

## US ECOLOGY WASHINGTON, INC. NORM / NARM and EXEMPT WASTE GUIDELINES

This guide is a service to our customers, to assist you in more easily accessing US Ecology Washington for NORM / NARM waste disposal. Our job is to make yours easier. If we can be of assistance or answer any questions please call us at:

Laura Lee Barry  
Customer Service  
1777 Terminal Drive  
Richland, WA 99354  
(509) 946-4945  
FX: (509) 946-5495  
[lbarry@usecology.com](mailto:lbarry@usecology.com)

Mike Ault  
Facility Manager  
(509) 377-2411  
FX (509) 377-2244  
[mault@usecology.com](mailto:mault@usecology.com)

Chad Hyslop  
Director of Sales & Marketing  
(208) 319-1604  
FX (208) 331-7900  
[chyslop@usecology.com](mailto:chyslop@usecology.com)

### **QUICK REFERENCE GUIDE:** Documents required to ship to US Ecology Washington:

1. Site Use Permit (issued by Washington Department of Ecology) – see Page 12. [Application available here.](#)
2. NARM Determination (issued by US Ecology) – see Page 10 & attached “Discrete” or “Diffuse” NARM forms
3. Generator Number (issued by US Ecology) following submittal of waste information
4. Contract, Pricing Terms, Credit Application – contact your salesman or Laura Lee Barry with questions
5. RHF31D (release of liability) – available from Laura Lee Barry
6. Export Permit (if required by Compact)
7. Broker permit (if you are not the generator & brokering others’ wastes) – see Page 5 and 12. [Application available here.](#)
8. Manifest (NRC-540/541/542)
9. Any Variances or Packaging Approvals (as required)
10. Exclusive Use Instructions (if applicable).
11. 7A Documentation (if required)
12. Emergency Instructions
13. Washington Port of Entry Requirements
14. Broker/Generator Responsibility Form (if US Ecology is brokering your waste)

Other guidance documents available for your assistance:

1. Packaging guide for stabilizing discrete Radium sources
2. Packaging guide for Class B tritium
3. Resin dewatering procedures
4. Appendix B to USEW License: Approved Sorbents

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## DEFINITIONS

1. NORM means “naturally occurring radioactive materials”.

NARM means “naturally occurring or accelerator produced radioactive materials”.

EXEMPT means “Unimportant quantities of Source Material” (10CFR40.13) and other EXEMPT radioactive materials (10CFR30.15 - 20).

Disposal of NARM and EXEMPT radioactive materials is not regulated by the US NRC or the Northwest Compact.

(NORM is considered to be a subset of NARM).

For the remainder of this document, the term NARM will be used to refer to any NORM or NARM wastes.

2. Radium, in any chemical or physical form, in any concentration, is NARM. Radium daughter products (Pb-210, Bi-210, Po-210, Ac-228, etc.) are also considered to be NARM. Radium-Beryllium sources are also NARM.
3. Uranium and/or Thorium with or without associated daughters, may be considered Exempt material by US Ecology and/or the State of Washington if:
  - a. The Uranium or Thorium is in exempt concentrations and thus exempt from the requirements for a specific license (See 10 CFR 40.13, WAC 246-232), **and**
  - b. Uranium or Thorium is not subject to a specific *source materials license* issued by the NRC or an Agreement State.

NOTE: Even though U & Th may be specifically licensed by an Agreement State, not all state licensed U & Th is source material. Most NRC licensed U & Th is regulated source material and all associated wastes are considered LLRW.

4. 11(e)2 (Uranium and/or Thorium tailings) material is not NARM or EXEMPT.
5. A radioactive material which contains only accelerator produced isotopes is NARM.

