ENVIRONMENTAL CHECKLIST
HANFORD 241-AY/AZ TANK FARM
VENTILATION SYSTEM UPGRADES

A. BACKGROUND

1. Name of proposed project, if applicable:

Modification of the Non-Radioactive Air Emissions Notice of Construction (NOC) Approval Order DE11NWP-001for the 241-AY/AZ Tank Farms Ventilation System Upgrades

2. Name of applicant:

U.S. Department of Energy
Office of River Protection

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

U.S. Department of Energy
Office of River Protection
P.O. Box 450 MISN: H6-60
Richland, WA 99352

Contact: Mr. Dennis W. Bowser (509) 373-2566

4. Date checklist prepared:

10/24/2013

5. Agency requesting checklist:

Washington State Department of Ecology

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

This checklist supports the U.S. Department of Energy (USDOE), Office of River Protection's (ORP's) request for review and approval of a Criteria and Toxic Air Emissions Notice of Construction (NOC) Modification for Changing an Existing Permit or Equipment. ORP requested Ecology modify NOC Approval Order DE11NWP-001 for the construction upgrades and operation of the 241-AY/AZ ventilation system.

Ecology permitted the operations of the 241-AY and 241-AZ Tank Farms single ventilation system via NOC Order 94-07, Revision 3, dated May 7, 2008. Subsequent to that action, Ecology granted ORP an Approval Order to replace the existing AY/AZ ventilation system via Approval Order DE11NWP-001 dated November 30, 2011. On March 13, 2012, ORP submitted a construction schedule for 241-AY/AZ replacement that proposed beginning construction on July 23, 2013 and completing construction on June 22, 2015. ORP would conduct testing and commissioning from September 23, 2014 through September 28, 2015, and then begin operation of the replacement system.

When Ecology issues a revision of NOC Order 11DENWP-001, ORP will have 18 months from the date of issue to begin construction of the AY/AZ ventilation upgrades.

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

No

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

Final Environmental Impact Statement – Waste Management Operations, ERDA-1538, Energy Research and Development, 1975, Washington, D.C. included environmental information on radioactive waste management.

Final Environmental Impact Statement Supplement to ERDA-1538 Double Shell Tanks for Defense High-Level Radioactive Storage, DOE/EIS-0063, U.S. Department of Energy (USDOE), 1980, Richland, Washington

Final Environmental Impact Statement – Disposal of Hanford High-Level, Transuranic and Tank Wastes, DOE/EIS-0113, USDOE, 1987, Richland, Washington included the Double Shell Tank (DST) System

Tank Waste Remediation System, Hanford Site, Final Environmental Impact Statement, DOE/EIS-0189, USDOE and Washington Department of Ecology, August 1996, evaluated alternatives for the management and disposal of mixed, radioactive, and hazardous waste currently stored or projected to be stored in 177 underground storage tanks and approximately 60 active and inactive miscellaneous underground storage tanks associated with the Hanford Site's tank farm operations.

Hanford Site Air Operating Permit, Number 00-05-006, Washington State Department of Ecology, Renewal 2, April 2013.

On April 8, 2013, ORP requested Ecology approval of a change to Order DE11NWP-001 that Ecology had issued on November 30, 2011. Order DE11NWP-001 had granted ORP permission to replace three double shell tank ventilation systems: 241-AP, 241-SY, and 241-AY/AZ. Subsequent to receipt of Order DE11NWP-001, ORP determined that replacement of the 241-AY/AZ ventilation system was not necessary. Instead, ORP would install selected upgrades and modify the Approval conditions to reflect limits on operations of the ventilations upgrades. The request did not affect replacement of the 241-SY or the 241-AP ventilation systems.

1. Letter, J. A. Hedges, Program Manager to S. L. Samuelson, ORP, "Approval of Criteria and Toxic Air Emissions Notice of Construction (NOC) Application for the Operation of the 241-AP, 241-SY, and 241-AY/AZ Tank Farm Ventilation System Upgrades (Approval Order DE11NWP-001), 11-NWP-121, dated November 30, 2011.
2. Letter, Kevin W. Smith, Manager, to Ms. Jane A. Hedges, Program Manager, "U.S. Department of Energy, Office of River Protection (ORP) Requests Review and Approval of Submittal of Criteria and Toxic Air Emissions Notice of Construction (NOC) Application Modification Form for AY/AZ Tank Farm Ventilation Upgrades," 13-ECD-0018, dated April 8, 2013.

