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FACT SHEET

**PART V CLOSURE UNIT GROUP 20, NONRADIOACTIVE DANGEROUS WASTE LANDFILL
(NRDWL) AND SOLID WASTE LANDFILL (SWL)**

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3 **(NRDWL) AND SOLID WASTE LANDFILL (SWL)**

4 **UNIT DESCRIPTION**

5 The Non-radioactive Dangerous Waste Landfill and the Solid Waste Landfill were one unit between 1973
6 and 1975 when both units began to receive waste from Hanford operations. In 1975, the Permittees
7 divided the landfill into two units.

8 The units are in the center of the 600 Area of the Hanford Site. They are on the central plateau, but not
9 part of the 200 Areas.

10 **The Non-Radioactive Dangerous Waste Landfill (NRDWL)**

11 NRDWL is a 10-acre land disposal unit. It consists of 19 unlined trenches about 400 feet long, 16 feet
12 wide at the base, and 15 feet deep. It was used for the disposal of nonradioactive dangerous wastes. It is
13 no longer active.

14 **The Solid Waste Landfill (SWL)**

15 The SWL is approximately 66 acres. It is divided into five units, each consisting of a series of parallel
16 trenches. The landfill was managed in panels that consisted of a series of parallel trenches approximately
17 530 to 620 feet long. SWL is located near NRDWL.

18 In 1992, Ecology assumed regulatory responsibility for the SWL from the Benton- Franklin Public Health
19 Department. The Solid Waste Landfill (SWL) is no longer active

20 **TYPE AND QUANTITY OF WASTE**

21 NRDWL received nonradioactive dangerous waste and was regulated under Washington Administrative
22 Code [\(WAC\) 173-303](#).

23 Dangerous wastes in NRDWL came from process operations, research and development laboratories,
24 maintenance activities, and transportation functions throughout Hanford. For example, NRDWL received
25 dangerous waste, sanitary wastes, and asbestos. Table B-1 of Addendum H, Closure Plan shows the
26 summary of waste disposed in NRDWL.

27 The SWL received non-dangerous solid waste and was regulated under [WAC 173-350](#). Table 2-2 of
28 Addendum H, Closure Plan summarizes non-dangerous waste disposed in SWL.

29 **BASIS FOR PERMIT CONDITIONS**

30 This permit is intended to protect human health and the environment while ensuring proper management
31 of waste at NRDWL and SWL. The permit addenda are incorporated into this permit and are enforceable
32 by reference. The conditions and addenda are derived from the permit application. Ecology has reviewed
33 the permit application to ensure the unit meets dangerous waste facility standards.

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

37 **Contaminant Releases at NRDWL and SWL**

38 Releases of volatile organic contaminants from the NRDWL and SWL were first documented in 1987.
39 The U.S. Department of Energy (USDOE) investigated contamination between 1992 and 1997 using soil
40 gas survey and groundwater monitoring wells. Groundwater monitoring has been conducted at the
41 NRDWL and SWL points of compliance following interim status standards in [WAC 173-303-400](#) and
42 [WAC 173-350-400](#).

1 Based on the historical groundwater monitoring program, the following primary contaminants have been
2 identified in the groundwater below the NRDWL and SWL:

- 3 • 1,1-Dichloroethane.
- 4 • 1,1,1-Trichloroethane.
- 5 • Chloroform.
- 6 • Carbon Tetrachloride.
- 7 • Tetrachloroethene.
- 8 • Trichloroethene.

9 These chlorinated hydrocarbons are detected at low concentrations, but are slightly higher in the
10 downgradient wells than the upgradient wells. The results of analyses for the primary contaminants over
11 the past twenty years show a declining trend for each of the contaminants. Except for tetrachloroethene,
12 the levels for all of the chlorinated organic constituents are below [WAC 173-200](#) groundwater quality
13 criteria. Tetrachloroethene levels are slightly above groundwater quality criteria, but are about the same
14 in the up-gradient well as in the downgradient wells.

15 Soil gas monitoring wells were installed and monitored at the perimeter of the landfills. A soil gas
16 survey to investigate dangerous waste constituents in the vadose zone showed no contaminants at the site
17 detected above action levels. The monitoring will continue during the closure and post-closure period.

18 **Fate and Transport of Contaminants at NRDWL and SWL**

19 The *Risk Assessment for Nonradioactive Dangerous Waste Landfill* (NRDWL) Hanford Site, Washington
20 (893-1303) was completed in March 1990. The assessment addressed existing baseline conditions at the
21 landfill. It indicated how risks will be reduced when the facility is closed with an engineered cover
22 constructed over NRDWL and SWL. The assessment documented that an engineered cover is expected to
23 eliminate migration of contaminants from the wastes by preventing infiltration of rain and snow through
24 the soil to the waste, the vadose zone, and the groundwater.

