

**ENVIRONMENTAL CHECKLIST  
WASTE TREATMENT AND IMMOBILIZATION PLANT (WTP)  
NOTICE OF CONSTRUCTION APPLICATION SUPPLEMENT TO DE02NWP-002  
REPLACE TYPE II EMERGENCY DIESEL GENERATORS AND INCREASE ANNUAL  
OPERATING HOUR RESTRICTIONS ON DIESEL ENGINE-DRIVEN FIRE PUMPS**

**A. BACKGROUND**

**1. Name of proposed project, if applicable:**

Waste Treatment and Immobilization Plant (WTP) Notice of Construction Application Supplement to DE02NWP-002  
Replace Type II Emergency Diesel Generators and Increase Annual Operating Hour Restrictions on Diesel Engine-Driven Fire Pumps

**2. Name of applicant:**

U.S. Department of Energy (USDOE)  
Office of River Protection (ORP)

**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: 01/25/2012**

**5. Agency requesting checklist: Washington State Department of Ecology**

Prepared by: Nuclear Waste Program  
Washington State Department of Ecology  
3100 Port of Benton Blvd  
Richland, WA 99354

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

This revised SEPA Environmental Checklist supports the U.S. Department of Energy's (USDOE's), Office of River Protection's (ORP's) proposals. ORP proposed to replace Type II emergency generators now in the WTP design with two turbine generators for emergency power production. ORP also proposed an increase in the hours of operation for on each of the diesel engine-driven fire pumps from 110 hours per year to 230 hours per year. That increase will support maintenance and testing of the WTP fire water systems. Ecology intends to issue draft Approval Orders with conditions for operation of the turbine generators and fire pumps for public comment on February 4, 2013.

**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.**

In April 1988, the USDOE issued the Record of Decision for the *Final Environmental Impact Statement, Disposal of Hanford Defense High-Level, Transuranic and Tank Wastes, Hanford Site, Richland, Washington (Hanford Defense Waste EIS)*, DOE/EIS-0113, December 1987. The USDOE decided to process the DST waste into two waste streams in a pretreatment facility. The larger waste stream would be low activity waste (LAW), and the smaller waste stream would be high level waste (HLW). The LAW was to be mixed with a cement-like material to form grout. The grout was to be encased in large underground concrete vaults on the Hanford Site. The HLW portion was to be vitrified into a glass-like material and encased in stainless steel canisters at the proposed Hanford Waste Vitrification Plant (HWVP). The canisters were to be stored at the Hanford Site until a potential geologic repository was available for the waste.

In the *Hanford Defense Waste EIS* Record of Decision (ROD), the USDOE decided to perform additional development and characterization before making decisions on final disposal of single-shell tank (SST) waste. The SST waste would continue to be stored and monitored. The development and characterization effort was to focus on methods to retrieve and process SST waste for disposal and stabilize and isolate the waste near the surface. Before a decision would be made on the final disposal of the waste, alternative disposal methods were to be examined in a supplemental analysis to the *Hanford Defense Waste EIS*.

The Hanford Defense Waste EIS ROD formed the planning bases for the USDOE to manage the tank waste. From 1991 through 1998, The Tank Waste Remediation System (TWRS) was responsible for routine tank operations, including tank farm management, regulatory compliance, reporting, surveillance, and operations and maintenance of facilities and equipment. Other TRWS activities included: 1) characterizing waste to support safety, retrieval and transfer, processing, treatment, and disposal; 2) addressing tank safety issues; 3) isolating and removing pumpable liquid from SSTs to reduce the potential for future leakage; and 4) operating the 242-A Evaporator to concentrate waste by reducing the amount of liquid. Other projects initiated under the Hanford Defense Waste EIS ROD included technology development, design, and construction of the facilities needed to implement the planned retrieval, pretreatment, immobilization, and storage and disposal of DST waste.

