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FACT SHEET
PART III, OPERATING UNIT GROUP 9, T-PLANT COMPLEX

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1 **FACT SHEET**
2 **PART III, OPERATING UNIT GROUP 9, T-PLANT COMPLEX**

3 **UNIT DESCRIPTION**

4 The T-Plant Complex Operating Unit Group (T-Plant) is located in Hanford's 200 West Area. The
5 primary missions of T-Plant are treatment and storage of non-containerized and containerized dangerous or
6 mixed waste.

7 The following wastes may be managed at the T-Plant Operating Unit Group:

- 8 • Dangerous or mixed waste that is generated from processes at the Hanford site.
- 9 • Waste that is specifically identified in Section II, paragraph 8 of the Settlement Agreement re:
10 Washington v. Bodman, Civil No. 2:30-cv-05018-AAM, January 6, 2006.

11 No other wastes may be managed at T-Plant unless authorized via a permit modification decision under
12 Permit Condition I.C.3. Requests for Permit modifications must be accompanied by an evaluation
13 adequate for Ecology to comply with SEPA.

14 At T-Plant the Permittees also:

- 15 • Vents containers.
- 16 • Decontaminates equipment and debris.
- 17 • Identifies, verifies, samples, treats, and repackages dangerous and mixed waste.
- 18 • Repairs and prepares equipment to be returned to service.

19 T-Plant personnel open, sort, treat, repackage, sample, perform physical screening and chemical screening
20 to characterize retrieved waste, and verify the characterization of containers of dangerous and mixed waste.

21 Treatment of mixed waste includes:

- 22 • Deactivation (neutralization, cementing, absorption, encapsulating, and controlled reaction with
23 water).
- 24 • Stabilization (cementing, absorption, and encapsulating).
- 25 • Volume reduction of waste.

26 Repackaging of waste includes the removal of prohibited items, puncturing of aerosol canisters, removal or
27 collection of liquids, segregation or sorting, and waste consolidation.

28 **T-Plant Dangerous Waste Management Units**

29 T-Plant consists of the following dangerous waste management units where dangerous and mixed waste is
30 treated or stored.

- 31 • 221-T Canyon Building
 - 32 ○ 221-T Canyon Deck
 - 33 ○ 221-T Cells
 - 34 ○ 221-T Tank System
 - 35 ○ 221-T Railroad Tunnel
 - 36 ○ 221-T Head End
- 37 • 2706-T Buildings
 - 38 ○ 2706-T Building
 - 39 ○ 2706-TA Building
 - 40 ○ 2706-TB Building
- 41 • 214-T Building

1 The T-Plant consists of the following outdoor dangerous waste management units:

- 2 • 2706-T Storage Yard
- 3 • Dangerous and Mixed Waste Storage Modules (for storage only)
 - 4 ○ HS-030 Storage Module
 - 5 ○ HS-031 Storage Module
 - 6 ○ HS-032 Storage Module
- 7 • 2706-T Asphalt Pad
- 8 • 211-T Cage
- 9 • 221-T R-5 Waste Storage Area
- 10 • 221-TA Storage Area
- 11 • 243-T Covered Storage Pad
- 12 • 221-T Sand Filter Storage Area
- 13 • 211-T Pad
- 14 • 221-T BY Storage Area

15 These buildings, storage pads, storage areas, and storage modules provide space for storing dangerous and
16 mixed waste containers. The Permit allows storage of bulk waste in the 221-T Canyon Cells.

17 The Permit allows treatment of dangerous and mixed waste only in the following locations within the
18 T-Plant buildings:

- 19 • 221-T Canyon Deck
- 20 • 221-T Cells
- 21 • 221-T Railroad Tunnel
- 22 • 2706-T Building
- 23 • 2706-TA Building.

24 The Permittees can manage and store various sizes of waste containers in approved dangerous waste
25 management units. They must maintain appropriate separation between containers of incompatible waste.
26 (Incompatibility is defined in WAC 173-303-395.)

27 The Permittees must manage the containers following T-Plant processes and controls. This includes
28 inspections outlined in Addendum I. Below is a brief description of the authorized dangerous waste
29 management units within the T-Plant complex.

30 **221-T Canyon Building Deck**

31 The Canyon Building Deck consists of 38 covered and uncovered process cells (2L through 20L) and the
32 railway tunnel access. Waste management activities include storing, opening, sorting, treating,
33 repackaging, sampling, and physical screening and chemical screening to characterize waste retrieved from
34 the burial grounds and to verify the characterization of containers of dangerous and mixed waste. The
35 Permit allows treatment of dangerous and mixed waste within the 221-T Canyon Building Deck.

