
**Science Advisory Council to the Environmental Management Commission Meeting
Building 1805
Camp Edwards, Massachusetts
April 27, 2016
5:30 p.m.**

Meeting Minutes

<u>Members:</u>	<u>Organization:</u>	<u>Telephone:</u>	<u>E-Mail:</u>
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<u>Attendees:</u>	<u>Organization:</u>	<u>Telephone:</u>	<u>E-Mail:</u>
MAJ John Bagaglio	MA ARNG	774-696-7493	John.s.bagaglio@mail.mil
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Handouts Distributed at Meeting:

1. Draft SAC Meeting Minutes for November 6, 2014
2. Draft SAC Meeting Minutes for November 4, 2015
3. Draft SAC Meeting Minutes for March 23, 2016
4. Environmental and Readiness Center Update
5. Echo Range Update
6. Echo Range Fact Sheet

Agenda Item #1. Chairperson's Comments – Dr. Paul Cavanagh, Science Advisory Council chair

Dr. Cavanagh stated that Mr. LeBlanc has been honored with the 2016 Department of Interior Distinguished Service Award in recognition of his outstanding contributions to groundwater science and the DSA is the highest award to be granted to an employee of the Department of Interior. He said Mr. LeBlanc has made an outstanding contribution to public service and congratulations.

Agenda Item #2. Review of SAC Meeting Minutes – Science Advisory Council

Dr. Cavanagh moved to adopt the Science Advisory Council (SAC) November 6, 2014, meeting minutes as drafted. Mr. Leblanc motioned to approve the minutes, Mr. Schall seconded the motion and the minutes were approved unanimously.

Dr. Cavanagh stated that on page 2 of 6 in the November 4, 2015 meeting minutes, paragraph 6, delete the second “trespassing” in the sentence. Paragraph 9 the sentence, “Natural Heritage has done this before and have to build a temporary substation it is about costs and funds” He doesn’t understand the sentence and have a way to correct it. Dr. Cavanagh moved to adopt the SAC November 4, 2015 meeting minutes with changes associated with comments. Mr. Duggan motioned to approve the minutes and Mr. Schall seconded the motion and the minutes were approved unanimously.

Dr. Cavanagh asked if anyone has comments on the SAC November 23, 2016 meeting minutes. Mr. Gschwend replied in paragraph 4 “Mr. Gschwend asked if the base has discussed with the town of Bourne who will be responsible when and if there are problems with leaching into the Canal.” He said that “Dr. Ciaranca replied those will be discussed.” Dr. Cavanagh replied that questions could be flagged and discussed at future meetings. Mr. Pinaud suggested action items and tracking.

Mr. Gschwend stated in the SAC November 23, 2016 meeting minutes 2nd paragraph he “asked if the other constituents are a concern.” Mr. Gschwend said that “Ms. Dolan said it’s reasonable to assume there’s no environmental risk.” Ms. Dolan replied on the base there isn’t much HMX found in the groundwater. Mr. Gschwend said that it may not have been seen as a risk on the base yet, but in the future may be a concern for a risk. CPT McDonough replied that the ASP disposal (inaudible on recording). Mr. Gschwend asked where it would go for disposal. CPT McDonough said that it was sent out as dunnage—turned into the ASP and properly disposed of. Mr. Gschwend asked how can we know where it goes in the system.

Mr. Gschwend stated that in the SAC November 23, 2016 meeting minutes 4th paragraph about tick surveys. “Mr. McCumber said that is a concern but there haven’t been any surveys. Prescribed burns have had an impact on the tick population.” Mr. Gschwend asked how he knows that. Dr. Cavanagh suggested that be added as an action item.

Dr. Cavanagh asked for a motion to adopt the November 23, 2016 meeting minutes and Mr. Gschwend motioned to approve the minutes. Mr. Schall seconded the motion and the minutes were approved unanimously.

Agenda Item #3: Massachusetts Army National Guard Updates – MAJ John Bagaglio, MA ARNG

MAJ Bagaglio stated that there are no new updates since the last meeting.