## GENERAL REQUIREMENTS FOR ALL NARM / EXEMPT

1. All NARM or EXEMPT waste requires US Ecology NARM Services, concurrence (“NARM or EXEMPT Determination”) that the waste is in fact NARM/EXEMPT, including in-compact waste. This concurrence allows disposal of the material as NARM or EXEMPT at the Richland facility.
2. All Radium wastes are considered to be NARM. However, a NARM determination must be obtained for each waste stream and from each generator.
3. NARM or EXEMPT and Low-Level Radioactive Waste (LLRW) shall not be placed in the same disposal package.
4. If NARM or EXEMPT and low-level radioactive wastes are shipped on the same vehicle, 2 sets of paperwork (manifests, etc.) should be completed; one for the NARM/EXEMPT and one for the LLRW.
5. All conditions of US Ecology’s Richland License, including documents incorporated by reference, apply to NARM/EXEMPT wastes as well as LLRW.
6. For stabilized Radium sources, if multi-generator’s waste is to be consolidated in a package, this must be addressed when requesting the non-homogenous Radium variance.
7. Empty container weight must not be included in specific activity calculations of waste packages.
8. A separate Site Use Permit must be obtained from the Washington Department of Ecology for NARM and EXEMPT waste even if the generator has an existing, valid Low Level Waste Permit.
9. Specific packaging approval requests, if required, should be submitted along with NARM determination requests. US Ecology will prepare and submit all packaging approval and license variance requests to the State of Washington, Department of Health (WDOH).
10. Acceptable waste packagings include metal drums, plastic drums, “SeaLand” type containers and metal boxes. Cardboard, corrugated paper, wood and fiberboard are specifically prohibited by our license. Metal containers must be secured by an intact heavy-duty closure device. “Lever locks” are not acceptable closure devices for drums. Drum ring bolts on 55 gallon or larger drums must be at least 5/8 inch in diameter. SuperSaks are occasionally approved for use with soil like materials.

11. For materials shipped in specification containers, a copy of the DOT 7A, Type A, certification must accompany shipping documents to the disposal site. Generators/brokers should obtain accurate container weights, since drums (especially Class A-Stable drums) will likely be weighed upon receipt at the disposal facility.
12. Upon receipt at the Richland facility, waste packages are subject to random inspection to ensure compliance with disposal site requirements. All first time users of the facility will have their waste physically inspected upon receipt.
13. Encapsulated leaking sealed sources are acceptable for disposal. However, the existence of leaking sealed sources should be made known in the initial request and on the disposal manifest so that the proper precautions can be taken by US Ecology.
14. This document is considered to be a guidance document only and does not supersede or alter the site licenses or other state or federal requirements.
15. The term “Broker” has a specific, legal definition in the State of Washington. Companies/Individuals that act as Brokers are required by the State of Washington to have valid Broker Permits. Broker(s), if involved in a particular shipment, are usually held accountable for errors and problems with a shipment.

## **GUIDANCE ON SPECIFIC WASTE STREAMS**

### **A. Contaminated soil, building rubble, pipe scale and similar waste streams, less than 10 nCi/gram of Radium 226 and most EXEMPT wastes.**

1. Should be packaged such that the radioactivity is essentially evenly distributed within the waste package.
2. Drums and metal boxes are typical packaging. Use of SuperSaks requires WDOH approval and should be specifically addressed in the NARM Determination request.
3. Waste will be Class A, Unstable.
4. The State of Washington Dangerous Waste Regulations do not recognize the "oilfield RCRA exemption". As a general rule for NARM generated in the oilfield industry, a composite sample from each waste stream will need to be analyzed for:
  - a. TCLP Metals(8) and Organics(32)
  - b. Ignitability
  - c. Corrosivity
  - d. Reactivity
  - e. % Oil and Grease
  - f. Gamma Isotopic
  - g. Paint Filter Test (optional)

NOTE: All NARM isotopes should be reported on the gamma isotopic. Laboratories should report actual isotopes detected and should not make interpretations about the presence of daughters or parents that rely on (potentially false) assumptions about equilibrium conditions of the waste material.

5. NARM waste generated from sources other than oilfields may require more or less testing than that outlined in iv) above, based on the level of "generator knowledge". To minimize laboratory costs, contact US Ecology for guidance prior to sampling.

### **B. Radium Instruments & Articles, small sources and other devices, less than 10 nCi/gram (as packaged).**

1. Should be packaged such that the Radium is essentially evenly distributed within the waste form. No individual item in any waste package may have an individual activity of greater than 100 uCi.
2. Inner 2-R Type container is not required.
3. Drums and metal boxes are typical packaging.
4. Waste will be Class A, Unstable.

