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**FACT SHEET**  
**PART V CLOSURE UNIT GROUP 15, TREATMENT, STORAGE, AND DISPOSAL UNIT**  
**241-CX TANK SYSTEM**

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1 **FACT SHEET**

2 **PART V CLOSURE UNIT GROUP 15, TREATMENT, STORAGE, AND DISPOSAL UNIT**

3 **241-CX TANK SYSTEM**

4 **UNIT DESCRIPTION**

5 The 241-CX Tank System is a unit with three below-grade tanks and associated ancillary equipment (mostly  
6 piping). The 241-CX Tank System is located in the 200 East Area. The three tanks operated from 1952 to  
7 1958 to support the Reduction-Oxidation Plant (REDOX) and Plutonium-Uranium Extraction Plant (PUREX)  
8 process pilot studies.

9 The tanks received liquid waste from the 201-C Process Building and Hot Shop at the Hot Semiworks Facility  
10 via underground piping.

- 11 • Tank 241-CX-70 operated for about one year in 1952 and 1953 to support the REDOX process.
- 12 • Tank 241-CX-71 operated from 1952 to 1957 to support the REDOX process.
- 13 • Tank 241-CX-72 operated for about one year in 1957 and 1958 to support the PUREX process.

14 All of the 241-CX tanks received waste from the 201-C Process Building. Only tank 241-CX-71 received  
15 liquid waste from Hot Shop sink drains.

16 In 1967, the Hot Semiworks Facility (including the 201-C Process Building and Hot Shop) was permanently  
17 removed from service. The 241-CX tanks and waste transfer piping remain in place, but have been isolated  
18 physically by cutting and permanently sealing off the pipe ends. As a part of the Hot Semiworks Facility  
19 decommissioning, the tanks were verified as physically isolated as of 1985.

20 Tank 241-CX-70 contains only waste residues. Tanks 241-CX-71 and 241-CX-72 contain waste overlain  
21 with grout that was added in 1986 for stabilization. A containment building is in place over tank 241-CX-72.

22 **Tank 241-CX-70**

23 This tank is a cylindrical concrete vessel, 6.1 meters (20 feet) around and 4.6 meters (15 feet) tall. Its walls  
24 and top are constructed of 30.5 centimeters (12 inches) thick concrete. The bottom is 0.6 meter (2 feet) thick  
25 at the edges, tapering to 22.9 centimeters (9 inches) in the center. Tank 241-CX-70 is lined with 0.64  
26 centimeter (1/4-inch) stainless steel. The design capacity is 114,000 liters (30,000 gallons).

27 The estimated annual quantity of waste stored in this tank was approximately 8,630 kilograms (19,000  
28 pounds). The tank top is approximately 3.4 meters (11 feet) below grade, with nine vertical risers generally  
29 extending above grade. It has a 107 centimeters (42-inches) manway, with a concrete cover. Waste entered  
30 the tank through two horizontal 5 centimeters (2-inches) diameter stainless steel waste feed lines at the side of  
31 the tank.

32 **Tank 241-CX-71**

33 This tank is a cylindrical vessel constructed of stainless steel. It was constructed on a reinforced concrete  
34 foundation pad. This tank is approximately 1.5 meters (5 feet) in diameter, approximately 2.1 meters (7  
35 feet) high. The tank top is approximately 1.1 meters (3.5 feet) below grade. The design capacity of the  
36 tank is approximately 3,785 liters (1,000 gallons).

37 The estimated annual quantity of waste stored in this tank was approximately 15,000 kilograms (33,400  
38 pounds). It currently has a bottom layer of sludge containing approximately 3,400 liters (900 gallons) of  
39 mixed waste, and limestone used as a neutralizing agent. The remainder of the tank was filled with  
40 low-density grout to stabilize the tank.

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1 **Tank 241-CX-72**

2 This tank is a cylindrical vessel made of carbon steel. The tank measures 101.6 centimeters (40 inches)  
3 around and approximately 10.7 meters (35 feet) long. The tank is enclosed in a 1.8 meters (6-foot) diameter  
4 caisson made of carbon steel placed on thick reinforced concrete base pad. The design capacity is 8,860 liters  
5 (2,340 gallons).

