



U.S. Department of Energy

0058488

Office of River Protection

P.O. Box 450
Richland, Washington 99352

02-ED-034

DEC 17 2002

Mr. Michael A. Wilson, Program Manager
Nuclear Waste Program
State of Washington
Department of Ecology
1315 W. Fourth Avenue
Kennewick, Washington 99336

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EDMC

Dear Mr. Wilson:

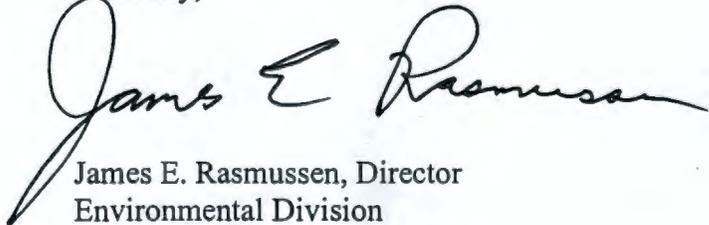
COMPLETION OF HANFORD FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (HFFACO) PROPOSED MILESTONE M-045-06A, "SUBMITTAL OF SINGLE-SHELL TANK SYSTEM CLOSURE PLAN, REV. 0"

The purpose of this correspondence is to transmit the certified "Single-Shell Tank (SST) System Closure Plan, RPP-13774, Rev. 0," and Washington State Environmental Policy Act (SEPA) checklist for the C-106 Closure Demonstration Project. The certification (Attachment 1) and closure plan (Attachment 2) are transmitted to meet requirements for HFFACO Proposed Milestone M-45-06A, "Submit a Certified (Framework) SST System Closure Plan and C-106 Waste Retrieval and Closure Demonstration Plan." The due date for this milestone is December 19, 2002. The associated SEPA checklist is also provided at this time (Attachment 3).

This closure plan is submitted in accordance with the process flowchart, Figure 9.2, Section 9.2 to the HFFACO, in the understanding the schedule for review has been compressed as agreed to in the M-45-00C negotiation and described in the M-45-02-03 Change Request. Please note that source, special nuclear and byproduct materials, as defined in the Atomic Energy Act of 1954 (AEA), are regulated at the U.S. Department of Energy (DOE) facilities exclusively by DOE acting pursuant to its AEA authority. The DOE asserts that pursuant to the AEA, it has sole and exclusive responsibility and authority to regulate source, special nuclear and byproduct materials at DOE-owned nuclear facilities.

If you have any questions, please contact Woody Russell, Environmental Division, (509) 373-5227.

Sincerely,


James E. Rasmussen, Director
Environmental Division

ED:WR

Attachments: (3)

cc: See page 2

Mr. Michael A. Wilson
02-ED-034

-2-

DEC 17 2002

cc w/o attaches:

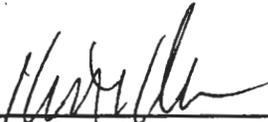
B. G. Erlandson, BNI
D. I. Allen, CHG
D. B. Amerine, CHG
E. S. Aromi, CHG
J. W. Badden, CHG
S. J. Bensussen, CHG
W. T. Dixon, CHG
S. B. Fowler, CHG
T. A. Lee, CHG
J. J. Luke, CHG
F. R. Miera, CHG
W. H. Pettigrew, CHG
R. Gay, CTUIR
S. L. Dahl, Ecology
J. L. Hensley, Ecology
J. J. Lyon, Ecology
D. B. Bartus, EPA c/o Ecology
N. Ceto, EPA
J. A. Bates, FHI
J. S. Hertzell, FHI
O. Kramer, FHI
T. Martin, HAB
J. L. Hanson, INNOV
P. Sobotta, NPT
K. Niles, Oregon Department of Energy
E. M. Mattlin, RL
A. C. McKarns, RL
A. W. Conklin, WDOH
R. Jim, YN
Environmental Portal, LMSI
Tri-Party Agreement Administrative Record

Attachment 1
02-ED-034

Certification for the Hanford Facility Dangerous Waste Permit
Application Documentation, Single-Shell Tank System Closure
Plan, RPP-13774, Revision 0

PART B CERTIFICATION [K]

"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."



Owner/Operator
Keith A. Klein, Manager
U.S. Department of Energy
Richland Operations Office

12/11/02
Date



Owner/Operator
Roy J. Schepens, Manager
U.S. Department of Energy
Office of River Protection

12/11/02
Date



*Co-operator
Edward S. Aromi Jr., President and General Manager
CH2M HILL Hanford Group

12/11/02
Date

* Co-operator under the Department of Energy Office of River Protection Contract # DE-AC27-99RL14047

Attachment 2
02-ED-034

Single-Shell Tank System Closure Plan, RPP-13774, Revision 0

**STATE ENVIRONMENTAL POLICY ACT
ENVIRONMENTAL CHECKLIST**

**FOR THE
ACCELERATED TANK CLOSURE DEMONSTRATION PROJECT
TANK C-106**

**MODIFICATION OF HANFORD FACILITY RCRA PERMIT
THROUGH ADDITION OF THE SST SYSTEM CLOSURE PLAN**

DECEMBER 2002

**WASHINGTON ADMINISTRATIVE CODE
ENVIRONMENTAL CHECKLIST
[WAC 197-11-960]**

A. BACKGROUND

1. Name of proposed project, if applicable:

Accelerated Tank Closure Demonstration (ATCD) project for single-shell tank (SST) 241-C-106 (C-106).