36 **221-T Cells**

37 The 221-T Canyon Building contains 37 process cells, grouped into 12-meter (40-foot) sections arranged in
38 a single row running the length of the canyon. The 221-T Cells meet the requirements for a containment
39 building storage location, because the ventilation system prevents inside air from going outside. The
40 Permit allows treatment of dangerous and mixed waste in the 221-T Cells.

41 **221-T Tank System**

42 The 221-T Tank System consists of six tanks in various cells in the 221-T canyon. It includes the 211-T
43 Sump. The last addition of waste to the 221-T tank system was on June 3, 1999. The Permittees then

1 isolated the tank system and removed it from service permanently. The Permit does not allow treatment of
2 dangerous and mixed waste in these tanks.

3 **221-T Railroad Tunnel**

4 The tunnel staging area is within the railroad tunnel that enters the 221-T Building at cell 2L. The Permit
5 allows treatment of dangerous and mixed waste in the 221-T Railroad Tunnel.

6 **221-T Head End**

7 The head end area consists of one large cell, a control room, laboratories, a change room, a maintenance
8 shop, and a large high bay work area. Here, the Permittees store, open, sort, repackage, sample, and
9 physically and chemically screen waste to characterize retrieved waste and to verify the characterization of
10 containers of dangerous and mixed waste. The Permit does not allow treatment of dangerous and mixed
11 waste within the 221-T Head End.

12 **2706-T Building**

13 The 2706-T Building contains the 2706-T effluent collection system. This system collects, filters,
14 transfers, stores, and contains liquid mixed waste from treatment and decontamination activities in the
15 2706-T and 2706-TA Buildings and from direct additions of liquid mixed waste from other treatment and
16 storage activities. The system includes:

- 17 • 2706-T railroad pit sump.
- 18 • 2706-TA sump.
- 19 • 2706-TA heating, ventilation, and air conditioning sump.
- 20 • 2706-TB sump.
- 21 • Waste transfer piping and equipment.
- 22 • Liquid waste load out area above the railroad pit.

23 The Permit allows storage of non-containerized waste potentially containing free liquids. It also allows for
24 decontamination or treatment activities using free liquids on 2706-T and 2706-TA Building operational
25 area floors.

26 The 2706-T Building is a high ground-level building with an epoxy coated concrete floor. The 2706-T
27 Building is the load out point for all liquid waste generated in the 2706-T and 2706-TA Buildings. Here,
28 the Permittees vent, segregate, repackage, verify, and store dangerous and mixed waste containers (boxes
29 and drums). The Permit allows treatment of dangerous and mixed waste in the 2706-T Building.

30 **2706-TA Building**

31 The 2706-TA Building is made of prefabricated steel and has a concrete floor coated with an epoxy floor
32 sealant. Here, the Permittees vent, segregate, repackage, verify, and store dangerous and mixed waste
33 containers (boxes and drums). The Permit allows treatment of dangerous and mixed waste in the 2706-TA
34 Building. The 2706-TA Building may be used for equipment decontamination.

35 **2706-TB Building**

36 The 2706-TB Building is made of prefabricated steel and has a concrete floor. It contains two storage and
37 treatment tanks with secondary containment. The two storage tanks, T-XX-2706-220 (T-220) and
38 T-XX-2706-221 (T-221), are stainless steel tanks that are a portion of the effluent collection system.
39 2706-TP also contains a chemical addition room, located at the north end of the building.

40 T-220 developed leaks and was removed from service. There are no current plans to repair the tank.

41 T-221 is a useable tank, but has never been used for receipt of any type of material. Both tanks have been
42 confirmed to be empty, and their inlets and outlets were blanked to prevent any addition of material to the
43 tanks. The pipe blanking was witnessed by Ecology and documented via pictures.

44 The Permit does not allow waste management in Tanks T-220 and T-221.

1 **214-T Building**

2 The 214-T Building is made of corrugated steel overlaying I-beams. It has containment basins and a
3 concrete floor coated with an epoxy floor sealant. The containment basins are coated with material that is
4 resistant to caustic, oxidizing, combustible, and flammable chemicals. The Permit does not allow
5 dangerous and mixed waste treatment activities in this area.

