, Security & Emergency Preparedness[2]	☐
Safety/Security		☐		
Emergency Preparedness		☐		
MC&A		☐	Mgr, Licensing & Compliance[2]	☒
Transportation		☐		
Environmental		☒		
BWR Product Eng. Review		☐	Mgr, BWR Product Engineering	☐
BWR Core Engineering Review		☐	Mgr, BWR Core Engineering	☐
Codes and Methods Review		☐	Mgr, Codes and Methods	☐
Proj. Eng. & Design Support Review		☐	Mgr, Proj. Eng. & Design Support	☐
Quality Review		☐	Mgr, Quality	☐
Ops. Projects & Planning Review		☐	Mgr, Ops. Projects & Planning	☐
Others:		☐	Mgr, Richland Site/Other	☐
Training & Employee Dev.:[3]		☐	Training & Employee Dev.	☐

[1]Note: If approvals include 2 or more product center managers, the Operations manager can be substituted for the applicable product center managers.

[2]Note: If approvals include 2 or more EHS&L functional managers, the EHS&L manager can be substituted for the applicable EHS&L functional managers.

[3]Note: Training department review is required for all procedures that require or affect a Learning Plan and if additional training materials or curriculum must be revised before issuing procedure.

EHS&L Change Impact Evaluation Form		
Document / ECN No*.: E06-07-009	Change Evaluator: LJ Maas	
Does the change potentially impact Criticality Alarm System (CAS) coverage?	☐ Yes ☒ No	If yes, explain:
NRC Pre-Approval Evaluation:		
Is NRC Pre-approval (License Amendment) Needed? (Based on "Yes" answer to any of five questions below). (Based on "No" answer to all five questions below).	☐ Yes ☒ No	
1. Does the change create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 (create high or intermediate consequence events) and that have not previously been described in AREVA NP Inc's ISA Summary?	☐ Yes ☒ No	If yes, explain:
2. Does the change use new processes, technologies, or control systems for which AREVA NP Inc. has no prior experience?	☐ Yes ☒ No	If yes, explain:
3. Does the change remove, without at least an equivalent replacement of the safety function, an item relied on for safety that is listed in the ISA Summary?	☐ Yes ☒ No	If yes, explain:
4. Does the change alter any item relied on for safety, listed in the ISA Summary, that is the sole item preventing or mitigating an accident sequence of high or intermediate consequences?	☐ Yes ☒ No	If yes, explain:
5. Does the change qualify as a change specifically prohibited by NRC regulation, order or license condition?	☐ Yes ☒ No	If yes, explain:
Actions Required Prior to or Concurrent with Change Implementation Evaluation:		
Action		**Explanation**
6. Modification / Addition to CAS system or system coverage documentation	☐ Yes ☒ No	If yes, explain:
7. Acquire NRC pre-approval (license amendment)	☐ Yes ☒ No	If yes, explain:
8. Conduct/modify ISA	☐ Yes ☒ No	If yes, explain:
9. ISA Database Modification	☐ Yes ☒ No	If yes, explain:
10. Modification of other safety program information / underlying analyses (PHA, RHA, FHA, NCSA, etc.)	☐ Yes ☒ No	If yes, explain:
Actions required subsequent to Change Implementation Evaluation:		
11. Update safety program information (PHA,RHA,FHA,NCSA, P&ID)	☐ Yes ☒ No	If yes, explain:

* **If this form exists as a part of a document, the document number is not required.**

1.0 Introduction and Purpose

The purpose of this Compliance Groundwater Monitoring Plan (hereafter CGWMP or Plan) is to establish policies and procedures for the continuation of groundwater monitoring at AREVA's Richland, Washington nuclear fuel fabrication facility. Groundwater monitoring has been conducted at the AREVA site since 1991 in accordance with Ecology's interim status regulations by virtue of AREVA's operation of a dangerous waste surface impoundment system. The monitoring has also been conducted pursuant to a Washington State Model Toxics Control Act (MCTA) independent action remedial investigation/feasibility study (RI/FS) conducted by Siemens Power Corporation, an AREVA predecessor, over 1991-1994 and submitted to Ecology in October 1994. The RI/FS confirmed the existence of groundwater contamination that, by constituent and location, was linked to operation of the surface impoundment system, specifically to leaks from early-on operations (1970s, 1980s) when certain of the impoundments were single-lined and without leak detection/collection capabilities.

The surface impoundment system has been removed from service in accordance with an Ecology-approved Closure Plan (Ref. 1). The Closure Plan covered processing/disposition of the impoundment system inventory, dismantling and disposal of the impoundment structures and supporting equipment, and characterization/ remediation of associated soil contamination. Cleanup levels for constituents of concern (COCs) were also established in the approved Closure Plan. Ecology officially accepted AREVA's closure certification via Ecology's letter of November 14, 2006 (Ref. 2)

Submittal of this CGWMP is responsive to AREVA's commitment in Reference 1 to replace its existing interim status and RI/FS-related groundwater monitoring programs with a revised program to provide performance monitoring to evaluate COC concentrations in groundwater relative to established cleanup levels (i.e., verify that cleanup levels are attained) and confirmational monitoring to confirm the long-term effectiveness of the surface impoundment cleanup action (WAC 173-340-410) by statistical evaluation of data collected over a longer monitoring period. Performance and confirmational monitoring will consist of identical sample collection and analysis procedures. The CGWMP includes monitoring for the COCs pertinent to the closure/remediation and complies with WAC 173-340-410 and the criteria set forth in WAC 173-340-720(9).