This *Washington State Environmental Policy Act* (SEPA) environmental checklist is being submitted concurrently with the application to modify the Hanford facility *Resource Conservation and Recovery Act* (RCRA) permit (WA7890008967) by adding the SST system closure plan in support of the ATCD project.

2. Name of applicant:

U.S. Department of Energy (DOE)

3. Address and phone number of applicant and contact person:

Keith Klein, Manager
Richland Operations Office
U.S. Department of Energy
P.O. Box 550
Richland, WA 99352
(509) 376-7395

4. Date checklist prepared:

December 2002

5. Agency requesting checklist:

Washington State Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

6. Proposed timing or schedule (including phasing, if applicable):

The ATCD project, which involves stabilization and interim closure of tank C-106, is scheduled to be completed by December 2004.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

The ATCD project will collect information on the stabilization and closure of C-106. This information will be used in determining future stabilization and closure decisions of the remaining SSTs and tank farms at the Hanford Site.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

This SEPA environmental checklist is being submitted to the Washington State Department of Ecology (Ecology) concurrently with the application for modification of the Hanford Facility RCRA permit. An ATCD closure plan will provide the basis for regulatory approval and modification of the RCRA permit. An environmental assessment is also being prepared for the ATCD project in accordance with the *National Environmental Policy Act* (NEPA) and DOE implementing regulations.

General information concerning the Hanford Facility environment can be found in the *Hanford Site National Environmental Policy Act (NEPA) Characterization* report (PNNL-6415). This document is updated annually by the Pacific Northwest National Laboratory (PNNL) and provides current information concerning climate and meteorology, ecology, history and archaeology, socioeconomics, land use and noise levels, and geology and hydrology. These baseline data for the Hanford Site and past activities are useful for evaluating proposed activities and their potential environmental impacts.

The following information has been developed that is directly related to this demonstration project:

- *Tank Waste Remediation System, Hanford Site, Richland, Washington, Final Environmental Impact Statement* (DOE/EIS-0189)
- *Supplement Analysis for the Tank Waste Remediation System* (DOE/EIS-0189-SA3)
- *Draft Environmental Assessment for the Accelerated Tank Closure Demonstration Project* (in preparation).

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

Air permits are pending for continued sluicing of C-106.

10. List any government approvals or permits that will be needed for your proposal, if known.

Ecology is the lead regulatory agency authorized to approve the application for modification of the Hanford Facility RCRA permit and for toxic air emissions. The Washington State Department of Health is the lead regulatory agency for radioactive air emissions. If the existing Notices of Construction do not adequately cover the ATCD project, new Notices of Construction will be requested. Under DOE Order 435.1, DOE approval is also required for reclassification of residual waste remaining in C-106 after retrieval (from high-level waste to low-level waste), and for regulatory approval of disposal of such low-level waste as part of a tank farm closure action. No other permits are known to be required at this time.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The ATCD project will identify the technical and regulatory framework under which SST closures will be conducted. DOE and Ecology recognize that this initial demonstration in and of itself does not constitute final closure. The project will not “remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated soils, and structures and equipment contaminated with waste, and manage them as dangerous waste”, as required by WAC 173-303-640(8) for closure of a tank system.

The ATCD project will accomplish component closure of C-106. Waste will be retrieved from C-106 in accordance with the *Hanford Federal Facility Agreement and Consent Order* (Milestone M-45-00) and will be stored in double-shell tanks (DSTs) at the Hanford Site for future treatment and disposal. Any waste remaining in C-106 will be stabilized.

The impacts associated with alternatives for the retrieval, treatment, and disposal of tank waste from the SSTs were evaluated in the Tank Waste Remediation System Environmental Impact Statement (TWRS EIS). This document was co-authored by DOE and Ecology and satisfied NEPA and SEPA requirements for the evaluation and public disclosure of the impacts from retrieval, treatment and disposal of tank waste. DOE, in its Record of Decision (ROD) for the TWRS EIS, selected the Phased Implementation alternative as its preferred alternative. The impacts of retrieval have been previously evaluated and disclosed. The impacts of retrieving waste from C-106 are bounded by the analysis in the TWRS EIS and are not subject to decisions associated with the request for a RCRA Permit modification or this SEPA checklist. DOE has and continues to conduct retrieval activities at C-106 in preparation for the ATCD project.

Compliance with NEPA requires that actions taken during the project will be reversible.

NEPA requires that research, testing, and demonstration projects do not result in a commitment on the part of the agency that would foreclose the consideration of future alternatives. The reversible action associated with the ATCD project is the placement of fill material in the tank to stabilize the residual waste. The potential exists that final tank farm closure of the demonstration tank would require removing stabilization material placed in the tank during the demonstration project to meet regulatory requirements for final closure. This section presents options that could be implemented in the event it is determined that the stabilized residual waste needs to be extracted.

Two different types of waste residual stabilizing materials are being considered for use in the ATCD project. These are: 1) a granular material with no unconfined compressive strength and 2) a low strength cementitious material. In both applications, the waste stabilization material would be capable of being removed using waste retrieval systems comparable to those presently being considered for waste removal from SSTs.

