

APPENDIX A

FINDING OF NO SIGNIFICANT IMPACT

242-A EVAPORATOR

HANFORD SITE, RICHLAND, WASHINGTON

U.S. DEPARTMENT OF ENERGY

February 2010

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AGENCY: The U.S. Department of Energy.

ACTION: Finding of No Significant Impact.

SUMMARY: The U.S. Department of Energy (DOE) has prepared an Environmental Assessment (EA), DOE/EA-1682, Upgrades and Life Extension of the 242-A Evaporator, Hanford Site, Richland, Washington Conducted Under the *American Recovery and Reinvestment Act (ARRA) of 2009*. The proposed actions analyzed in the EA are within the scope of the recently issued draft Tank Closure & Waste Management Environmental Impact Statement (TC&WM EIS) for the Hanford site, Richland, Washington (DOE/EIS-0391, October 2009) and are referred to as “interim actions.” The DOE prepared this interim action EA before completing the TC&WM EIS process to take advantage of the unique funding opportunity provided by the (ARRA) allowing the DOE to identify actions which can be accelerated and implemented earlier than previously planned. This EA evaluates needed upgrades and life extension activities to the existing 242-A Evaporator. Implementation of the proposed action evaluated in this EA will not prejudice decisions to be made based on the TC&WM EIS or limit the DOE’s choices from among the alternatives evaluated in the EIS.

Based on the analysis in the EA, and considering public comments, the DOE has determined that the proposed action is not a major federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969 (NEPA). Therefore, the preparation of an EIS is not required.

ADDRESSES AND FURTHER INFORMATION:

The EA (DOE/EA-1682) is available at the DOE Public Reading Room, Consolidated Information Center at Washington State University-Tri-Cities, and may be accessed electronically at: <http://www.hanford.gov/rl/?page=86&parent=52>”.

Requests for single copies of the EA or other related information may be referred to:

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PURPOSE AND NEED: The DOE needs to upgrade and extend the service life of the 242-A Evaporator located in the 200 East Area on the Hanford Site. The proposed activities to upgrade and extend the service life of the 242-A Evaporator will support continued operation through 2032. The scope of this “interim action” EA as described in Section 1.0, page 2, was based on ensuring that the activities currently planned for FY2009-2011 and in the current baseline for the Tank Farm Contractor have NEPA coverage pending the publication of the Final TC&WM EIS and its associated Record of Decision (ROD).

BACKGROUND: The 242-A Evaporator facility was constructed between 1974 and 1977. Since 1977, the facility has been used to concentrate liquid waste in order to maximize space used to store mixed waste in 28 Double-shell Tanks (DSTs).

From 1977 through 2008, the evaporator completed more than 60 campaigns with a combined feed volume exceeding 105 million gallons (more than 400 million liters). The campaigns successfully attained volume reductions of more than 67 million gallons of liquids (or about 64 percent). Also, periodically, the evaporator conducts “cold” campaigns that are performed to meet training, testing and operation requirements.

The facility was substantially upgraded in 1987, and from 1989 to 1994, the facility was placed in standby status pending resolution of effluent discharge issues, completion of equipment upgrades, and completion of an Operational Readiness Review. Since 1994, there have been periodic upgrades to equipment to maintain and operate the facility in a manner consistent with its mission.

PROPOSED ACTION: The proposed action involves upgrading and extending the service life of the 242-A Evaporator. There are several activities planned for accomplishing the upgrades and life extension of the 242-A Evaporator as described below:

Replacing the PC-5000 Leak Detection between the 242-A Evaporator and Liquid Effluent Retention Facility (LERF) with a new monitoring system. The new system will have a local panel for maintenance located at the LERF basin instrument building. The new probes will be installed to minimize condensation within the encasement and condensation effects on the equipment (which can activate false alarms). The existing leak detection system will be disconnected and cable removed from the encasement piping. The new system will include the installation of new probes and wire. The activity will include digging up the existing junction boxes near the leak-detection elements (LDE) for removal. Existing conduit will be relocated to above ground junction boxes. This excavation includes trenches for the new conduit routed to

the new above ground junction boxes. There are 5 trenches for the LDE. Each trench is less than 8 ft in length and no deeper than 18in. The sixth leak detector wire will be installed in an existing above ground junction box.

The 242-A Evaporator still has instrumentation from the original construction of the facility that currently needs to be replaced. Work under the proposed action will modify or upgrade the instrumentation such as: flow indicating transmitters, flow transmitters, pressure transmitters, pressure differential transmitters, pressure switches, weight factor transmitters, and density transmitters.

A majority of the heating, ventilation, and air conditioning (HVAC) system components located at the 242-A Evaporator Building are from the original construction of the facility and are in need of upgrading. This activity will modify/upgrade the HVAC exhaust system components to correct its deficiencies and support facility operations. The work will include design, fabrication, installation, testing, startup and turnover of approximately two blowers and approximately three filter trains. Construction activities include: pouring a new slab, installation of three high-efficiency particulate air (HEPA) filter trains, installation of two new exhaust fans, fabrication and installation of a new stack with sampling and monitoring system, fabrication and installation of exhaust ductwork to tie into the existing underground ductwork and exhaust system, and miscellaneous electrical and instrumentation wiring connected to the 242-A facility.