2.0 Organization and Responsibilities

A project engineer from AREVA's Licensing and Compliance organization will be responsible for project oversight, including ensuring that sampling and analyses are performed according to this CGWMP. The project engineer will oversee all activities related to the CGWMP, maintain detailed field notes, and act as the laboratory contact. Field sampling activities will be conducted by the project engineer and/or trained AREVA employees. Analytical services will be provided primarily by AREVA's Analytical Services Laboratory, which has attained Ecology certification for the pertinent program analytes. Appropriately qualified/certified offsite contractor analytical services may also be utilized. Further details on the conduct and control of activities performed under this CGWMP are outlined in subsequent sections of this document.

3.0 Groundwater Monitoring System

This section discusses the groundwater monitoring system in regards to well construction and location, analyte selection, and frequency of sampling by location and analyte.

3.1 *Well Construction and Location*

All wells utilized to provide analytical data directly in support of this CGWMP were installed under the referenced Phase I and Phase II Groundwater Study Work Plans. Phase I included the location/installation of twelve 2-inch diameter groundwater monitoring wells (October 1991); four additional monitoring wells, three 2-inch diameter piezometers, and a single 6-inch diameter aquifer pumping well were added under the Phase II activities (March/April 1992).

A full discussion of the monitoring well installation can be found in the respective work plans, including location rationale, drilling methodology, installation methodology/materials, well completion, and well development. In summary, monitoring well installation was conducted to support the objectives of characterizing the groundwater flow system in the unconfined aquifer, characterizing the distribution of contaminants in the unconfined aquifer, assessing the relative contribution of specific potential contamination source areas to existing groundwater contamination, generating defensible data, and meeting regulatory requirements. In addition to supporting the stated objectives, decisions on monitoring well location considered pre-existing information available to Geraghty and Miller relative to groundwater flow direction and contaminant distribution at the site as well as the on-site locations of potential groundwater contamination sources. Screened intervals for each of the wells were placed in a manner to allow detection of dissolved constituents in the uppermost aquifer. Wells were constructed in

accordance with WAC 173-160, "Minimum Standards for Construction and Maintenance of Wells," to provide structurally sound monitoring wells from which representative groundwater samples can be obtained.

As described above, monitoring wells were installed to monitor groundwater in the vicinity of the surface impoundments and elsewhere at the site to support the site-wide RI/FS. Construction details for all the monitoring wells installed per References 3 and 4 (water quality and water level monitoring wells) selected to support this CGWMP are provided in Table 1. Included is information on screened interval, boring depth, elevation, and construction material. Locations of these wells are depicted in Figure 1. Site monitoring wells will be utilized under the CGWMP as follows:

- Water level monitoring wells. All wells and piezometers used for collection of water level data during each semiannual sampling event are shown on Figure 1. These wells include Phase I/Phase II wells and piezometers (designated "GM") as well as certain on-site wells that pre-dated the Phase I/Phase II installations (designated "TW").
- Upgradient wells. Wells GM-1 and GM-2 are upgradient of the former surface impoundment area and will be included as sampling locations in all groundwater sampling events.
- Point-of-compliance wells. As discussed in Section 5.1.3, wells GM-5, GM-6, GM-7, GM-8, GM-10, and GM-12 will be sampled as point-of-compliance wells during performance and confirmational monitoring.

3.2 *Analyte Selection*

Groundwater analytes for this CGWMP have been selected to demonstrate the effectiveness of the surface impoundment closure and remediation in achieving groundwater cleanup levels established in the Closure Plan. Groundwater cleanup levels have been established for fluoride and total uranium; as such, groundwater samples collected under the CGWMP will be analyzed for these two constituents.

Monitoring will also be conducted for nitrates. As discussed in the closure plan (Sec. 3.1.5.1), nitrate was considered to be a constituent of concern (COC) for the same reasons as was fluoride, i.e., prevalence in the historic lagoon inventories, presence in the chemical compounds responsible for the WT02 state-only toxicity designation of the lagoon inventories, and detection in groundwater underlying the lagoons at concentrations above background. However neither a

nitrate groundwater cleanup level nor a nitrate soil cleanup level for the protection of groundwater were established in the closure plan due to the presence of nitrate in oncoming upgradient groundwater at concentrations significantly exceeding MTCA groundwater cleanup levels and federal/state drinking water Maximum Contaminant Levels for nitrates. Therefore the nitrate monitoring will be for informational purposes only. Consistent with the approved closure plan, site remediation effectiveness will be evaluated based on performance and confirmational monitoring for the other groundwater COCs, namely uranium and fluoride.

The Closure Plan also established groundwater cleanup levels for three organic constituents, namely trichloroethylene, acetone, and Freon 113. These constituents will not be monitored for under this plan in that cleanup levels have been fully achieved. Demonstration of compliance for these organic constituents is being provided to Ecology in separate correspondence being submitted in conjunction with this CGWMP.

Groundwater samples will also be analyzed initially for gross alpha. Although not a COC for the surface impoundment closure/remediation project, gross alpha has been included in the previous groundwater monitoring program as a general indicator of total uranium contamination. Since AREVA's past groundwater program included gross alpha but not uranium, analysis for gross alpha will continue for four successive sampling events in order to establish a correlation with total uranium, thereby preserving the continuity of the data set. From that point on, radionuclide monitoring will be limited to total uranium, the radioactive COC for the surface impoundment closure and the constituent with an approved cleanup level.