Stabilized Waste Extraction Options

It is estimated that approximately 120 m³ (160 yd³) of fill material may be placed in C-106 for waste heel stabilization. This assumes the fill volume required for waste heel stabilization is 30.5 cm (12 in.) deep. The actual volume of fill may vary depending on waste heel and equipment present. The waste extraction options are discussed in the following subsections.

Extraction of Low Strength Cementitious Material

A low strength cementitious material (grout) could be placed on top of waste residues remaining in the tank. It is likely that residual liquid waste would be absorbed into the grout mix. Some residual solids also may be incorporated into the grout, but it is more likely that most of the solids would remain on the tank bottom with an overlying grout layer. The grout mix would have enough cement content to bind to the fine aggregate or other solid components of the grout mix to ensure uniformity in the mix as the grout flows across the bottom of the tank, but the grout would not develop enough strength to preclude removal by a sluicing jet or other retrieval methods comparable to those currently planned or under development. Extracting the grout and remaining residual waste could be accomplished using existing retrieval technologies such as hydraulic sluicing, robotic crawler, or mobile retrieval system. The retrieved waste/grout mixture would be sent to DSTs and subsequently retrieved and processed for disposal.

Extraction of Granular Material

Extraction of a granular material placed on top of or mixed with residual waste could be accomplished using existing retrieval technologies as described above for extraction of low strength cementitious material. The retrieved waste/granular material would be sent to DSTs and subsequently retrieved and processed for disposal.

12. **Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.**

The ATCD project site is located in section 2, Township 12 N, Range 26 E on the eastern edge of the 200 East Area in the Hanford 241-C tank farm (C farm). The C farm is just north of a group of SST and DST farms (241-A, 241-AX, 241-AN, 241-AP, 241-AW, 241-AZ) and just south of the 218E12A burial ground. The 244-CR process vault, an inactive facility used as a lag storage and waste transfer station for various waste streams, is located near the south corner of C farm (Figure 1).

B. ENVIRONMENTAL ELEMENTS

1. Earth

- a. **General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous, other**

Flat.

- b. **What is the steepest slope on the site (approximate percent slope)?**

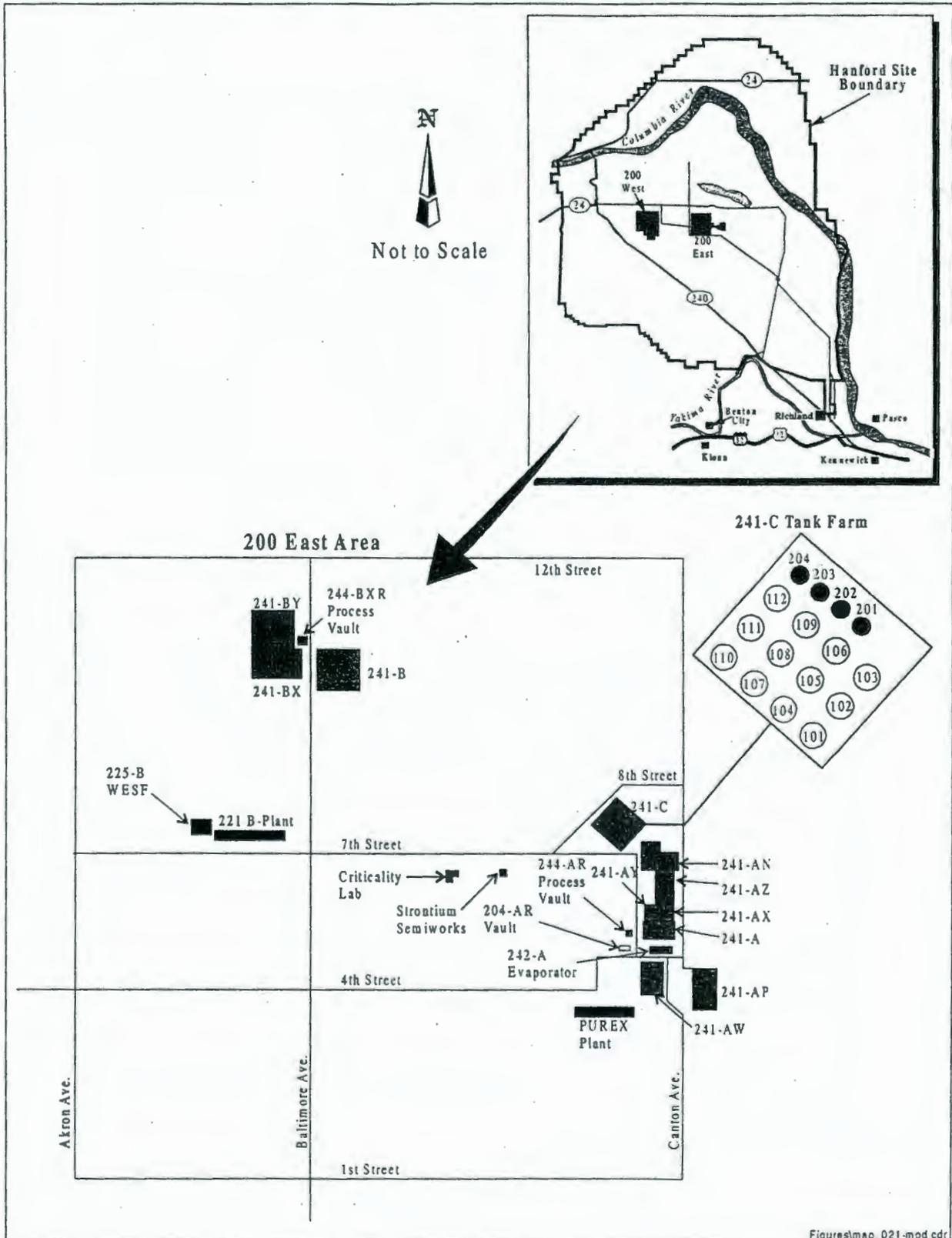
The approximate slope of the land is less than 2 percent.