*The Tank Waste Remediation System, Hanford Site, Final Environmental Impact Statement*, DOE/EIS-0189, U.S.DOE and Washington Department of Ecology, August 1996, satisfied the commitment the USDOE made in the Hanford Defense Waste EIS ROD to prepare a supplemental NEPA analysis. The TWRS EIS evaluated the range of reasonable alternatives for the management and disposal of mixed, radioactive, and hazardous waste currently stored or projected to be stored in the Hanford tanks. After the USDOE issued the Final TWRS EIS, the USDOE received comments in the draft in the form of a report from the National Research Council entitled "The Hanford Tanks Environmental Impacts and Policy Choices" (National Research Council 1996). The USDOE addressed those comments in the Final TWRS EIS ROD. Included in the notable comments were 1) significant uncertainties limit the USDOE's ability to select a final disposal for all tank waste and 2) the USDOE should consider remediation alternatives invoking both ex situ and in situ disposal to provide flexibility if specific technologies do not perform as anticipated or new technologies emerge. The council also recommended that the USDOE use a phased decision strategy that incorporated multiple alternatives to allow the program to move forward.

In February 1997, the USDOE published the TWRS EIS ROD that announced that the USDOE intended to implement of the Preferred Alternative (Phased Implementation). That alternative was based on a two-phase approach to tank waste treatment that included an initial demonstration phase to last approximately 10 years, followed by Phase II, in which large production level waste treatment plants would treat the remainder of the tank waste by 2028. That ROD deferred the matter of tank closure, pending the development of further information, and committed to future NEPA evaluations of tank waste remediation program to determine whether previous decisions should be changed. The ROD also incorporated proposed plans for design, construction, and operation of the waste treatment facilities; tank farm operations and maintenance; and transfer of waste from the tanks to treatment facilities.

Subsequent to publication of the ROD, the USDOE published the first of three supplement analyses (SA's) in May 1997, consistent with its commitment to conduct periodic evaluations under NEPA. The USDOE examined the potential environmental impact of tank farm infrastructure upgrades then concluded that the potential impacts would be minor, in comparison with and enveloped by the Phased Implementation Alternative.

In 1998, Congress created the Office of River Protection, whose manager is responsible for all aspects of Hanford's tank farm operations, including oversight.

In May 1998, the USDOE issued the second SA that addressed the impacts of emergent information on the design and construction of a new waste treatment plant under the privatization approach. The USDOE concluded that the information developed since the preparation of the TWRS EIS only minimally affected the previously estimated impacts and that the TWRS EIS impacts discussion sufficiently bounded the changes in environmental impacts.

In March 2001, the USDOE issued the third TWRS EIS SA that considered information developed since approval of the TWRS EIS ROD relative to plans for treating Hanford tank waste. The USDOE concluded that new information regarding Phase I activities did not substantially change the proposed actions or present significant new circumstances relevant to environmental concerns, except for vitrified LAW disposal. No further NEPA review was required before the start of construction of Phase I treatment facilities (capable of immobilizing approximately 10 per cent of the tank waste through 2018).

However, the USDOE made changes in the vitrified LAW, including changing the waste form from the cullet to monoliths, the change from retrievable storage in vaults to disposal in shallow RCRA trenches, and the change in location within the 200-East Area, represented substantial changes to the scope of the Phased Implementation alternative the USDOE selected in the TWRS EIS ROD. While the changes appeared to be bounded by the impacts that the USDOE analyzed previously in the TWRS EIS, the public had not had an opportunity to comment on the changes. Therefore the USDOE determined that further NEPA analysis was warranted, and in 2003 those changes were included within the scope of the Final HWS EIS.

The third SA also concluded that the Phase II waste treatment facilities (capable of immobilizing the remaining waste through 2028) appeared to be substantially different from the facilities identified in the Phased Implementation alternative selected in the TWRS EIS ROD. The impacts of revising the design of the Phase II treatment facilities to meet key SST retrieval assumptions made in the TWRS EIS (all SSTs by 2018) appeared to exceed the bounds of the impacts that the USDOE analyzed in the TWRS EIS. Therefore, the USDOE determined these changes would be

included within the scope of a future NEPA analysis.