ORP sent Ecology a request to extend Order DE11NWP-001 from its May 31, 2013 expiration date to November 30, 2014. The request resulted from unforeseen changes in the funding for the work. ORP assured Ecology that it would continue to maintain and operate the existing ventilation systems until the ventilation upgrades are installed and testing is completed. Revision 1 of Order DE11NWP-001 allows ORP 18 months from the date of the order to begin construction.

Letter, Kevin W. Smith, Manager, to Ms. Jane A. Hedges, Program Manager, "U.S. Department of Energy, Office of River Protection (ORP) Submits Request for the Extension of Approval for the Installation and Operation of the 241-AP, 241-SY, and 241-AY/AZ Ventilation Systems," 13-ECD-0018, dated May 28, 2013

Ecology reviewed the ORP proposed modifications then requested that ORP provide more information about the portable, closed loop Independent Cooling Module (ICM). Ecology was concerned about the potential for the condensate to be regulated under the State's Hazardous Waste Management Act of 1976, as amended (Revised Code of Washington Chapter 173-303). In response, ORP removed the ICM from

the scope of the upgrades. Ecology stipulated in its revision to the Approval Order that ORP must submit another request for modification before the USDOE can add the ICM to the Approval Order.

1. Letter, J.A. Hedges, Program Manager to Mr. Kevin Smith, Manager, ORP, Re: Independent Cooling Module (IDM) Condensate, 13-NWP-068, dated June 24, 2013.

2. Letter, Kevin W. Smith, Manager, to Ms. Jane A. Hedges, Program Manager, "U.S. Department of Energy, Office of River Protection Response to 13 NWP 068 Washington State Department of Ecology (Ecology) Letter Request for Waste Designation of Condensate," 13-ECD-0072, dated August 03, 2013.

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.

The Washington Department of Ecology issued the draft Hanford Facility Dangerous Waste Permit (commonly, the Site-Wide Permit) WA7890008967 for public review and comment from May 1 through October 22, 2012. Included in the permit were conditions for Operating Group Unit 12, Double Shell Tank System & 204-AR Unloading Station. Ecology is considering comments on the draft permit.

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

The Department of Ecology must issue a revision of Approval Order DE11NWP-001that incorporates the installation of 241-AY/AZ ventilation system upgrades, removes the replacement of that system, updates Table 1 ventilation rates for the 241-AY/AZ ventilation system, removes the ICM from the ventilation upgrades, stipulates BACT and t-BACT for the 241-AY/AZ ventilation system upgrades, and modifies supporting air dispersion modeling results.

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.)

ORP requested approval to modify Criteria and Toxic Air Emissions Notice of Construction Application to reflect the 241-AY/AZ ventilation system. ORP had already received approval to construct and operate a replacement of the 241-AY/AZ ventilation system under Approval Order DE11NWP-001; however, ORP conducted more analyses. As a result, ORP determined that upgrading the existing ventilation system would support future tank operations for storage, treatment, retrieval, sampling and transfers of the waste to the Hanford Waste Treatment Plant. The upgrades to the ventilation system would replace the existing stack with one of the same diameter and height, add more air monitoring and flow monitoring devices, replace the variable speed drives for the ventilation fans, and add an ICM. After Ecology expressed its concern about the regulation of the condensate under the State's Hazardous Waste Management Act of 1976, as amended, ORP removed the ICM from the scope of the upgrades.

ORP also provided the results of dispersion modeling that reduced the stack flow rates to those that would result from the upgrades and increased the stack height to match that of the stack (from 40 to 55 feet). The emissions did not change as a result of those changes in modeling.

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 Hanford Site occupies approximately 375,040 acres in Washington State, immediately north of Richland, in Benton County, Washington. The Double Shell Tank Farm System lies in the center of the Hanford Site. The 241-AY and 241-AZ Double Shell Tank Farms lie in the east central portion of the 200 East Area, which is approximately 20 miles northwest of the city of Richland.

