



DEPARTMENTS OF THE ARMY AND THE AIR FORCE
JOINT FORCE HEADQUARTERS
MASSACHUSETTS NATIONAL GUARD
OFFICE OF THE ADJUTANT GENERAL
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BEDFORD, MA 01731

REPLY TO
ATTENTION OF:

NGB-MA

26 January 2023

Dr. David W. Cash
Regional Administrator, EPA, Region 1
John W. McCormack Post Office and Court House
5 Post Office Square #1150
Boston, MA 02109

Dear Dr. Cash,

Thank you for speaking with Massachusetts Army National Guard (MAARNG) representatives concerning the proposed Multi-Purpose Machine Gun Range (MPMGR or Range) at Camp Edwards. The purpose of this letter is to reiterate and expand on a number of the points that were discussed during our 21 December 2022 video conference.

MAARNG is confident that the prior studies, reports and determinations concerning the potential for Small Arms Ranges at the Camp Edwards to contaminate the Cape Cod aquifer and the Best Management Practices (BMP) to be implemented at the MPMGR will confirm that the MPMGR will not contaminate the aquifer so as to create a significant hazard to public health. In addition, MAARNG learned that a Draft Copy of the U.S. Army Corps of Engineers (USACE) Report on Fate and Transport of Copper at Camp Edwards should be available for EPA review in the next several weeks. This report will be highly relevant to EPA's Sole Source Aquifer Determination (SSA Determination), as it focuses specifically on the type of metal in the bullets that will be used at the MPMGR and the specific conditions (*i.e.*, soils and aquifer depth) at the site where the MPMGR will be located. Accordingly, it is critical that EPA reviews and considers the Copper Fate and Transport Study in preparing its SSA Determination.

Finally, MAARNG requests the opportunity to review and comment on the DRAFT SSA Determination prior to its release to the public. MAARNG personnel possess extensive experience and knowledge concerning the environmental conditions of the base, its soil and groundwater conditions, and the operations and BMPs associated with the MPMGR that is the subject of the EPA's evaluation. EPA and the public would benefit from MAARNG's input prior to EPA releasing its SSA Draft Determination.

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I. THE NEED FOR THE RANGE

Camp Edwards' primary mission is to prepare soldiers for combat overseas and to protect the homeland stateside. To accomplish this, MAARNG personnel must be trained and qualified on their assigned weapons prior to deployment or mobilization, which requires ready access to an

MPMGR.¹ Because Camp Edwards lacks an MPMGR, soldiers are forced to travel several hundred miles out of state to meet their qualifications and training requirements,² which frequently violates the 100 mile reasonable travel distance threshold for training (established in TC 3-20.40. *Training and Qualifications – Individual Weapons*) and reduces the time available for conducting other mission-critical and required training exercises at Camp Edwards. Recognizing the need for an MPMGR at Camp Edwards, Congress appropriated \$ 9.7 Million for the construction of the Range in 2021.³

II. EPA'S SSA DETERMINATION MUST BE BASED UPON THE SDWA STANDARDS

The Safe Drinking Water Act (SDWA) and its implementing regulations dictate the criteria that EPA must properly consider in its SSA Determination. Specifically, the funding appropriated by Congress for the MPMGR may only be blocked if the MPMGR may contaminate the underlying aquifer so as to create a "significant hazard to public health." EPA Region 1 has continually recognized that the scope of its analysis is limited by this narrow standard, stating in its own guidance materials that EPA must "focus only on the . . . potential impacts to the aquifer" from the federally funded activity.⁴ The guidance further confirms that this evaluation is not a "comprehensive ground water protection program;" "a comprehensive review of all potential environmental or public health impacts;" nor an "assessment of other potential environmental impacts."⁵

EPA has narrowly defined the term "significant hazard to public health." Federal funding cannot be blocked simply because a contaminant might, or even will, reach the aquifer. Instead, the activity must result in a level of contaminant in the aquifer: that (i) causes or may cause the aquifer to exceed any maximum contaminant level set forth in any promulgated National Primary Drinking Water Standard at any point where the water may be used for drinking purposes; (ii) may otherwise adversely affect the health of persons, or (iii) may require a public water system to install additional treatment to prevent such adverse effect.

As MAARNG representatives stressed on our recent video conference, EPA cannot base its SSA Determination on any factors or considerations outside of the limited standards enumerated in the SDWA and its regulations, and cannot properly use its SDWA authority to impose conditions that are unrelated to public health related potential aquifer impacts from the MPMGR.