Since the USDOE issued the TWRS EIS ROD and the three SA's, the agency has proceeded to design, construct, and operate facilities that will separate waste into HLW and LAW streams, vitrify the HLW, and immobilize the LAW stream. Under construction in the Hanford Site 200-East Area, the facilities under construction comprise the "Waste Treatment Plant." The HLW will undergo vitrification then remain in storage on the Hanford Site until and the Federal government determines the disposition for it. The WTP will produce immobilized LAW.

In January 2003, the USDOE filed a Notice of Intent to prepare the "Environmental Impact Statement for Retrieval, Treatment and Disposal of Tank Waste and Closure of Single Shell Tanks at the Hanford Site, Richland, Washington ("Tank Closure EIS") (DOE/EIS-0356). The scope of the EIS would include closure of the 149 SSTs and an analysis of newly available information on the supplemental treatment of a portion of the LAW from all 177 tanks. In March of that year, the USDOE and Ecology signed a Memorandum of Understanding (MOU) that identified Ecology as a cooperating agency in the preparation of the "Tank Closure EIS."

In January 2006, the USDOE and Ecology revised the original MOU to be consistent with the Settlement Agreement and provide for Ecology's continued participation as a cooperating agency in the expanded Tank Closure and Waste Management EIS.

Since the issuance of the TWRS EIS ROD, the USDOE and subsequent SAs, the USDOE proceeded with plans to design, construct and operate facilities that would separate waste into HLW and LAW streams, vitrify the HLW stream, and immobilize the LAW fraction. The design of, and performance projections for, the WTP supports the USDOE's proposal extend its operations past the 10-year duration planned as Phase I in the TWRS EIS ROD. The USDOE plans to enhance the WTP, rather than to deploy a second, larger-scale treatment facility in 2012, as it was defined in the TWRS EIS ROD Phase II. Thus, the USDOE changed the mission of the WTP from a demonstration plant to a full-scale facility.

Since the USDOE issued the third SA, it changed the original design of the WTP Pretreatment Facility that provided for the removal of technetium-99 from the HLW waste stream. Reviews of technetium-99 in ILAW glass led Ecology and the USDOE to agree to delete technetium-99 removal from the WTP permit.

*Hanford Site National Environmental Policy Act (NEPA) Characterization*, PNNL-6415, Revision 18, September 27, 2007, also provides general information about the Hanford Site.

*Hanford Site Air Operating Permit*, Number 00-05-006, Washington State Department of Ecology, Revision F, December 2010

On July 8, 2002, Ecology approved DE02NWP-002 that allowed the start of construction of the WTP with a Pretreatment Facility (PT), three LAW facility melters, and one HLW facility melter.

On November 4, 2003, Ecology issued Amendment I of DE02NWP-002 to incorporate a redesign of WTWP that included two LAW melters and two HLW melters.

On August 23, 2004, Ecology approved a DE02NWP-002 Revision to allow operation of an air stripper to reduce trihalomethanes concentrations to meet criteria for the WTP Nonradioactive Liquid Waste Disposal System wastewater discharge required for acceptance at the 200 Area Treated Effluent Disposal Facility.

On November 11, 2005, Ecology issued Amendment 2 to DE02NWP-002 to approve an alternative compliance demonstration method for the steam boilers.

On May 11, 2006, Ecology issued Amendment 3 to DE02NWP-002 that clarified Condition 3.4 associated with access to performance test reports.

On November 20, 2006, Ecology issued Amendment 4 to DE02NWP-002 to clarify WTP construction phase Dust Control Plan requirements.

