

**DANGEROUS WASTE RESEARCH, DEVELOPMENT AND DEMONSTRATION PERMIT
FOR NUCON THERMAL OXIDATION SYSTEM PHASE 3
PERMIT CONDITIONS
CHANGE CONTROL LOG**

Change Control Logs ensure that changes to this permit are performed in a methodical, controlled, coordinated, and transparent manner. Each permit document will have its own change control log with a modification history table. The “**Modification Number**” represents Ecology’s method for tracking the different versions of the permit. This log will serve as an up to date record of modifications and version history of the permit.

Modification History Table

Modification Date	Modification Number
12/04/2025	PCN-NUCON-2025-02
12/02/2024	

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1 **PART I STANDARD CONDITIONS**

2 **I.A Effect of Permit**

3 The Permittees are authorized to store and treat dangerous waste in accordance with the
4 conditions of this Permit and the applicable provisions of Washington Administrative
5 Code (WAC) 173-303. Any storage or treatment of dangerous and/or mixed waste by the
6 Permittees at this facility that is not authorized by this Permit or by WAC 173-303-809
7 and for which a permit is required under WAC 173-303-800 is prohibited. Issuance of
8 this Permit does not convey any property rights of any sort or any exclusive privilege
9 [WAC 173-303-810(8)(b)]. Issuance of this Permit does not authorize any injury to
10 persons or property, any invasion of other private rights, or any infringement of state or
11 local law or regulations [WAC 173-303-810(8)(c)].

12 **I.B General Permit Conditions**

13 **I.B.1** The general Permit Conditions under WAC 173-303-810, and final facility standards
14 under WAC 173-303 as set forth in WAC 173-303-600, are incorporated as specified in
15 this Permit and shall be adhered to by the Permittees. The Permittees shall also comply
16 with any self-implementing statutory provisions, which according to the requirements of
17 state law, are automatically applicable to the Permittees' dangerous and/or mixed waste
18 activity, notwithstanding the conditions of this Permit.

19 **I.C Permit Actions**

20 **I.C.1** This Permit may be modified, revoked, or terminated by Washington State Department of
21 Ecology (Ecology) for cause as specified in WAC 173-303-830(3), (4), and (5) and
22 WAC 173-303-809. The filing of a request for a permit modification, revocation and
23 reissuance, or termination, or the notification of planned changes or anticipated
24 noncompliance on the part of the Permittees shall not stay the applicability or
25 enforceability of any Permit Condition [WAC 173-303-810(7)].

26 **I.C.2 Permittee Initiated Modifications**

27 Permit modifications pursuant to this Permit for dangerous and/or mixed waste, at the
28 request of the Permittees, must be done according to the three-tiered modification system
29 specified in WAC 173-303-830(4) and Permit Condition I.C.3. The permit modification
30 request must include page changes to the Permit, attachments, and Permit Application
31 supporting documentation necessary to incorporate the proposed permit modification and
32 a draft with changes clearly noted in redline strikeout to Ecology for review and
33 approval.

34 **I.C.3** In addition to other requirements in WAC 173-303-830, within 45 days of a permit
35 change (i.e., permit modification) being put into effect or approved, the Permittees shall
36 retype the relevant portions of the Permit and attachments, to incorporate the change
37 (if not already reflected in the change pages submitted in the original permit modification
38 request) and submit the reprinted pages. This submittal does not require certification
39 described in WAC 173-303-810(13).

40 **I.C.4** Ecology may order an immediate termination of all operations at the facility at any time it
41 determines that termination is necessary to protect human health and the environment in
42 accordance with WAC 173-303-809(3).

1 **I.D Severability**

2 **I.D.1 Effect of Invalidation**

3 The provisions of this Permit are severable. If any provision of this Permit, or the
4 application of any provision of this Permit to any circumstance, is held invalid, the
5 application of such provision to other circumstances and the remainder of this Permit
6 shall not be affected thereby. Invalidation of any state or federal statutory or regulatory
7 provision which forms the basis for any condition of this Permit does not affect the
8 validity of any other state or federal statutory or regulatory basis for said condition.