The 241-AY/AZ Unit, designated as the 200-E P-296A042 001 Tank Exhauster, lies at 46°N32'19" latitude and 119°W31'4" longitude.

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 steepest slope within the fences of the 241-AY and 241-AZ tank farms is less than 2%. Some cut banks and berms from construction around the edge of the buried tank sites are at their angle of repose.

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.

Fifteen different soil types occur at Hanford. The dominant soil types are Quincy (Rupert) sand, Burbank loamy sand, Ephrata sandy loam, and Warden silt loam. Quincy (Rupert) is present across portions of the 200 East Area. Burbank sand occurs mainly north of the 200 Areas, but it intermingles with Quincy (Rupert) soil and Ephrata sandy loam in the 200 East Area.

The USDOE does not allow farming on the Hanford Site. No soils at Hanford are currently classified as prime farmland soils because there are no current soil surveys. The only prime farmland soils in the region are irrigated.

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

No

The soils in the 241-AY and 241-AZ are stabilized with gravel. Within the 241-AY and 241-AZ Tank Farms, the contractor grades unstable slopes to prevent erosion and maintains gravel in the farms and at the entrances to keep a smooth surface for foot and vehicle traffic. The contractor also maintains gravel around the fences to limit entrance under the fences.

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

Upgrading the 241-AY/AZ ventilation system will not require any excavation, filling or grading.

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

No erosion of the soil will result from installation of upgrades to the 241-AY/AZ ventilation system. Construction will be limited to changing parts of the existing ventilation system.

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

Approximately 10% of the surface area of the DSTs is covered by impervious surfaces. Installation of the ventilation upgrades will not result in physical changes to the 241-AY and 241-AZ tank farms that will increase the area of the impervious surfaces.

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

None

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.

Installation of the ventilation upgrades will not require excavation of soil; therefore, the construction will not cause dust. Vehicle emissions will not increase measurably during construction because transport of soil and materials to the site will not be necessary.

When the construction of the upgrades to the 241-AY/AZ ventilation system is complete, emissions of criteria and toxic pollutants will not increase.

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

No.

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

The 241-AY/AZ exhauster system modifications will control emissions to the air through compliance with BACT and t-BACT for the 241-AY/AZ ventilation system. That will require ORP to operate the ventilation systems not to exceed the maximum ventilation rates in Approval Order Table 1 with a condenser, high efficiency mist eliminator (HEME), heater, and two-stage HEPA filtration system in service of the treatment train.

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.

There is no surface water body on or near the vicinity of the 241-AY/AZ tank farm.

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.

ORP's contractor will not conduct any work over, in, or adjacent to surface water or wetlands.

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.

None

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

The ventilation upgrade project will not require any surface water withdrawals or diversions.

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

The 241-AY and 241-AZ tank farms do not lie within the 100-year flood plain or the 500-year flood plain.

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.

No

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.

No.

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 241-AY/AZ ventilation upgrades will not cause waste material to be discharged into the ground from septic tanks or other sources.

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 construction and operation of the 241-AY/AZ ventilation system upgrades will not generate runoff.

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

The 241-AY/AZ ventilation system upgrades will not generate waste materials that could enter the ground or surface waters.

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

No additional measures are necessary.

4. Plants

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

deciduous tree: alder, maple, aspen, other

evergreen tree: fir, cedar, pine, other

shrubs

grass

pasture

crop or grain

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

water plants: water lily, eelgrass, milfoil, other

other types of vegetation

Per the *Final Tank Closure and Waste Management Environmental Impact Statement* (FTC&WM EIS) Section 3.2.7.1 Terrestrial Resources (DOE/EIS-0391) contains Figure 3-15 Vegetation Communities on the Hanford Site (pp. 3-57 and 3-58). In Section 3.2.7.1.2 200 Areas Description (p. 3-61), the USDOE explained that the undisturbed portions of the 200 East Area that are not affected by the 24 Command or Wautoma Wildlife fires were comprised of big sagebrush/bunch grass-cheat grass and cheatgrass-bluegrass communities. The FTC&WM EIS also stated that most of the waste sites and storage sites were covered by non-native vegetation or kept free of vegetation by controlled application of herbicide because plants could potentially assimilate waste constituents. Within the fenced area inside of the 241-AY and 241-AZ Tank Farms, ORP requires that the Tank Farms Operations contractor ensure that the ground surface is free of vegetation through herbicide application.