6 **2706-T Storage Yard**

7 The 2706-T Storage Yard is a fenced, uncovered asphalt paved area for storage of containerized mixed and
8 low-level waste. The 2706-T Storage Yard is located on the north side of the 2706-TA and 2706-TB
9 Buildings. It is irregular in shape and contains two engineered metal structures (HS-030 and HS-032).
10 The Permit does not allow dangerous and mixed waste treatment activities in this area.

11 **HS-030 Storage Module**

12 HS-030 is an engineered metal storage module, enclosed completely by walls, roof, and floor to protect
13 containers from precipitation and run-on. The Permit does not allow dangerous and mixed waste treatment
14 activities in this area.

15 **HS-031 Storage Module**

16 HS-031 is an engineered metal storage module, enclosed completely by walls, roof, and floor to protect
17 containers from precipitation and run-on. The Permit does not allow dangerous and mixed waste treatment
18 activities in this area.

19 **HS-032 Storage Module**

20 HS-032 is an engineered metal storage module, enclosed completely by walls, roof, and floor to protect
21 containers from precipitation and run-on. The Permit does not allow dangerous and mixed waste treatment
22 activities in this area.

23 **2706-T Asphalt Pad**

24 The 2706-T Asphalt Pad is an uncovered asphalt area for storage of waste in containers. This pad can store
25 waste containers of various size and volume. It is located northwest of the 2706-T Storage Yard. The
26 Permit does not allow dangerous and mixed waste treatment activities in this area.

27 **211-T Cage**

28 The 211-T cage is a fenced outside storage area with a locking gate for storing containerized waste. The
29 Permit does not allow dangerous and mixed waste treatment activities in this area.

30 **221-T R-5 Waste Storage Area**

31 The 221-T R-5 Waste Storage Area is an uncovered asphalt storage area. The Permit does not allow
32 dangerous and mixed waste treatment activities in this area.

33 **221-TA Storage Area**

34 The 221-TA storage area is an outside paved storage area at the southeast corner of the 221-T Building.
35 The Permit does not allow dangerous and mixed waste treatment activities in this area.

36 **243-T Storage Area**

37 243-T is an outdoor irregularly shaped area. This storage area includes a partially covered asphalt pad, and
38 an adjacent graveled area. The pre-engineered cover has a structural steel frame, a sheet metal roof, and
39 open sides. The Permit does not allow dangerous and mixed waste treatment activities in this area.

40 **221-T Sand Filter Storage Area**

41 The 221-T Sand Filter storage area is an uncovered gravel storage area. The Permit does not allow
42 dangerous and mixed waste treatment activities in this area.

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1 **211-T Pad**

2 The 211-T Pad is a concrete pad with curbs. It is available for use as secondary containment for tanker
3 trucks. Drums and boxes containing free or containerized liquids can be stored on this pad. The Permit
4 does not allow dangerous and mixed waste treatment activities in this area.

5 **221-T BY Storage Area**

6 The 221-T BY is an uncovered, irregular shaped area encompassing asphalt and gravel pads. It is located
7 northwest of the 221-T Canyon Building and Tunnel. The Permit does not allow dangerous and mixed
8 waste treatment activities in this area.

9 **TYPE AND QUANTITY OF WASTE**

10 The T Plant stores and treats a very wide variety of dangerous and mixed wastes. For specific information
11 on types of waste found at T Plant, refer to T Plant Addendum A, Part A form. Storage volume and
12 secondary containment volume for each of the dangerous waste management units are listed in Table 1.

13 **Table 1. Secondary Containment Volume and Storage Capacity for Each Dangerous Waste**
14 **Management Unit**

Structure	Secondary Containment Volume (liters)	Maximum Total Storage Capacity Volume (liters)
221-T Canyon Deck	Provided by individual spill pallets	S06 included in 221-T Cells
221-T Cells	2,000 per secondary containment liner	10,700,000 (S06)
221-T Tank System	187,000 50% volume of cell 5R	213,247(S02)
221-T Railroad Tunnel	Provided by individual spill pallets	224,640 (S01)
221-T Head End	Provided by individual spill pallets	8,320 (S01)
2706-T Building	400	13,191,000 (X99)
2706-TA Building	2,000	13,191,000 (X99)
2706-T Storage Yard	Provided by individual spill pallets	392,709 (S01)
2706-TB Building (2706-T Tank	60,300	0
214-T Building	1,381	67,392 (S01)
211-T Cage	870	19,968 (S01)
2706-T Asphalt Pad	Provided by individual spill pallets	1,246,068 (S01)
221-TA Storage Area	Provided by individual spill pallets	56,160 (S01)
221-T R-5 Waste Storage Area	Provided by individual spill pallets	898,560 (S01)

