

April 22, 2019

Administrator Pete Lopez  
U.S. EPA Region 2  
290 Broadway, Mail Code: 26TH FLO  
New York, NY 10007-1866

Chairman John Barrasso  
U.S. Senate Committee on Environment  
and Public Works  
Washington, D.C. 20510

Ranking Member Thomas R. Carper  
U.S. Senate Committee on Environment  
and Public Works  
Washington, D.C. 20510

Chairman Frank Pallone, Jr.  
House Committee on Energy & Commerce  
Washington, DC 20515

Ranking Member Greg Walden  
House Committee on Energy & Commerce  
Washington, DC 20515

Congresswoman Jenniffer González-Colón  
U.S. House of Representatives  
Resident Commissioner of Puerto Rico  
Washington, DC 20515

**SENT BY ELECTRONIC MAIL**

RE: Military Munitions Disposal is Polluting Puerto Rico, Despite Safer Alternatives

Dear Administrator Lopez, Senators Barrasso and Carper, and Representatives Pallone, Walden and González-Colón:

By this letter, the undersigned 42 organizations call on the U.S. EPA and the U.S. Congress to immediately end the continued open air burning and detonation of hazardous and mixed wastes at Vieques based on the availability of safer advanced alternatives, the cumulative excessive risk to human health and the environment, and noncompliance with federal and state law requiring the implementation of available safer advanced treatment methods.

For six decades, the land and waters of Vieques have been the theater for military exercises and bombing, including depleted uranium, which has caused irreparable harm to the environment and its people.

Human health studies have documented higher rates of disease in Vieques compared to the rest of Puerto Rico and exposure to toxic metals and chemical residues from bombs and experimental weaponry has been linked to a substantial increase in cancer, diabetes, hypertension, cirrhosis and respiratory diseases.<sup>1</sup> Elevated lung and bronchus cancer incidence rates in



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<sup>1</sup> U.S. Environmental Protection Agency, National Center for Environmental Research, Research Grant ADDRESSING ENVIRONMENTAL CONCERNS IN VIEQUES, PUERTO RICO THROUGH COMMUNITY PARTICIPATORY RESEARCH, Funding Opportunity Announcement, February 20, 2019.

Vieques compared to the rest of Puerto Rico have been reported for the 1992-1997 period.<sup>2</sup> Other studies point to a lack of access to medical care as being responsible for an elevation of chronic disease prevalence on the island municipality.

According to the U.S. EPA National Center for Environmental Research, as all the chemicals and agents used in munitions testing have not been fully characterized and the site has unique challenges – such as unexploded ordnance across thousands of acres of land and sea floor, and abundant ecologically and culturally sensitive resources – it is unclear what is the extent and what are the causes of the health issues in Vieques.<sup>3</sup>

As a result, there have been longstanding concerns about risks to human health, the environment, and public safety from decades of live-fire training exercises conducted by the U.S. Navy on Vieques Island and Culebra Island, located off the coast of Puerto Rico.<sup>4</sup>

As the U.S. EPA is aware, the assessment of cumulative impacts in National Environmental Policy Act (NEPA) documents is required by Council on Environmental Quality regulations. However, current proposals such as the remedy for the 4,800-acre UXOs 12 and 14, do not adequately address the certain potential for an excessive cumulative risk to human health and ecological receptors and systems.

To date, the Navy reports that it has open air burned or detonated more than 100,000 high explosive UXO ordnance, including bombs, projectiles, rockets, grenades and submunitions as part of its environmental remediation program.<sup>5</sup> By definition, open burning and detonation result in the uncontrolled release of toxic pollutants to the environment. These toxic emissions endanger public health by contaminating air, groundwater, surface water, sediments and soils near these operations.

The explosive RDX, for example, can be released to the environment through spills, firing of munitions, disposal of ordnance, open incineration and detonation of ordnance, leaching from inadequately sealed impoundments and demilitarization of munitions.<sup>6</sup> In the atmosphere, RDX is expected to exist in the particulate phase and settles by wet or dry deposition. Low soil sorption coefficient (KOC) values indicate that RDX is not significantly retained by most soils and can leach to groundwater from soil.<sup>7</sup>



As all groundwater in Vieques is considered by Puerto Rico regulation to be potable water regardless of actual or potential use, the treatment and disposal of munitions wastes by the Department of Defense must protect groundwater as a potential drinking water source.<sup>8</sup>

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<sup>2</sup> Hans Sanderson, Patrik Fauser, Ricky Steven Stauber, Jesper Christensen, Per Løfstrøm & Thomas Becker (2017) Civilian exposure to munitions-specific carcinogens and resulting cancer risks for civilians on the Puerto Rican island of Vieques following military exercises from 1947 to 1998.

