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Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

18-AMRP-0125

JUL 1 2 2018

Ms. Alexandra K. Smith, Program Manager
Nuclear Waste Program
Washington State Department of Ecology
3100 Port of Benton Boulevard
Richland, Washington 99354

Dear Ms. Smith:

REQUEST FOR TEMPORARY AUTHORIZATION TO IMPLEMENT THE CLASS 3 PERMIT MODIFICATION REQUEST FOR THE PUREX STORAGE TUNNELS CLOSURE UNIT GROUP 19 TO ALLOW INTERIM CLOSURE ACTIVITIES FOR PUREX TUNNEL NUMBER 2

The U.S. Department of Energy Richland Operations Office is requesting a Temporary Authorization (TA) from the Washington State Department of Ecology to implement the previously submitted Class 3 Permit Modification Request for the Plutonium Uranium Extraction Plant (PUREX) Storage Tunnels Closure Unit Group 19 Permit to allow grouting activities for PUREX Tunnel Number 2, (18-AMRP-0051) dated February 8, 2018.

This letter transmits the TA request for PUREX Storage Tunnels on the Hanford Site that meets the criteria of Washington Administrative Code 173-303-830(4)(e)(iii) (B)(I) to commence interim closure activities and 173-303-830(4)(e)(iii)(B)(V) to protect human health and the environment. The temporary authorization is requested for a full term of 180 days. The TA is needed to stabilize Tunnel Number 2 by commencing the placement of grout in the tunnel. Authorization is requested by July 23, 2018.

If you have any questions, please contact me or your staff may contact Joe Franco, Assistant Manager for the River and Plateau, on (509) 373-9971.

Sincerely,

Doug S. Shoop
Manager

AMRP:DBC

Attachments:
1. Plutonium Uranium Extraction Plant (PUREX) Storage Tunnels Closure Unit Group 19 Temporary Authorization Request, REG-0933, Revision 0
2. Section 11.5.6, excerpted from "Hanford Facility Dangerous Waste Class 3 Permit Modification Request to Update the Closure and Financial Assurance Chapter and Supporting Documents for the Plutonium Uranium Extraction (PUREX) Storage Tunnels Operating Unit Group," 18-AMRP-0051, dated February 8, 2018

cc w/attachs:
D. B. Bartus, EPA
J. Bell, NPT
R. Buck, Wanapum
L. J. Cusack, CHPRC
S. L. Dahl-Crumpler, Ecology
D. R. Einan, EPA
M. N. Jaraysi, CHPRC
M. Johnson, CTUIR
R. Longoria, YN
K. Niles, ODOE
D. Rowland, YN
S. N. Schleif, Ecology
D. G. Singleton, CHPRC
B. L. Weese, Ecology
Administrative Record (TSD: S-2-1)
Ecology NWP Library
Environmental Portal
HF Operating Record (J. K. Perry, MSA)

Attachment 1

PLUTONIUM URANIUM EXTRACTION PLANT (PUREX) STORAGE TUNNELS CLOSURE UNIT GROUP 19 TEMPORARY AUTHORIZATION REQUEST, REG-0933, REVISION 0

REG-0933
Revision 0

PLUTONIUM URANIUM EXTRACTION PLANT (PUREX) STORAGE TUNNELS CLOSURE UNIT GROUP 19 TEMPORARY AUTHORIZATION REQUEST

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Contractor for the U.S. Department of Energy
under Contract DE-AC06-08RL14788

CH2MHILL
Plateau Remediation Company

P.O. Box 1600
Richland, Washington 99352

REG-0933
Revision 0

PLUTONIUM URANIUM EXTRACTION PLANT (PUREX) STORAGE TUNNELS CLOSURE UNIT GROUP 19 TEMPORARY AUTHORIZATION REQUEST

D. G. Singleton
CH2M HILL Plateau Remediation Company

Date Published
June 2018

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Contractor for the U.S. Department of Energy
under Contract DE-AC06-08RL14788

CH2MHILL
Plateau Remediation Company
P.O. Box 1600
Richland, Washington 99352

APPROVED
By Julia Raymer at 4:33 pm, Jun 19, 2018

Release Approval | Date

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Plutonium Uranium Extraction (PUREX) Storage Tunnels

The U.S. Department of Energy (DOE), Richland Operation Office (RL) and CH2M HILL Plateau Remediation Company (CHPRC) (hereinafter referred to as the Permittees) are requesting that the Washington State Department of Ecology (Ecology) grant a temporary authorization to implement a previously submitted Class 3 Permit Modification Request to the PUREX Storage Tunnels Closure Unit Group 19 Permit to allow interim closure activities for Tunnel Number 2.