Despite these limitations, MAARNG is concerned that EPA has discussed imposing mitigation measures on the installation's other Small Arms Ranges (SARs), rather than properly limiting its analysis and mitigation to the MPMGR. For example, in an 14 October 2022 email to MAARNG, EPA stated that MAARNG must develop plans and designs to reduce the potential for the release of contaminants "for the proposed MPMGR plans, as well as the other Small Arms Ranges (SARs)," and place "other active SARs . . . under an aggressive schedule to retrieve bullets" to off-set the MPMGR bullets. MAARNG is similarly concerned that EPA may seek to impose public outreach requirements that are wholly unrelated to the "significant hazard to

¹ See Department of the Army Pamphlet 350-38, *Standards in Weapons Training* (Mandating qualifications standards and training requirements).

² Soldiers must travel 370 miles to Fort Drum (New York), over 300 miles to Fort Dix (New Jersey); or 270 miles to Camp Ethan Allen (Vermont) to meet the PAM 350-38 standards and training requirements.

³ FY2020 NDAA Section 2601.

⁴ <https://www3.epa.gov/region1/eco/drinkwater/capecod.html#5>

⁵ https://www3.epa.gov/region1/eco/drinkwater/ssa_overview.html and <https://www3.epa.gov/region1/eco/drinkwater/capecod.html#5>

public health” standard. For example, EPA has requested a plan for enhanced community engagement, including options for real-time visual display of proposed project’s construction and other operations.

Based upon these examples, MAARNG wishes to reiterate that EPA’s sole focus must remain, and its determination limited to, the very narrowly scoped standard dictated by the law.

III. STUDIES AND DETERMINATIONS DEMONSTRATE THAT THE RANGE WILL NOT RESULT IN A SIGNIFICANT HAZARD TO PUBLIC HEALTH

a. Prior Studies and Determinations

Utilizing the proper standard, MAARNG is confident, based upon prior studies and findings, that the MPMGR will not result in aquifer contamination so as to create “a significant hazard to public health”.

Since 1998, MAARNG, EPA, and the USACE have conducted numerous groundwater and soil investigations at Camp Edwards, including as part of the Massachusetts Military Reservation (MMR) Long Term Monitoring Program. These investigations have included a multi-range soil sampling effort as part of the Phase IIa and IIb Small Arms Range investigation programs (from 2000 to 2004); extensive multiple increment soil sampling at six ranges (from 2006 to 2009); soil, groundwater and pore water monitoring at the active J, K and T Ranges under the Small Arms Range Best Management Practices and Operations, Maintenance and Monitoring Plans (OMMP) (from 2010 to 2012); and additional multiple increment soil sampling programs at numerous ranges (in 2013).

A January 2014 USACE study (*Impact Area Groundwater Study Program, Final Small Arms Ranges Investigation Report*),⁶ evaluated and summarized the results of these previous studies, to delineate the nature and extent of the contamination resulting from past activities at the ranges and to complete a risk screening to determine if remedial actions are needed to prevent impacts to the groundwater aquifer. Far short of a finding that the range activities contaminated the aquifer to the point of creating a “significant hazard to public health,” the USACE Report concluded that the ranges have not resulted in groundwater contamination above action levels.⁷ The Report further concluded that “[b]ased upon the absence of any groundwater plumes or groundwater detections above action levels beneath the Small Arms Ranges, no measures to remediate groundwater are recommended at this time.”

One year later, EPA itself reached the very same conclusion in its September 2015 *Decision Document, Small Arms Ranges Operable Unit*, a report expressly focused on whether SAR activities constituted “unacceptable threats to the groundwater aquifer.” EPA found that “[t]he overall results of groundwater sampling evaluations conducted indicate that the Small Arms Ranges are not currently a source of groundwater contamination above action levels,” or, in fact, a source of “any significant groundwater contamination.” Even more significant here, in the face of the SDWA’s narrow standard, EPA found that requiring “long-term groundwater

⁶ The Small Arms Ranges investigation was conducted under the U.S. Environmental Protection Agency (USEPA) Safe Drinking Water Act Administrative Orders SDWA 1-97-1019 and SDWA 1-2000-0014

⁷ The report further concluded: “Extensive long term groundwater monitoring has been conducted at over 40 wells associated with the Small Arms Ranges. Evaluation of monitoring well data indicates that groundwater beneath the ranges has not been significantly impacted by components found in small arms ammunition.”; and “The overall results of groundwater sampling evaluations conducted to date indicate the Small Arms Ranges are not currently a source of groundwater contamination above action levels.”

monitoring with land use controls to protect monitoring wells” would “protect the Cape Cod Aquifer” and is “*protective of human health.*”