August 3, 2010, Ecology approved a best available control technology for toxic air pollutants (T-BACT) change for the Pretreatment Facility

On September 26, 2012, ORP resubmitted a supplement entitled "Re-submittal of Waste Treatment and Immobilization Plant (WTP) Nonradioactive Air Emissions Notice of Construction (NOC) Permit Application Supplement to DE02NWP-002" to Ecology for review. ORP made the format of the application supplement consistent with the Prevention of Significant Deterioration (PSD) Supplement to PSD-02-01, Amendment 2 (24590-WTP-ENV-12-001, Revision 1).

**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 (Site-Wide Permit) WA7890008967 for public review and comment from May 1 through October 22, 2012. Included in the draft permit were conditions for Operating Unit Group-10, Waste Treatment & Immobilization Plant. 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 an Approval Order that incorporates the replacement of the Type II emergency diesel generators with turbine generators and the increase in the operating hour restriction for the diesel-engine-driven fire pumps into the Non-Radioactive Air Emissions Notice of Construction (NOC).

**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.)**

On September 26, 2012, ORP re-submitted a Notice of Construction Permit Application Supplement to DE02NWP-002 (12-ECD-0051) that incorporated comments that the Washington Department of Ecology, Nuclear Waste Program provided during their formal review on July 20, 2012. The Application Supplement to DE02NWP-002 proposes to eliminate the Type II emergency diesel generators from the WTP Design. The USDOE will replace those generators with turbine generators for emergency power production. In the Application Supplement, the USDOE also proposes to increase the annual hours of operation for on each of the diesel-engine-driven fire pumps from 110 hours per year to 230 hours per year to support maintenance and testing of WTP fire water systems.

The USDOE asserts that all criteria pollutant emissions increases are less than the Washington Administrative Code (WAC) Chapter 173-400-030 Provision of Significant Deterioration (PSD)

significance thresholds. The Federal agency's assertion is based on estimated maximum projected emissions resulting from the changes. The USDOE must address the increases and changes in the emissions because the WTP is subject to PSD because its projected emissions of oxides of nitrogen (NOx) and particulate matter 10 microns or less exceeded the PSD significance thresholds.

The USDOE estimates that emissions of NOx will be reduced by approximately three tons per year and particulate matter is reduced by less than one ton per year. The USDOE projects slight increases in the emissions of carbon monoxide, sulfur dioxide, and volatile organic compounds result from the changes but are well below significance thresholds. The USDOE also assessed Toxic Air Pollutant (TAP) emissions from the turbine generators and fire pumps using the US Environmental Protection Agency's approved AERMOD air dispersion model. Results of the assessment show that all TAP emissions are below corresponding WAC 173-460-150 acceptable source impact levels.

Ecology intends to provide a revision to the Approval Order that will include the changes that the USDOE requested. The Approval Orders will undergo public comment, as Ecology has deemed the requested change as having significant public interest. Ecology will consider responding to the comments it receives before issuing a Final Approval Order.

**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.

Part of the September 26, 2012 resubmittal is the WTP Nonradioactive Air Emissions NOC Permit Application Supplement to DE02NWP-002 24590-WTP-RPT-ENV-12-002, Revision 1. In subsection 4.7.2 Fire Water Pumps is a brief description of the two 300-horsepower diesel engine-driven fire water pumps that will be located in the fire water pump house, with a diesel fuel day tank in a curbed area. Fire water tanks used to store fire water will be located adjacent to the pump house.

## **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 than 2%.

- 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 predominant soil types across the 200 Areas in the Hanford Site are Quincy (Rupert) sand and Burbank loamy sand. Quincy (Rupert) Sand is found across portions of the 200 East Area where the WTP is under construction. Burbank loamy sand intermingles with Quincy (Rupert) 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 WTP site is not located in an area of slope or soil instability, or in an area affected by unstable slope or soil conditions.

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

The site of the WTP was cleared and graded, then the contractor performed excavation, compaction, and now construction of facilities at the site. Occupying approximately 65 acres, the original plans for the WTP included approximately 450,000 cubic yards (yd<sup>3</sup>) of earthworks. An area below the grade slab is fine graded. The construction contractor used aggregate and fill for fine grading from quarry sites and borrow sites on or near the Hanford Site.

