



August 28, 2020

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U.S. Environmental Protection Agency
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Via email to: brozowski.george@epa.gov

Re: Proposed Venting of Radioactive Tritium from Containers at Los Alamos National Laboratory Technical Area 54

Dear Mr. Brozowski:

We write to you to express our strong opposition to the plans of Triad National Security, LLC (Triad), the U.S. Department of Energy's (DOE) contract operator of Los Alamos National Laboratory, to vent potentially more than 114,000 curies of tritium into the atmosphere. As you know, tritium is a radioactive isotope of hydrogen, and a known human carcinogen for which there is no "safe" level of exposure. We are very concerned that the planned venting of tritium may have significant adverse health effects on people in the area, including workers and nearby residents in local communities and Pueblos. Further, we believe the proposed tritium venting would be unlawful as it is currently planned.

We appreciate your consideration of our concerns.

A. Background

Tritium is a radionuclide that is regulated under the National Emission Standards for Hazardous Air Pollutants (NESHAPs) program under section 112 of the Clean Air Act.¹ EPA regulations implementing the NESHAPs program require the owner or operator planning to construct or modify a new stationary source of a hazardous air pollutant to submit to EPA an application for approval of the construction.² The regulations further provide that the owner or operator must notify EPA of the anticipated date of the initial start-up of the source. Written notification must be submitted not more than 60 days nor less than 30 days before that startup date. A second notification of the actual date of initial startup must be submitted within 15 days after that date.³

Under the NESHAPs program, EPA has set an emission standard for radionuclides (other

¹ 42 U.S.C. § 7412.

² 40 C.F.R. § 61.07.

³ 40 C.F.R. § 61.09.

than radon), expressed as a maximum dose to any member of the public, at 10 millirem per year.⁴ That standard applies to all facilities operated by DOE that emit radionuclides, such as the Laboratory.⁵

Pursuant to these regulations, on May 17, 2019, Triad and DOE submitted to EPA an application to “construct” a new source of emissions of hazardous air pollutants.⁶ The new source is a system for venting into the atmosphere waste tritium from four specialized containers.

According to the application, the Laboratory has been storing four canisters, called “Flanged Tritium Waste Containers” or “FTWC’s,” containing waste tritium at Material Disposal Area G (MDA G), in Technical Area 54 (TA-54). The application does not indicate how long the containers have been stored. The four containers hold a total of 114,683 curies of radioactive tritium. The containers hold tritium-contaminated metal parts and molecular sieve media, a pebble-like material used to absorb water vapor from exhaust air streams. Over time, some of the tritiated water vapor has desorbed or “liberated” and built up in the headspace of the containers. Radiolysis can cause separation of the water vapor forming a dangerous mixture of tritium and oxygen, and potentially building up excessive pressure in the container. Triad thus proposes to vent the tritium into the atmosphere in Building 1028 at TA-54. Triad proposes to use an emission control system to capture an indeterminate portion of the vented tritium.⁷

On May 22, 2019, three business days after the date of the application, EPA approved the application.⁸ EPA concluded in the letter that the project, if operated properly, would not cause emissions in excess of the standards.⁹ The letter also stated that the approval “does not relieve the Applicant of the legal responsibility to comply with the NESHAPs standards for radionuclide emissions.”¹⁰

On March 5, 2020, Triad sent EPA a notification of change in the scope of the tritium container venting project.¹¹ The letter explained that Triad planned to transport the containers across the Laboratory property to the Weapons Engineering Treatment Facility at Technical Area 16 (TA-16). During handling, loading, transport, and unloading, jostling of the containers might cause additional tritium to escape into the container headspace and build pressure. Thus, secondary venting along the route or in a parking lot might be necessary. The letter states, unconvincingly, “Since the air emissions estimates in the original approved Application remain

⁴ 40 C.F.R. § 61.92.

⁵ 40 C.F.R. § 61.90.