9 **I.E Duties and Requirements**

10 **I.E.1 Duty to Comply**

11 The Permittees shall comply with all conditions of this Permit [WAC 173-303-810(2)],
12 except to the extent and for the duration such noncompliance is authorized by an
13 emergency permit issued under WAC 173-303-804. Any permit noncompliance, other
14 than noncompliance authorized by an emergency permit, constitutes a violation of
15 WAC 173-303 and/or Resource Conservation and Recovery Act (RCRA) and is grounds
16 for a) enforcement action; b) termination of this Permit; c) revocation and re-issuance of
17 this Permit; d) modification of this Permit; or e) denial of a permit renewal application.

18 **I.E.2 Need to Halt or Reduce Activity Not a Defense**

19 A Permittee who has not complied with this Permit, and who subsequently is subject to
20 enforcement actions, may not argue that it would have been necessary to halt or reduce
21 the permitted activity in order to maintain compliance with the conditions of this Permit
22 [WAC 173-303-810(4)].

23 **I.E.3 Duty to Mitigate**

24 The Permittees must take all steps required by Ecology to minimize or correct any
25 adverse impacts on the environment resulting from non-compliance with the Permit. Such
26 mitigation shall not be a defense to enforcement [WAC 173-303-810(5)].

27 **I.E.4 Proper Operation and Maintenance**

28 The Permittees shall at all times properly operate and maintain all facilities and all
29 systems of treatment and control which are installed or used by the Permittees to achieve
30 compliance with the conditions of this Permit. Proper operation and maintenance includes
31 effective performance, adequate funding, adequate operator staffing and training, and
32 adequate laboratory and process controls, including appropriate quality assurance/quality
33 control (QA/QC) procedures. This provision requires the operation of back-up or
34 auxiliary facilities or similar systems only when necessary to achieve compliance with
35 the conditions of this Permit [WAC 173-303-810(6)].

36 **I.E.5 Duty to Provide Information**

37 The Permittees shall furnish to Ecology, within a reasonable time, any information which
38 Ecology may request to determine whether cause exists for modifying, revoking and
39 reissuing, or terminating this Permit, or to determine compliance with this Permit. The
40 Permittees shall also furnish to Ecology, upon request, copies of records required to be
41 kept by this Permit [WAC 173-303-810(9)].

- 1 **I.E.6 Inspection and Entry**
- 2 Pursuant to WAC 173-303-810(10), the Permittees shall allow representatives of Ecology
3 upon the presentation of proper credentials to:
- 4 **I.E.6.a** During operating hours, and at all other reasonable times, enter the NUCON TOS Phase 3
5 RD&D Project area or any unit or area within the NUCON TOS Phase 3 RD&D Project
6 area, where regulated activities or equipment are located or conducted, or where records
7 must be kept under the conditions of this Permit;
- 8 **I.E.6.b** Have access to and copy, at reasonable times, any records that must be kept under the
9 conditions of this Permit;
- 10 **I.E.6.c** Inspect, at reasonable times, any facilities, equipment (including monitoring and control
11 equipment), practices, or operations regulated or required under this Permit; and
- 12 **I.E.6.d** Sample or monitor, at reasonable times, for the purposes of assuring Permit compliance
13 or as otherwise authorized by state law as amended, any substances or parameters at any
14 location.
- 15 **I.E.7 Anticipated Non-Compliance**
- 16 The Permittees shall give advance notice to Ecology of any planned changes in the
17 permitted facility or activity which may result in noncompliance with Permit
18 requirements. Prior to the implementation of the planned change(s), the Permittees must
19 receive Ecology approval.
- 20 **I.E.8 Reporting Planned Changes**
- 21 The Permittees shall give advanced notice to Ecology, as soon as possible, of any planned
22 physical alterations or additions to the facility subject to this Permit. Such notice does not
23 authorize any noncompliance with, or modification of, this Permit.
- 24 **I.E.9 Certification of Construction or Modification**
- 25 The Permittees may not commence treatment or storage of dangerous and/or mixed waste
26 in any new or modified portion of the facility until the Permittees have submitted to
27 Ecology, by certified mail or hand-delivery (including electronic means):
- 28 **I.E.9.a** A letter signed by the Permittees and a registered professional engineer stating that the
29 NUCON facility has been constructed or modified in compliance with the Permit; and
- 30 **I.E.9.a.i** Ecology has inspected the modified or newly constructed NUCON facility and finds it is
31 in compliance with the conditions of the Permit; or
- 32 **I.E.9.a.ii** Ecology has either waived the inspection or has not, within 15 business days of the
33 receipt of the Permittees' letter, notified the Permittees of intent to inspect.
- 34 **I.E.10 Other Information**
- 35 Whenever the Permittees become aware that they failed to submit relevant facts in the
36 Permit Application or submitted incorrect information in a Permit Application or in any
37 report to Ecology, the Permittees shall promptly submit such facts or information
38 [WAC 173-303-810(14)(h)].