The Massachusetts Department of Environmental Protection expressly concurred in EPA’s human health finding, stating that groundwater monitoring (as proposed in EPA’s *Decision Document*) “will ensure a sufficient and protective level of control for groundwater such that *none of the contamination* associated with the Small Arms Ranges *will present a significant risk of harm to health, safety, public welfare or the environment during a foreseeable period of time.*”⁸

While the prior reports focused on multiple types of metal, specifically with respect to copper projectiles, the types of bullets that will be used at the MPMGR, Section 2.4 of the 2017 State of the Reservation Report (MAARNG) stated that: EPA Region 1 did not have to modify its Administrative Order #2 to concur with the use of copper ammunition being used on Sierra and India ranges, which demonstrating that EPA did not view copper as a threat to the aquifer.⁹

b. Upcoming Copper Fate and Transport Study

The numerous studies cited above have found that a wide range of metal types, from projectiles fired at SARs at Camp Edwards, have not contaminated groundwater to any significant degree, if at all, but clearly not to the level of creating a significant hazard to public health. To supplement these studies, and provide the EPA with data and analysis specific to both copper bullets (to be used at the MPMGR) and the specific conditions at the Range where such bullets will be fired, in December 2021, MAARNG commissioned the USACE to conduct a series of site specific studies to understand the fate-and-transport behavior of copper metal at the proposed MPMGR location. The four studies, the results of which will be documented in a single USACE report, include: (1) A Literature Search on Copper Fate-and-Transport, (2) Soil Profiling and Lysimeter Sampling, (3) Batch adsorption/desorption experiments and (4) Copper Mobilization under Camp Edwards geochemical conditions.

In our 21 December 2022 video conference, EPA staff indicated that EPA can properly issue its Draft SSA Determination prior to EPA’s review and consideration of the Copper Fate and Transport Study. We respectfully disagree. As noted above, we anticipate that EPA will receive a draft copy of the USACE’s Copper Fate and Transport Study Report in the next several weeks. It is critical that EPA review and consider this study – which is highly relevant to and directly on point with respect to EPA’s evaluation – prior to issuing its Draft SSA Determination. Making a decision that could block the use of \$9.7 million of Congressional funds appropriated to develop a machine gun range to train soldiers at a National Guard Base without considering the results of this soon-to-be released study that is directly on point with EPA’s analysis (*i.e.*, a study that focuses on the precise type of projectiles that will be used at the MPMGR location) would be highly improper. Further, it would benefit the public to be aware of the results of the Copper Fate and Transport Study during the 30-day review of the Draft SSA Determination.

IV. THE RANGE’S OPERATIONS, MAINTENANCE, AND MONITORING PLAN WILL ENSURE AGAINST A “SIGNIFICANT HAZARD TO PUBLIC HEALTH”

⁸ Letter of Concurrence to the EPA *Decision Document, Small Arms Ranges Operable Unit* (dated Sept. 9, 2015).

⁹ See EPA Region 1 letter dated 15 May 2017 subject Joint Base Cape Cod (Massachusetts Military Reservation) Massachusetts National Guard Request to Modify Prohibition on Live Firing and Use of Pyrotechnics.

The EPA, USACE, and Mass. DEP recognized in their respective reports, that the absence of groundwater contamination from the SAR activities was attributable, in part, to the monitoring, maintenance, and metal removal practices that MAARNG has implemented at Camp Edwards. For example, the January 2014 *Impact Area Groundwater Study Program, Final Small Arms Ranges Investigation Report* confirmed that MAARNG's maintenance, monitoring and metals removal action BMPs were effective in preventing against aquifer contamination. The Report found that the "risk of future impacts to groundwater" from propellant and projectile related contaminants "has been greatly reduced at the ranges as the result of several remediation activities and range maintenance," and that the lack of aquifer contamination "may reflect the fact that maintenance and removal actions have been completed at the majority of the Small Arms Ranges, [which] have included extensive maintenance actions involving the removal of bullets and remedial actions involving the removal . . . impacted soils."

These same practices will ensure that the MPMGR does not result in a "significant hazard to public health." Consistent with its current practices at its other SARs, MAARNG will follow aquifer protection BMPs that will be documented in an Operations, Maintenance, and Monitoring Plan (OMMP). Significantly, these BMPs were prepared in partnership with, and with the concurrence of, the EPA's Small Arms Range Work Group (SARWG) and the Environmental Management Commission (EMC),¹⁰ which the Massachusetts Legislature created by statute with the express purpose of ensuring the "permanent protection of the drinking water supply" at the Upper Cape Water Supply Reserve.