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

Yes. During construction following initial disturbance and before revegetation, wind and stormwater erosion are possible. Where the land surface is used only for construction, the contractor covers the surface with aggregate. The land surface will be covered with aggregate or restored to original condition and revegetated after construction.

Assuming that construction laydown areas and other portion of the WTP Site may be disturbed in the future, the USDOE and its contractor prepared a Mitigation Action Plan that requires the construction contractor to reseed construction laydown areas and other areas.

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

While the WTP is under construction, the contractor estimated that using 119.2 acres of land would be necessary. The WTP occupies approximately 65 acres of land, which is covered with impervious surfaces for four nuclear facilities (HLW vitrification, LAW vitrification, pretreatment, and an analytical laboratory), as well as operations and maintenance buildings, utilities and office space. Site preparation activities began in October 2001, and the construction contractor placed the first nuclear facility's foundation in July 2002.

When the construction contractor planned the site, the contractor assumed that 4.2 acres would be used for septic leach fields, which the contractor would allow to revegetate naturally. Approximately 51 acres would be used temporarily for workforce parking, lay down areas, and stockpiling. Small portions of the construction area were covered with asphalt or concrete to provide material storage and temporary construction offices. Those areas were planned to remain after construction is complete.

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

The construction contractor and sub-contractors used gravel and dust suppression techniques (e.g., water and application of degradable soil fixatives) to help control erosion in the construction area. As noted in f. above, the construction contractor covered land used only for construction with aggregate then either maintained the aggregate or reseeded. Land covered with asphalt or concrete continued to be covered for use.

**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.**

In the *Tank Waste Remediation System, Final Environmental Impact Statement* (DOE/EIS-0189, 1996), Volume 5, Appendix G, the USDOE estimated air emissions that would result from construction activities:

<u>Criteria pollutants</u>	<u>Emissions per gram per second</u>
Sulfur oxides	0.19
Nitrogen oxides	8.6
Carbon monoxide	46
Particulate matter PM10	6.8
 Hazardous pollutants	 Emissions in grams per second
Formaldehyde	$3.5 \times 10^{-5}$

Tables 5-3 and 5-5 in 24590-WTP-RPT-ENV-12-002, Revision 1 show existing and proposed Annual WTP Controlled Criteria Pollutant Emission Estimates (US tons per year). Tables 5-4 and 5-6 show Toxic Air Pollutants from Turbines and Fire Pumps, Appendix A Emissions Estimates Supporting Supplemental Nonradioactive Air Permit Application contains tables that compare emissions from diesel generators with combustion turbines (Table 1), criteria pollutant emissions from diesel engine-driven fire pumps (Table 2), toxic air pollutant emissions from turbines (Table 3), and toxic air pollutant emissions from fire pumps (Table 4).

**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:**

In Nonradioactive Air Emissions Notice of Construction Permit Application Supplement to DE02-NWP-002 (2459-WTP-RPT-ENV-12-002, Rev. 1, Section 1 Introduction is a brief synopsis of the brief chronology of the changes in design of the WTP and operation of its

emissions systems. Included in the changes are operation of an air stripper that Ecology approved to reduce trihalomethanes concentrations in wastewater discharges, performance of alternative compliance demonstrations for the steam boilers, clarification of access to performance air ports, clarification of the WTP construction phase Dust Control Plan requirements, and selection best available control technology for toxic air pollutants (T-BACT). The supplement itself proposes substitution of turbine generators for Type-II diesel generators that will result in lower nitrous oxide emissions and particulate matter emissions. Slight increases in carbon monoxide, sulfur dioxide, and volatile organic carbons remain well below prevention of significant (PSD) significance levels.

