



Oregon

Tina Kotek, Governor



550 Capitol St. NE
Salem, OR 97301
Phone: 503-378-4040
Toll Free: 1-800-221-8035
FAX: 503-373-7806
www.oregon.gov/energy

To: Energy Facility Siting Council

From: Maxwell Woods, Assistant Director, ODOE Nuclear Safety and Emergency Preparedness Division
Tom Sicilia, RG, Hanford Hydrogeologist, ODOE Nuclear Safety and Emergency Preparedness Division
Thomas L. Jackman, Rules Coordinator, ODOE Energy Facility Siting Division

Date: November 3, 2023

Subject: Agenda Item B (Action Item): Radioactive Waste Disposal Rulemaking Project, Review of Public Comments and Consideration of Permanent Rules for the November 17, 2023 EFSC Meeting

Attachments: Attachment 1: Draft Permanent Order
Attachment 2: Proposed Rules in Track Changes
Attachment 3: Comment Received During Public Comment Period

BACKGROUND AND SUMMARY

In its 2020-2022 Rulemaking Schedule, Council approved a rulemaking project to evaluate the current regulatory landscape and body of evidence related to radioactive waste and identify potential updates to the Council's rules under OAR 345-050, which govern radioactive waste definitions.

Longstanding Oregon statute (ORS 469.525) bans disposal of radioactive waste in Oregon, and Council, by rule, has established rules to define what constitutes "radioactive waste" subject to the disposal ban. This includes defining specific types of waste that are or are not considered radioactive waste, and establishing thresholds for radioactivity that are used to assess whether certain wastes are considered radioactive.

In 2021, Oregon Senate Bill 246 directed Council to review and, as necessary, revise its rules to further consider and adopt standards and rules as necessary to prevent the disposal of radioactive waste within this state. ORS 469.300 includes a definition of radioactive waste and a definition of what is *not* radioactive waste. It states that "*Radioactive waste' does not include: ... Materials identified by the council by rule as presenting no significant danger to the public health and safety.*" It is this task that was the focus of this rulemaking project.

Radiation occurs naturally in the environment and through human activity radioactive isotopes can be concentrated. Because radioactivity is so prevalent in the natural world, it is necessary for Council to adopt specific standards and rules to define what types of waste and levels of radioactivity are considered safe and allowable for disposal in Oregon.¹

It is important to note that the most common types of radioactive waste in Oregon are typically not subject to federal disposal regulation, contain very low levels of radiation, and are usually the product of industrial activity or medical treatments. These types of wastes originate both from Oregon-based and out-of-state sources.

Other types of highly radioactive waste, such as spent nuclear fuel from nuclear power plants, are subject to federal disposal regulations and sometimes state regulations as well. Waste with high levels of radioactivity, waste that originates at commercial nuclear power plants, waste that originates from America's historic nuclear weapons production facilities, and other sources, is always considered "radioactive waste" by EFSC rules and thus never allowable for disposal in Oregon.

In fall 2021, Council appointed a Rulemaking Advisory Committee (RAC) comprised of a diverse cross-section of stakeholder groups. The RAC met five times, most recently in April 2023. Additionally, the RAC and ODOE staff shared information via email, particularly as drafts of the proposed rules were developed. All materials from RAC meetings can be found on EFSC's rulemaking website, including a discussion of the various RAC discussions which is located in the staff report for Council's September 8, 2023 meeting.

Public Comment Period

The public comment period ran from September 24, 2023 through October 27, 2023. Only one comment, from the League of Women Voters of Oregon (LWV), was submitted via EFSC's public comment portal.² See Attachment 3. LWV expressed gratitude for staff's diligence throughout the rulemaking process, but they shared some concerns that only industry stakeholders had the resources to engage experts and participate meaningfully in the RAC that developed these rules. They propose no modifications to the proposed rules, but they ask the Council to consider this reality while considering the adoption of these rules and to consider LWV as a future stakeholder should the Council seek to modify these rules in a future rulemaking.

¹ All humans are exposed to radiation in the natural and human-made environment. Typical exposures to elevated levels of radioactivity come from radon gas emanating from the earth's crust, solar radiation from flying in airplanes, medical and dental procedures, and even from natural stone kitchen countertops, bananas, or certain types of nuts, just to name a few common and well-known sources.

² One additional comment was submitted via email directly to staff. This was from Martha Dibblee and contained a packet of materials related to a pathway exemption analysis done by 3S Consulting, LLC on behalf of the Eugene Water & Electric Board in 2015. As this packet of materials was outside the scope of this rulemaking, the sender included no commentary or proposals directed at this rulemaking, and the sender requested that the materials be treated as confidential, staff has chosen to omit the comment from this report pending further review.

A public hearing was held during this period on October 19, 2023, at 1:00 pm. At this hearing, Andrea Fugue, Government Affairs Director of Oregon Refuse and Recycling Association, expressed her support for the proposed rules and expressed appreciation for this rulemaking and the way in which it was handled. Trent Carpenter, General Manager of Southern Oregon Sanitation, also spoke in support of the proposed rule changes, noting the challenges under the current rules that result from medical procedure related isotopes ending up in residential waste.

Summary of Proposed Rule Changes

OAR 345-050-0006: This rule change updates the language to reflect changes to ORS 469.525 and to clarify temporary storage exclusions.