- c. **What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.**

The surface and near-surface soils in the 200 Areas generally are not well developed and consist of a number of soil types such as Rupert sand, Burbank loamy sand, and Ephrata sandy loam.

- Rupert sand consists of coarse sand and covers the majority of the 200 West Area and approximately one-half of the 200 East Area.
- Burbank loamy sand is coarse-textured and covers approximately one-third of the 200 West Area, a small portion of the 200 East Area, and the majority of the area between the 200 Areas.
- Ephrata sandy loam is a medium-textured soil that covers the northern portion of the 200 East Area.

Figure 1. Location Map of C Farm, C-106, and Surrounding Facilities in the 200 East Area



Soil at C farm has been previously disturbed so there would be only a small amount of additional soil disturbance during the ATCD project. At the ATCD project site, there would be temporary soil disturbance outside the tank footprint, primarily in the trample zone around work areas, heavy equipment traffic areas, and material lay down areas. Temporary impacts would include soil compaction. None of the soils that would be disturbed have been designated as prime or unique farmlands.

- d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.**

No unstable soils have been identified.

- e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.**

It is estimated that approximately 120 m³ (160 yd³) of fill material may be placed in C-106 for waste heel stabilization. Borrow material would be obtained from Pit 30, other approved on-site borrow areas or from an existing borrow area off-site.

- f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.**

There is not expected to be any increase in erosion as a result of the ATCD project.

- g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?**

It is not anticipated that there will be a need to place impervious surfaces following completion of the demonstration closure project. Weather-tight seal systems currently in place will be established above the tank after the waste is stabilized. The tank will be monitored and inspected until final closure.

- h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:**

Standard construction practices for erosion and sediment control will be used at equipment staging locations and around C-106. Standard erosion/sediment control techniques may include sediment fences, straw bales, or other similar sediment catchments.

2. Air

- a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.**

Routine construction traffic and activities in and around the tank farms could generate some fugitive dust.

- b. **Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.**

There are no off-site sources of emissions or odors that would affect the conduct of the ATCD project.

- c. **Proposed measures to reduce or control emissions or other impacts to air, if any:**

No substantial additional emissions would occur as result of the ATCD project. Construction traffic could generate some fugitive dust. To comply with federal and state air quality standards, dust suppression measures such as wetting procedures and surfactants would be used at the borrow site.

A portable air filtration system will be used to control any toxic or radioactive air emissions from C-106 during the period it is open for waste stabilization activities if required by regulations or permits.

3. **Water**

a. **Surface:**

- 1) **Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.**

The Columbia River is 5.6 miles north of the Central Plateau (200 Areas). There are no naturally occurring water bodies near the Hanford tank farms. The SSTs are land-based facilities as defined in WAC 173-303-282(3)(h). WAC 173-303-282(6)(c)(i)(B)(II) requires that land-based facilities be located at least 402 m (1,319 ft) from any perennial water body. WAC 173-303-282(6)(d)(ii) requires that land-based facilities be located at least 402 m (1,319 ft) from any wetlands, designated critical habitats, habitats designated by the Washington State Department of Wildlife as essential to the maintenance or recovery of any state listed threatened or endangered wildlife species, natural areas that are acquired or voluntarily registered or dedicated by the owner, or state or federally designated wildlife refuges, preserves, or bald eagle protection areas.

- 2) **Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.**

The ATCD project will not require any work over, in, or adjacent to any surface water.

- 3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.**

There will be no fill or dredge material placed in or removed from surface water or wetlands.

- 4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.**

All water for the 200 East Area is supplied from the Hanford Site water system. Water is distributed throughout the area by the following separate systems:

- Raw water system – Raw water is untreated, non-chlorinated water used primarily for cooling, flushing, and dilution.
- Sanitary water system – Sanitary water is treated (filtered, purified) and used for drinking and sanitary facilities.

Raw water is available from an existing 30.5 cm (12 in.) fire water line through a 5 cm (2 in.) supply line into the 241-C-73 air and water service building located outside and to the east of the C farm fence. The water requirements for the ATCD project will rely on existing developed water supply capabilities and would not require new surface water withdrawals or diversions.

- 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.**

No, the ATCD project does not occur within a 100-year floodplain.

- 6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.**

There will be no discharge of waste material to surface waters.

b. Ground:

- 1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.**

There would be no groundwater withdrawals or discharge of water to the groundwater as part of the ATCD project.

- 2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the**

following chemicals, agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

The question is not applicable to the ATCD project.

c. Water runoff (including stormwater):

- 1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.**

The Hanford Site receives 15 to 18 cm (6 to 7 in) of annual precipitation. Precipitation runs off the existing buildings and seeps into the soil on and near the buildings. The ATCD project will not increase the runoff volume in the 200 Area.

