

August 6, 2018

Arnaud Marjollet, Director of Permit Services San Joaquin Valley Air Pollution Control District 4800 Enterprise Way, Modesto, CA 95356 Email: publicnotices@valleyair.org

## SENT BY ELECTRONIC MAIL

RE: Public Comment on the Air District's "Notice of Preliminary Decision – Authority to Construct" that would allow larger open-air explosive detonations at Site 300 near Tracy, California. Facility Number N-472; Project Number N-1173492

## Dear Director Marjollet:

The Proposed Action by the National Nuclear Security Administration is to increase the weight of explosives used at the Lawrence Livermore National Laboratory (LLNL) Experimental Test Site (Site 300) Building 851 Firing Table up to 1,000 lbs/day up to 7,500 lbs/year. The explosives weight is the actual mass, in pounds, of explosive mixtures or compounds for an experiment. Currently, research and development activities at LLNL's Site 300 Building 851 involve detonation of explosives up to 100 lbs/day up to 1,000 lbs/yr.

The Cease Fire Campaign objects to the open air detonation of explosives at the Lawrence Livermore National Laboratory based on the availability of safer advanced alternatives and the excessive risk to human health and the environment.

By definition, open air detonation result in the uncontrolled release of toxic pollutants to the environment. These toxic emissions endanger public health by contaminating air, groundwater and soils near these operations. Military personnel are often the most exposed to these toxic pollutants, along with nearby communities.

The composition and types of explosives are not detailed in the draft approval attachments. However, estimated emissions calculations include several references to RDX.

RDX 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>1</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



Fig. 1. Conceptual model of a typical military demolition site in North America showing the dispersion and transportation of energetic materials (hexahydro-1,3,5-trinitro-1,3,5-triazine [RDX] in this case): (A) Canadian open demolition site; (B) Canadian demolition bay.

significantly retained by most soils and can leach to groundwater from soil.<sup>2</sup>

<sup>&</sup>lt;sup>1</sup> U.S. Environmental Protection Agency (November 2017), Technical Fact Sheet – Hexahydro-1,3,5-trinitro- 1,3,5-triazine (RDX). <sup>2</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.

**Exposure to RDX** can occur by dermal contact or inhalation, as well as through ingestion of contaminated drinking water or agricultural crops irrigated with contaminated water. EPA has assigned RDX a weight-of-evidence carcinogenic classification of C (possible human carcinogen).<sup>3</sup> RDX affects the nervous system and can cause seizures in humans and animals when large amounts are breathed in or ingested. Some people exposed to high amounts of RDX have had changes in blood pressure and in some parts of the blood. The effects of long term exposure to low levels of RDX are not known.<sup>4</sup>

Three fluoropolymers are routinely used as binders for plastic bonded explosives by Lawrence Livermore National Laboratory: FK-800, Viton A 100, and Oxy.<sup>5</sup> The published composition of C4, for example, is 91% RDX (1,3,5-trinitro-1,3,5-triazine) and 9% plasticizer and binder.<sup>6</sup> However, the documents provided do not describe or discuss the potential emissions associated with **detonation of fluoropolymers** and other per-and polyfluoroalkyl substances (PFAS).

According to the applicant, the proposed action would not involve detonation of radioactive materials. However, toxic and radioactive contaminants, such Uranium 238 – released and dispersed by historical open-air burning/detonation – are still present in soils at Site 300. Therefore, it is reasonable to expect that the proposed larger detonations would cause and exacerbate the **re-suspension of soil contaminants** to the air and surrounding environment, posing a risk to human health and the environment.

According to provided Best Available Control Technology (BACT) analysis, the technology exists to conduct the large detonations, like those proposed for Site 300, in a **containment chamber** similar to the Big Explosives Experimental Facility at the Nevada National Security Site.

The Cease Fire Campaign is a national coalition of more than 60 environmental, labor, veterans service and social justice organizations. Our campaign seeks to protect human health and the environment by calling for the immediate implementation of safer alternatives to open air burning, detonation and non-closed loop incineration/combustion of military munitions. These alternatives must incentivize waste prevention and recycling; prevent, to the greatest possible extent, the release of toxic emissions and pollutants; and advance the principles of environmental justice by assuring that all people enjoy the same degree of protection and access to the decision-making process.

Thank you for your consideration of our comments.

Sincerely,

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

<sup>&</sup>lt;sup>4</sup> U.S. Agency for Toxic Substances for Disease Registry (January 2012), ToxFAQs for RDX, CAS#: 121-82-4

<sup>&</sup>lt;sup>5</sup> D. Mark Hoffman (2017) Infrared properties of three plastic bonded explosive binders, International Journal of Polymer Analysis and Characterization, 22:6, 545-556, DOI: 10.1080/1023666X.2017.1343110

<sup>&</sup>lt;sup>6</sup> Lapointe MC, Martel R, Diaz E. (2017) A Conceptual Model of Fate and Transport Processes for RDX Deposited to Surface Soils of North American Active Demolition Sites, DOI: 10.2134/jeq2017.02.0069