4.0 Sampling and Analysis

During performance monitoring, groundwater samples will be collected on a semiannual basis; sampling events will be conducted in approximately April and October each year. Water level measurements will also be made on a semiannual basis on all AREVA site monitoring wells, including those that are not sampled as part of this CGWMP (see Section 3.1).

During confirmational monitoring, the sampling frequency may be increased to collect sufficient data for statistical analysis over a shorter period of time. It is expected that the frequency would increase to quarterly and it will not be more frequent than monthly. All other aspects of sample collection and analysis during confirmational monitoring are the same as during performance monitoring.

The following procedures will be used by all field personnel when conducting sampling activities at the AREVA facility.

All field activities will be documented in a bound field notebook using a permanent, water-proof pen. The field notebook will be signed by a member of the sampling team at the end of each day of field work, and will include the following:

- Date
- Weather conditions
- Names of the field team members
- Times of site arrival and departure
- Documentation of all field activities
- Equipment malfunction
- Equipment calibration
- Odd or unusual occurrences
- Sampling site visitors

4.1 *Sampling Preparation*

Prior to sampling, field personnel will assemble the equipment identified in Table 2. All equipment will be checked to ensure that it is in proper working order. Equipment that will come into contact with groundwater will be decontaminated before use (see Equipment Decontamination, Section 4.8). Field testing equipment (i.e., pH meter, conductivity meter, thermometer) will be tested and calibrated at the beginning of each sampling event (see Equipment Calibration, Section 4.2).

Sample containers will be provided by the project engineer. AREVA's analytical laboratory will add the appropriate preservatives (Table 3) immediately prior to the sampling event. To ensure preparedness in the field, sample bottles will be counted before the sampling event and extra sample bottles will be included in anticipation of possible breakage or spillage.

Samples will be collected first from upgradient wells GM-1 and GM-2 and then from applicable downgradient wells to reduce the potential for cross-contamination between wells and samples. Upon arrival at the sampling location, the field vehicle will be parked downwind of the well. Field personnel will avoid handling any objects not necessary for performing sampling procedures. Clean nitrile or vinyl gloves will be worn when handling any field equipment or samples. Gloves will be changed or decontaminated as necessary to prevent cross-contamination or external contamination.

4.2 *Equipment Calibration*

All field equipment requiring calibration will be calibrated to known standards prior to use in the field. Instruments and standards to be used while conducting field work at the AREVA facility are the following:

Instrument	Calibration Standards
pH meter	pH 7.0, and 10.0 buffer solutions (a two-point calibration will be performed with two standards which bracket the groundwater pH).
Specific conductance meter	Dry air to zero the instrument, 1,413 micromhos per centimeter (umhos/cm) solution of potassium chloride for slope adjustment (a similar standard potassium chloride solution, e.g., 2,000 umhos/cm, may be substituted).
Temperature meter/Thermometer	Electronic thermometer will be compared to mercury filled manual thermometer to assess proper calibration.

The manufacturer's instructions for calibration of the pH/specific conductance meter will be followed during calibration. An entry in the field notebook will be completed each time the instruments are calibrated. If equipment cannot be calibrated or becomes inoperable, its usage will be discontinued until the necessary repairs are made. In the interim, a calibrated replacement will be obtained and used. It is the responsibility of the project engineer to ensure that all instruments are properly maintained and in working order prior to use in the field.

4.3 *Well Inspection*

All monitoring wells utilized for this Plan will be inspected prior to sampling for damage from maintenance vehicles or due to weathering. The well head will be inspected for damage to the security casing, lock, and identification number. Any damage will be noted in the field notebook. Any corrective action required will be detailed on a work order request form and submitted to plant maintenance.

4.4 *Groundwater Level Measurement*

The static water level in all monitoring wells will be measured with an electric probe prior to sampling. Water levels in all wells will be measured on the same day, if possible, to obtain the most accurate representation of the water table. A minimum of two consistent measurements

will be taken at each well to confirm the accuracy of the measurement. Measurements will be considered consistent if they are identical when rounded to the nearest 0.01 feet.

Each well has a clearly and permanently marked measuring point at the top of its casing. The measuring point on each well has been surveyed to determine its elevation with reference to an established datum. Depth-to-water measurements will be measured relative to this point.

To measure depth-to-water, the water-level meter probe will be lowered slowly into the well. When the electric probe registers contact with the groundwater, the reading on the tape at the measuring point will be noted to the nearest 0.01 feet. The electric probe and down-hole portion of the tape will be decontaminated before the first measurement and between wells (see Equipment Decontamination, Section 4.8).

For each water-level measurement, the following information will be recorded on a Groundwater-Level Measurement Form (Figure 2): water-level measurement, date and time of the measurement.

4.5 *Total Depth Measurement*

The total depth of each well will be measured prior to sampling by lowering a weighted steel tape or cable (sounding line) from the measuring point at the top of the casing until the weight is felt resting on the bottom of the well. Appropriate weights will be available and used as necessary to provide an accurate definition of the total well depth. The sounding line will be decontaminated before the first measurement and between each well (see Equipment Decontamination, Section 4.8). Alternatively, the total well depth may be measured at the same time that the depth to water measurement is taken by adding a weight to the end of the electric probe.

The total depth measurements will be recorded to the nearest 0.1 feet on the Groundwater-Level Measurement Form (Figure 2). These measurements will be used to confirm that the proper well has been identified and for accurate calculation of the volume of water standing in the well.