Additionally, all of the activities including those identified in Tables 2 and 3 will be subject to engineering, environmental, and programmatic reviews that may modify the scope of the activity or eliminate them from implementation. However, the TC&WM EIS ROD and subsequent State of Washington permits may result in other activities in the future. The proposed activities to upgrade and extend the service life of the 242-A Evaporator will support continued operation through 2032. Most of the planning and design activities will take place in FY 2009 with procurement and construction planned for 2010. Testing, startup, and turnover will occur in FY 2011.

ALTERNATIVES CONSIDERED: Two alternatives were defined and support this analysis. These alternatives include the proposed action as described above, and the No Action Alternative (as required under NEPA regulations). Other alternatives were not considered in the EA because their selection could prejudice potential decisions to be made based on the TC&WM EIS.

No action: The No Action Alternative to the proposed action would include: no operation, maintenance, or upgrade activities taking place. This alternative would place the Evaporator in cold standby and it would be closed according to a NEPA/State Environmental Protections Act of 1971 (SEPA) analysis and decisions and applicable Washington State permits. There would be no further campaigns to consolidate DST System tank waste. If this alternative is chosen, the 242-A Evaporator facility would be placed in cold standby, thereby directly impacting waste feed delivery to the Waste Treatment Plant and continued retrieval and closure of Single-shell tanks (SST). Selection of the No Action alternative may initiate changes to the Hanford Federal Facility Agreement and Consent Order (HFFACO) milestones for retrieval and treatment of tank waste. The DOE would also be required to prepare a closure plan for the facility under the State Dangerous Waste regulations. Siting, construction, testing, operation and future closure of an alternate means of waste concentration and/or additional double shell storage tanks would be required.

Routine surveillance of the 242-A Evaporator would occur until the DOE and Washington State Department of Ecology (Ecology) decide on the disposition of the facility under applicable state and federal regulations. Cold standby activities would include:

- Completion of any current campaigns
- Flushing systems to minimize residual contamination in vessel and process lines
- Draining water and diesel fuel from lines and tanks
- Isolate and lay up systems for long term standby
- Secure the facility
- Routine surveillance of the facility.

This process is assumed to require approximately six months to complete, using current facility staff and plant forces.

Public Comments/Responses:

Before approval of this EA, a draft version was sent out for public comment. The comments and response to comments have been summarized below:

1. The No Action Alternative: should have included a closure plan. Placing the 242-A in cold standby would trigger the start of closure (require notice of the last receipt of waste), and would require preparation, submittal and approval of a closure plan.

Response: The text has been modified at Page 13, Section 2.2: "Selection of the No Action alternative may initiate changes to the HFFACO milestones for retrieval and treatment of tank waste. The DOE may also be required to prepare a closure plan for the facility under state Dangerous Waste regulations."

2. Additional Alternatives Should be Considered: There are several other viable alternatives that should be considered. While there is little doubt that a major refurbishment is badly needed for continued long-term operation of the 242-A evaporator facility, this document does not explore any alternatives to the refurbishment and long-term operation of that facility.

Response: The DOE continues to consider alternative technologies and facilities that would support the waste management, treatment and closure mission the for tanks. This EA only addresses in the proposed action those actions planned in the near future required to extend the life of the facility through 2032.

3. Support for Cleanup Mission for the 242-A Evaporator: The agreement between the states of Washington and Oregon and the United States government is that the Hanford Nuclear Reservation needs to be shut down completely and permanently. Should the upgrades and life extension of the 242-A Evaporator be necessary for the cleanup and closure of the nuclear site, there are several constraints that should be considered. Fast and effective cleanup should be followed with no new nuclear materials (from the date of the beginning of cleanup, to the present, and forward) being added to the site. No resulting materials from the Evaporator should be used in the future. If these conditions for the 242-A Evaporator cleanup and closure are necessary, the cleanup mission will be supported.

Response: The upgrades and life extension through FY2032 of the 242-A Evaporator is necessary for the cleanup and closure of the Hanford Site. The scope of this “interim action” EA as described in Section 1.0, page 2, was based on ensuring that the activities currently planned for FY2009-2011 and in the current baseline for the Tank Farm Contractor have NEPA coverage pending the publication of the Final TC&WM EIS and its associated ROD.

ENVIRONMENTAL IMPACTS:

Cultural and Biological Resources: It is expected that there would be no adverse effects on cultural resources from the proposed action. In addition, no Federal or State-listed, proposed, candidate, threatened, or endangered species are expected to be affected.