<sup>3</sup> U.S. Environmental Protection Agency, National Center for Environmental Research, Research Grant ADDRESSING ENVIRONMENTAL CONCERNS IN VIEQUES, PUERTO RICO THROUGH COMMUNITY PARTICIPATORY RESEARCH, Funding Opportunity Announcement, February 20, 2019.

<sup>4</sup> Congressional Research Service – The Library of Congress, Vieques and Culebra Islands: An Analysis of Cleanup Status and Cost, updated July 2005.

<sup>5</sup> NAVFAC, Naval Facilities Engineering Command, Vieques Restoration Advisory Board handout, 2 April 2019.

<sup>6</sup> U.S. Environmental Protection Agency (November 2017), Technical Fact Sheet – Hexahydro-1,3,5-trinitro- 1,3,5-triazine (RDX).

<sup>7</sup> Figure 1 by Marie-Claude Lapointe, Richard Martel, and Emmanuela Diaz (2017), A Conceptual Model of Fate and Transport Processes for RDX Deposited to Surface Soils of North American Active Demolition Sites.

As EPA is also aware, UXO and other hazardous munitions wastes at Vieques are routinely gathered and transported by hand and/or by motor vehicle, dumped and stacked into piles and then detonated and/or burned. Presumably this practice is compliant with the Navy's health and safety programs and therefore is clear evidence that at least some portion of discovered munitions wastes may be safely handled, transported and alternatively introduced into a treatment unit that has robust emissions controls.



In January 2019, the National Academies of Sciences Engineering, and Medicine issued its final report which concluded that alternative technologies to open burning and open detonation of conventional munitions designated for disposal are mature, including contained burn and contained detonation chambers with pollution control equipment, and many are permitted to replace OB/OD of waste munitions.<sup>9</sup>

However, the National Academies cautioned, without a clear directive and sufficient and stable funding from Congress, it will be impossible for the U.S. Army to implement a full-scale deployment of alternative technologies to replace OB/OD.<sup>10</sup>

Key findings of the National Academies report were:<sup>11</sup>

- There are no significant technical, safety, or regulatory barriers to deploying alternative technologies for disposal of the vast majority of the conventional waste munitions, and the Army has made progress in implementing some of them.
- Each alternative technology that the study assessed as a potential replacement to the current practice would have lower emissions and less of an environmental and public health impact and would therefore likely be more acceptable to the public.
- Although the Office of the Product Director for Demilitarization at DOD has a strategic plan for increasing the use of alternative technologies and transitioning away from OB/OD, it lacks a detailed implementation plan. Both the DOD and Army have placed relatively low priority on funding the demilitarization program, including the implementation of additional alternative technologies, as reflected in past budgets.

In the past 25 years, alternatives to the incineration of hazardous waste have emerged due to the work of communities, EPA, and the Department of Defense (DOD). These technologies are being used by the DOD to destroy energetics and chemical warfare agents and could be readily applied to conventional munitions and other types of hazardous waste.

For example, there are several types of detonation chambers that can be used to safely destroy waste munitions. These detonation chambers are much safer than open burning or incineration because they hold and test the gases to ensure all the toxic components have been destroyed before releasing them. One kind of detonation

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<sup>8</sup> NAVFAC, Naval Facilities Engineering Command, Final UXOs 12 and 14, Remedial Investigation/Feasibility Study Report, Atlantic Fleet Weapons Training Area – Vieques Former Vieques Naval Training Range, Vieques, Puerto Rico, SECTION 6 Human Health Risk Assessment Summary, August 2018.

<sup>9</sup> National Academies of Sciences Engineering, and Medicine, Board on Army Science and Technology, *Alternatives for the Demilitarization of Conventional Munitions*, December 6, 2018.

<sup>10</sup> National Academies of Sciences Engineering, and Medicine, Board on Army Science and Technology, *Alternatives for the Demilitarization of Conventional Munitions*, December 6, 2018.