4.6 *Well Purging*

The volume of water standing in the well will be calculated by subtracting the depth-to-water measurement from the total depth of the well and multiplying the result by the number of gallons per linear foot of water in the well. Prior to sampling, a minimum of three well volumes will be

purged from each well using a non-dedicated submersible pump. After purging, the pump will be removed from the well and decontaminated as specified in Section 4.8.

The pH, specific conductance, and temperature of the discharged water will be measured a minimum of three times during purging, until these parameters have stabilized or until the project engineer indicates that further purging is unnecessary. The pH will be considered stable when two consecutive measurements agree within 0.2 standard units. Temperature will be considered stable when two consecutive measurements agree within 0.2 degrees Celsius, and specific conductance will be considered stable when two consecutive readings are within 10 percent of each other.

The purge water from point-of-compliance wells will be pumped into labeled 55-gallon drums and held on-site pending receipt of analytical results to ensure proper disposition. To date, all collected purge water has been discharged to the POTW after approval by the City of Richland Pretreatment Coordinator.

4.7 *Sample Collection*

Samples will be collected with a disposable polyethylene bailer on clean nylon or Tygon cord. The bailer will be slowly lowered into the well, filled, and raised to the surface. Care will be taken to prevent agitation of groundwater in the well. A removable spigot will be attached to the bottom end of the bailer and the groundwater will be transferred into sample bottles through the bottom-emptying spigot.

The sample container caps will not be removed until the sample is collected, to minimize the potential for contamination. When the cap is removed from the sample container, care will be taken not to touch the lip of the bottle, the inside of the cap, or the mouth of the spigot. The sample bottle will be filled slowly by directing the stream of water, out of the spigot, at an angle so that it drains down the inside of the sample bottle. This will help prevent the loss of preservative and discourage air bubbles from becoming trapped in the sample bottle. Care will be taken to avoid splashing or agitating the water while the bottle is being filled. Each bailer of water will be divided evenly between bottles of a single type of analysis, to provide representative samples.

After each sample bottle is filled and capped, the sample label identifying the sample location, date and time of sampling, and type of preservative will be completed with permanent, water-proof ink. (Alternatively, the sample will be collected in appropriately pre-labeled bottles.) An

example of a sample label is provided in Figure 3. Samples will be placed in a cooler with ice or frozen reusable ice packs for transport to the laboratory.

Field parameters (pH, temperature, and specific conductance) will be measured by filling a clean plastic or glass beaker with a groundwater sample and placing the pH and specific conductance meter and a thermometer in the beaker. Measurements will be recorded in the field notebook. The color, odor, and appearance of the sample, and other pertinent sample observations will also be recorded in the field notebook.

Quality control samples to be collected in or carried into the field include equipment rinsate blanks and duplicate samples. One rinsate blank will be collected for each day of sampling. One duplicate sample will be collected during each sampling campaign.

Equipment rinsate blanks will be collected by pouring analyte-free, deionized water through a disposable sampling bailer and filling a full set of sample bottles. Duplicate samples will be collected by filling two sets of sample bottles with groundwater from a single well. Quality control samples and procedures are discussed further in Section 6.0.

4.8 *Equipment Decontamination*

Reusable sampling equipment, including the equipment used to measure groundwater levels and total well depths, will be decontaminated prior to use and after use at each well to avoid chemical cross-contamination of field samples. Equipment will be decontaminated by washing with a laboratory-grade, nonphosphate detergent and rinsing with distilled or deionized water. Wash and rinse water will be retained with the purge water pending analytical results to ensure proper disposal.

Interior and exterior surfaces of the submersible pump and associated power cord and discharge tubing will be decontaminated after each use by scrubbing and operating the pump in a container filled with a laboratory-grade, nonphosphate detergent solution and then in a container filled with distilled or deionized water.

All field personnel will wear clean nitrile or vinyl gloves when conducting equipment decontamination.

4.9 *Sample Preservation and Shipment*

The types of bottles and preservatives required for each type of groundwater analysis are identified in Table 3. All water samples will be stored in a cooler with ice or frozen reusable ice

packs immediately after collection. All samples will be delivered to AREVA's analytical laboratory at the end of each sampling day or locked in a dedicated refrigerator pending delivery. Samples will be delivered to offsite laboratories by the project engineer or delegate.

4.10 *Sample Analysis*

The analytical procedures to be conducted on groundwater samples, along with their associated analytical requirements, are specified in Table 3. Laboratory protocols, quality control procedures, and data reporting requirements are discussed in the following sections. Copies of the QA Plan for any contracted offsite laboratory are kept on file (hard copy or electronically) by the project engineer.

5.0 Data Evaluation and Reporting

This section outlines the procedures to be used to evaluate the data collected under this Plan and the protocol for reporting this information to regulatory agencies.

5.1 *Data Evaluation*

Water-level data will be evaluated spatially by preparing water-table contour maps. The water-table contour maps will be used to determine groundwater flow directions and to depict horizontal gradients.

During the performance monitoring phase, water-quality data will be evaluated qualitatively for selected wells of interest (based on historical/current levels and trends) using temporal trend plots of constituent concentrations. The trend plots will be evaluated for temporal patterns in constituent concentrations at the monitoring wells to determine whether concentrations are increasing, decreasing, or stable through time. Historical water-quality data for point-of-compliance wells will be used in constructing the trend plots to provide a sufficient quantity of data for trend evaluation. Concentrations of fluoride and uranium measured in groundwater will also be compared directly to the cleanup levels (see Section 5.1.1).