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

The 241-AY/AY ventilation project will not require removal or alteration of vegetation. Ongoing vegetation control programs control the growth of vegetation in the 241-AY and 241-AZ Tank Farms.

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

In the FTC&WM EIS, Table 3.8 Hanford Site Threatened, Endangered and Other Special Status Species (pp. 3-68 through 3-70) are lists of such plants, insects, mollusks, fish, amphibians, reptiles, birds, and mammals on the Hanford Site. There are no threatened or endangered species in the 241-AY or the 241-AZ Tank Farms.

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

ORP requires its contractor to maintain the land surface within the 241-AY and 241-AZ tank farms free of vegetation. No specific measures to preserve or enhance vegetation are necessary.

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:

In the FTC&WM EIS, Section 3.2.7.4.2 200 Areas Description, the USDOE stated that no federally or state-listed threatened or endangered species were observed in the immediate vicinity of the 200 Areas. Due to the disturbed nature of most of the 200 Areas, wildlife make limited use of the 200 Areas, but Pacific Northwest National Laboratories wildlife surveyors recorded sighting the badger, coyote, Great Basin pocket mouse, mule deer, long-billed curlew, killdeer, horned lark, Say's phebe, American robin, American kestrel, western meadowlark, and common raven in 2003 and 2007.

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

In the FTC&WM EIS, Table 3.8 Hanford Site Threatened, Endangered and Other Special Status Species (pp. 3-68 through 3-70) are lists of such plants, insects, mollusks, fish, amphibians, reptiles, birds, and mammals on the Hanford Site. There are no threatened or endangered species in the 241-AY or the 241-AZ Tank Farms.

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

The Hanford Site is part of the broad Pacific Flyway.

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

No specific measures to preserve and enhance wildlife are part of routine DST operations. The ventilation upgrades that ORP will install on the 241-AY/AZ tank ventilation system will not require ORP to expand the tank farms.

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.

The proposal to upgrade the 241-AY/AZ ventilation system will not result in a need for additional electricity. Electricity provides powers for fan motors and other electrical components. Electricity also powers air heaters that prevent formation of condensate on or within any component or ductwork from the heater location to the emission point.

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

No.

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:

The replacement of variable speed drives for ventilation fans and addition of air monitoring and flow monitoring devices will not require incorporation of specific energy conservation features. The equipment will not require significant additional quantities of electricity.

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.

Upgrade of the 241-AY/AZ ventilation system will not result in any increases in the emissions of criteria or toxic air emissions. Operation of the DST System poses environmental hazards, including exposure to toxic air pollutants and chemicals, as well as radionuclides. A potential for leaks and unplanned releases exists. Operation of some tanks showed that a potential exists for decomposition of organic compounds to yield hydrogen gas. ORP and its contractor put administrative controls into place to prevent the accidental release of hydrogen gas in specific tanks.

1) Describe special emergency services that might be required.

No special services might be required as a result of upgrading the 241-AY/AZ ventilation system. Hanford security forces, fire response, and ambulance services are on call at all times, should an onsite emergency occur. Hanford site emergency services personnel receive special training to manage various circumstances that include chemical and/or mixed waste constituents.

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

ORP must comply with the operating limits on flow from the 241-AY/AZ ventilation system and release of toxic chemicals specified in the Approval Order DE11NWP-001 Revision 1 to ensure that toxic air pollutants will not change from levels emitted by the existing ventilation system.

b. Noise

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

The 200 Areas have no distinguishing characteristics. The 200 Areas are far enough from the nearest Hanford Site boundary (6.2 miles) that industrial noises emanating from the Areas are either immeasurably or barely distinguishable from background levels. Within the 200 East Area, noise results from the operation of facilities, equipment and machines. Noise in the 200 East Area will not affect the operation of the 241-AY/AZ tank ventilation system.

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.