- 2) Could waste materials enter ground or surface waters? If so, generally describe.**

There is no potential for waste material to enter groundwater or surface waters from the ATCD project actions.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

No surface, ground, or run-off water impacts are expected. The ATCD project area would direct surface runoff and storm water to natural drainage areas and/or depressions. Work areas, roadways, and parking lots would be crowned or sloped to drain to localized drainage areas such as ditches or swales for evaporation or percolation into the ground. As previously noted, standard construction practices for sediment/erosion control will be used as appropriate.

4. Plants

a. Check or circle types of vegetation found on the site:

deciduous trees: alder, maple, aspen, other

evergreen trees: fir, cedar, pine, other

X shrubs

X grass

pasture

crop or grain

wet soil plants: cattail, buttercup, bulrush, skunk cabbage, other

water plants: water lily, eelgrass, milfoil, other

other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

The area around C farm has limited vegetation consisting of grasses and shrubs. The area has been disturbed extensively by past activities. The amount of vegetation that may be removed or altered would be less than one acre.

c. List threatened or endangered species known to be on or near the site.

There are no endangered or threatened species of plants in the C farm.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Not applicable.

5. Animals

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site: birds: hawk, heron, eagle, songbirds, other; mammals: deer, bear, elk, beaver, other; fish: bass, salmon, trout, herring, shellfish, other.

Information on animals can be found in PNNL-6415.

b. List any threatened or endangered species known to be on or near the site.

There are no endangered or threatened species or their habitats in the area of the ATCD project nor are there any known nesting areas in the vicinity of the ATCD project, therefore, there would be no impacts to this resource or habitat. Two federal and state listed threatened or endangered species have been identified on the 1,517 km² (586 mi²) Hanford Site along the Columbia River, the bald eagle and the peregrine falcon. In addition, the state listed white pelican, sandhill crane, and ferruginous hawk also occur on or migrate through the Hanford Site. The Columbia River is about 9.3 km (5.6 mi) from the 200 East Area.

c. Is the site part of a migration route? If so, explain.

The Hanford Site is a part of the Pacific Flyway. The Hanford tank farms are not utilized by waterfowl.

d. Proposed measures to preserve or enhance wildlife, if any:

This project contains no specific measures to preserve or enhance wildlife.

6. Energy and natural resources

- a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.**

Equipment will use diesel fuel, gasoline, and electricity during ATCD activities.

- b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.**

No, the ATCD project would not impact the potential use of solar energy by adjacent properties.

- c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:**

Energy consumption is not anticipated to be substantial, and energy conservation features are not applicable to the ATCD project.

7. Environmental health

- a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste that could occur as a result of this proposal? If so, describe.**

The ATCD project consists of short-term construction and operation activities. These actions do not constitute a final closure action for C-106 or C farm. As previously stated, the interim closure actions must be reversible. In order to reverse the interim closure actions of the ATCD project, it would be necessary to retrieve the initial fill material. The volume of initial fill material in C-106 that would be retrieved is insignificant in comparison to the volume of waste to be retrieved from all tanks. Waste retrieval from the tank farm system was evaluated in the TWRS EIS. Therefore, any human health risks associated with retrieval of the initial tank fill material from C-106 (if retrieval were determined to be necessary) are bounded by the risk assessment of the TWRS EIS. To evaluate human health and safety issues, the ATCD project only requires consideration of short-term effects. Long-term health and safety and risk issues would be evaluated when final closure plans for C farm are developed.

The short-term human health risks include routine (non-accident) and accident conditions resulting from activities associated with the ATCD project. Operators would not come into physical contact with chemicals because they will be required to wear protective clothing. In addition, air monitoring and filtration will be used to identify and control any air emissions from C-106 during the period it is open for waste stabilization activities. All

personnel working in the tank farm will receive health and safety training appropriate for working in this environment.

The following describes the three categories of short-term risks associated with conducting the closure demonstration activities. As stated in the response to A.11 and above, the impacts of retrieving waste, including the initial fill material (should that be necessary), from C-106 are bounded by the analysis in the TWRS EIS and are not subject to decisions associated with the request for a RCRA Permit modification or this SEPA checklist. DOE has and continues to conduct retrieval activities at C-106 in preparation for the ATCD project.

Occupational Accident Risk

The potential exists for accidents (e.g., cuts and falls) resulting from construction, operation, and transportation activities associated with the ATCD project. The bounding occupational accidents for the closure demonstration would be within the estimates presented in Appendix E of the TWRS EIS. Based upon the analysis in Appendix E, occupational accident risks are not considered to be significant.

Routine Radiological Exposure Risk Results

People have always been exposed to radiation from natural sources. The average resident of the United States receives an annual radiation dose from natural sources of about 300 mrem (0.3 rem). Exposure to large amounts of radiation (50,000 to 600,000 mrem [50 to 600 rem]) can cause serious illness or death. Exposure to small doses of radiation, such as in medical x-rays, may cause no biological damage to humans, although the probability of cancer may be slightly increased. At the Hanford Site, DOE activities have involved manmade radiation sources from nuclear processing. The DOE annual radiation dose limit for a member of the public is 100 mrem (0.1 rem).