Agenda Item 4: Echo Range: Combat Pistol/Military Police Qualification Range – MAJ John Bagaglio, MA ARNG

MAJ Bagaglio gave a brief history of Echo Range and stated that the MAARNG would like to re-activate Echo Range and is asking for the Science Advisory Council’s support. He explained that the objective is to return to live fire using lead projectiles at Echo Range in accordance with USEPA’s Administrative Order 2 (AO2) and the Environmental Performance Standards (EPSs) as set forth in Chapter 47, the Acts of 2002. Design a range that meets qualification standards, captures projectiles, leaves projectiles mostly intact, and allows projectiles to be easily harvested from the range while protecting the environment through monitoring (soils, porewater, and groundwater) and active range management (metals removal).

MAJ Bagaglio explained that the MAARNG is proposing two distinct pistol courses on the site. The first is a Combat Pistol Qualification Course (CPQC) where projectiles are fired at pop-up targets, pass through and strike the backstop berm. The second is Military Police (MP) Firearms Qualification Course, where projectiles are fired at a fixed target, pass through, and strike the backstop berm. Juliet and Kilo

Ranges are currently serving as MP Firearms Qualification Courses. The two courses of fire, on the same range, are referred to as an automated combat pistol/MP firearms qualification course.

MAJ Bagaglio said that Echo Range was used to train and test soldiers on the skills necessary to identify and engage infantry targets with pistols; it was relocated to its current site in 1986. It was designed to meet the training and qualification requirements with combat pistols using 9mm ammunition. There are 15 firing lanes outfitted with pop-up targetry, 7 per lane, and troop support facilities. Soldiers engage pop-up targets in sequences triggered by the range operator. The majority of the firing takes place at the firing line. For the MP course firing can occur as close as 7 meters at a fixed target.

MAJ Bagaglio discussed past and anticipated future use on the range. Past use of Echo Range averaged 42,333 rounds/year; however the MAARNG's Force Structure was approximately 15,000 soldiers vs. 6,000 soldiers today. Assuming all soldiers needing to qualify with pistols are doing so every year at Camp Edwards (this is not the case) the anticipated future use is: combat pistol only (includes outside agency use): 41,601 rounds/year; MP Firearms Qualification Course Only (includes outside agency use): 42,500 rounds/year; combat pistol and MP Firearms Use (includes outside agency use): 84,101 rounds/year. Outside agency use per year is: 7,601 rounds/year.

MAJ Bagaglio discussed the 1998 Berm Maintenance Project where soil at 16 small arms ranges was treated with MAECTITE chemically fixate leachable lead in the soil. At Echo Range, 1,694 cubic yards was removed and treated. There was no in-situ processing and the berm was not rebuilt, i.e. no MAECTITE (phosphate) on range.

MAJ Bagaglio displayed a graphic of the sampling locations for soil and groundwater. He then showed a graph with the mean lead and antimony soil levels for five areas on the range in 2006. MAJ Bagaglio displayed results of the Echo Range Groundwater Sampling 2010, which were non-detect for lead and antimony.

MAJ Bagaglio discussed the five test fires that took place on Echo Range between 2006 and 2015. The test fires were conducted to determine an area of the range that could be used for projectile capture, keep projectiles from fragmenting, and in an area that would allow for efficiently removing projectiles from the range. The test fires were conducted under different weather conditions. Later test fires shifted the focus away from the range floor, emphasizing the backstop berm as the primary projectile capture location. Test Fire 1, September 2006, showed a 73% projectile capture rate. Test Fire 2, February 2007 (cold weather), 74% projectile capture rate; Test Fire 3, November 2014, 78% capture rate; Test Fire 4, June 19, 2015, 73% recovery rate. During the Supplemental Test Fire 4 on July 31, 2015, the backstop berm was increased to a 2:1 slope and was sufficient to capture projectiles and avoid ricochets. This increased the recovery rate from 73% to 95% projectile recovery rate.