⁶ Triad National Security, LLC & U.S. Dep’t of Energy, *Application for Pre-Construction Approval under 40 CFR 61 Subparts A and H for Venting of Flanged Tritium Waste Containers (FTWCs) at TA-54*, at 3 (May 17, 2019) (LA-UR-18-26283) (hereinafter “Application”).

⁷ *Id.* at 3.

⁸ Letter from Guy R. Donaldson, EPA Region 6, to Peter Maggiore, DOE, Re: National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61, Subparts A and H, Standards for Radionuclide Emissions Other Than Radon from Department of Energy Facilities (May 22, 2019) (hereinafter “Approval Letter”).

⁹ *Id.* at 1.

¹⁰ *Id.* at 2 (emphasis in original).

¹¹ Letter from Taunia Van Valkenburg, Triad Nat’l Sec., LLC, to George Brozowski, EPA Region 6, Re: Notification of Operational Scope Change for the FTWC Venting Project at Los Alamos National Laboratory (LANL) (Mar. 5, 2020) (LA-UR-20-22148) (hereinafter “Change Notification Letter”).

applicable and radionuclide emissions will not increase above approved levels, no prior approval of this planned change is needed from EPA Region 6.”¹²

So far as we are aware, as Triad suggested, EPA did not approve this change.

On March 11, 2020, as required by the regulations, Triad notified EPA of the planned tritium venting “startup.” The notice stated that the venting would take place beginning on April 17, 2020.¹³ At least in part due to public opposition to the planned venting, Triad delayed the tritium venting. We understand that Triad now plans to conduct the venting in September 2020.

B. Flaws in the Application

We have identified several significant flaws in the application. EPA should require Triad to address these issues, through a new or amended application, before the planned venting proceeds.

First, although Triad has stated that it will use an emission control system to capture a portion of the tritium before it escapes into the atmosphere, Triad does not seem to know how effective this system will be. Triad states that the control system will be a molecular sieve system known as a “getter bed,” which “uses a high-surface area metal matrix to chemically bind with hydrogen/water and remove it from the gas stream.”¹⁴ Triad notes that efficiency of the getter bed can vary with flow rates and operating temperature and pressure. Triad then states, vaguely, that “experience at [the Laboratory] indicates that such a system will remove a significant amount of tritium from the air stream.”¹⁵ Elsewhere in the application, Triad states with similar vagueness that the getter bed “is expected to capture a significant portion of the tritium from the air exhaust.”¹⁶ And Triad has prepared several calculations assuming a control system removal efficiency that ranges from 20% to 90%.¹⁷

Compounding this uncertainty, Triad is also unsure how much of the tritium in the containers will be “liberated” from the molecular sieve material inside the containers. Triad states: “It is anticipated by program subject matter experts that at least 50% of the tritium will remain on the molecular sieve material and NOT be airborne and subject to venting in this activity.”¹⁸ In its suite of calculations, Triad estimates the percentage of tritium that is “liberated” and enters the container headspace as ranging from 10% to 100%.¹⁹

Second, because Triad is unable to determine the amount of tritium that will be “liberated” in the containers, or the removal efficiency of the getter bed control system, Triad

¹² *Id.* at 5.

¹³ Letter from Taunia Van Valkenburg, Triad Nat’l Sec., LLC, to George Brozowski, EPA Region 6, Re: Notification of Planned Start of a Radiological Air Emissions Point Source: Venting of Flanged Tritium Waste Containers (FTWCs) at TA-54 (Mar. 11, 2020) (LA-UR-20-22239).

¹⁴ Application at 7.

¹⁵ *Id.* at 7-8.

¹⁶ *Id.* at 10.

¹⁷ *Id.* at 11 (Table 3).

¹⁸ *Id.* at 11 (emphasis in original).