Structure	Secondary Containment Volume (liters)	Maximum Total Storage Capacity Volume (liters)
221-T Sand Filter Storage Area	Provided by individual spill pallets	56,160 (S01)
211-T Pad	10,065	56,160 (S01)
243-T Covered Storage Pad	Provided by individual spill pallets	591,168 (S01)
221-T BY Storage Area	Provided by individual spill pallets	591,168 (S01)
HS-030	3,142	7,488 (S01)
HS-031	3,142	7,488 (S01)
HS-032	3,142	7,488 (S01)
T-Plant Maximum Total Capacity Volume for containers (S01)		4,230,937 (S01)
T-Plant Total Capacity Volume for tanks (S02)		213,247 (S02)
T-Plant Total Capacity Volume for containment building (S06)		10,700,000 (S06)
T-Plant Total Capacity Volume for miscellaneous unit (X99)		26,377,000 (X99)

1 **BASIS FOR PERMIT CONDITIONS**

2 This permit is intended to protect human health and the environment while ensuring proper management of
3 waste at T-Plant. The permit addenda are incorporated into this permit and are enforceable by reference.
4 The conditions and addenda are derived from the permit application. Ecology has reviewed the permit
5 application for T-Plant to ensure the unit meets dangerous waste facility standards.

6 The permit includes requirements for complying with environmental standards and maintaining and
7 modifying the permit. The permit conditions address specifics such as personnel training, adequate
8 staffing, process controls, and inspection requirements.

9 **GENERAL WASTE MANAGEMENT REQUIREMENTS**

10 The Permit allows T-Plant to receive waste from onsite generators. The Permit authorizes T-Plant to
11 accept, treat, and store only wastes that satisfy the T-Plant waste acceptance criteria and permit conditions,
12 and only in the permitted areas.

13 The Permittees collect and transfer liquid mixed waste from decontamination processes to drums or directly
14 to a tanker truck. (Mixed waste consists of waste containers, uncontainerized process equipment, jumpers,
15 and other items awaiting decontamination, treatment, or repackaging before final disposition.) The liquid
16 waste then goes to a treatment, storage, and disposal facility that can accept it.

17 The Permittees must maintain the integrity of the unit and its secondary containment systems that prevent

1 waste from escaping.

2 Addendum B supersedes Addendum A, the Part A form, for information on waste types, quantities, and
3 process information.

4 **WASTE ANALYSIS REQUIREMENTS**

5 Condition III.09.C.1 requires the Permittees to comply with the requirements in Addendum B (Waste
6 Analysis Plan). The basis of this condition is WAC 173-303-300(5). The Permittees must also comply
7 with recordkeeping requirements in WAC 173-393-380.

8 Condition III.09.C.2 requires the Permittees to provide, within 14 days of the effective date of this permit, a
9 modification request identifying and defining the waste acceptance criteria for each of the authorized
10 dangerous waste management units Addendum C. This condition, based on WAC 173-303-300 (1),
11 assures that the Permittees have sufficient information about a waste to reliably substitute for direct testing
12 of the waste

13 **RECORDKEEPING AND REPORTING**

14 The basis of Condition III.5.B, is [WAC 173-303-380](#) and [WAC 173-303-810](#)(16) for those requirements
15 not elsewhere in the permit.

16 **SECURITY**

17 The T-Plant is within Hanford's secured area. Access to the unit is subject to the general security
18 provisions of Condition II.L. Security provisions, access controls, and signage specific to this unit will
19 comply with the requirements of WAC 173-303-301.

20 **PREPAREDNESS AND PREVENTION**

21 The basis of preparedness and prevention requirements in the Permit conditions and Permit Addendum F is
22 [WAC 173-303-340](#). These requirements address internal and external communications with unit
23 personnel and emergency responders in case of fire or other emergency. They also include emergency
24 equipment and procedures.

25 **CONTINGENCY PLAN**

26 Requirements in Condition II.A will apply. The facility contingency plan is attached to the Permit
27 (Addendum J).

28 **INSPECTIONS**

29 Condition II.X requires Hanford's dangerous waste management units to establish a written inspection
30 schedule and conduct inspections following the schedule. The Permittees must correct problems found
31 during these inspections. Condition II.X also includes inspection recordkeeping requirements. The basis
32 for these inspection requirements is [WAC 173-303-320](#).

33 Due to high radiation in the 221-T Canyon, the Permittees meet the visual tank inspection requirements of
34 [WAC 173-303-640](#) using a camera system that monitors all activities on the deck.

