PART III, OPERATING UNIT GROUP 4 PERMIT CONDITIONS

242-A EVAPORATOR

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PART III, OPERATING UNIT GROUP 4 PERMIT CONDITIONS
242-A EVAPORATOR

UNIT DESCRIPTION

The 242-A Evaporator (Operating Unit Group 4) is a mixed waste treatment and storage unit consisting of a conventional forced circulation, vacuum evaporation system used to concentrate mixed waste solutions from the double-shell tank (DST) system. The 242-A Evaporator began waste management operations in March, 1977. The 242-A Evaporator is located in the 200 East Area of the Hanford Facility. It treats the mixed waste from DST System by removing water and most volatile organics. Tank 241-AW-102 is designated as the feed tank to the 242-A Evaporator. Two waste streams leave the 242-A Evaporator following the treatment process. The first stream, the concentrated slurry (approximately 40 to 60 percent of water is removed during evaporation along with a portion of volatile organics), is pumped back into the DST System. The second waste stream, process condensate (containing a portion of the volatile organics removed from the mixed waste during the evaporation process), is routed through condensate filters before release to a dangerous waste permitted retention basin (Liquid Effluent Retention Facility). Off-gasses from the process are routed through a de-entrainment unit, a pre-filter, and high-efficiency particulate air filters before being discharged to the environment. The 242-A Evaporator is used to treat up to 870,642 liters (230,000 gallons) of mixed waste per day.

Tank C-100, a 4.3-meter (14-foot) diameter and 5.9-meter (19-foot) high tank with a maximum design capacity of 67,380 liters (17,800 gallons) is located in the condensate room. Process condensate from the primary, inter- and after-condensers drain by gravity to tank C-100, constructed of stainless steel. In addition, tank C-100 receives potentially contaminated drainage from the vessel vent system via a 102 - liter (27 gallon) seal pot.

Tank C-A-1 is located in the evaporator room and consists of two sections: the lower (liquid) section, a 4.3-meter (14-foot) diameter stainless steel shell, and an upper (vapor) section, a 3.5-meter (11.6-foot) diameter stainless steel shell, containing two wire-mesh de-entrainment pads for the removal of liquids and solids that could be carried into the vapor header. Process slurry from the re-boiler discharges to the evaporator vessel (tank C-A-1). Concentrated process slurry exits the lower section of tank C-A-1 via the 28-inch re-circulating line. Vapor flows out of tank C-A-1 through a 42-inch vapor line at the top.

The location and equipment layout of the 242-A Evaporator is shown in the figures included in Permit Addendum A.

LIST OF ADDENDA SPECIFIC TO OPERATING UNIT GROUP 4

Addendum A	Part A Form, dated October 1, 2008
Addendum B	Waste Analysis Plan
Addendum C	Process Information
Addendum D	Groundwater RESERVED
Addendum E	Security Requirements
Addendum F	Preparedness and Prevention
Addendum G	Personnel Training
Addendum H	Closure Plan
Addendum I	Inspection Requirements
Addendum J	Contingency Plan

DEFINITIONS SPECIFIC TO OPERATING UNIT GROUP 4

Reserved

ACRONYMS SPECIFIC TO OPERATING UNIT GROUP 4

Reserved

III.4.A COMPLIANCE WITH UNIT SPECIFIC PERMIT CONDITIONS

III.4.A.1 The Permittees will comply with all conditions in this Chapter and its addenda with respect to dangerous waste management and dangerous waste management units in Operating Unit Group 4 (242-A Evaporator), in addition to applicable requirements in Permit Parts I and II.

III.4.B GENERAL WASTE MANAGEMENT STANDARDS

III.4.B.1 The Permittees are authorized to accept, according to the requirements of Addendum B, Waste Analysis Plan, dangerous and/or mixed waste for treatment in Operating Unit Group 4 dangerous waste management units. [WAC 173-303-300]

III.4.B.2 The Permittees are authorized to treat dangerous/mixed waste identified in Permit Condition III.4.B.1 according to the requirements of this Chapter.

III.4.B.3 The Permittees will maintain the physical structure of the 242-A Evaporator as documented in the applicable sections of Permit Addendum C, Process Information. [WAC 173-303-640(2), WAC 173-303-640(3), WAC 173-303-640(4)]

III.4.B.4 The Permittees will maintain and operate systems for the 242-A Evaporator as documented in applicable portions of Permit Addendum C, Section C.1. as necessary for proper operation of the 242-A Evaporator, compliance with conditions of this Permit, and protection of human health and the environment. For purposes of this Permit condition, the Monitor and Control System documented in Permit Addendum C, Section C.0, is considered to include all indicators, sensors, transducers, actuators and other control devices connected to but remote from the centralized monitor and control system (MCS) computer.