These changes have been discussed with Ecology, and interim closure activities for Tunnel Number 2 were identified as actions necessary to address the high potential for a collapse of Tunnel Number 2.

This attachment reiterates the temporary authorization requirement outlined in WAC 173-303 **in bold** and provides the required information. To allow interim closure activities to commence in support of Tunnel Number 2 grouting activities, we request authorization by July 23, 2018.

WAC 173-303-830(4)(e) Temporary Authorizations.

(i) Upon request of the permittee, the director may, without prior public notice and comment, grant the permittee a temporary authorization in accordance with this subsection. Temporary authorizations must have a term of not more than one hundred eighty days.

The Permittees are requesting a temporary authorization for a full term of 180 days. The temporary authorization is needed so the Permittees can commence interim closure activities at Tunnel Number 2.

(ii)(A) The permittee may request a temporary authorization for:

(II) Any Class 3 modification that meets the criteria in (e)(iii)(B)(I) or (II) of this subsection or that meets the criteria in (iii)(B)(III) through (V) of this subsection and provides improved management or treatment of a dangerous waste already listed in the facility permit.

The Permittees are requesting a temporary authorization that meets the criteria of WAC 173-303-830(4)(e)(iii)(B)(I), to commence the interim closure activities and WAC 173-303-830(4)(e)(iii)(B)(V) to protect human health and the environment.

The temporary authorization to implement this change will allow commencement of Tunnel Number 2 interim closure activities. The grouting activities for Tunnel Number 2 are needed to support Tunnel Number 2 interim closure activities.

(ii)(B) The temporary authorization request must include:

(I) A description of the activities to be conducted under the temporary authorization;

Specific activities included in the temporary authorization request are described in Section 11.5.6 of the PUREX Storage Tunnels Closure Unit Group 19 Class 3 Permit Modification Request (Revision 1) enclosed in this transmittal letter as Attachment 2. These activities include:

- Installation of the grout delivery system into existing tunnel risers
- Placement of grout

(ii)(B) The temporary authorization request must include:

(II) An explanation of why the temporary authorization is necessary

The grouting activities for Tunnel Number 2 are needed to stabilize the tunnel and minimize the current high risk of collapse.

(ii)(B) The temporary authorization request must include:

(III) Sufficient information to ensure compliance with the standards in WAC 173-303-280 through 173-303-395 and WAC 173-303-600 through 173-303-680

The requirements addressed in WAC 173-303-280 through WAC 173-303-395 and WAC 173-303-600 through WAC 173-303-680 cover a wide range of facilities that store, treat, or dispose of dangerous wastes. The applicable sections are addressed either through specific requirements in the Closure Plan or through existing PUREX Storage Tunnel programs and procedures that address compliance with the Final Status Standards and, consequently, address these requirements as well.

(ii)(C) The permittee must send a notice about the temporary authorization request to all persons on the facility mailing list maintained by the director and to appropriate units of state and local governments as specified in WAC 173-303-840(3)(e)(i)(D). This notification must be made within seven days of submission of the authorization request.

Permit Condition I.C.3.c allows for the use of Hanford Federal Facility and Consent Order Community Relations Plan publications and/or list servers for public involvement to satisfy the notification requirements for temporary authorization requests required under WAC 173-303-830(4)(e)(ii)(C). The public notice for the temporary authorization request will be issued within 7 days after transmittal of the request to Ecology.

Attachment 2

SECTION 11.5.6, EXCERPTED FROM "HANFORD FACILITY DANGEROUS WASTE CLASS 3 PERMIT MODIFICATION REQUEST TO UPDATE THE CLOSURE AND FINANCIAL ASSURANCE CHAPTER AND SUPPORTING DOCUMENTS FOR THE PLUTONIUM URANIUM EXTRACTION (PUREX) STORAGE TUNNELS OPERATING UNIT GROUP," 18-AMRP-0051, DATED FEBRUARY 8, 2018

11.5.6 Interim Closure of Tunnel Number 2

Interim closure of Tunnel Number 2 will be completed as described in the following sections. Following completion of interim closure, an extended closure period will commence and the tunnel will be monitored and maintained until final closure.