OAR 345-050-0010: Addition of (5)(a)-(d) fix the discrepancy between practicable disposal timeframes and the existing “7 day” rule. Radioactive waste that must be properly managed and disposed of out of state is handled by a small number of companies, which typically only make pick-ups in Oregon once per quarter, except in emergencies. As such, it is simply not possible to move radioactive waste to an out-of-state disposal facility within seven days. Additionally, the Department and the RAC propose to create a clear process for facilities not licensed by Oregon Health Authority (OHA) to handle radioactive material that may occasionally end up with radioactive waste (typically landfills, waste transfer stations, or metal recyclers). The proposed rules would require unlicensed facilities that unintentionally receive radioactive waste to work with ODOE and OHA to safely store the waste until it can be retrieved for disposal out of state. Finally, the proposed rules would clarify that OHA-licensed facilities that knowingly handle radioactive material and produce radioactive waste can continue to temporarily store such radioactive waste in accordance with their license requirements and to dispose of this waste at an out-of-state facility.

OAR 345-050-0020: This rule change is a reorganization of exempt quantities (including a text transfer to and from -0030) and minor wordsmithing. As seen in the draft, the Department swapped language in current OAR 345-050-0020 and OAR 345-050-0025 to fix an error in order of reference to Tables 1 and 2. The Department also added an exemption for lead-210 concentration when out of equilibrium with U-238. The current rules have an expectation which states that all isotopes in a decay chain are at equilibrium, i.e., both parents and daughters are roughly the same concentration. However, certain petroleum processing settings include wastes that are out of equilibrium and enriched in one of the daughter isotopes, lead-210. Lead-210 and its daughter polonium-210 comprise the highest risk driver for exposure by consumption of material that has made its way into plants. The addition of a lead-210 exemption for petroleum products when it is outside of equilibrium would eliminate a potential loophole in the rules that could adversely impact a member of the public if the waste is land-spread.

OAR 345-050-0025: This rule change is a reorganization of exempt quantities (including a text transfer from -0030) and minor wordsmithing. Additionally, as discussed above, the language of rule 20 and rule 25 have been swapped to fix an error in the order of references to Tables 1 and 2.

OAR 345-050-0030: This rule was modified for clarity via a reorganization of exemptions (including text transfer to and from -0020, to -0025). Changes to (3) added animals to the burial specific exemption to account for a rise in radiotherapy in veterinary use.

Proposed changes to (4) add an exemption for metabolized medical treatment isotopes, provided the landfill has an approved plan in place. Plans would be approved by ODOE staff in consultation with OHA. This type of waste is primarily soiled diapers from patients receiving radio-medicine treatments. This is an important issue for landfill operators, which are routinely receiving such waste in loads of municipal solid waste. Current practice is for site workers to manually sort through piles dumped from trash trucks to identify and isolate bags containing soiled diapers. Commonly used medical isotopes quickly decay to low levels of radioactivity. It is safer for workers at landfills to be able to dispose of such waste in compliance with an approved plan once the isotope is identified and poses little to no risk to the environment after disposal.

Finally, the proposed rule would add an exemption for materials that were legally disposed under current rules, provided that the waste remains in place.

Suspension of “Pathway Exemption” Rulemaking

At the Department’s request and per direction from Council at its September 22, 2023 meeting, the Department suspended rulemaking related to the “pathway exemption” covered by OAR 345-050-0035 through -0038 given supplemental safeguards that exist from other state and local regulatory agencies and the limited benefit gained from pursuing this rulemaking.

The pathway exemption allows for waste that would otherwise be considered radioactive to undergo a series of tests to determine levels of gamma radiation, radon emanation, and water leachate. If results from all three tests are in compliance with the standards set in EFSC rules, the waste is not considered “radioactive waste” and thus is allowable for disposal in Oregon.

This pathway exemption process is only allowed for the type of waste termed “naturally occurring radioactive material” or “NORM.” NORM waste is produced by multiple Oregon businesses and is safely disposed of at Oregon landfills, in accordance with current EFSC rules. Examples of NORM waste includes waste metal casting shell, refractory furnace brick, pipescale build-up inside water and wastewater pipes, and filters from the geothermal energy industry and the oil and gas industry. NORM is not regulated by the federal government. The risk from NORM is typically from chronic, long-term exposure and as such, the EFSC pathway rules (and most other states) regulate NORM material and waste with a focus on reducing or eliminating public exposure to NORM over the long-term.

EFSC's existing pathway exemption process takes the long-term approach. By focusing on gamma radiation (direct exposure), radon (inhalation risk), and water leaching (ingestion risk), the existing rules consider a model of exposure to a hypothetical future person living on a landfill of NORM waste. NORM waste is allowed for disposal only if the modeling results demonstrate expected exposure below a radiation dose limit established in EFSC's rules.

The pathway exemption process, including the current dose limit as set in existing rule, is protective to the public now and in the foreseeable future given other supplemental safeguards that exist from other state and local regulatory agencies (e.g., Oregon Department of Environmental Quality (DEQ) illegal dumping rules, DEQ landfill regulations, OHA-Radiation Protection Services licenses requirement that NORM waste is disposed in an industrial landfill, and county land use restrictions on landfills that make it unlikely a person would build a house on top of a closed landfill in the future).

The current EFSC exposure standard is 500 millirem per year (mR/year); the national unrestricted public dose limit is 100 mR/year. Based on the Department's modeling assumptions, lowering the acceptable pathway dose to 100 mR/year, adding a plant ingestion pathway, and making all pathways except radon cumulative would limit acceptable wastes to those below existing concentration or quantity exemptions, effectively eliminating the pathway exemption for minimal benefit in reducing risk to public health and safety.

STAFF RECOMMENDATION

The Oregon Department of Energy (ODOE or Department) recommends the Council adopt as permanent the amended rules that are presented in the Draft Permanent Order, included as Attachment 1 to this staff report.

If the Council adopts these rules as permanent, the Department recommends that the permanent rules become effective upon filing with the Secretary of State.