Once the observed concentrations of fluoride and/or uranium in groundwater at the point-of-compliance wells (see Section 5.1.3) meet the cleanup levels for at least two consecutive sampling events, the confirmational monitoring phase will begin (i.e. sampling frequency may be increased). Statistical analyses will be performed on the data to evaluate whether groundwater cleanup levels have been attained once sufficient confirmational data have been collected (Section 5.1.2).

5.1.1 Cleanup Levels

Groundwater cleanup levels were established in accordance with MTCA requirements (WAC 173-340-720) and are specified in the Ecology-approved Closure Plan. The cleanup levels applicable to this CGWMP are as follows:

Analyte	Groundwater Cleanup Level, ug/L
Fluoride	960
Total Uranium	30

As described in Section 3.2, gross alpha will be an analyte during the initial four monitoring events. However, there is not an established cleanup level for this parameter. It is a surrogate for uranium, and total uranium concentrations will be compared directly to the cleanup level to evaluate this parameter. Also as described in Section 3.2, nitrate sampling will be conducted on an ongoing basis in conjunction with the uranium and fluoride monitoring, but for informational purposes only.

5.1.2 Statistical Comparison of Groundwater Data to Cleanup Levels

As described above, statistical analyses will be performed once the confirmational monitoring phase begins. Groundwater monitoring data will be compared statistically to the established cleanup levels to evaluate the effectiveness of the remediation project in achieving groundwater cleanup levels. The comparisons will be conducted in accordance with WAC 173-340-720(9)(d).

Following receipt of data from each monitoring event, the data from the most recent eight events will be evaluated for each constituent in each point-of-compliance well (i.e., wells GM-5, GM-6, GM-7, GM-8, GM-10, and GM-12), on a well-by-well basis, as follows:

1. The data will be compared to the cleanup level to determine whether there are any concentrations that exceed twice the cleanup level.
2. The data will be compared to the cleanup level to determine whether 10 percent or more of the data exceed the cleanup level.
3. The upper one-sided ninety-five percent confidence limit (UCL) on the true mean will be calculated and compared to the cleanup level to determine whether the UCL meets the cleanup level.

If these three criteria are met for either uranium or fluoride in each point-of-compliance well, monitoring for that constituent will be terminated. If these three criteria are met for uranium and fluoride in each point-of-compliance well, the cleanup criteria will have been attained in accordance with WAC 173-340-720 and the confirmational monitoring program will be terminated upon receipt of Ecology's concurrence.

Note that for the second criterion to be met, none of the data points can exceed the cleanup level because one exceedance in eight data points will be greater than ten percent. If an exceedance occurs after a series of four or more data points below the cleanup level, the well will be resampled to verify the exceedance. Resampling will be performed within two weeks of receipt of the original analytical report and will be performed only for the constituent and the location of the exceedance.

The opportunity to resample recognizes the potential for a sample to be higher than the cleanup level due to random variability associated with the sampling and analysis process. If the resampling result indicates a concentration below the cleanup level, criterion 2 will be considered satisfied with respect to that sampling event. If the resampling result confirms a concentration above the cleanup level and the other two criteria (i.e., criteria 1 and 3 above) are met with eight sequential data points, the data set will be expanded to include up to twelve sequential preceding monitoring events (thereby allowing for the possibility of one value above the cleanup level); the expanded data set will be evaluated against all three criteria.

5.1.3 Point of Compliance

As defined at WAC 173-340-720(8)(b), the standard point of compliance is "throughout the site from the uppermost level of the saturated zone extending vertically to the lowest most depth which could potentially be affected by the site". As documented during the RI/FS, the only impacted saturated zone is the unconfined aquifer. The plume of impacted groundwater extended downgradient from the former surface impoundments; this zone is monitored by wells GM-5, GM-6, GM-7, GM-8, GM-10, and GM-12. Initially, groundwater quality results for samples collected from each of these wells (i.e., the point-of-compliance wells) will be evaluated to determine whether cleanup levels have been attained.

If groundwater monitoring results indicate that cleanup levels are not likely to be attained throughout the site (e.g., if the trend becomes asymptotic at a concentration above the cleanup level), a conditional point of compliance may be proposed as provided for at WAC 173-340-720(8)(c). In that case, the conditional point of compliance would likely be the northern

boundary of the AREVA property, downgradient of the former surface impoundments, which is monitored by wells GM-10 and GM-12.

In the event that a conditional point of compliance is proposed, AREVA will prepare a memorandum for Ecology's review that provides justification as to why it is not practicable to meet the cleanup levels throughout the site within a reasonable restoration time.

5.2 *Reporting*

Results of the performance monitoring program will be reported to Ecology on an annual basis. Results of the confirmational monitoring program will be reported to Ecology annually, and at the conclusion of the program (i.e., when the criteria for demonstration of cleanup level attainment have been met) if that does not coincide with an annual report.

6.0 Quality Assurance/Quality Control

Following is a discussion of quality assurance/quality control procedures that will be implemented under the CGWMP, including chain-of-custody procedures and data validation procedures.

6.1 *Chain-of-Custody Procedures*

Sample custody is a vital aspect of groundwater monitoring activities. The samples must be traceable from the time of sample collection through the time of analysis. To ensure this is the case for each sample collected under this program the following procedures will be observed.