It is significant that Massachusetts law, at Chapter 47 of the Acts of 2002, governs the establishment, vetting and implementation of the BMPs at Camp Edwards. Specifically, the BMPs that will be implemented at the MPMGR have gone through a comprehensive vetting process, which has included review by the Community Advisory Council and the Science Advisory Council (both of which supported the proposed MPMGR BMPs) and discussion and consideration during more than 12 meetings, including with the participation of the EMC,, and the Massachusetts Army National Guard Facility Operations Specialist.¹¹

The OMMP BMPs also must meet statutorily mandated Environmental Performance Standards (EPS), which are a set of standards specifically created through the Massachusetts Environmental Policy Act to protect the drinking water supply at the Upper Cape Water Supply Reserve. The EPSs employ "maximum feasible use" of pollution prevention (P2) technologies through a "contain, maintain, and monitor" approach that includes redundant methods to (i) prevent pollution (through bullet containment, metals removal, and environmental monitoring), (ii) assess the effectiveness of each system in soil and groundwater (through inspection and sampling), (iii) evaluate whether contaminants are being transported, and (iv) sustain the conditions that limit metals mobility.

More specifically, the OMMP will guard against aquifer contamination with the BMPs listed in Table 1 below.

¹⁰ The EMC is comprised of the commissioners of the Department of Fish and Game, the Department of Environmental Protection (MassDEP) and the Department of Conservation and Recreation. Its authority comes from Massachusetts Chapter 47 of the Acts of 2002. The EMC oversees compliance with, and enforcement of, the Environmental Performance Standards.

¹¹ It is also important to note that in addition to the BMP process and technical requirements being governed by Massachusetts law, the EMC has been involved in establishing the BMPs for the MPMGR since inception, the BMP process has included public input and review, and the MAARNG has been implementing similar BMPs for more than 18 years at Camp Edwards.

TABLE 1	
BMP	DESCRIPTION
Berms	Installing individual impact berm structures behind each target, with such berms including topsoil (organics), root mass, and vegetation structure that contain projectiles and slow any dissolution of contaminants that may occur.
Inspections	The MAARNG will conduct monthly range inspections to ensure that pollution prevention and mitigation measures remain in place and are in good working order. In addition to the monthly inspections, inspections will occur before firing, after firing, any extreme weather events, and upon the request of the EMC or other environmental regulators.
Groundwater Sampling	Samples from groundwater wells will be collected and analyzed to determine the presence and concentrations of any Range contaminants, putting MAARNG on notice before contamination levels could constitute a "significant hazard to public health."
Pore Water Sampling	Multiple pan lysimeters will be installed at the Range to determine the concentrations of Range related metals in pore water, again providing MAARNG with an early warning before contaminant levels could constitute a "significant hazard to public health" (<i>i.e.</i> , if chemical constituents begin to percolate through the pore water toward the aquifer).
Soil Sampling	Surface soil at the Range will be sampled to track the accumulation of metals and to determine when range maintenance is needed to reduce metals concentrations.
Maintenance	Regular maintenance will be conducted, as outlined in, and required by, the OMMP, to ensure that pollution prevention measures remain in adequate condition to protect against aquifer contamination.
Metals Removal	Projectiles from the Range will be removed based upon sampling results (as discussed above) and when ricochet and or fragmentation issues becomes a concern. ¹² Excavated materials from the Range will be screened for metals, and MAARNG will compare the total mass of metals removed with the total computed mass loading of bullets fired at the Range, to confirm that the projectile removal process has been adequately completed.

Finally, at EPA's request, MAARNG has committed to an annual evaluation of the effectiveness of current BMPs and identification of emerging BMPs, monitoring advancements, and technologies, including green ammunition, at the direction of the EMC at the MPMGR.

* * *

In closing, Congress has appropriated \$9.7 million for a machine gun range that is necessary to train and qualify soldiers before deployment and meet the MAARNG's mission at Camp Edwards. The SDWA has provided EPA with the ability to block the spending of this federal money, but only in very limited circumstances under a narrow legal standard. Utilizing this

¹² Fragmentation causes smaller particle size that translates to a larger overall surface area for water to make contact; therefore, there is a greater potential for metals leaching.

standard, and considering prior studies, reports and determinations; the USACE's Fate and Transport of Copper at Camp Edwards Report, and proven BMPs, we are confident that the MPMGR will not contaminate the aquifer so as to create a significant hazard to public health.

Thank you for your consideration of this letter,

Respectfully,

A handwritten signature in blue ink, appearing to read "G. W. Keefe", is written over the typed name. The signature is stylized with a large loop at the beginning and a cursive-like flow.

Gary W. Keefe
Major General, MA ANG
The Adjutant General