**C. Radium needles and sources > 10 nCi/gram (as packaged).**

1. Waste should be packaged as follows:
  - a. Up to 1200 mCi's per package.
  - b. Sources and/or needles shall be packaged in a USDOT Specification 2R container, other WDOH approved metal 2R-Type container (Schedule 40 pipe w/ endcaps), special form capsule, or lead pig. All voids must be filled with structural concrete or cement. The 2R, 2R-type, special form capsule, or lead pig should then be sealed.
  - c. The 2R, 2R type, special form capsule, or lead pig is geometrically centered and stabilized with structural concrete (2500-psi min.) in a 55-gallon USDOT Specification 7A, Type A drum.
  - d. Fill the 55-gallon, DOT 7A, Type A container at least 95% full with structural concrete (2500-psi min.). Tap out any air voids. (Note: ensure inner 2R, 2R type or lead pig remains centered).
  - e. Concrete must cure for at least 28 days prior to shipment and the temperature must be maintained between 40°F to 100°F during the curing period.
  - f. Waste will be Class C, Stable.
  - g. Requires a non-homogeneous Radium packaging approval to be issued by the State of Washington (Generator/Broker should get this prior to packaging).
  - h. Radium packaged in the above manner will be encapsulated within Engineered Concrete Barriers (ECB) at the Richland, WA disposal site.

**D. Consumer Products**

1. If all requirements of License Condition 39 are met:

- a. No inner 2-R is required.
- b. Waste will be Class A Unstable, regardless of actual specific activity.

**E. Radium needles and sources (< 4.5 mCi total) and < 10 nCi/gram (as packaged).**

1. Inner 2-R Type container not required, but waste must be geometrically centered and stabilized in structural concrete (2500-psi min.). A 2-R Type container may be used, if desired.
2. Requires a non-homogeneous Radium packaging approval variance to be issued by the State of Washington.
3. Waste will be Class A, Stable. The final average radium concentration must be <10 nCi/gm based on the net waste weight.
4. Concrete must cure for at least 28 days prior to shipment and the temperature must be maintained between 40°F to 100°F during the curing period.
5. Radium packaged in the above manner will be encapsulated within Engineered Concrete Barriers (ECB) at the Richland, WA disposal site.

**F. Uranium and Thorium and combinations thereof.**

1. Gamma isotopic printout or other documentation (alloy spec. sheets, MSDS...) should accompany request (alpha spectroscopy not generally needed). All Uranium and/or Thorium daughters should be reported, if they are identified. Laboratories should report actual isotopes detected and should not make interpretations about the presence of daughters or parents that rely on (potentially false) assumptions about equilibrium conditions of the waste material.
2. Waste origin description should be very specific to ensure that waste is not a regulated source material or 11(e)2 byproduct material. A copy of radioactive materials license(s) should be included if the facility generating the material has a specific license, even if the proposed waste material is not covered by the license(s).
3. Waste will be Class A, Unstable.

## **G. Accelerator Produced Material (NARM)**

1. Gamma isotopic printout or a drum activity spreadsheet should accompany request. Laboratories should report actual isotopes detected and should not make interpretations about the presence of daughters or parents that rely on (potentially false) assumptions about equilibrium conditions of the waste material.
2. Waste origin description should be very specific to ensure that the isotopes in the waste were in fact produced in an accelerator or a fusion reactor, and not a fission reactor.

## PROCEDURE FOR NARM or EXEMPT WASTE DISPOSAL

Contact US Ecology for a preliminary assessment of your waste stream. Any special packaging, treatment or analytical requirements can usually be identified at this time. Our approval is called a “NARM Determination” and is issued in response to a specific request by a customer submitted in writing either on the forms provided or in response to information in a letter as summarized below. Any special packaging, treatment or analytical requirements can usually be identified at this time. NOTE: Steps 1 through 5 take approximately 2 to 6 weeks.

1. US Ecology will need the following information:
  - a. Physical and Chemical description of waste (Mg-Th Aircraft parts, Exempt Electron tubes, Radium needle, Thorium Oxide contaminated building rubble, compacted empty drums contaminated with uranium oxides, oilfield NARM from tubular cleaning, etc.).
  - b. Specific activity of each radionuclide present in pCi/gram (only those that constitutes  $\geq 1\%$  of total activity need be included). Do not include the empty weight of the disposal container in the calculation.
  - c. Proposed packaging methodology (i.e., 55-gallon 17-H drums, B-25 type metal boxes, etc.).
  - d. Anticipated volume, as packaged, in cubic feet.
  - e. Future anticipated volumes and time frame (i.e., 200 cubic feet per quarter for the next two years, one-time cleanup, etc.).
  - f. Type of operation that generated the waste (i.e., one time soil remediation, routine lab wastes from an accelerator facility, excess medical therapy sources, etc.). Please be specific.
  - g. Approximate desired shipping date.
  - h. Existing/Previous NARM, EXEMPT or Low Level Site User Permit number (if applicable).
  - g. Any variances to the Richland facility license that may be needed.
  - h. US Ecology Generator Number (if known).
  - i. Name and address of generator and point of contact. Also include name of Broker, if a Broker will be used.