All samples will remain in the custody of the sampling personnel during each sampling day. At the end of each sampling day and prior to the transfer of the samples to the laboratory, chain-of-custody entries will be made for all samples using a Chain-of-Custody Form (Figure 4). All information on the Chain-of-Custody Form and the sample container labels will be checked against the field sample log entries, and samples will be recounted before transferring custody. Upon transfer of custody, the Chain-of-Custody Form will be signed by the project engineer and will accompany the samples to delivery. All Chain-of-Custody Forms received by the laboratory must be signed and dated by the laboratory's sample custodian.

The sample receiving personnel at the laboratory will note the condition of each sample received as well as questions or observations concerning sample integrity. The laboratory personnel will also maintain a sample-tracking record that will follow each sample through all stages of laboratory processing. The sample tracking records will show the date of sample

analysis. These records will be used to determine compliance with holding time limits during data validation.

6.2 *QA/QC Procedures*

The laboratory is responsible for adhering to the QA/QC procedures documented in the QAPP or QA Manual prepared by the laboratory. Laboratory calibration procedures, calibration frequency, and system performance monitoring will be conducted in accordance with the method requirements stated in EPA document SW-846 "Test Methods for Evaluating Solid Waste", as applicable.

6.3 *Reporting Requirements*

To satisfy the requirements of technically sound and legally defensible groundwater monitoring, a list of general and technical requirements has been developed that must be documented and provided with the analytical data package deliverable. The following general information must be submitted with each laboratory report.

- The results of sample analysis
- The parameters of interest
- The methods of analysis
- Analysis detection limits
- A list of laboratory tracking identification numbers correlated with field sample identification numbers and sample batch identifications such that QA samples can be correlated with associated field samples
- Sample collection dates
- Sample preparation/extraction dates
- Sample analysis dates
- Copy of COC Form signed by the laboratory sample receiving custodian
- A narrative summary identifying any QA or sample analysis problems encountered and any corrective actions taken

The required technical QC deliverables are discussed below.

6.4 *Inorganics Analysis*

For inorganics analyses involving the use of atomic absorption (flame or furnace), inductively coupled plasma (ICP), ion chromatography (IC), or any other procedures generally referred to as "wet bench" chemistry, the following QC data must be provided, where applicable.

- Results of laboratory method blanks.

- Results of batch-specific laboratory duplicates or reagent water (blank) spike duplicates (for the compounds or elements of interest); expected value, percent recovery, calculated relative percent differences (RPDs) from sample, and control limits.
- Results of batch-specific matrix spikes; expected value, percent recovery, and control limits.
- Results from a Laboratory Control Sample (LCS) or a reagent water (blank) spike analysis carried through the preparation method with the samples prior to analysis and analyzed along with the samples in the same analysis batch; expected value, percent recovery, and control limits.
- Results of the associated Initial Calibration Verification Standards and all associated Continuing Calibration Verification Standards; expected values, percent recoveries, and control limits.

6.5 *Non-Reportables*

All raw data developed by the laboratory during sample analysis, and all QC data not included under the reportables listed above must be maintained by the laboratory as a record for a period of three years unless specified otherwise by the project engineer. The laboratory non-reportable information is not required for submittal with the laboratory report, but should be available for review upon 30-days' notice. A copy of reported data must be retained by the laboratory for a period of three years along with the non-reported data.

6.6 *Data Validation Procedures*

Data validation is the process of reviewing all QA/QC documentation provided by field sampling teams and by the analytical laboratories to determine if QA/QC requirements are satisfied. The objective of data validation is to determine the quality and usability of the data, and to classify the data into one of three categories: usable and quantitative data, usable but qualitative data, and unusable data.

The laboratory is required to submit analytical results that are supported by sufficient QC data to enable data reviewers to conclusively assess the validity of the data. By providing the deliverables specified in the reporting requirements discussed above, data validity can be assessed.

Analytical results will be reviewed by the AREVA project engineer. Appropriate data qualifier codes will be applied to those data for which quality control parameters do not meet acceptable standards. Data quality acceptance criteria are specified in the U.S. Environmental Protection Agency (USEPA) Laboratory Data Functional Guidelines (Reference 5).

6.7 *Field Data Validation*

The field data package includes all of the field records and the measurements developed by the field sampling team. The field data package will be reviewed by the project engineer or designated personnel. Validation of the field data package will include the following:

- A review of field data contained in sampling logs;
- A verification that all QC samples were properly prepared, identified, and analyzed;
- A review of field record documentation including equipment calibration, instrument condition, and decontamination procedures;
- A review of the COC for proper completion

6.8 *Laboratory Data Package Validation*

In addition to the internal QC checks used by the laboratory (Laboratory QAPP or QA Manual), the laboratory must demonstrate the ability to produce acceptable results using the recommended methods. Demonstration of satisfactory performance will be verified during data validation. Appropriate data qualifier codes (R, J, U, UJ, and B) will be assigned to those data for which QC results do not meet acceptable standards. The criteria used to assess data quality are provided in the following section. Based on these criteria, the data is coded.

6.9 *Validation Criteria*

The project engineer will be responsible for the final validation of analytical data received from the laboratory. The data validation criteria as included in USEPA National Functional Guidelines for Inorganic Data Review (October 2004) will be used to standardize the analytical validation process. In addition, laboratory reports are checked for completeness to assure that all requested analyses have been performed on the correct samples, and for obvious transcription errors.

7.0 Implementation Schedule

This CGWMP will be implemented upon approval by Ecology.