III.4.C WASTE ANALYSIS

III.4.C.1 The Permittees will comply with requirements in Addendum B, Waste Analysis Plan, for sampling and analysis of all dangerous and/or mixed waste required by Permit conditions in this Chapter. [WAC 173-303-300]

III.4.C.2 The Permittees will have an accurate and complete waste profile as described in Addendum B, Waste Analysis Plan, Section B.2.1.2, for every waste stream accepted by the 242-A Evaporator. [WAC 173-303-380(1)(a)(b)]

III.4.C.3 The Permittees will place a copy of each waste profile required by Permit Condition III.4.C.2, in the Hanford Facility Operating Record, 242-A Evaporator file required by Permit Condition II.I.2. [WAC 173-303-380(1)(a)(b)]

III.4.C.4 The Permittees will make a copy of the waste profile required by Permit Condition III.4.C.2, available upon request by Permit Condition II.I.2. [WAC 173-303-380(1)(a)(b)]

III.4.C.5 Records and results of waste analysis required by Addendum B, Waste Analysis Plan, will be maintained in the Hanford Facility Operating Record, 242-A Evaporator as required by Permit Condition II.I.2. [WAC 173-303-380(1)(a)(b)]

III.4.D RECORDKEEPING AND REPORTING

III.4.D.1 The Permittees will place the following into the Operating Unit Group 4 (242-A Evaporator) section of the Hanford Facility Operating Record required by Permit Condition II.I.2: [WAC 173-303-380]

III.4.D.1.a A description of and the quantity of each dangerous/mixed waste received for treatment in the 242-A Evaporator. [WAC 173-303-380(1)(a)]

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III.4.D.1.b Records and results of waste analysis, waste determinations and trial tests required by WAC 173-303-300 and from any other sampling and analysis required by Addendum B, Waste Analysis Plan. [WAC 173-303-380(1)(c)] [WAC 173-303-300(2)(b)]

III.4.D.1.c Records and results of inspections conducted in accordance with Addendum I, as required by WAC 173-303-320(2)(d). [WAC 173-303-380(1)(e)]

III.4.D.1.c.1 Records of all inspections meeting the requirements in WAC 173-303-395(1)(d).

III.4.D.1.d The Permittees will keep summary reports and details of all incidents that require implementation of the Contingency Plan according to the requirements of Permit Condition II.A.1. [WAC 173-303-380(1)(d)]

III.4.E SECURITY

III.4.E.1 The Permittees will implement and maintain the security practices as described in Permit Attachment 3, Security, and Addendum E, Security. [WAC 173-303-310(2)

III.4.F PREPAREDNESS AND PREVENTION

III.4.F.1 The Permittees will implement and maintain the practices specific to the 242-A Evaporator, as described in Addendum F, Preparedness and Prevention. [WAC 173-303-340]

III.4.G CONTINGENCY PLAN

III.4.G.1 The Permittees will comply with Addendum J in addition to the requirements of Permit Condition II.A when applicable. [WAC 173-303-350]

III.4.H INSPECTIONS

III.4.H.1 The Permittees will implement the practices specific to the 242-A Evaporator as described in Addendum I, Inspection Plan, pursuant to the requirements of WAC 173-303-320, incorporated by reference.

III.4.I TRAINING PLAN

III.4.I.1 The Permittees will, in a written training plan, include training requirements specific to the 242-A Evaporator as specified in Addendum G, Personnel Training, and as required by Permit Condition II.C.

III.4.J GENERAL REQUIREMENTS

III.4.J.1 The Permittees will comply with the requirements of WAC 173-303-395(1) incorporated by reference for prevention of reaction of ignitable, reactive, or incompatible wastes.