### **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 WTP.

- 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 WTP construction 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 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 WTP does 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 the proposal to replace the two Type II diesel generators with turbine generators will not require ground water to be withdrawn or water to be discharged to the gourd. The proposal to run the diesel engine driven fire pumps longer to support testing and maintenance of the fire water may result in fire water stored in tanks being delivered to fire hydrants,

standpipes, and fixed fire suppression systems. That water may be discharged to the ground. The water supply for the Hanford Site 200 Areas comes from the Columbia River through and existing system of pipes and pumps. The USDOE has a water right to withdraw the water.

- 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 proposal 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.**

Conduct of fire maintenance and testing may result in some volume of fire water reaching the ground through fire hydrants and or hoses. The common practice on the Hanford Site is to use raw water from the 200 Area water system, which does not contain radiological or chemical pollutants. This raw water is allowed to infiltrate into the ground.

The Hanford Site receives only 15.2 to 17.8 centimeters of precipitation annually. Precipitation can seep into the ground through porous soils on the site.

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

The proposal will not generate waste materials that could enter the ground or surface waters.

Yes, if the wastes being treated at the WTP were to escape. The operations contractor will monitor the operation of the four main facilities in the WTP and maintains procedures to prevent or respond to releases to the ground.

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

The general site area is graded to provide for surface run-off and to direct storm water to store drains and/or depressions. Work areas, roadways, and parking lots are crowned or sloped to drain to storm drains and percolate into the ground.

**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

X shrubs

X grass

\_\_\_\_\_ pasture

\_\_\_\_\_ crop or grain

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

\_\_\_\_\_ water plants: water lily, eelgrass, milfoil, other

X \_\_\_\_\_ other types of vegetation

The Final Tank Closure and Waste Management Environmental Impact Statement, 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 TC&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 accumulate waste constituents. The TC&WM EIAS reported that surveys of areas potentially affected by the proposed Tank Closure alternative were complete. Sagebrush habitat, considered a priority habitat by the State of Washington and a Level III Resource by the *Hanford Site Biological Resources Management Plan* does occur in a number of locations, including much of the area surrounding the WTP.

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

Per the USDOE's Hanford Site Biological Resources Management Plan, impacts on Level III resources should be avoided or minimized (see TC&WM EIS, p. 3-59). Where impacts cannot be avoided or minimized, the Plan recommends rectification or mitigation. The proposals to increase the operations limits for the two diesel-engine driven fire pumps and to use diesel turbines will not require removal of vegetation.

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

Per the *Final TC&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 or within the immediate vicinity of the 200 Areas. In the same section, the TC&WM EIS reports that Piper's daisy, a sensitive species, stalked-pod milkvetch, and crouching milkvetch, two watch list species, were observed in the vicinity of the WTP. Table 3.8 **Hanford Site Threatened, Endangered and Other Special Status Species** (pp. 3-68 through 3-70) lists plants, insects, mollusks, fish, amphibians, reptiles, birds, and mammals on the Hanford Site.

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

The proposals will not require landscaping, use of native plants or other measures. The USDOE committed to compensate for biological and natural resource disturbance caused by the construction of the WTP at an appropriate site. In addition, the possibility that the soil at the site will again be disturbed for future work, has led the USDOE to commit to reseed construction laydown areas and other portions of the site. The USDOE will ensure that the contractor uses the appropriate standard Washington State Department of Transportation seed mix for revegetation in the Hanford climate. The USDOE will prepare a mitigation action plan for after it issues the ROD for the TC&WM EIS, but before it takes any action that would require

mitigation as a result of the ROD. See Section 2 Topics of Special Interest Subsection 2.11 Mitigation (p. 2-13) in the *TC&WM EIS*.

## 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:

Per the *Final TC&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 or within 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 phoebe, 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 *Final TC&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.

### 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 the proposals to extend the operational limits for the fire pumps or to install the diesel turbines.

## 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 WTP will receive electrical power from the Bonneville Power Administration. Diesel fuel will power the diesel engine-powered fire pumps and the diesel turbine generators.

### 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:

None.

## 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.**

Operation of the diesel powered turbines and the diesel engine driven fire pumps will result in the release of toxic air pollutants and criteria pollutants to the air. Emissions of those air pollutants are controlled by the conditions in the air permits that Ecology issues to the USDOE and its contractors.