¹⁹ *Id.* (Table 3).

cannot predict how much tritium will be released into the atmosphere by the venting project. In its suite of calculations, Triad estimates emissions ranging from 1,147 curies to 45,873 curies.²⁰ This estimated range of emissions translates to an estimated dose of 0.20 millirem per year to 8.07 millirem per year. Conspicuously, however, each of Triad's calculations couples either a high percentage of "liberated" tritium with a high control system removal rate or, conversely, a low control system removal rate with a low percentage of "liberated" tritium. Absent from the suite of calculations is a high percentage of "liberated" tritium and a low control system removal rate. The application does not give any explanation for this omission; there is no stated correlation between the fraction of tritium that will be "liberated" and the efficiency of the getter bed control system. Presumably, such a calculation would yield an exceedance of the EPA maximum dose of 10 millirem per year.

Third, the control system that Triad intends to use to reduce emissions is not recognized in the EPA regulations. The regulations provide that emissions can be estimated based on the use of a control device.²¹ While the regulations list several control devices for emissions of radionuclide gases, a "getter bed" or molecular sieve system is not among them. As Triad acknowledges, "a getter bed is not a recognized emissions control system in 40 CFR 61 Appendix D."²² Thus, the getter bed emission control system may not be taken into consideration in estimating the tritium emissions from the venting project or in calculating the dose. Triad acknowledges this to be the case, stating that: "no official 'controlled' emissions estimate and dose calculation is presented here." Rather, "[t]he controlled emissions estimate will be the same as uncontrolled emissions estimate."²³ The uncontrolled emissions estimate yields a dose of 20.2 millirem per year.²⁴ This dose would be more than twice the EPA standard, which is a maximum dose of 10 millirem per year.

Such emissions would be unlawful. EPA regulations provide that "no owner or operator shall operate a new stationary source subject to that standard in violation of the standard, except under an exemption granted by the President."²⁵ Violation of this standard and prohibition could render Triad – and DOE – liable for thousands of dollars in penalties.²⁶

Fourth, Triad has not considered the effect of venting the tritium at multiple locations. As stated above, Triad now plans to transport the containers across the Laboratory to TA-16, and possibly to conduct secondary venting of the containers along the route or in a parking lot. Triad asserts that, because the calculations in the application "addressed the entire inventory of tritium" in the containers, those original calculations remain adequate.²⁷ But EPA must somehow have taken into consideration the getter bed emission control system; otherwise, it could not have approved the proposed venting, which would exceed the maximum dose. But the change notification did not discuss how the secondary venting might affect the total emissions. For

²⁰ *Id.* (Table 3).

²¹ 40 C.F.R. part 61, appx. D(1)(c).

²² *Application* at 10.

²³ *Id.*

²⁴ *Id.* (Table 2).

²⁵ 40 C.F.R. § 61.05(b).

²⁶ *See* 42 U.S.C. §§ 7413(b), 760 4(a).

²⁷ Change Notification Letter at 5.

example, maintaining a constant operating temperature and pressure, and controlling emissions, would likely be more difficult from a vehicle in a parking lot or on a roadside than from the controlled setting of a specially-constructed building.

Fifth, EPA has not approved the changes to the application, which is required. The EPA regulations specifically require the application to include, among other things, “the location or proposed location of the source.”²⁸ Because Triad is changing the location of the source, it must submit a new or amended application for EPA approval. Additionally, the EPA approval letter states: “Any revision to the plans and specifications of this approved Application, which may affect the radiation emissions to the outside air from the new construction, shall require prior written approval by Region 6 of EPA.”²⁹ There can be no question that the proposed secondary venting will “affect the radiation emissions to the outside air.” EPA approval is also required by the conditions of the approval letter.

C. Potential for Adverse Health Effects

Tritium emits low-energy beta radiation. It does not pose a significant risk from external exposure because it does not have enough energy to pass through the outer layer of dead skin.³⁰ However, it can be very dangerous if inhaled. Tritium, like other forms of ionizing radiation, can cause cancer, genetic mutations and birth defects, and assorted other adverse health effects. The carcinogenicity of tritium and other radiation exhibits a “zero threshold” dose-response relationship, meaning that even a very small dose produces a corresponding risk of cancer. There is no “safe” level of tritium exposure.³¹

The tritium that Triad proposes to vent into the atmosphere would be in the form of tritium gas and tritiated water vapor,³² both of which can be readily inhaled.