25 The Permittees evaluated current and future threats to human health and the environment from the
26 contaminants, based on a conceptual model of the SWL. The conceptual model considered the fate
27 and transport of the contaminants and determined that:

- 28 • The presence of a pure phase of Dense Non-Aqueous Phase Liquids (DNAPLs) in the vadose
29 zone was unlikely as a long-term source of groundwater contamination. This conclusion was
30 arrived at using the low vapor concentrations of the contaminants obtained during the soil gas
31 survey and perimeter monitoring.
- 32 • Since the end of liquid disposal in 1987, soil gas concentrations in the vadose zone has
33 diminished to non-detect within the footprint of the two units.
- 34 • Groundwater monitoring results from 1997 to 2009 support the assertion that the volatile organic
35 compound concentrations have declined below the detection limits or action levels in most cases at
36 the point of compliance of the units.

37 Ecology evaluated data for outer area down gradient wells obtained from the Hanford Environmental
38 Information System database. The data show no evidence of current threats to the environment away
39 from the units.

40 Addendum D (Groundwater Monitoring Plan for NRDWL and SWL) contains more information on:

- 41 • The use of natural attenuation chemistry.
- 42 • The fate and transport of the organic contaminants in the vadose zone.
- 43 • The groundwater.

1 **Regulatory Path for NRDWL and SWL**

2 Placement of an engineered Evapotranspiration (ET) cover, post-closure monitoring, and groundwater
3 monitoring are planned to satisfy closure requirements for NRDWL under [WAC 173-303-610](#) and [665](#).

4 The same closure and post-closure care and groundwater monitoring requirements developed for the
5 NRDWL will be applied to the SWL as a corrective action under [WAC 173-303-64620](#).

6 Ecology approved the USDOE's "Application for Deferral of Solid Waste Permit." This waived the
7 requirement that a solid waste permit be issued under [WAC 173-350](#) for SWL. Deferring the regulation
8 of SWL to [WAC 173-303](#) provides an equivalent or superior level of environmental protection. The
9 deferral application and approval are included as an attachment to the Closure Plan.

10 **CLOSURE AND POST-CLOSURE**

11 The Permittees will implement the practices described in Addendum H and Condition II.J for closure of
12 NRDWL.

13 USDOE has developed the conceptual cover and closure/post-closure care plan (DOE/RL-90-17, Rev 2).
14 The engineering cover design was based on a conceptual model. Ecology anticipates that the final cover
15 engineering design will be based on this conceptual approach.

16 Condition V.20.F.1 requires the Permittees to submit to Ecology a Class 3 permit modification request
17 following [WAC 173-303-830](#) requirements. This modification will incorporate the final cover
18 engineering design of the closure and post-closure plan into Addendum H.

19 Condition V.20.H requires the Permittees to provide a biological mitigation plan to address measures to
20 protect plant, bird, and mammal species and cultural resources of concern.

21 Ecology will work with the Permittees to put this closure unit into the Tri-Party Agreement. This will
22 supply the closure unit with requirements and schedules for closure. Those requirements will be
23 incorporated into the Permit by reference under terms of Condition I.A.4.

24 After the completion of closure activities, the Permittees will submit another permit modification to
25 address inspections during the post-closure period.

26 **Groundwater**

27 Condition V.20.B requires the Permittees to implement the groundwater monitoring plan in Addendum D.
28 This will satisfy the requirements for groundwater protection and monitoring in Condition II.F.1.

29 **RECORDKEEPING AND REPORTING**

30 The Permittees will place documentation of all work conducted (such as results of monitoring, testing,
31 analytical work, and quality assurance and control data) the Hanford Facility Operating Record, per
32 Condition II.I.2. There is no unit specific condition.

33 **SECURITY**

34 NRDWL and SWL are within Hanford's secured area. Access to the unit is subject to the general security
35 provision of Condition II.L. Condition V.20.D requires the Permittees to post signs to comply with the
36 security requirements of [WAC 173-303-310](#).

37 **CONTINGENCY PLAN**

38 Because NRDWL and SWL no longer accept waste and are not in operation, a unit-specific contingency
39 plan is not needed. However, to ensure a safe working environment for Hanford personnel and to protect
40 public health and the environment, the Permittees must follow contingency planning and emergency
41 management requirements for Hanford site-wide emergency response. Condition II.A describes the

1 requirements for facility contingency planning, and refers to the requirements of Attachment 4, Hanford
2 Emergency Management Plan.

3 **INSPECTIONS**

4 The inspection schedule in Addendum I is designed for the pre-closure period. Ninety days before
5 closure begins, the Permittees will submit a permit modification showing the inspection schedule during
6 closure activities, as required by Condition V.20.G.2.

7 **TRAINING**

8 Condition II.C.1 requires the Permittees to put the training requirements described in Addendum G into a
9 written training plan required by Condition II.C. The plan will be specific to the positions and job
10 descriptions associated with NRDWL and SWL. The training program, the written training plan, and
11 records must meet the requirements of [WAC 173-303-330](#).

12 **REQUESTED VARIANCES OR ALTERNATIVES**

13 The main alternative in this unit is the deferral of the SWL permit. Ecology approved the USDOE's
14 "Application for Deferral of Solid Waste Permit." This waived the requirement that a solid waste permit
15 be issued under [WAC 173-350](#) for SWL by deferring to a permit under [WAC 173-303](#) that would provide
16 an equivalent or superior level of environmental protection. The deferral application and approval are
17 included as an attachment to the Closure Plan.

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

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

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