To estimate health effects for radiation protection purposes, it usually is assumed that a collective dose of 2,000 person-rem in the general population will cause one extra latent cancer fatality (ICRP 1991). It does not matter whether 20,000 people each receive an average of 0.1 rem or 2 million people each receive an average of 0.001 rem. In either case the collective dose would equal 2,000 person-rem, and thus one additional latent cancer fatality would be expected.

Closure demonstration activities require work in radiation zones during the construction and installation of equipment, and during operations. Due to the nature of the work in a radiation zone, the workers could be exposed to and receive an occupational radiological dose from ionizing radiation. Atmospheric emissions also may result from closure demonstration activities. Every effort is made to eliminate exposures to the workers from air emissions. Risk from these exposures is measured in terms of latent cancer fatalities.

The bounding latent cancer fatality risks from the closure demonstration activities would be within the estimates presented in the TWRS EIS, Appendix D and Appendix E. Based upon the analyses in Appendices D and E, there would be no significant risks due to

latent cancer fatalities as a result of conducting the ATCD project.

Radiological Accident Risk Results

Radiological accidents are unplanned events or a sequence of events that result in undesirable consequences. The potential exists for radiological accidents resulting from the closure demonstration activities. Radiological accidents could result in the unmitigated release of radiological constituents to the atmosphere, exposing the involved worker, noninvolved worker, and general public resulting in a latent cancer fatality risk. The probability of the accident occurring is taken into consideration. When the consequences of the accident or latent cancer fatality risk is evaluated with the probability of the accident occurring, the product of the two is referred to as the point-estimate latent cancer fatality risk.

The bounding latent cancer fatality risks for the closure demonstration activities would be within the estimates presented in Appendix E of the TWRS EIS. Personnel will receive safety training and be outfitted with appropriate protective clothing that will minimize any exposure from a release. These steps will significantly reduce the risks from postulated releases.

1) Describe special emergency services that might be required.

Hanford Site security, fire response, and ambulance services are on call at all times in the event of an emergency. Hanford Site emergency services personnel are specially trained to manage a variety of circumstances involving chemical and/or mixed waste constituents and situations.

2) Proposed measures to reduce or control environmental health hazards, if any:

All personnel are trained to follow proper procedures during disposal operations to minimize potential exposure. Chemical and radiological safety hazards would be mitigated by preventing direct contact with the residual chemical constituents, wearing protective clothing, providing appropriate training of project personnel, controlling ingress and egress to the ATCD project site, and using respiratory protection by on-site personnel as necessary.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

The Hanford Site is an industrial complex and generates noise at levels that are consistent with the various activities conducted within the complex boundaries. Noise levels are maintained within prescribed limits. The ATCD project would use industrial equipment that would generate noise; the noise levels generated would be within levels currently generated and would not constitute an increase in noise levels. Because of the size of the Hanford Site, its scattered facilities, and its largely undeveloped nature, activities

generally have no off-site noise impacts. The noise levels from the ATCD project would be short term, limited to the duration of project activities, and would not be permanent or long term.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Noise impacts associated with the project are described above. There would be no substantial change in noise levels due to the ATCD project.

3) Proposed measures to reduce or control noise impacts, if any:

In the unlikely event that Occupational Safety and Health Administration noise standards would be exceeded (*Noise Control Act of 1972*), appropriate measures to protect personnel would be employed (ear muffs, ear plugs, etc.).

8. Land and shoreline use

a. What is the current use of the site and adjacent properties?

The Hanford Site is a single RCRA facility identified by the U.S. Environmental Protection Agency (EPA)/State Identification Number WA7890008967 that consists of over 60 treatment, storage, and disposal units conducting dangerous waste management activities. These treatment, storage, and disposal units are included in the *Hanford Facility Dangerous Waste Part A Permit Application* (DOE/RL-88-21). The Hanford Site consists of all contiguous land, structures, other appurtenances, and improvements on the land used for recycling, reusing, reclaiming, transferring, storing, treating, or disposing of dangerous waste, which, for the purposes of RCRA, are owned by the U.S. Government and operated by DOE (excluding lands north and east of the Columbia River, river islands, lands owned or used by the Bonneville Power Administration, lands leased to Energy Northwest, and lands owned by or leased to Washington State).

The current use of the Hanford Site includes a series of tank farms that are used to store hazardous and radioactive wastes including liquids and sludges.

b. Has the site been used for agriculture? If so, describe.

The Hanford Site has not been used for agriculture since 1943. Prior to 1943 portions of the Hanford Site, particularly near the abandoned Hanford town site, supported fruit orchards. Based upon review of available documents, the ATCD project site was not used for agriculture.

c. Describe any structures on the site.

There is a substantial amount of ancillary equipment (i.e., pits, transfer lines, ventilation equipment, vaults, diversion boxes) in C farm that will require disposition at or before closure of the entire tank farm. The cesium load-out facility (241-C-801) is located in C farm and was operated until 1976 as a transfer facility for cesium-rich waste. The cesium load-out facility is located near the east corner of the tank farm and would not interfere with tank closure activities for the demonstration tanks. Support facilities were installed in the vicinity of C-106 to support the C-106 waste retrieval campaign in the late 1990s (project W-320). The ancillary equipment is not part of the ATCD project.

d. Will any structures be demolished? If so, what?