Upgrading the 241-AY/AZ ventilation system will not result in excavation of soil or construction of new buildings or structures in the 200 East Area, so no noise will result from operation of earth-moving or large construction equipment. Noise from component replacement activity will be confined to the area around the existing ventilation system during daylight hours. Operation of the upgraded 241-AY/AZ ventilation system will produce noise from operation and maintenance of equipment (primarily from the operation of ventilation fans). Noise levels will be maintained within industrial safety requirements.

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

Alteration of the 241-AY/AZ ventilation system to reduce noise is not necessary to avoid or reduce excessive noise off of the Hanford Site.

Stationary noise generating equipment meets manufacturer's requirements for noise suppression.

Should an unlikely increase in noise levels cause workers to be in an area where Occupational Safety and Health Standards are exceeded, those workers would don the appropriate personnel protective equipment.

8. Land and Shoreline use

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

The Hanford Site is owned and operated by the U.S. Department of Energy. In the past, the Site was a defense materials production site that included nuclear reactor operation; uranium and plutonium processing; storage and processing of spent nuclear fuel; and management of radioactive, hazardous and state dangerous wastes. The current mission at Hanford includes managing waste products, cleaning up the site, researching new ideas and technologies for waste disposal and cleanup, and reducing the size of the site.

Other Government agencies lease, own, or administer portions of Hanford. Energy Northwest operates the Columbia Generating Station north of the 300 Area. The State of Washington leases an area for disposal of hazardous substances in the center of the Site. Hazardous materials response personnel receive training at the Hazardous Materials Management and Emergency Response (HAMMER) Volpentest Training and Education Center. The Hanford Patrol Academy is a regional law enforcement training facility. The Laser Interferometer Gravitational-Wave Observatory is a national research facility designed to detect cosmic gravitational waves. USDOE leased facilities and DOE-contractor-owned or leased facilities support Hanford Operations.

The 200 Areas, which includes the 200 East and 200West Areas, are in the center of Hanford. The two areas were once devoted to nuclear fuel processing; plutonium processing, fabrication, and storage; and waste management and disposal. They are now the sites where the USDOE manages radioactive, hazardous and State dangerous wastes and conducts soil and groundwater cleanup. The WTP is under construction southeast of the 200 East Area. Within the 200 Areas, there are 18 underground tank farms (groups of

tanks; Double Shell Tank Farms 241-AY and 241-AZ are located in the 200 East Area. Those tank farms and 16 others store 56 million gallons of radioactive, chemical liquids, salt cake, and sludge that will undergo treatment prior to disposal.

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

American Indians used the area along the Columbia River in eastern Washington State for thousands of years for fishing, hunting, and gathering. Following the expedition of Lewis and Clark, which reached the area in 1805, the land began to change as fur traders and settlers populated the area. By the beginning of the 20th century, much the area was in use for farming and grazing.

In 1943, the U.S. War Department established the Hanford Engineer Works as one of three original Manhattan Project sites. Since then, the Federal Government has restricted access to the Site and prohibited farming and grazing.

c. Describe any structures on the site.

The 241-AY and 241-AZ Tank Farms contain double shell tanks (DSTs) that are composed of a carbon steel tank inside of a carbon steel liner that is surrounded by a reinforced-concrete structure. The primary steel tank, which is 75 ft. in diameter, measures approximately 46 ft. 9 in. in height at the dome center. The bottom of the primary tank consists of a 1-in.-thick plate that is 4 ft. in diameter in the center of the tank. The bottom plate thins to 0.375 in. at the interfacing weld and extends to a curved, formed section of a 0.855-in.-thick plate (except in the 241-AP tank farm where it is 0.938-in.), termed the "bottom knuckle". An 8-in. insulating concrete slab, separating it from the secondary steel liner, provides for air circulation/leak detection channels under the primary tank bottom. An annular space of 2.5 ft. exists between the secondary liner and primary tank, allowing for visual examination of the tank wall and secondary liner surfaces. The annular space also allows for ultrasonic volumetric inspection of the primary tank wall and secondary liner.

The DSTs are buried below the ground surface (approximately 8 feet), where they rest on a concrete tank foundation. Each of the DSTs has 59 to 126 risers (vertical pipes) that penetrate its dome. Those risers provide a means of access for video cameras, ultrasonic inspection devices, waste sampling devices, mixer pumps, and other equipment which requires access to either the primary tank interior or annular space.