- 1 **I.F Monitoring, Records, and Reporting**
- 2 **I.F.1** Samples and measurements taken for the purpose of monitoring shall be representative of
3 the monitored activity. The method used to obtain a representative sample of the waste to
4 be analyzed must be the appropriate method from WAC 173-303-110, or an equivalent
5 method approved by Ecology. Laboratory methods must be those specified in
6 WAC 173-303-110(3)(a), other alternate methods approved in this Permit, or an
7 equivalent method in accordance with Permit Condition I.F.2.
- 8 **I.F.2** The Permittees may substitute analytical methods that are equivalent or superior to those
9 specifically approved for use in this Permit in accordance with the following:
- 10 **I.F.2.a** The Permittees must submit to Ecology a request for substitution of analytical method(s)
11 specifically approved for use in this Permit. The request shall provide information
12 demonstrating that the proposed method(s) requested to be substituted are equivalent or
13 superior in terms of sensitivity, accuracy, and precision (i.e., reproducibility); and
- 14 **I.F.2.b** The Permittee receives a written approval from Ecology for the substitution of analytical
15 method(s). Such approval shall not require a permit modification under WAC 173-303-
16 110.
- 17 **I.F.3** Pursuant to WAC 173-303-810(11), records of monitoring information shall specify:
- 18 **I.F.3.a** The dates, exact place, and times of sampling or measurements;
- 19 **I.F.3.b** The individuals who performed the sampling or measurements;
- 20 **I.F.3.c** The date(s) analyses were performed;
- 21 **I.F.3.d** The individuals who performed the analyses;
- 22 **I.F.3.e** Approved analytical methods at certified laboratories used; and
- 23 **I.F.3.f** The results of such analyses, including the QA/QC results and requirements.
- 24 **I.F.4 Immediate Reporting**
- 25 The Permittees shall immediately report to Ecology any release, fire, explosion, natural
26 disaster, or incident of noncompliance with this Permit that may endanger human health
27 or the environment. This reporting shall meet the requirements in WAC 173-303-
28 360(2)(d) and WAC 173-303-810(14)(F).
- 29 **I.F.5 Incident Reporting**
- 30 Within five calendar days of an incident that requires implementation of the Contingency
31 Plan, the Permittees shall submit a written report of the incident to the Director of
32 Ecology meeting the requirements of WAC 173-303-360(2)(k) and WAC 173-303-
33 810(14)(f).
- 34 **I.F.6** The Permittees shall report to Ecology all incidents of noncompliance with this Permit,
35 other than incidents specified in Permit Conditions I.F.3, I.F.4, and I.F.5, every three
36 months. These reports shall meet the requirements in WAC 173-303-810(14)(g).
- 37 **I.F.7** Within 30 days of a release to the environment from a dangerous waste tank system, the
38 Permittees must send a written report that complies with WAC 173-303-640(7)(d)(iii).