There will be no structures demolished as part of the ATCD project.

e. What is the current zoning classification of the site?

The Hanford Site is zoned as an unclassified use district by Benton County.

f. What is the current comprehensive plan designation of the site?

The 1985 *Benton County Comprehensive Land Use Plan* designates the Hanford Site as the "Hanford Reservation" (BCBCC 1985). Under this designation, land on the Hanford Site can be used for "activities nuclear in nature." Nonnuclear activities are authorized "if and when DOE approval for such activities is obtained." The Hanford Comprehensive Land-Use Plan Environmental Impact Statement Record of Decision (64 FR 61615) stated that the Central Plateau (200 Areas) geographic area is designated industrial-exclusive.

g. If applicable, what is the current shoreline master program designation of the site?

Not applicable to the ATCD project site.

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

No.

i. Approximately how many people would reside or work in the completed project?

The ATCD project does not produce opportunities for habitation or new employment.

j. Approximately how many people would the completed project displace?

The ATCD project would not displace any people.

k. Proposed measures to avoid or reduce displacement impacts, if any:

Does not apply.

- l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:**

Does not apply (refer to Section 8f).

9. Housing

- a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.**

Not applicable. No housing units would be provided.

- b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.**

Not applicable. No housing units would be eliminated.

- c. Proposed measures to reduce or control housing impacts, if any:**

Not applicable. There are no housing impacts associated with the ATCD project.

10. Aesthetics

- a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?**

The visual features of the tanks farms and surrounding area will not be affected by the ATCD project. All features and equipment associated with the project can be considered to be at ground level.

- b. What views in the immediate vicinity would be altered or obstructed?**

There will be no views altered or obstructed as a result of the ATCD project.

- c. Proposed measures to reduce or control aesthetic impacts, if any:**

Not applicable.

11. Light and glare

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur?**

Not applicable.

- b. Could light or glare from the finished project be a safety hazard or interfere with views?**

No, there will be no new light sources or glare created from the ATCD project.

- c. What existing off-site sources of light or glare may affect your proposal?**

There are no off-site sources of light that would affect the ATCD project.

- d. Proposed measures to reduce or control light and glare impacts, if any:**

Not applicable, there are no impacts associated with lighting or glare created by the ATCD project.

12. Recreation

- a. What designated and informal recreational opportunities are in the immediate vicinity?**

There are no designated or informal recreational opportunities in the immediate vicinity of the ATCD project.

- b. Would the proposed project displace any existing recreational uses? If so, describe.**

No, the ATCD project would not displace any existing recreational uses.

- c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:**

Not applicable, there are no impacts on recreation or recreation opportunities created by the ATCD project.

13. Historic and Cultural Preservation

- a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.**

The waste storage tanks could be considered of potential historical significance because they represent activities during the World War II and Cold War periods. The ATCD project might require making modifications to the existing tank structures. Typically, contaminated structures of historical value would have their history and use documented but would not be preserved intact. DOE has received an exemption that would allow documenting only one SST, one DST, and one inactive miscellaneous underground storage tank rather than documenting each tank individually (DOE/RL-96-77). The

ATCD project would not affect the ability for this documentation to occur.

The tank farms underwent extensive excavation when the tanks were installed underground. It is unlikely that any archaeologically significant resources would be encountered during the ATCD project, and any that were encountered would likely not be in their original cultural context. Notwithstanding this situation, in the event cultural resources were encountered during the ATCD project, work would be halted and the NEPA compliance officer and state historic preservation officer would be notified to determine the appropriate disposition of the resource and any mitigative actions that would be required prior to continuing with the project.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

Consideration of impacts to cultural resources is mandated under Section 106 of the *National Historic Preservation Act* implemented by 36 CFR 800. Requirements identifying significant historic properties that may be impacted by the proposed action or alternatives within the project's area of potential effect. Historic properties are defined as archaeological sites, standing structures, or other historic resources listed in or determined eligible for listing in the *National Historic Preservation Act*. If adverse effects on historic, archaeological, or cultural properties are identified, agencies must attempt to avoid, minimize, or mitigate the impacts to these resources.

The Hanford Site as a whole contains extensive prehistoric and historic archaeological sites. However, the 200 Areas contain very few known prehistoric or historic archaeological sites. A comprehensive archaeological resources review for the fenced portions of the 200 Areas was conducted in 1987 and 1988 (PNNL-6415). Two historic archaeological sites, four isolated historic artifacts, one isolated cryptocrystalline flake, and an extensive linear feature (White Bluffs Road) were the only material greater than 50 years old discovered during the field survey. Only the White Bluffs Road was determined eligible for listing on the National Register of Historic Places. This road, which passes diagonally southwest to northeast through the 200 West Area, originated as a Native American trail. Segments of the White Bluffs Road that are located in the 200 West Area have been determined to be non-contributing. Such non-contributing segments of the White Bluffs Road are those that do not add to the historic significance of the road but retain evidence of its contiguous bearing.

c. Proposed measures to reduce or control impacts, if any:

The ATCD project activities might require making modifications to the existing tank structures. During the ATCD project, tanks may be filled with various materials that would alter the integrity of the tanks' historical context. Typically, contaminated structures of historical value would have their history and use documented but would not be preserved intact. DOE-Richland Operations Office, the Advisory Council on Historic Preservation, and the Washington State Historic Preservation Office entered into a

programmatic agreement for the maintenance, deactivation, alteration, and demolition of the built environment on the Hanford Site in August 1996. Through this agreement, DOE received an exemption allowing them to document only one SST, one DST, and one inactive miscellaneous underground storage tank rather than individually documenting each tank. No further consultation or action is required concerning historic preservation issues related to the tanks.