Above each DST, (extending from grade to varying depths) are between three and five pits, which house valves and pumps. This equipment allows transfer of waste fluids and sludge from SSTs to DSTs, from DSTs other DSTs, or from DSTs. The tanks are connected by underground piping which passes through buried concrete boxes containing pipe routing equipment. All of the DSTs within a tank farm are connected to equipment that filters the air above the stored waste prior to its release into the atmosphere.

The 241-AZ-702 facility houses the seal pot and other equipment that is part of the 241-AY/AZ ventilation system.

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

No.

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

Zoning classifications do not apply. The Hanford Site is located on Federal government-owned land and is not subject to the State's Growth Management Act. However, Benton County included the Hanford Site in its Comprehensive Plan for completeness. The County Plan requires the preparation of a Hanford Comprehensive Land Use Plan that the County would consider a sub-area plan of the Benton County Comprehensive Plan.

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

The USDOE completed a Comprehensive Land-Use Plan EIS (DOE/EIS-0222F) and issued a Record of Decision (ROD) on November 12, 1999. The USDOE's preferred alternative classified the land use in the

200 Areas as Industrial-Exclusive. Industrial-exclusive areas are suitable for treatment, storage, and disposal of hazardous, dangerous, radioactive, and non-radioactive wastes.

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

Not applicable.

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

In the 200 Areas, the only environmentally sensitive area is the wetland area in the vicinity of West Lake. After the USDOE ended nuclear materials production at Hanford, the contractors discharged substantially less water to the ground, causing the lake to decrease to a group of small ponds and mudflats. Vegetation there includes alkali salt grass, plantain, and salt rattlepod. Bulrushes grow on along the shoreline; however, the water is too saline to support aquatic macrophytes.

The 200 Areas do not contain fish breeding, rearing, or feeding areas. The Liquid Effluent Retention Facility (LERF) and the Treated Effluent Disposal Facility (TEDF) together contain five ponds. None of the ponds supports fish populations.

The LERF and Effluent Treatment Facility (ETF) are accessible to wildlife. No critical habitat for threatened and endangered species (as defined in the Federal Endangered Species Act) exists on the Hanford Site.

The State considers pristine shrub-steppe habitat to be priority habitat because of its relative scarcity in the state and its requirement as nesting/breeding habitat by several federally and state listed species. USDOE considers sagebrush communities as a Level III resource under the Hanford Site Biological Management Plan. Large portions of the 200 Areas are disturbed, but sagebrush habitat occurs in the south-central portion of the 200-East Area, at the site of the Integrated Disposal Facility (IDF), and in much of the area around the WTP. The 241- AY and 241-/AZ Tank Farms do not contain sagebrush habitat.

The 200 Areas do not lie in the probable maximum flood areas along the Columbia or Yakima Rivers. The southeast corner of the 200-West Area is within the probable maximum flood area of Cold Creek. Tank Farms 241-AY and 241-AZ in the 200 East Area are not located within the maximum flood area of Cold Creek.

Slope failure is a potential concern on the Hanford Site, but only the slopes of Gable Mountain on the Central Plateau are steep enough to warrant landslide concern. The 241-AY and 241-AZ tank farms do not lie on those slopes.

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

The upgrade of the 241-AY/AZ ventilation system will not require ORP to increase operations staff. Currently, personnel enter the tank farms for specific tasks; when the tasks are complete, personnel exit to minimize their time and exposure to radiation. Approximately 330 people work on the DST System when it is full operation

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

None

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

Not applicable.

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

Upgrades of the 241-AY/AZ ventilation system requires no measures to ensure it is compatible with existing land uses and plans. Replacing the existing ventilation system does not affect use of the land as industrial exclusive use, per the Final Hanford Comprehensive Land Use EIS.

9. Housing

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

None. The Hanford Site does not contain housing units.

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

None. The Hanford Site does not contain housing units.

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

None. The Hanford Site does not contain housing units.

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 atmosphere in each 241-AY/AZ double shell tank travels through individual 10.5-inch diameter exhaust ducts to an exit through the 55-ft stack in the 241-A-702 Building. The 241-A-702 Building has metal or concrete walls. This project will not include construction of any new building.