8.0 References

1. EMF-2826, Revision 3, "Closure Plan for the Surface Impoundment System," February 2005.
2. Letter, R. Bond to R. Land, "Closure Certification for the AREVA NP Inc. Surface Impoundment System," November 14, 2006.
3. Geraghty & Miller, Inc., Work Plan - Phase I Groundwater Study, Siemens Nuclear Power Corporation, Richland, Washington, September 19, 1991

4. Geraghty & Miller, Inc., Work Plan - Phase II Groundwater Study, Siemens Nuclear Power Corporation, Richland, Washington, February 24, 1992

5. US EPA National Functional Guidelines for Inorganic Data Review. OSWER 9420.1-45. EPA540-R-04-004. October 2004.

Table 1 Monitoring Wells Construction Details

Well ID	Well Diameter (in)	Date Installed	Screened Interval ft bls)	Boring Depth (ft bls)	Measuring Point Elev. (ft msl)+	Concrete Pad Elevation (ft msl)	Well Type
GM-1	2"	Oct. 1991	14.8 – 34.8	35.0	375.44	374.04	SS screen PVC riser
GM-2	2"	Oct. 1991	7.3 – 27.3	28.5	370.09	368.49	SS screen PVC riser
GM-5	2"	Oct. 1991	4.8 – 24.8	25.0	367.65*	NA	SS screen PVC riser
GM-6	2"	Oct. 1991	20.0 – 40.0	40.2	380.87	379.47	SS screen PVC riser
GM-7	2"	Oct. 1991	20.4 – 40.4	40.6	380.08*	NA	SS screen PVC riser
GM-8	2"	Oct. 1991	12.8 – 32.8	33.0	370.12*	NA	SS screen PVC riser
GM-10	2"	Oct. 1991	13.8 – 33.8	35	375.43	374.82	SS screen PVC riser
GM-12	2"	Oct. 1991	29.0 – 49.0	49.2	388.78	387.23	SS screen PVC riser

\+ Updated to May 1992 data provided by Bob Stratton Surveying

* Surveyed after modification, circa April 1994
ft Feet
ft msl Feet above mean sea level
ft bls Feet below land surface
NA Not applicable

Table 2 Groundwater Sampling Equipment Checklist

WELL PURGING

_____ 2" submersible pump
_____ pump control box
_____ discharge hose
_____ portable generator
_____ solinst w.l. meter
_____ steel sounding tape
_____ Calculator
_____ drum pump
_____ 55-gallon drum(s)

SAMPLING

_____ bailer cord
_____ vinyl/latex gloves
_____ sampling caddy (2)
_____ 1000 ml glass beaker (2)
_____ pH/cond./temp. meter
_____ extra batteries
_____ Thermometer
_____ sample bottles
_____ sample labels
_____ Coolers
_____ ice/ice packs
_____ waterproof pens
_____ Sharpies
_____ disposable bailers

OTHER

_____ Nanopure water

DECONTAMINATION

_____ decon tubs (2)
_____ purge water buckets (2)
_____ deionized water
_____ Liquinox
_____ DI water sprayer
_____ detergent spray bottle
_____ scrub brushes (2-3)
_____ nitrile gloves
_____ trash bags
_____ paper towels

SAMPLE TRANSPORT

_____ chain-of-custody forms
_____ chain-of-custody seals
_____ shipping tape
_____ shipping labels

MISCELLANEOUS

_____ well keys
_____ measuring tape
_____ straps, bungie cords or extra rope
_____ field notebook
_____ toolbox:
_____ utility knife/scissors
_____ screwdrivers (phillips & flat head)
_____ Hammer
_____ Pliers
_____ socket wrench & socket set
_____ first aid kit
_____ fire extinguisher

Table 3 Summary of Sampling Requirements

Analyte	EPA/ SW-846 Method	Detection Limit	Container	Preservative	Hold Time
Fluoride	300.0	1.0 mg/L	500 ml plastic	None required	28 days analysis
Uranium	ICP-MS	1.0 mg/L	250 ml plastic		6 months
Gross Alpha	900.0	+/- 5 pCi/L	500 ml plastic	HNO3	6 months
Nitrate	300.0	1.0 mg/L	500 ml plastic	Cool 4C	48 hours