35 **TRAINING**

36 Condition III.09.I requires the Permittees to put the training requirements described in Addendum G into a
37 written training plan required by Condition II.C. The plan will be specific to the positions and job
38 descriptions associated with T-Plant. The training program, the written training plan, and records must
39 meet the requirements of [WAC 173-303-330](#).

40 **OTHER GENERAL PERMIT REQUIREMENTS**

41 The Permittees will comply with [WAC 173-303-395](#)(1) for management of ignitable, reactive, or
42 incompatible waste, and [WAC 173-303-395](#)(2) for compliance with other environmental protection laws
43 and regulations. The requirements for inspections related to management of ignitable and reactive wastes
44 are in Addendum I.

1 **Land Disposal Restriction Requirements**

2 Tri-Party Agreement Milestone M-26 requires a land disposal restrictions report. Condition III.09.J.4
3 requires the Permittees to include in that report a schedule of compliance and associated work requirements
4 for treatment and/or acquisition of treatment.

5 **CLOSURE**

6 Clean closure involves removing all dangerous waste from T-Plant and decontaminating or removing any
7 equipment or surfaces that are contaminated. The Permittees have submitted a closure plan based on clean
8 closure (Addendum H). The plan complies with the requirements of [WAC 173-303-610\(2\)\(6\)](#) and [WAC](#)
9 [173-303-630\(10\)](#).

10 The dangerous waste regulations require the Permittees to finish clean closure of a facility in 180 days or
11 fewer. The Permit conditions allow the Permittees two years for clean closure of T-Plant. We are
12 allowing the extra time because of the complexity of clean closing a radiological facility with hot cells. If
13 clean closure in two years is not possible, the Permittees can request a delay. The Permittees must
14 demonstrate cause for the delay. If Ecology agrees with the Permittees, we will work with them to set a
15 new date.

16 **CONTAINER STORAGE UNIT STANDARDS**

17 Addendum C, Section C.1 documents the areas within T-Plant used for management of dangerous/mixed
18 waste. Sections C.1.1, C.1.2, and C.1.4 contain their waste management requirements. Permit
19 Addendum B, Section B.1.1.1.2.2, and Table B.1, includes requirements for waste compatibility.
20 Condition III.09.O includes requirements for managing the containers. The use and management of
21 containers are covered in [WAC 173-303-630](#)

22 Ecology is establishing the requirements of [WAC 173-303-630\(7\)](#) for secondary containment, and
23 indirectly, the capacity of the unit and the various storage devices in it. Physical capacity limits of
24 buildings, storage pads, etc., are also specified. The storage capacity of T Plant is not a fixed quantity
25 (although a ceiling amount is specified in Permit Addendum A). Capacity depends on the type and
26 quantity of wastes in T Plant.

27 Certain ignitable and reactive wastes are subject to management in a manner equivalent to the requirements
28 of the Uniform Building Code and the International Fire Code pursuant to [WAC 173-303-630\(8\)](#).

29 The requirements of Permit Addenda C and Addenda F, and Conditions III.09.O.1 and III.09.O.2 for
30 management of dangerous and mixed waste comply with [WAC 173-303](#). These requirements protect
31 human health and the environment.

32 Condition III.09.O.3.a requires the Permittees to inspect the container storage areas according to the
33 inspection plan in Permit Addendum I.

34 Addendum C, Section C.2.5.2 requires the Permittees to satisfy requirements for Level 1 controls through
35 use of Department of Transportation-compliant containers or by keeping sealed lids on containers at all
36 times, except when adding or removing wastes from containers.

37 **TANK MANAGEMENT STANDARDS**

38 Condition III.09.P addresses tank management standards at T-Plant. The standards are based on the
39 requirements of [WAC 173-303-640](#).

40 These requirements include:

- 41 • Tank integrity assessment.
- 42 • Protection of tank system integrity.
- 43 • Prevention of spills and overflows.
- 44 • Marking and labeling.

- 1 • Tank leaks and spills including description of controls and practices to prevent spills and over
- 2 flows.
- 3 • Management of incompatible waste.
- 4 • Periodic inspection and documentation.

5 Sections of Addendum C (Process Information) satisfy the requirements of [WAC 173-303-815](#)(2) for
6 facility-specific permit conditions.

7 **REQUESTED VARIANCES OR ALTERNATIVES**

8 There are no requested variances or alternatives for T-Plant.

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

10 The SEPA determination for T-Plant is in the Hanford-Wide Permit Fact Sheet.

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