<sup>11</sup> National Academies of Sciences Engineering, and Medicine, Press Release: *Most Alternative Technologies to Open Burning and Open Detonation of Conventional Waste Munitions Are Mature, Says New Report*, December 6, 2018. <http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=25140>

chamber, the DAVINCH chamber, detonates explosives in a vacuum. Without the presence of oxygen, harmful products of incomplete combustion cannot be formed.

Moreover, over the past 15 years the Department of Defense Explosives Safety Board has certified a number of technologies as safe for the destruction of hazardous wastes which are explosive. Those technologies are now in use by the Department of Defense and the private sector for the destruction of explosive hazardous waste.

Not only do safer advanced technologies exist, their implementation is required by federal law. The operating language on open burning/open detonation of hazardous wastes which are waste explosives is contained in Title 40, Section 266.382. "Open burning of hazardous waste is prohibited except for the open burning and detonation of waste explosives. Waste explosives include waste which has the potential to detonate and bulk military propellants **which cannot safely be disposed of through other modes of treatment.**" (Emphasis added.)



Puerto Rican residents and their children, veterans and workers deserve a healthy future and the best available technology. The U.S. EPA and the U.S. Congress have both the authority and the responsibility to end the open air burning and detonation of hazardous waste on Vieques.

We look forward to your reply and working together to achieve these goals.

Sincerely,

Another Gulf is Possible (Mary Gutierrez)  
California Communities Against Toxics (Jane Williams)  
California Safe Schools (Robina Suwol)  
Citizens for Clean Air and Water (Vincent Headington)  
Citizens for Safe Water Around Badger (Laura Olah)  
Concerned Citizens for Nuclear Safety (Joni Arends)  
CORALations Culebra (Mary Ann Lucking)  
Center For Public Environmental Oversight (Lenny Siegel)  
Don't Waste Arizona (Scott Meyer)  
Downwinders at Risk Dallas-Fort Worth (Jim Schermbeck)  
Earth Action, Inc. (Mary Gutierrez)  
Environmentalists Against War (Gar Smith)  
Friends United for a Safe Environment (FUSE) (James Presley, Ph.D.)  
GAIA: Global Alliance for Incinerator Alternatives (Denise Patel)  
Green Cross International (Paul F. Walker, Ph.D.)  
Green Delaware (Alan Muller)  
HunterSeven Foundation (Sgt. Chelsey Poisson and LtCol. Sheri Boucher)  
The Institute for Science & Interdisciplinary Studies & Military Waste Project  
International Dialogue on Underwater Munitions (Terrance Long)  
International Scientific and Technology Advisory Board on Underwater Munitions (Terrance Long)  
Kentucky Environmental Foundation (Craig Williams)

Neighbors Against the Burner (Nancy Hone)  
NJ Friends of Clearwater (Ed Dlugosz)  
Nuclear Free World Committee of the Dallas Peace and Justice Center (Mavis Belisle)  
Nukewatch (John LaForge)  
Peaceful Skies Coalition (Carol Miller)  
Physicians for Social Responsibility Wisconsin (Dr. Ann Behrmann)  
RootsAction.org (David Swanson)  
Stand Up/Save Lives Campaign (Maureen K. Headington)  
Texas Campaign for the Environment & TCE Fund (Robin Schneider)  
The Peace Farm (Cletis Stein)  
Tri-Valley CAREs (Marylia Kelley)  
Tewa Women United (Elder Kathy WanPovi Sanchez)  
Tucson Forward (Kathleen Williamson, JD, LLM, PhD)  
University Commission on Culebra and Vieques ("Comisión Universitaria sobre Culebra y Vieques, CUCuVI) of the Río Piedras Campus of the University of Puerto Rico (Jorge Colón)  
Vieques en Rescate, Inc. (Elba Oquendo)  
Vidas Viequenses Valen (Myrna Veda Pagán)  
Vieques Insider (Kelly Thompson)  
Veteran Warriors, Inc. (YN1 Lauren Price, USN, (Ret.), B.A.C.J.)  
Volunteers for Environmental Health and Justice (Mark & Connie Toohey)  
Wisconsin Environmental Health Network (Dr. Ann Behrmann)  
World Beyond War (David Swanson)

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**Respectfully submitted by:**

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**Courtesy copies to:**

Mayor Víctor Emeric, Isla de Vieques, Puerto Rico  
Chairman Raúl Grijalva, House Natural Resources Committee  
U.S. Senator Tammy Baldwin  
Jim Myska, National Academies of Sciences Engineering & Medicine, Board on Army Science and Technology