We are particularly concerned about the potential for tritium vented from these containers to have an adverse effect on people living and working in the vicinity. Laboratory workers, of course, would be the persons closest to the venter tritium and most directly affected. Additionally, several communities, most of them communities of color, lie within 15 miles of TA-54 or TA-16. Most notably, the San Ildefonso Pueblo borders the Laboratory property and, indeed, borders TA-54. San Ildefonso property is within a half-mile of Building 1028. Santa Clara Pueblo property is within 3.5 miles of the Weapons Engineering Testing Facility at TA-16, and Santa Clara officials have strongly objected to the proposed tritium venting previously. The Cochiti Pueblo is approximately 11 miles from TA-16 and TA-54. Jemez Pueblo property is within 12 miles of TA-16. And the Town of Española, with a largely Hispanic population of 10,000, lies within 15 miles of TA-54. Indeed, the National Nuclear Security Administration’s most recent “Demographic Profile of Region of Influence” documents that the population of the

²⁸ 40 C.F.R. § 61.07(a)(2).

²⁹ EPA Approval Letter at 2.

³⁰ Agency for Toxic Substances & Disease Registry, Public Health Statement: Ionizing Radiation (Sept. 1999).

³¹ *Id.*

³² Application at 2-3.

area surrounding the Laboratory is 68% “minority” (282,931 people of color out of a population of 418,432).³³

Our concerns are exacerbated by the unrealistic and very problematic assumptions that underlie the EPA radiation emission standard. The standard is based on the “maximally exposed individual,” a healthy male. It does not take into consideration the effects of radiation on vulnerable people, including pregnant women, infants and children, the elderly, and people with compromised health.

And our concerns are further exacerbated by the current COVID-19 virus pandemic. While we have not seen any peer-reviewed studies on the topic, it is prudent to assume that the virus would aggravate the adverse health effects of radiation exposure.

D. History of Noncompliance

EPA should also consider DOE’s history of noncompliance with the NESHAP standard for radiation emissions under the Clean Air Act. For decades, DOE and its Laboratory contractors have complied with the radiation emissions NESHAP only reluctantly, and often not at all.

In 1989, EPA promulgated the NESHAP for emissions of radionuclides (other than radon) from DOE facilities.³⁴ Soon thereafter, in November 1991, EPA issued its first notice of noncompliance to DOE for Clean Air Act violations at the Laboratory. Indeed, DOE knew that the Laboratory was out of compliance at the time, as the Laboratory’s 1990 Air Emissions Annual Report admitted that “the Laboratory is not now able to demonstrate compliance with [EPA stack monitoring] requirements. . . .” In February 1992, a DOE team found that the Laboratory could not demonstrate compliance with the NESHAP standards. But DOE did not take any action compel compliance or to reduce the risk to the public.

Frustrated by DOE's intransigence, in March 1992 a citizens nuclear watchdog group, Concerned Citizens for Nuclear Safety, served DOE and its Laboratory contractor, the University of California, with a notice of intent to sue for violations of the Clean Air Act. Nevertheless, for the next two years, DOE and its contractor failed to take reasonable steps to reduce its air emissions to meet the legal standard, comply with the monitoring requirements, or reduce the risk to the public. In the meantime, both the Laboratory’s internal environmental audits and EPA audits continued to find violations, and EPA issued its second notice of noncompliance to DOE for violations at the Laboratory.

In November 1994, following years of noncompliance at the Laboratory, Concerned Citizens and another plaintiff filed a lawsuit in federal district court in New Mexico against DOE and the University of California for continuing violations of the Clean Air Act at the Laboratory.³⁵ In April 1996, the court granted plaintiffs’ motion for partial summary judgment in the case. The court found that, beyond reasonable dispute, DOE and its contractor had been

³³ National Nuclear Security Administration, Supplement Analysis of the 2008 Site-Wide Environmental Impact Statement for the Continued Operation of Los Alamos National Laboratory for Plutonium Operations, at 50 (Draft Mar. 2020) (DOE/EIS-0380-SA-06). The NNSA has not yet released the final Supplemental Analysis.