**1) Describe special emergency services that might be required.**

No special emergency services might be required as a result of substituting the diesel fire turbine generators for the Type II diesel generators or by operating the diesel engine-driven fire pumps.

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 may include exposure to air pollutants.

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

As stated above, control of air pollutants will rest in the permit conditions to which the USDOE and its contractor must adhere.

**b. Noise**

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

The 200 East Area in which the WTP is undergoing construction does not have distinguishing characteristics. The 200 Areas are far enough from the nearest Hanford Site boundary (6.2 mi.) that industrial noises emanating from the Areas are either immeasurable or barely distinguishable from background levels. Within the 200 East Area, at the WTP site, noise results from construction equipment and activities. Noise in the WTP construction area will not affect operation of diesel turbine or the diesel engine-driven fire pumps.

**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.**

Operation of the diesel engine-driven fire pumps will increase in duration if Ecology accepts the USDOE's proposal. Noise levels will increase when the contractor schedules fire system tests or operates the diesel turbine.

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

Alteration of tank exhauster systems to reduce noise is not necessary to avoid or reduce excessive noise off of the Site.

On the Hanford Site, stationary noise generating equipment meets manufacturer's requirements for noise suppression to protect personnel.

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 USDOE-contractor-owned or leased facilities support Hanford Operations.

The 200 Areas, which includes the 200-East and 200-West 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 in the 200 East Area.

**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 WTP will cover approximately 65 acres in the Hanford Site 200 East Area. It will contain four separate nuclear facilities (HLW Vitrification, LAW Vitrification, Pretreatment, and an Analytical Laboratory), as well as other operations and maintenance buildings, and utilities.

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

No structures will be demolished as a result of increasing the operational limits on the diesel engine-driven fire pumps or substituting diesel fired turbines for Type II diesel generators.

**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. The WTP site is designated as industrial-exclusive in TC&WM EIS Appendix R, Cumulative Impacts: Assessment Methodology, Figure R-1.

**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 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. The 200 West Area tank farms are east of the delineated probable maximum flood area boundary. Tank Farms 241 -AY/AZ, 241-AW, and 241-AN 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 WTP does not lie on those slopes.

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

Operations of the WTP is estimated to require approximately 1,110 onsite workers.

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

None.

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

No measures to avoid or reduce displacement are necessary.

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

None.

**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 tallest building of the TWP will be approximately 140 feet above grade, and the tallest stack will be approximately 200 feet. The principal exterior building material will be sheet metal.

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

None.

**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?**

Lighting is provided for construction and operations both day and night.

**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.

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

None.

**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 WTP is under construction.

**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 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:**

None.

**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 nearest public transit stop is approximately 20 miles from the WTP.

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

The WTP will provide 320 parking spaces. The site configuration will eventually change parking during operations, but the actual date of operations is uncertain.

**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).**

Construction of the WTP includes construction of new roads and parking areas. All the new construction is private because the public will not have access to the WTP.

**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.**

Estimates based upon information in the TWRS EIS assume the morning peak hour traffic volume will be approximately 5,600 vehicles.

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

TWRS EIS Volume 1, section 5.20.2 discusses widening Route 4 west of the Wye Barricade.

**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.**

The increased population that might result from construction and operation of the WTP is expected to place added demands on public facilities and services. See Volume 1, TWRS EIS, section 5.6.3.

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

The TWRS EIS does not identify any mitigation measures to reduce or control the impacts of the WTP on public services.

**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 WTP Site. The site has electricity, septic systems, and potable and raw water.

- 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.

When the WTP is operational, water, electricity, sanitary drain fields, radioactively contaminated cooling water treatment will be available. A new substation will provide a capacity of 62.5 megawatts. Diesel fuel and fire water storage will be available at the site. Communications equipment and infrastructure will be available.

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: M. Randolph Brown

Date Submitted: 01-30-2013