III.4.K CLOSURE

III.4.K.1 The Permittees will implement the practices as described in Addendum H, Closure Plan, and Permit Condition II.J when closing the 242-A Evaporator. [WAC 173-303-610(4)]

III.4.L POST-CLOSURE - RESERVED

III.4.M CRITICAL SYSTEMS – RESERVED

III.4.N RESERVED

III.4.O CONTAINERS - RESERVED

III.4.P TANK SYSTEMS

III.4.P.1 Tank System Requirements

III.4.P.1.a The Permittees will develop, maintain, and follow a written integrity assessment program (IAP), including a schedule and requirements for conducting integrity assessments. The

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IAP will meet the requirements of Addendum C, Section C.1.7, and consideration of the following factors [WAC 173-303-640(2)(e), WAC 173-303-640(3)(b)] :

III.4.P.1.a.1 Results of past integrity assessments;

III.4.P.1.a.2 Age of the tank system(s);

III.4.P.1.a.3 Materials of construction of each tank system, including any liners;

III.4.P.1.a.4 Characteristics of the wastes managed by each tank system;

III.4.P.1.a.5 Other relevant factors. [WAC 173-303-640(3)(b)]

III.4.P.1.b The Permittees will maintain a copy of the IAP required by Permit Condition III.4.P.1.a in the Operating Unit Group 4 section of the Hanford Facility Operating Record, and conduct periodic integrity assessments according to the schedules and requirements of the plan. If results of these assessments indicate a tank has structural deficiencies or lacks integrity such that it may collapse, rupture, or fail, the Permittees must follow the requirements of WAC 173-303-640(7), incorporated by reference. [WAC 173-303-640(3)(b)]

III.4.P.1.c If the findings of an integrity assessment indicate a tank has structural deficiencies or lacks integrity such that it may collapse, rupture, or fail, the Permittees will at a minimum do the following:

III.4.P.1.c.1 Evaluate and review the waste acceptance criteria in Addendum B, Waste Analysis Plan;

III.4.P.1.c.2 Evaluate and review the applicable tank design and/or operating requirements in Addendum C Process Information;

III.4.P.1.c.3 Evaluate and review any other permit requirements, which may reasonably influence the integrity of the tank in question;

III.4.P.1.c.4 Based on this evaluation and review, the Permittees will request the required permit modifications in accordance with WAC 173-303-830. [WAC 173-303-640(3)(b), WAC 173-303-815(2)(b)]

III.4.P.2 Tank System Operating Requirements

III.4.P.2.a The Permittees will comply with the requirements of Addendum C, Process Information, Section C.1.9. [WAC 173-303-640(5)(b)]

III.4.P.2.b The Permittees will comply with the requirements of Addendum C, Process Information, Section C.1.10. [WAC 173-303-640(5)(d)]

III.4.P.2.c The Permittees will comply with the requirements of WAC 173-303-640 (5)(a) incorporated by reference.

III.4.P.2.d The Permittees will comply with the requirements of Addendum C, Process Information, in response to spills or leaks from tank systems at 242-A Evaporator [WAC 173-303-640(5)(c), WAC 173-303-640(7)].

III.4.P.2.e The Permittees will comply with the requirements of WAC 173-303-640(9) incorporated by reference. [WAC 173-303-640(9)]

III.4.P.2.f The Permittees will comply with the requirements of WAC 173-303-640(10), incorporated by reference.

III.4.P.2.g Tank System Inspection Requirement

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III.4.P.2.h The Permittees will inspect the 242-A Evaporator tank systems authorized by Permit Condition III.4.B.2 according to the inspection plan in Addendum I. [WAC 173-303-640(6)(a)-(c)]

III.4.P.2.h.1 The Permittees are authorized to use alternative leak detection inspection methods during facility electrical/ventilation outages to perform daily inspections according to the inspection plan in Addendum I, Section I.1.2.3.

III.4.P.2.i The Permittees shall notify Ecology 30 days prior to implementation of the alternative leak detection inspection method in Addendum I, Section I.1.2.3. The Permittees shall document the use of the alternative leak detection method in the Operating Unit Group 4 Section of the Hanford Facility Operating Record. The Permittees will place documentation of inspections in the Operating Unit Group 4 section of the Hanford Facility Operating Record required by Permit Condition II.I.2. [WAC 173-303-640(6)(d)]

III.4.P.2.j The Permittees will keep an inspection log at the facility. The log will be kept at the facility for at least five years from the date of inspection. [WAC 173-303-640(6)(d)]

III.4.P.2.j.1 The Permittees will remedy any problems revealed by the inspections on a schedule that prevents hazards to the public health and environment. Where a hazard is imminent or has already occurred, remedial action must be taken immediately. [WAC 173-303-815(2)(b)(ii)]

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