6 The estimated annual quantity of waste stored by this tank was approximately 8,870 kilograms  
7 (19,530 pounds). The tank top is approximately 4.2 meters (14 feet) below grade. The 241-CX-72 tank  
8 stores 8,725 liters (2,305 gallons) of mixed waste. Low-density grout was injected through the 20.3  
9 centimeters (8-inches) risers over approximately 3.4 meters (9.5 feet) of sludge, filling the tank with grout. A  
10 6.1 by 14.6 by 6.1 meters (20- by 48- by 20-foot) tall containment structure on a 6.7 by 14.6 meters (22- by  
11 48-foot) reinforced concrete pad was placed over tank 241-CX-72.

12 **Ancillary Equipment**

13 The ancillary equipment (mostly piping) associated with the 241-CX Tank System consists of the following:

- 14 • About 43.9 meters (144 feet) of pipeline associated with tank 241-CX-70 will be excavated for  
15 removal and disposal. This piping is about 4.0 meters (13 feet) deep below grade at the tank location  
16 and up to 7.3 meters (24 feet) deep beneath the stabilization cover.
- 17 • About 21.9 meters (72 feet) of pipeline associated with tank 241-CX-71 will be excavated for  
18 removal and disposal. This piping is buried about 0.9 meters (3 feet) below grade at the tank location  
19 and up to 4.0 meters (13 feet) deep beneath the stabilization cover.
- 20 • About 49.4 meters (162 feet) of pipeline associated with tank 241-CX-72 will be excavated for removal  
21 and disposal. Much of the tank 241-CX-72 piping is co-located with tank 241-CX-70 piping and will be  
22 removed concurrently with 241-CX-70 piping. This piping is buried about 4.3 meters (14 feet) below  
23 grade at the tank and up to 7.3 meters (24 feet) deep beneath the stabilization cover.

24 **TYPE AND QUANTITY OF WASTE**

25 The nature and quantity of mixed waste previously managed through 241-CX-70 and 241-CX-71 tanks of this  
26 waste site are known, and identified on the Part A form. However, sufficient information is not available to  
27 clearly establish that tank 241-CX-72 waste would be designated a mixed waste. Tank 241-CX-72 contents  
28 will undergo sampling and analysis intended to identify the tank waste characteristics and classify the  
29 appropriate waste designation on the tank contents.

30 Dangerous waste constituents in the 241-CX Tank System include arsenic, barium, cadmium, cyanide,  
31 chromium (VI), cyanide, lead, mercury (inorganic), nitrate, selenium, silver, and pH for corrosivity.

32 **BASIS FOR PERMIT CONDITIONS**

33 Tri-Party Agreement Milestone M-037-10 required the Permittees to submit a revised closure plan before the  
34 final closure of the 241-CX Tank System. Milestone M-037-10 requires the unit's closure to be complete by  
35 September 30, 2020.

36 **CLOSURE AND POSTCLOSURE**

37 If clean closure in accordance with [WAC 173-303-640\(8\)](#) cannot be achieved, and then final closure of  
38 the 241-CX Tank System may be coordinated with the remedial actions associated with implementation  
39 of the 200-IS-1 Operable Unit (OU) final remedy in the 200 Area. If groundwater cleanup is necessary, it  
40 will be coordinated with the 200-BP-5 OU as outlined in the Tri-Party Agreement Action Plan, Section  
41 5.5, and in accordance with the schedule in Milestone M-037-10.