1 **I.G Compliance not Constituting Defense**

2 Compliance with the terms of this Permit does not constitute a defense to any order
3 issued or any action brought under any state or federal laws governing protection of
4 public health or the environment. However, compliance with terms of this Permit does
5 constitute a defense to any action alleging failure to comply with applicable standards
6 upon which this Permit is based, or failure to operate under a permit required by
7 WAC 173-303-800 with respect to those activities authorized by this Permit.

8 **I.H Transfer of Permits**

9 This Permit is not transferable to any person, except after notice to Ecology. In such
10 instances, Ecology will require modification or revocation and reissuance of the Permit
11 pursuant to WAC 173-303-830(2)(b).

12 **I.I Permit Expiration**

13 This Permit and all conditions herein are in effect as of the “effective date” as defined in
14 the definitions of the Permit and will remain in effect:

15 **I.I.1** For 365 operating days (WAC 173-303-809(1)(a); and

16 **I.I.2** May only be renewed three times, which is a total of three years.

17 **I.J Reports, Notifications, and Submissions**

18 All reports, notifications, or other submissions that are required by this Permit to be
19 submitted to Ecology shall be sent certified mail or hand-delivered to the following
20 address, or electronic submittal through an established communication pathway:

21 Program Manager, Nuclear Waste Program
22 Washington State Department of Ecology
23 3100 Port of Benton Boulevard
24 Richland, WA 99354-1670
25 Telephone: (509) 372-7950

26 The phone number and address may change, and such changes will be provided by
27 Ecology. Such changes will not require a permit modification.

28 **I.K Signatory Requirements**

29 All final reports that are required by this Permit to be submitted to Ecology shall be
30 signed and certified in accordance with WAC 173-303-810(12), (13), and (14).

31 **I.L Confidential Information**

32 Any information submitted by the Permittees to Ecology may be claimed as confidential
33 by the Permittees in accordance with applicable provisions of WAC 173-303-810(15).

34 **I.M Permit Renewal**

35 If the Permittees wish to continue the activities authorized by this Permit beyond this
36 Permit’s expiration date, the Permittees may request a permit renewal, for up to three
37 times, in accordance with WAC 173-303-809(4).

- 1 **PART II GENERAL FACILITY CONDITIONS**
- 2 **II.A General Waste Management**
- 3 **II.A.1** The Permittees are authorized to use the NUCON TOS Phase 3 system only on:
- 4 **II.A.1.a** Tank 241-BY-108 in accordance to the provisions applicable in a Research,
5 Development, and Demonstration (RD&D) permit in accordance to WAC 173-303-809.
- 6 **II.B Waste Analysis**
- 7 **II.B.1** The Permittees shall maintain adequate knowledge of any waste to be generated during
8 the application of the NUCON process. The Permittees will ensure this knowledge
9 through compliance with the requirements of WAC 173-303-300 and with the provisions
10 of the Waste Analysis Plan (WAP), [WAC 173-303-806 (4)(a)(iii) and WAC 173-303-
11 300(1)].
- 12 **II.B.2** The Permittees are responsible for obtaining accurate information for any waste stream.
13 Inaccurate waste analysis information provided by the generating site (or unit) is not a
14 defense for noncompliance by the Permittees with the waste management requirements
15 and conditions of this Permit, WAC 173-303, and in WAC 173-303-140.
- 16 **II.B.3** Records and results of waste analyses described in this Permit shall be maintained as
17 described in Hanford Site-wide Permit Conditions II.D and II.I.1.b.
- 18 **II.B.4** All dangerous and/or mixed wastes shall be managed only in areas authorized for
19 dangerous waste management under the conditions of this Permit.
- 20 **II.B.5** The Permittees shall comply with requirements for waste analysis specified in the WAP,
21 for all waste generated from Tank 241-BY-108.
- 22 **II.C Preparedness and Prevention**
- 23 **II.C.1** In accordance with WAC 173-303-340, the facility shall be designed, constructed,
24 maintained, and operated to minimize the possibility of fire, explosion, or any unplanned
25 release, sudden or non-sudden, of dangerous and/or mixed waste or dangerous waste
26 constituent to air, soil, or surface or groundwater that could threaten human health or the
27 environment.
- 28 **II.C.2** The Permittees shall ensure all water related safety equipment, such as eyewash units and
29 emergency showers, remain operable at all times, including during periods of subfreezing
30 temperatures.
- 31 **II.C.3** The Permittees shall comply with WAC 173-303-340(4) and WAC 173-303-355(1)
32 pertaining to arrangements with local authorities.
- 33 **II.D Recordkeeping and Reporting**
- 34 **II.D.1** In addition to the recordkeeping and reporting requirements specified elsewhere in this
35 Permit, the Permittees shall comply with all the applicable notification, certification, and
36 recordkeeping requirements described in WAC 173-303-380(l)(j), (k), (m), and (o).
- 37 **II.D.2** The Permittees shall maintain a written Operating Record of NUCON in accordance with
38 WAC 173-303-380(1) consisting of records kept for the length of time specified below.
39 Also, the Permittees shall record all information referenced in this Permit in the
40 Operating Record within two business days of the information becoming available. The
41 Operating Record shall include, but is not limited to, the information listed below:

- 1 **II.D.2.a** The following records shall be maintained until final closure is complete and certification
2 is accepted by Ecology:
- 3 **II.D.2.a.i** An up-to-date map showing the locations where dangerous and/or mixed wastes are
4 managed;
- 5 **II.D.2.a.ii** Record of spills and releases;
- 6 **II.D.2.a.iii** Written reports and records of immediate notification to the Director of Ecology to
7 address releases, fires, and explosions [WAC 173-303-810(14)(f)];
- 8 **II.D.2.a.iv** Summaries of all records of corrective action;
- 9 **II.D.2.a.v** All other environmental permits;
- 10 **II.D.2.a.vi** Records and results of waste analyses required by WAC 173-303-380(1)(c) that include,
11 at a minimum:
- 12 • The date(s), exact location, and times of sampling or measurements;
 - 13 • The name(s) of the individual(s) who performed the sampling or measurements;
 - 14 • The name of the individual(s) who performed the analyses;
 - 15 • The analytical techniques or methods used;
 - 16 • The analytical results;
 - 17 • The QA/QC results and requirements; and
 - 18 • The unique identity of the equipment or instrument used for the analysis
19 including the type/model number and either the serial number or the inventory
20 number; and
- 21 **II.D.2.a.vii** Training records of facility personnel.
- 22 **II.D.2.b** The following records shall be maintained for a minimum of five years. This time period
23 may be extended by the Director of Ecology in the event of enforcement action or
24 notification by the Director of Ecology that an investigation is ongoing. In the case of
25 notification of investigation/inspection, the Permittees will not be required to keep the
26 records longer than one year past the normal timeframe unless an enforcement action is
27 issued:
- 28 **II.D.2.b.i** Facility operation and maintenance records and reports prepared pursuant to this permit;
- 29 **II.D.2.b.ii** Date(s) and methods(s) of treatment used for waste process operation including name(s)
30 of personnel performing actual operation;
- 31 **II.D.2.b.iii** Progress reports and any required notifications prepared pursuant to this Permit;
- 32 **II.D.2.b.iv** The notice and certification required of a generator under WAC 173-303-140
33 (Land Disposal Restrictions);
- 34 **II.D.2.b.v** Records of all inspection and monitoring information meeting requirements of
35 WAC 173-303-320(2)(d) and this Permit including, at a minimum, the following
36 calibration and maintenance records:
- 37 • The date(s) and time(s) of data recording;
 - 38 • The name of the person taking and recording the information; and
 - 39 • The recorded information itself whether consisting of observation, data
40 measurement, instrument reading, or any other monitoring method;