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

The upgrade of the 241-AY/AZ ventilation system will not include any construction of buildings or equipment. No views in the immediate vicinity will undergo alteration or obstruction.

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

None

11. Light and glare

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

Upgrade of the 241-AY/AZ ventilation system will not produce additional light or glare. The installation of the upgrades will not require installation of additional lighting or require additional illumination. Nighttime lighting provides a continuous operations environment and necessary security requirements. The location of the DST System precludes impact on areas off of the Hanford Site.

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

No.

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

No existing off-sources of light or glare will affect the proposal to upgrade the 241-AY/AZ ventilation system.

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

No reduction or control measures are necessary.

12. Recreation

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

There are no designated and informal recreational opportunities for the public on the Central Plateau where the 241-AY and 241-AZ tank farms lie.

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

The proposed action will 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:

No measures to reduce or control impacts on recreation are necessary.

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.

On the Hanford Site, the USDOE established the Hanford Cultural Resources Program, which conducted comprehensive archaeological resources survey in 1987 and 1988. The surveyors found minimal evidence of American Indian cultural landscape resources and early settler/farming landscapes in the 200 Areas. Subsequent archaeological surveys have confirmed that pattern.

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

In the south-central part of the 200 East Area, investigators found two artifacts more than 50 years old: a hole-in-top can and a flat-topped crimped can. Another site containing cans lies south of the Waste Treatment Plant (WTP) and slightly north of Route 4 South. That site consists of a small military refuse pile of cans and Coke bottles that are likely associated with the National Register-eligible anti-aircraft artillery site about 1,312 feet south of Route 4 south. Deemed a non-contributing feature associated with the anti-aircraft site, that refuse site is not eligible for listing on the National Register.

The USDOE commissioned a historic property inventory of 72 buildings and structures in the 200 Areas. Of the total, assessors deemed 58 eligible for National Register listing as contributing properties within the historic district, which they recommended for mitigation.

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

No measures are necessary. The project will not include any surface or ground disturbing activities or require modification of any buildings or structures.

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.

The USDOE restricts public access to the Hanford Site. From State Highway 240 on the western boundary of the Hanford Site, the Hanford Patrol maintains access to the Site through two access gates (designated as the Yakima and Rattlesnake Barricades). Only one gate (designated the Wye Barricade) in the southern part of the Hanford Site provides access from State Highway 240 or Route 4 South on the Hanford Site. Highway 240 is the closest public highway, but it lies 5.6 miles from the 200 East tank farms.

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

Public transit systems do not service the Hanford Site. The DST System 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?

Upgrade of the 241-AY/AZ ventilation system will not require construction of new facilities or additional access to the two tank farms. Additional parking spaces are not necessary. For the DST system, the contractor provides parking for approximately 100 automobiles, motorcycles, and handicapped parking.

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).

No.

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

The project will not use or be in the immediate vicinity of water, rail, or air transportation.

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

Operation of the entire DST requires less than 50 vehicular trips per day. Peak volumes occur during shift changes, but most workers are on the day shift. Traffic patterns are unidirectional from Monday through Friday.

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

No measures will be necessary to control transportation impacts. Workers are already encouraged to ride in van pools and take advantage of pre-tax incentives for carpooling. A taxi service and government vehicles are available to reduce the volume of private vehicles traveling to the site during work hours.

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.

Upgrading the 241-AY/AZ ventilation system will not result in an increased need for public services.

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

None

16. Utilities

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

The USDOE owns the Hanford Site, including the 200 East Area where the 241-AY and 241-AZ Tank Farms lie. Those tank farms require electrical power to operate process and monitoring equipment, including the stack ventilation equipment.

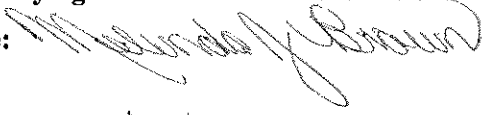
The USDOE's site services contractor is responsible for maintaining the Hanford Export Water System that delivers water from the Columbia River to the 200 Areas. That system provides raw water for use in the Tank Farms.

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.

None

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.

Signature: 

Date Submitted: 11/26/2013