Figure 1 Compliance Groundwater Monitoring Plan - Well Locations

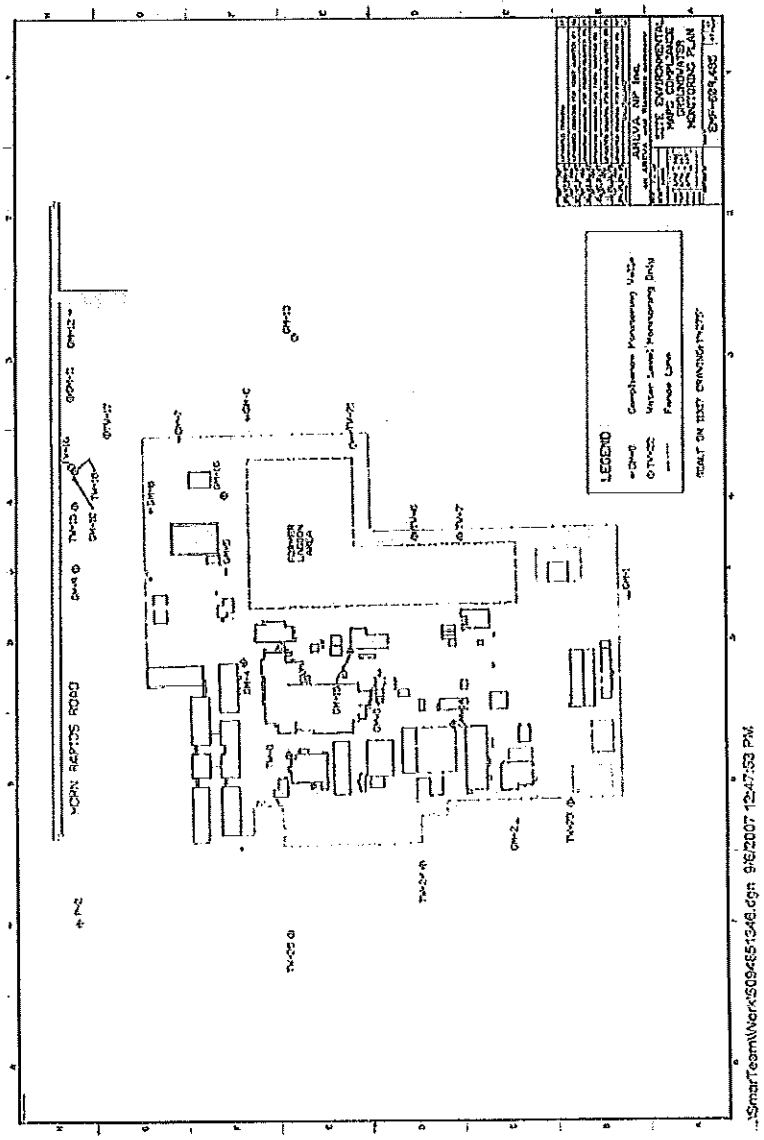


Figure 2 Water Level and Well Depth Measurements

AREVA NP Inc.	WATER LEVEL AND WELL DEPTH MEASUREMENTS

Weather	Temp:	Barometer:	Wind:	Date:

Well Number	Time	Depth to Water	Depth of Well	Gallons Purged
GM-1				
GM-2				
GM-3				
GM-4				
GM-5				
GM-6				
GM-7				
GM-8				
GM-9				
GM-10				
GM-11				
GM-12				
GM-13				
GM-14				
GM-15				
GM-16				
P-1				
P-2				
TW-6				
TW-7				
TW-15				
TW-16				
TW-17				
TW-18				
TW-21				
TW-23				
TW-24				
TW-25				

Notes:

Figure 3 Sample Label

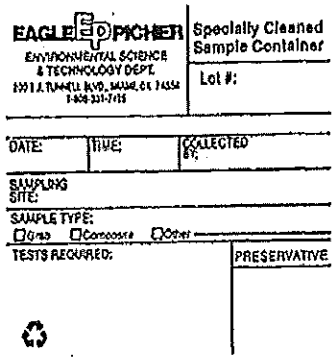
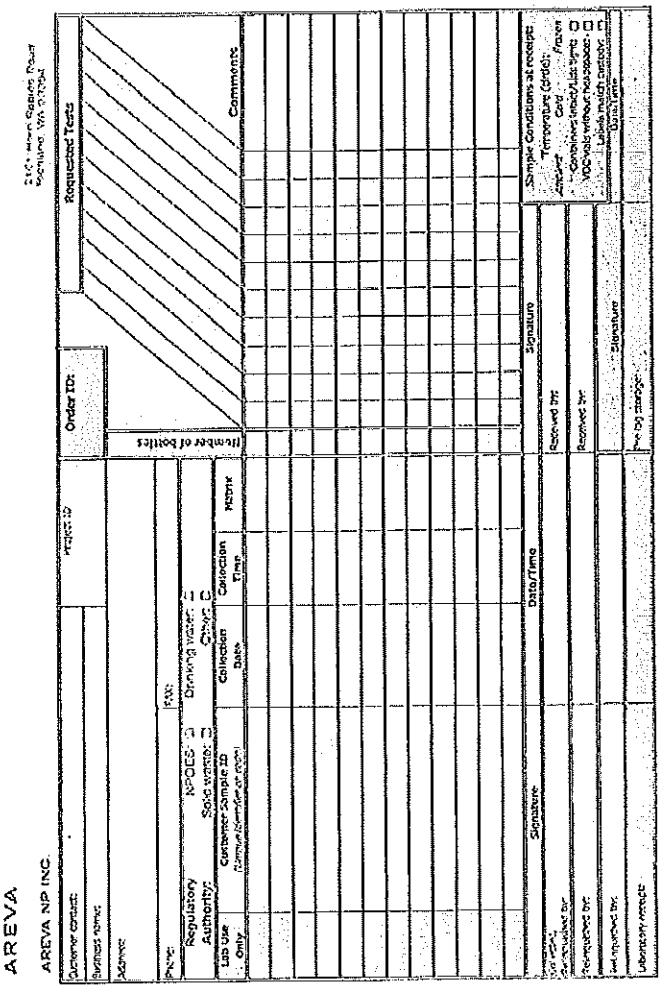


Figure 4 Chain of Custody Form



AREVA NP Inc.

E06 Environmental Protection
E06-07 Ecology - Required Plans

E06-07-009
Version 2.0

Compliance Groundwater Monitoring Plan

Date (GMT)	Signed by
01/24/2008 22:14:36	Perryman, James
Authorization/Title	Document Author

01/25/2008 00:17:12	Maas, Loren
Authorization/Title	Licensing & Compliance Manager

01/25/2008 00:46:56	Watkins, Terra
Authorization/Title	Document Control Approval