



Detonation Chambers

VIEQUES ENVIRONMENTAL RESTORATION
FACT SHEET

Summary

The Vieques cleanup involves enormous amounts of Unexploded Ordnance (UXO) scattered across miles of rugged, hilly terrain in remote areas of the island.

- The use of detonation chambers on Vieques would require difficult transport and repeated handling of UXO. These activities would expose site workers to the very real danger of being injured or killed in an accidental explosion.
- The Vieques public would also experience greater hazards because detonation chambers would delay the cleanup by many years, thereby increasing the amount of time that residents or tourists may encounter UXO.
- The use of detonation chambers would not affect public health because the current process of open detonation is already protective of human health and the environment on Vieques.

Overall, the use of detonation chambers on Vieques would put site workers in danger and delay the cleanup by many years, without providing any public health benefits. For these reasons, detonations chambers are not used on Vieques.

What is Unexploded Ordnance?

Unexploded Ordnance (UXO) consists of munitions that have been fuzed and fired, but somehow failed to explode as expected.

Why is UXO so dangerous?

UXO items are especially dangerous because they are set to explode and may do so without warning. Some types of UXO are so dangerous that they should not be moved or touched, even by experts. Other types of UXO can be picked up and moved short distances during cleanup operations, but handling UXO is never completely safe.

The Cardinal Rule of Explosives Safety

The single most important rule of explosive safety is to expose the minimum number of people to the minimum amount of explosives for the minimum amount of time (DOD 2024, Section 1.4.1). The use of detonation chambers on Vieques would violate all aspects of the cardinal rule of explosives safety.

The United States Department of Defense (DOD) explosives safety standards say, "There are no safe procedures for moving, rendering safe, or destroying UXO, but merely procedures considered less dangerous (DOD 2024, Section E3.3.3)." Fortunately, accidents at munitions cleanup sites are rare, but they do occur, and historical records show that most munitions accidents occur while someone is handling UXO (EPA 2001 and ACOE 2011). Thus, the safest approach to UXO cleanup always involves the least amount of handling by site workers.



UXO is scattered across miles of rugged, hilly terrain.





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Munitions found on Vieques

The Vieques cleanup involves a wide variety of high explosive UXO, including bombs, mortars, projectiles, rockets, grenades, and submunitions. To date, site workers have safely destroyed approximately 135,000 munitions items on Vieques and tens of thousands remain. The Vieques cleanup does not involve chemical weapons.



Rugged, hilly terrain is challenging for site workers.

Chemical weapons vs. high explosive munitions

Chemical weapons are designed to spread toxic chemicals that are poisonous to people, animals, or vegetation. In contrast, high explosive munitions are designed to be destructive, rather than poisonous. When high explosives detonate, the explosive chemicals are consumed, releasing a destructive shockwave, metal fragments, and large amounts of non-toxic gases (mostly nitrogen, hydrogen, carbon dioxide and water vapor) that are naturally present in the atmosphere. Throughout the world, detonation chambers are often used to destroy chemical weapons, but they are rarely used for high explosive munitions.

Safety of site workers on Vieques

The use of detonation chambers on Vieques would require transport of dangerous UXO from the distant regions of the site to a central location. Site workers would need to carry UXO for hundreds of yards across difficult terrain, load UXO onto trucks, transport UXO over miles of unimproved roads, move UXO into and out of storage, set up each UXO item for detonation, and place each item in the chamber. Such long-distance

transport and repeated handling of tens of thousands of UXO would expose site workers to the very real danger of being injured or killed in an accidental explosion. In contrast, open detonation is much safer for site workers because it can be done with little or no handling of UXO.

Health and safety of Vieques residents

The munitions cleanup on Vieques is protective of public health and safety, without the use of detonation chambers. Since 2005, UXO has been destroyed on Vieques by open detonation, and the health effects of the open detonations have been evaluated by computer modeling and many years of on-site air sampling. The results show no health risk to the residents of Vieques. Detonation chambers would actually increase risk to the public because their use would add many years to the cleanup, thus increasing the amount of time that UXO may be encountered by local residents, tourists, and wildlife managers.

Follow the 3Rs of Explosives Safety



**If you did not drop it,
do NOT pick it up!**

REFERENCES

1. Department of Defense Explosives Safety Regulation (DESR) 6055.09 Edition 1, (DOD, 2024).
2. A Study of MEC-Related Civilian Incidents Associated with FUD Sites, QuantiTech Inc. for the Army Corps of Engineers (ACOE, 2011).
3. UXO Incident Report. United States Environmental Protection Agency (EPA, 2001).

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