14. Transportation

- a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on-site plans, if any.**

Does not apply.

- b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?**

The Central Plateau is not accessible to the public and is not served by public transit.

- c. How many parking spaces would the completed project have? How many would the project eliminate?**

Does not apply.

- d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).**

There would be no new permanent roads, streets, or improvement to the road network.

- e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.**

No.

- f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.**

The traffic volume to and from the Hanford Site as well as in the vicinity of the C farm will not change from current volumes. There will be no increase in labor force to conduct the ATCD project.

- g. Proposed measures to reduce or control transportation impacts, if any:**

Not applicable.

15. Public services

- a. **Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.**

No.

- b. **Proposed measures to reduce or control direct impacts on public services, if any.**

Not applicable.

16. Utilities

- a. **Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.**

Electricity, potable water, refuse service, telephone, and a sanitary sewer system are available in the 200 East Area.

- b. **Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.**

The following utilities are currently available at the C farm and would be used temporarily during the ATCD project.

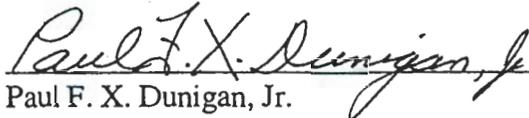
- SST electrical power system – The electrical power capacity available to the C farm will be 1,000 kVA of 3-phase power at 13.8 kV and 60 Hz.
- SST raw water – The raw water available in the C farm flows through a 5 cm (2-in) line to the 241-C-73 air and water service building at 1,000 kPa (145 lb/in² gauge).
- SST service air system – The service air available to the C farm is 25 ft³/min of dry compressed air with a dew point of -40 °C at 690 kPa (100 lb/in² gauge).

Staging would occur in previously disturbed areas within the 200 East Area near C farm. Equipment for materials storage, mixing, and delivery of fill materials would be trucked to the ATCD site and set up in designated fenced areas of less than one acre, near C farm. Trailers for contractor personnel also would be provided. If granular materials were used for tank fill, they would be blended off-site and delivered to storage facilities outside C farm. Fill material would be either trucked in or a small-scale mix plant may be erected. All contractor equipment and facilities would be located in previously disturbed areas.

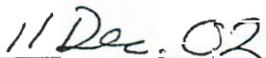
The staging area would require limited preparation because of the relatively level topography in the 200 East Area around C farm. Fencing would be provided around the contractor facilities. Water and power would be provided from existing on-site sources and temporary connections would be made to these services.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.



Paul F. X. Dunigan, Jr.
Hanford NEPA Compliance Officer
U.S. Department of Energy



Date

REFERENCES

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- 64 FR 61615, 1999, "Record of Decision for Hanford Comprehensive Land-Use Environmental Impact Statement," *Federal Register*, November 12.
- BCBCC, 1985, *Benton County Comprehensive Land Use Plan*, Board of County Commissioners of Benton County, Benton County, Washington.
- DOE/EIS-0189, 1996, *Tank Waste Remediation System, Hanford Site, Richland, Washington, Final Environmental Impact Statement*, U.S. Department of Energy and Washington State Department of Ecology, Washington, D.C.
- DOE/EIS-0189-SA3, 2000, *Supplement Analysis for the Tank Waste Remediation System*, U.S. Department of Energy, Washington, D.C.
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- DOE/RL-96-77, 1996, *Programmatic Agreement Among the U.S. Department of Energy, Richland Operations Office, the Advisory Council on Historic Preservation, and the Washington State Historic Preservation Office for the Maintenance, Deactivation, Alteration, and Demolition of the Built Environment on the Hanford Site, Washington*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- Ecology, EPA, and DOE, 1989, *Hanford Federal Facility Agreement and Consent Order*, as amended, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington.
- ICRP, 1991, *1990 Recommendations of the International Commission on Radiological Protection*, ICRP Publication 60, International Commission on Radiological Protection, Pergamon Press, New York, New York.
- National Environmental Policy Act of 1969*, 42 USC 4321 et seq.
- National Historic Preservation Act of 1966*, Public Law 89-665, 80 Stat. 915-919, 16 USC 470 et seq.
- Noise Control Act of 1972*, 42 USC 4901 to 4918 et seq.
- PNNL-6415, 2002, *Hanford Site National Environmental Policy Act (NEPA) Characterization*, Rev. 14, Pacific Northwest National Laboratory, Richland, Washington.
- WAC 173-303-640, "Tank Systems," *Washington Administrative Code*, as amended.

WAC 173-303-282, "Siting Criteria," *Washington Administrative Code*, as amended.

"Washington State Environmental Policy Act (SEPA)," Chapter 43.21C, *Revised Code of Washington*, as amended.

WHC-SD-WM-SAD-024, 1995, *Safety Assessment for Tank 241-C-106 Waste Retrieval Project W-320*, Rev 0, Westinghouse Hanford Company, Richland, Washington.