

October 2006

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**CHAPTER 11.0**  
**CLOSURE AND FINANCIAL ASSURANCE**

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## 1 **11.0 CLOSURE AND FINANCIAL ASSURANCE**

2 Closure of the PUREX Storage Tunnels requires coordination with closure of the PUREX Plant to ensure  
3 a cost effective closure for both units. In addition, the nature of the mixed waste located within the  
4 PUREX Plant and PUREX Storage Tunnels precludes the determination of the type of treatment and/or  
5 disposition of the waste at this time.

6 The PUREX Storage Tunnels will be managed as a RCRA storage unit until closure can be coordinated  
7 with the final closure plan for the PUREX Plant. The PUREX Storage Tunnels closure plan will be  
8 submitted after any required National Environmental Policy Act of 1969 documentation and land usage  
9 agreements, which initiate disposition and aid in identifying or developing necessary disposition  
10 activities, have been adopted. The PUREX Storage Tunnels closure plan will be submitted for Ecology  
11 approval with the PUREX Plant closure plan.

12 The PUREX Storage Tunnels closure plan will be written to meet the requirements of [WAC 173-303-140](#)  
13 and [WAC 173-303-610](#). This closure plan might consider but will not be limited to the following options  
14 for either in situ disposal or retrieval/clean closure of this unit.

15 Federal facilities are not required to comply with [WAC 173-303-620](#) as is stated in the regulations and as  
16 described in Hanford Facility RCRA Permit, WA7890008967 (Permit) Condition II.H.3.

### 17 **11.1 In Situ Disposal Options**

18 This closure plan might consider but will not be limited to the following options for in situ disposal of  
19 waste in this unit.

#### 20 **11.1.1 Backfilling the PUREX Storage Tunnels with Gravel**

21 This option could involve backfilling the tunnels with gravel to eliminate void space and prevent ground  
22 subsidence. A modified commercially available centrifugal rock-throwing device could be placed in  
23 newly constructed risers evenly spaced along each tunnel roof. Fill material could be supplied and  
24 dispersed into the tunnels by automated controls. Following the fill process, all equipment could be  
25 removed from the tunnel roofs and all means of access to the tunnels could be permanently sealed. Final  
26 activities could involve the construction of a final surface barrier that meets RCRA landfill cover  
27 requirements to prevent water from leaching mixed waste contained in the tunnels.

#### 28 **11.1.2 Injecting the PUREX Storage Tunnels with Grout**

29 This option could involve the injection of grout material into each tunnel to stabilize and immobilize  
30 contained materials and prevent ground subsidence. A grout injector could be alternately placed in  
31 newly constructed risers evenly spaced along each tunnel roof. Grout material could be supplied and  
32 dispersed into the tunnels by automated controls. The grout material could be injected in lifts to  
33 accommodate curing and heat dissipation normally associated with the use of this type of material. Final  
34 activities could involve the construction of a final surface barrier that meets RCRA landfill cover  
35 requirements to prevent water from leaching mixed waste contained in the tunnels.

#### 36 **11.1.3 Combination of Grout Injection and Backfilling**

37 This option combines grout injection with gravel backfilling similar to the processes discussed  
38 previously. Grout could be injected first to fill void spaces under the railcars and provide a basal  
39 structure. Gravel could be dispersed to fill remaining void space and prevent ground subsidence. Final  
40 activities could involve the construction of a final surface barrier that meets RCRA landfill cover  
41 requirements to prevent water from leaching mixed waste contained in the tunnels.

### 42 **11.2 Retrieval/Clean Closure Options**

43 This closure plan might consider but will not be limited to the following options for retrieval/clean  
44 closure of this unit.

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1 **11.2.1 Retrieval and Disposal in the PUREX Plant**

2 Railcars stored in both tunnels could be remotely retrieved one at a time and moved beneath the  
3 horizontal door of the railroad tunnel extension for remote viewing, and if possible, characterization.  
4 Transfer procedures could be initiated to move waste material from the railcars to the PUREX Plant  
5 canyon deck area. Following transfer of the waste material, the railcars could be decontaminated and  
6 removed for final disposition at other onsite units. Final disposition of the waste transferred to the  
7 canyon deck area could be in accordance with PUREX Plant closure documentation. The PUREX  
8 Storage Tunnels could be closed after submittal and implementation of a PUREX Storage Tunnels  
9 closure plan in conjunction with PUREX Plant closure documentation. The PUREX Storage Tunnels  
10 closure plan will detail verification sampling and analysis to be performed as a part of closure activities.

11 **11.2.2 Retrieval and Physical Processing (size reduction) in the PUREX Plant and**  
12 **Subsequent Disposal**

13 Retrieval of waste material stored in the tunnels could be similar to that described in the previous section.  
14 Once the waste material was transferred to the PUREX Plant canyon deck area, characterization and size  
15 reduction of waste material could proceed. An area located on the canyon deck or in a process cell could  
16 be modified to include all necessary equipment to perform characterization and size reduction activities.  
17 Size reduction could be performed through various technologies that include, but are not limited to, flame  
18 cutting, water jet cutting, sawing, or other technologies. Final disposition of the processed waste  
19 material either onsite or offsite could be in accordance with regulations and procedures in place at that  
20 time. The PUREX Storage Tunnels could be closed after submittal and implementation of a PUREX  
21 Storage Tunnels closure plan in conjunction with PUREX Plant closure documentation. The PUREX  
22 Storage Tunnels closure plan will detail verification sampling and analysis to be performed as a part of  
23 closure activities.

24 **11.2.3 Construction of a New Facility for Retrieval, Processing, and Treatment of**  
25 **Equipment for Disposal**

26 This option involves the construction of a new unit that is either mobile or stationary to excavate,  
27 retrieve, and treat waste material stored in the tunnels. The unit could be constructed in a manner  
28 consistent with the retrieval and handling requirements for large, contaminated waste material.  
29 Following retrieval, the waste material could be treated in accordance with final onsite or offsite  
30 disposition requirements identified at such time. The excavated tunnels could have a temporary surface  
31 barrier placed in position until verification and sampling analysis could be performed as a part of closure  
32 activities to be performed in conjunction with PUREX Plant closure.