2. There is no US Ecology charge for the initial submission or review of a NARM or EXEMPT waste disposal request. The information may be transmitted by facsimile or mail. A form is available that may be used for discrete sources, or for diffuse NARM or Exempt material. Use of these forms is not required as long as the essential information is contained in your correspondence.

3. Your points of contact, in order, are as follows:

<u>NAME</u>	<u>TITLE</u>	<u>PHONE</u>	<u>FACSIMILE</u>
Chad Hyslop E-Mail: <a href="mailto:chyslop@usecology.com">chyslop@usecology.com</a>	Director of Sales & Marketing	208-319-1604	208-331-7900
Mike Ault (LLRW) E-Mail: <a href="mailto:mault@usecology.com">mault@usecology.com</a>	Facility Manager	509-377-2411	509-377-2244

4. For diffuse NARM or EXEMPT wastes US Ecology will review the request and determine whether or not your waste qualifies as NARM or EXEMPT waste. If US Ecology determines that your waste is in fact NARM or EXEMPT waste, we will inform the generator and or broker in writing (our "NARM Determination"). US Ecology will send a NARM or EXEMPT site use permit application, the written NARM/EXEMPT Determination approval and a generator registration form to the generator and/or broker. (Unless otherwise requested, US Ecology will send the approval and the permit application to the Broker, if applicable). There is no charge for review of your request.

5. For discrete radium US Ecology will prepare a written packaging approval request and submit it to:

Department of Health  
Division of Radiation Protection  
P. O. Box 47827  
Olympia, Washington 98504-7827

The WDOH will review the request and determine whether or not your waste packaging is acceptable. If the WDOH determines that your waste packaging is acceptable, they will inform US Ecology in writing. US Ecology will then forward a copy of the WDOH correspondence letters, a WDOE site use permit application and a generator registration form to the generator and/or broker. (Unless otherwise requested, US Ecology will send the approval and the permit application to the Broker, if applicable). There is no State of Washington charge for review of your request.

Once the Washington Department of Ecology (WDOE) receives a completed and signed copy of a Site Use Permit application, a check for the permit fee, a copy of the

NARM/EXEMPT approval letter and any other required analytical results a Site Use Permit can be issued by the WDOE.

There is a fee associated with the NARM or EXEMPT Site Use Permit. A rate schedule, based on anticipated annual NARM or EXEMPT disposal volume, will be included with the application (the minimum fee is \$424). US Ecology will assist generators, at no charge, in completing the application.

6. The mailing addresses for the permit application and application fee are included in the application form. If US Ecology is paying for your permit, mail the completed and signed application to:

Laura Lee Barry  
US Ecology NARM Services  
1777 Terminal Drive  
Richland, WA 99354

7. The Site Use Permit will be mailed by the Department of Ecology (WDOE) to the generator. The WDOE normally issues Site Use Permits at the end of each calendar month. The permit year is 4/1 to 3/31 for NARM / EXEMPT Generators.

8. Once the Washington Department of Ecology has issued the Site Use Permit, you should complete the US Ecology Radioactive Waste Generator Registration form and fax it to the following address:

Laura Lee Barry  
US Ecology, Richland, WA  
Fax: 509-946-5495

It will be necessary that you have a US Ecology generator number prior to shipping your waste. (If you have previously shipped waste to either the Beatty or Richland sites, you already have a US Ecology generator number). For assistance in completing your generator registration form (or to determine what your US Ecology Generator number is), please contact Laura Lee Barry at 509-946-4945.

9. A waste disposal contract and/or Purchase order must be in place before waste is shipped to the Hanford facility. This process can start prior to or concurrent with any previous steps.

10. All NARM or EXEMPT shipments to US Ecology must be accompanied by a WDOH approved shipping and disposal manifest. The only manifest currently approved is the NRC Uniform Manifest. Contact Laura Lee Barry at 509-946-4945 or Mike Ault at 509-377-2411 to obtain information on obtaining this manifest and instructions.