Human Health & Safety Impacts: No significant impacts are expected. Total recordable cases (TRC) rates for the DOE, Richland Operations Office averaged 1.1 cases per 200,000 worker hours during the period from 2003 through 2008, and Days Away from Work or Restricted Days (DART) rates averaged 0.5 per 200,000 worker hours. Comparable average rates over the same period for all the DOE offices and contractors were 1.6 TRC and 0.7 DART cases per 200,000 worker hours. Rates for construction activities at the DOE facilities were slightly higher during the same period, at 1.8 and 0.7 cases per 200,000 worker hours, respectively (DOE 2009). For comparison, rates for U.S. industry during 2003-2007 were 4.6 TRC and 2.4 DART cases per 200,000 worker hours (BLS 2008).

Routine Radiological Exposure Risk: The general population is exposed to radiation from natural sources. The average resident of the United States receives an annual radiation dose from natural sources of about 300 mrem (0.3 rem). Exposure to large amounts of radiation (greater than 200,000 mrem [200 rem]) can cause serious illness or death. Although not confirmed by human studies, exposure to small doses of radiation, such as in medical x-rays, may cause a slight increase in the probability of cancer. At the Hanford Site, the DOE activities have involved manmade radiation sources from nuclear processing. The DOE annual radiation dose standard for the public is 100 mrem (0.1 rem).

When estimating health effects for radiation protection it can be assumed that, for low-level exposures (i.e., less than 20 rem), the risk of one latent cancer fatality is 6×10^{-4} per rem (DOE/EH-412/0015/0802 Rev. 1). For example, if 100,000 people receive a dose of 0.1 rem (100 mrem) or if 1,000,000 people receive a dose of 0.01 rem (10 mrem) six latent cancer fatalities would be expected.

The 242-A Evaporator activities require work in radiation zones. Due to the nature of radiation zone work, the workers could be exposed to and receive an occupational radiological dose from ionizing radiation. The DOE annual limit for occupational exposure is 5,000 mrem (5 rem). Hanford workers are administratively limited to an annual radiation dose of no more than 500 mrem annually, or about one-tenth the occupational exposure limits that are imposed.

Socioeconomic Impacts: The 242-A Evaporator currently employs approximately 40 full-time equivalent staff. The Hanford site as a whole employs on average 10,000 to 11,000 employees. The Proposed Action is not expected to have socioeconomic impacts on surrounding communities (e.g. police, fire, school, and housing resources).

Environmental Justice: Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” (59 FR 7629), directs federal agencies in the Executive Branch to consider environmental justice so that their programs will not have “disproportionately high and adverse human health or environmental effects” on minority and low-income populations. Executive Order 12898 further directs federal agencies to consider effects to “populations with differential patterns of subsistence consumption of fish and wildlife.”

In 2000, approximately 488,900 people resided in the area within an 80-kilometer (50-mile) radius of the facilities in the 200 Areas. Minorities accounted for approximately 37 percent of the total population. Those who identified themselves as Hispanic or Latino accounted for approximately 84 percent of the minority population and 31 percent of the total population. The low-income population during 2000 was approximately 80,800 individuals, or 17 percent, of the total population residing in the 80-kilometer (50-mile) radius of the center of the Hanford Site, approximately the same percentage as the 1990 Census. The majority of these households were located to the southwest and northwest of the Site (Yakima and Grant counties) and in the cities of Pasco and Kennewick (Duncan 2007).

An estimated 160,600 people lived in Benton County and 64,200 lived in Franklin County during 2006, totaling 224,800, an increase of over 17 percent from the Census 2000 figure. During 2006, Benton and Franklin counties accounted for 3.5 percent of Washington’s population (Duncan 2007).

The proposed action would not have disproportionately high or adverse health or socioeconomic impacts on minority or low-income populations. There would also be no substantial impact to the natural or human environment of the Hanford Site or the surrounding communities.

Cumulative Impacts: Cumulative environmental impacts were considered but no significant cumulative impacts are expected from implementation of the proposed action.

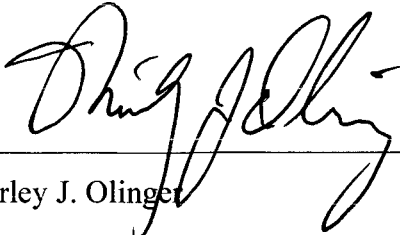
MITIGATION OF ENVIRONMENTAL IMPACTS:

There are no impacts to ecological/cultural resources, any potential for an unplanned release will be appropriately mitigated and managed consistent with existing Hanford Site plans and procedures, including the Biological Resources Management Plan. Any potential health and safety risks encountered while implementing the proposed action would be managed in accordance with existing Hanford Site health and safety policies and procedures, with special measures taken as necessary to reduce the risks from working at the 242-A Evaporator.

DETERMINATION:

Based upon the analyses of potential environmental impacts in the final EA and considering the public comments received on the draft EA, the DOE concludes that the proposed action to upgrade and extend the life of the 242-A Evaporator does not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of NEPA. Therefore, an EIS for the proposed action is not required. Within this determination, the DOE can proceed with the upgrades and life extensions to the 242-A Evaporator.

Issued in Richland, Washington, this 3rd day of FEBRUARY, 2010.



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