- 1 **II.D.2.b.vi** Records of all inspections meeting the requirements in WAC 173-303-395(1)(d);
- 2 **II.D.2.b.vii** Annual reports submitted in compliance with WAC 173-303-220(1), *Generator*
- 3 *Reporting*. However, if the reports are necessary to supplement the NUCON TOS
- 4 Operating Record, they must be retained until final closure is complete and certified.
- 5 **II.D.2.b.viii** Manifests; and
- 6 **II.D.2.b.ix** Training records of former facility personnel.
- 7 **II.D.2.c** Up-to-date copies of the following documents as amended, revised, and modified shall be
- 8 maintained at the facility until final closure certification is accepted by Ecology:
- 9 **II.D.2.c.i** The Permit and all attachments;
- 10 **II.D.2.c.ii** The Certified RD&D Permit Application dated September 27, 2023;
- 11 **II.D.2.c.iii** Documentation of arrangements made with local authorities pursuant to WAC 173-303-
- 12 340(4) and (5); and
- 13 **II.D.2.c.iv** All closure documents prepared pursuant to this Permit [WAC 173-303-610(3)(a)].
- 14 **II.E** **Cleanup of Released Material**
- 15 **II.E.1** The Permittees shall comply with the requirements of WAC 173-303-145, including but
- 16 not limited to, notification, mitigation, and control measures specified in WAC 173-303-
- 17 145 (2) and (3) under the following circumstances:
- 18 **II.E.1.a** A spill or non-permitted discharge of dangerous and/or mixed waste or hazardous
- 19 substance that is intentionally or accidentally spilled or discharged into the environment
- 20 (unless otherwise permitted) such that human health or the environment is threatened,
- 21 regardless of the quantity of dangerous and/or mixed waste or hazardous substance. For
- 22 spills or discharges onto the ground, into the groundwater, or into the surface water notify
- 23 all local authorities in accordance with the local emergency plan.
- 24 **II.E.1.b** A spill or non-permitted discharge of dangerous or mixed waste or hazardous substance
- 25 results in emission into the air such that human health or the environment is threatened.
- 26 **II.E.1.c** Other spills or discharges occur which threaten human health or the environment.
- 27 **II.E.2** Consistent with good management for abatement of initiating cause and prudent
- 28 consideration of health and safety risks to personnel, the Permittees shall remove spilled
- 29 or leaked waste within secondary containment within 24 hours, or in as timely a manner
- 30 as is possible, to prevent harm to human health and the environment.
- 31 **II.F** **Financial Assurance and Liability Requirements**
- 32 **II.F.1** The Permittees are subject to the cost estimate requirements for facility closure in
- 33 accordance with WAC 173-303-620(3) and the cost estimate requirements for
- 34 post-closure monitoring and maintenance as in WAC 173-303-620(5). The Permittees are
- 35 exempt from the liability requirements in WAC 173-303-620(8) and the financial
- 36 assurance requirements in WAC 173-303-620(4).

1 **II.G Land Disposal Restrictions**

2 **II.G.1** The Permittees must meet Land Disposal Restrictions (LDR) standards for disposal of
3 final waste forms for waste codes on the Single-Shell Tank (SST) the Part A Form. All
4 waste forms subject to LDR standards must be demonstrated to meet all applicable
5 treatment standards and requirements (WAC 173-303-140/40 Code of Federal
6 Regulations [CFR] Part 268). Waste that has dangerous and/or mixed waste constituents
7 shall be analyzed in accordance with this Permit and WAC 173-303-140/ 40 CFR 268.
8 For waste that has treatment standards that are not concentration based, the generator
9 and/or treatment facility must demonstrate that the waste meets the applicable treatment
10 standards using process knowledge and/or by waste analysis, as required by this Permit
11 and the applicable sections of WAC 173-303-140/40 CFR 268.

12 **II.H Air Emissions**

13 **II.H.1** Leaks, spills, malfunctions, operational changes, or other events which may cause excess
14 air emissions must be reviewed for additional notification requirements related to the
15 federal and Washington Clean Air Acts. Any such notification would be outside the
16 scope of, and in addition to any notification required by, this Permit.

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