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1 **Closure Activities**

2 The Permittees plan to clean close the 241-CX Tank System and meet Closure Performance Standards per  
3 [WAC 173-303-610\(2\)](#). Since the 241-CX Tank System is a tank system that does not have secondary  
4 containment, [WAC 173-303-640\(8\)\(c\)](#) requires the Permittees to submit a contingent closure plan and a  
5 contingent post-closure plan with the closure plan. This requirement is captured in Conditions V.14.B.1.  
6 The closure of the 241-CX Tank System will be coordinated with final CERCLA remedial actions in the  
7 200 Area. Cleanup will be coordinated in the manner outlined in the Tri-Party Agreement Action Plan,  
8 Section 5.5, and in accordance with Milestone M-037-10. [WAC 173-303-610(5)]

9 Condition V.15.B.1 requires the submittal of a revised closure plan, since the original submitted did not  
10 meet all of the closure requirements under [WAC 173-303-610\(3\)](#) and [WAC 173-303-640\(8\)](#). The  
11 Permittees will comply with requirements for the closure of a tank system per [WAC 173-303-640\(8\)](#) and  
12 the closure requirements of WAC 173-303-610(5) for cleanup of underlying soils. The Permittees will  
13 not have to implement a groundwater monitoring plan until it has been determined that the 241-CX Tank  
14 System cannot be clean closed to meet the Closure Performance Standards of WAC 173-303-610(2).

15 **Potential Risks to Human Health and the Environment**

16 The Permittees plan to dispose of the contents of the tank system, along with contaminated soils, into  
17 ERDF, or an appropriately permitted TSD landfill. The Permittees plan to clean close the unit. To do  
18 this the Permittees must meet closure performance standards in WAC 173-303-610 for Closure and Post-  
19 Closure.

20 **Groundwater**

21 The Permittees plan to clean close the 241-CX Tank System and meet Closure Performance Standards per  
22 [WAC 173-303-610\(2\)](#), with no groundwater monitoring plan required, as specified in Condition II.F.2. In  
23 case the 241-CX Tank System cannot meet the clean closure standards, a contingency closure plan and  
24 compliance with [WAC 173-303-645](#) for groundwater monitoring requirements and coordination with  
25 CERCLA requirements of the 200-BP-5 OU will be followed.

26 **RECORDKEEPING AND REPORTING**

27 Since records for the 241-CX-Tank System are minimal, a record keeping and a reporting addendum not  
28 necessary. Condition II.I.2 requires the Permittees to maintain a Hanford Facility Operating Record.

29 **SECURITY**

30 The 241-CX Tank System is within the secured area of Hanford. Access to the unit is subject to the  
31 general security provision of Condition II.L. Security provisions, access controls, and signage specific to  
32 this closure unit will comply with the requirements of WAC 173-303-310.

33 **CONTINGENCY PLAN**

34 Because the 241-CX Tank System is no longer in operation, a unit-specific contingency plan is not  
35 needed. However, to ensure a safe working environment for Hanford Site personnel and protect public  
36 health and the environment during closure of the 241-CX Tank System, the Permittees must follow  
37 contingency planning and emergency management requirements for Hanford. Condition II.A describes  
38 the requirements for facility contingency planning and refers to the requirements of Permit Attachment 4,  
39 *Hanford Emergency Management Plan*.

40 **INSPECTIONS**

41 The inspection schedule is contained in Addendum I. Since this TSD unit is in an inactive state,  
42 inspections will be conducted annually. In the event of any potential threats to human health or the  
43 environment, the Permittees will increase inspections to quarterly until the threats are removed.

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1 **TRAINING**

2 The Permittees will include the training requirements established in Addendum G in a written training  
3 plan, as required by Condition II.C.1 and [WAC 173-303-330](#)(2)(a) and (b). The plan will include the job  
4 classifications identified for the 241-CX Tank System closure work.

5 **REQUESTED VARIANCES OR ALTERNATIVES**

6 Condition V.15.B.1 requires a schedule for submitting a revised closure plan. The schedule is justified  
7 because the removal and remediation work will take longer than the 180 days required by [WAC 173-303-](#)  
8 [610](#) (4)(b) (Closure and Post-Closure).

9 **STATE ENVIRONMENTAL POLICY ACT (SEPA) DETERMINATION**

10 The SEPA determination for this unit is in the Hanford-Wide Permit Fact Sheet.

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