11.5.6.1 Records Review

The structural evaluation conducted for Tunnel Number 2 reviewed tunnel drawings and specifications as well as structural properties of the tunnel components and adjacent soil. The structural evaluation is described in Chapter 4, *Process Information*, Appendix 4B. Tunnel inventory as described in Chapter 3, *Waste Analysis Plan*, was also reviewed to identify dangerous waste constituents within Tunnel Number 2.

11.5.6.2 Site Preparation

The Tunnel Number 2 area will be prepared to enable the safe insertion of the engineered grout while limiting the risks to the workers and the environment. Roads required for the grout trucks will be prepared to provide a stable platform to deliver the grout. The path of the trucks will be designed to limit the potential for interfering with the normal traffic patterns of the area. A site plan for Tunnel Number 2 activities is shown in Figure 11.8.

Additionally, investigative work was performed to verify the assumptions utilized in the engineering design process. This included removing a 3-inch plug in an existing 30-inch tunnel riser plug to enable samples to be taken in the interior of the tunnel and ensuring the main plug can be removed. These samples included industrial hygiene (e.g., flammable gas, volatile organics, or hazardous materials) and radiological samples to determine the status of the atmosphere and the potential for radiation exposure from both direct radiation and airborne. The 30-inch plugs on the risers that will be utilized for grout insertion were pulled and put back in place to confirm the plugs could be removed. The investigation also revealed that the length and configuration of some of the railcars was different than previously assumed. The artist's rendition of Tunnel Number 2, shown in Figure 4.2 and Figure 11.11, show the updated configuration.

11.5.6.3 Modifications made prior to stabilization

Modifications will be required to prepare the tunnel for the insertion of the grout. Plugs in existing riser positions that will be utilized during the grouting process will be removed. The plug will then be replaced with an engineered replacement to allow grout insertion as well as provide locations for cameras and necessary lighting (Figures 11.9 and 11.10). Work on the tunnel is being done using lifts and cranes. No work platform is required.

Additionally, a riser will be modified to connect the ventilation system to capture the air expelled from the tunnel during the grouting activities. Projected riser locations for cameras, lighting, and ventilation equipment is shown in Figure 11.11.

A passive ventilation system skid similar to that used for Tunnel Number 1 will be utilized to filter air discharged from the tunnel during grouting (Figure 11.6). The system will be designed in accordance with the Hanford Site Air Operating Permit (AOP 00-05-006).

11.5.6.4 Stabilization Activities

The stabilization activities for Tunnel Number 2 are described in the following sections. To the extent possible, materials and process used for stabilization of Tunnel Number 1will be used for Tunnel Number 2.

11.5.6.4.1 Grout Design

The grout design that will be utilized for Tunnel Number 2 will be similar to the grout that was utilized in Tunnel Number 1 with the only difference being Type I/II cement will be utilized in Tunnel 2 instead of Type III. Functional requirements and formulation are of the grout shown in Section 11.5.5.4.1.

11.5.6.4.2 Grout Delivery

The grout will be delivered through the modified riser plugs located along the top of the tunnel. To prevent loading the top of the tunnel, the piping will be a goose-neck type delivery system located off the tunnel surface (Figure 11.12). The piping will be connected to the modified riser plug shown in Figures 11.9 and 11.10 utilizing industrial concrete rubber hose. The projected location for grout insertion is shown in Figure 11.11. This will limit the load on the tunnel while enabling the grout insertion into the tunnel.

11.5.6.4.3 Grout Placement

It is estimated that Tunnel 2 will require approximately 43,000 cubic yards to stabilize. The grout will be placed in the tunnel in layers. The layers will be small enough to prevent the possibility of creating a buoyant force to lift the equipment on the railcars in the tunnel. It will be delivered in multiple locations to ensure the grout flows and covers the entire tunnel.

A ventilation skid with a passive HEPA filter system will be connected to one of the risers. This will enable the air in the tunnel to escape through a filtered media to prevent the release of airborne contamination. The skid will have equipment to collect the condensate from the system.

During the evolution to grout the tunnel, standard radiological controls will be utilized to prevent the release and/or spread of contamination. This may include the use of sleeving, glovebags, negative air machines, etc. The type of control will be selected based on the risk of the work being performed and the potential for a release. Quality control testing will be conducted during grout placement in the same manner used for Tunnel Number 1 as described in Section 11.5.5.4.1. Grout that does not meet the grout design standards listed in Section 11.5.5.4.1 will be returned to the vendor and will not be used for the tunnel.