³⁴ 54 FR 51695 (Apr. 10, 1989) (codified in 40 C.F.R. part 61, subpart H).

³⁵ *Concerned Citizens for Nuclear Safety v. U.S. Dep’t of Energy*, No. CIV-94-1039-M (D.N.M. filed Nov. 1994).

operating 31 of 33 “major” exhaust stacks at the Laboratory in violation of the radiation NESHAP requirements, and that the Laboratory’s associated quality assurance programs were legally deficient.

As a result of that decision, DOE and the plaintiffs entered into a consent decree, which the court approved, to resolve the violations. Under the consent decree, DOE conducted multiple environmental compliance audits and paid \$150,000.00 in civil penalties. In addition, DOE paid \$450,000.00 to the University of New Mexico as a “supplemental environmental project,” and paid the plaintiffs their attorneys’ fees and costs.

E. Conclusions and Recommendations

To address our concerns, we offer the following recommendations.

First, Triad must submit to EPA for approval a new or revised application under the NESHAP regulations. The current application is flawed – and unlawful – in several respects. The new application must demonstrate – with more than vague assurances – that the tritium venting will not result in a potential radiation dose that exceeds the EPA standard of 10 millirem per year. That demonstration must be made in accordance with the EPA regulations. Further, the new application needs to explain how the secondary venting will be conducted in accordance with the regulations.

Second, we urge EPA to conduct a careful and thorough review of the application and the planned venting. Close EPA oversight is particularly critical given DOE’s past history of noncompliance with the radiation standard, the legal and technical flaws in the original application, the wide-spread community concern about the venting,³⁶ and the potential for environmental injustice.

Third, we believe that Triad and DOE, with EPA oversight, need to examine alternatives to venting the tritium to the atmosphere through a getter bed. Triad and DOE are obligated to follow the principle of limiting radiation exposure to “as low as reasonably achievable” (ALARA). Under the ALARA principle, alternatives to tritium venting that will reduce or eliminate the release of tritium into the atmosphere need to be identified and evaluated. We are confident that such alternatives exist, even if they are more costly.

Fourth, we believe the tritium venting should be postponed until after the COVID-19 pandemic has passed. We are concerned that the potential risks from the tritium release will be aggravated by the virus.

In closing, we believe that EPA and DOE, as federal agencies mandated to serve and protect the public, need to entirely reconsider their decision to allow this tritium venting project to move forward. The venting project has been poorly thought out; it would put an inestimable number of individuals needlessly at risk; it would disproportionately affect communities of color; it would exacerbate the distrust that many people in the surrounding communities have for the Laboratory; and it would most likely violate the law. The agencies need to compel Triad to develop an alternative means to dispose of the radioactive tritium without expelling it into the ambient air.

³⁶ See, e.g., Scott Wyland, LANL Set to Release Radioactive Vapors, *Santa Fe New Mexican* (Mar. 23, 2020).

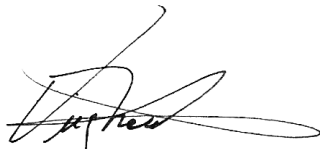
Please keep us informed of future developments in this matter. We respectfully request that EPA provide us with copies of all future correspondence, applications, approvals or disapprovals, notifications, and reports regarding tritium venting at the Laboratory.

Thank you for your consideration. If you have any questions concerning this letter, please do not hesitate to call either of us at (505) 989-7342 (Mr. Coghlan) or (505) 989-9022 (Dr. Necochea). We look forward to receiving your response.

Sincerely,



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Executive Director
Nuclear Watch New Mexico



Virginia Necochea
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Staff Attorney
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cc: Sen. Tom Udall
Sen. Martin Heinrich
Rep. Ben Ray Luján
Governor Perry Martinez, Pueblo de San Ildefonso
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