MAJ Bagaglio explained the Draft Range Design. The backstop berm will be utilized as the primary projectile capture area. Single Individual Target (SIT) frontal berms would be the capture location for extreme low shot projectiles. The backstop berm would be constructed of core material (native), landscape fabric as demarcation line, projectile capture medium that would be 1/8th minus (road sand), capped with top soil that slows projectiles and would allow for vegetation and slope stabilization.

Mr. Gschwend asked if there is a floor under the berm. MAJ Bagaglio replied no, there is a type of core mat construction underneath. Mr. Gschwend said the lead would dissolve in the berm. MAJ Bagaglio replied if left long enough it could but there will be monitoring in place.

MAJ Bagaglio explained that the MAARNG proposes to sample soil on Echo Range as it sits now and post construction before the range is active. There are three lysimeters proposed for the range: north, center, and south at the toe of the berm. The proposed Groundwater Sampling Well is well MW468S.

MAJ Bagaglio stated management of Echo Range would follow current OMMPs for standard range operations such as safety, responsibilities, inspections, etc. Camp Edwards will work with EMC and EPA to identify requirements for the periodic removal of metals from small arms range soils. Projectile (metals) removal requirements will be based on such factors as results of monitoring, numbers of rounds

fired, the period in which they were fired. During periodic projectile removal, an assessment of the effectiveness of bullet containment and removal would be undertaken, i.e. compare weight of projectiles fired vs projectiles (metals) recovered. Mr. Gschwend asked how long the recommendations stay in place for Echo Range Management. MAJ Bagaglio replied the first recommendation would be for one year and will be monitored.

MAJ Bagaglio said that there are two possible approaches to metal removal requirement: Remove projectiles from the range after the first year of operations to determine projectile density that will aid in determining a required timeline for periodic metals removal. Or, projectiles will be removed from a different lane after the first, second, and third years of operation. He explained that the second option will provide a sense of projectile loading within the backstop berm and allow for the refinement of the projectile removal process. During the third year projectile removal work will also occur at three high use SIT frontal berms. The three SITs with the highest document use will be selected. After the third year of removal the MAARNG will discuss the results of the projectile removals and develop a plan for full range projectile removal in coordination with the SARWG (MassDEP/EMC/USEPA).

MAJ Bagaglio discussed how the MAARNG has complied with US EPA's Administrative Order two, including publishing a Pollution Prevention Plan for the small arms ranges in 2007, researching different munitions materials such as SACON, HESCO Soil Baskets and Dura-Blok, which will be used at the SIT frontal berms. The MAARNG will also develop an Operations, Maintenance and Monitoring Plan for Echo Range, to include safety, roles and responsibilities, range inspections and maintenance, and environmental monitoring.

MAJ Bagaglio explained how the MAARNG is in compliance with EPS 19, including consulting with agencies such as the EMC and the EPA, publishing its Pollution Prevention Plan, range-specific OMMPs, utilizing proper range design to confine metals to defined areas and establish a plan for periodic metals removal, and continuing to evaluate and employ emerging practices, technology, ammunition and range management practices that will contribute to the effective Management of Echo Range and the further protection of the environment.

MAJ Bagaglio said that the key points are that the MANG has proven shortfall and need for this type of range based on its force structure; the range is appropriate and necessary to complete required training for MANG Soldiers; the range design will meet the requirements of the EPS and the EPA's Administrative Order (2). He said that the pistols have a maximum muzzle velocity of 1200 to 1300ft/second that aids in significantly reducing fragmentation; test firing has shown that projectiles can be contained and recovered to a high degree 95%+; and the geochemistry of the soil serves to retard metals migration, i.e. slow mobility. He said that the presence of lead in groundwater from small arms activity has not been found to occur and in the context of small arms range activity at Camp Edwards, and lead does not represent a significant threat to the drinking water.

MAJ Bagaglio said that, in summary, adaptive and active range management has been and is critical to Small Arms Range and mission sustainability, human health and safety and environmental protection at Camp Edwards. The Environmental Performance Standards, specifically EPS 19, as set for in Chapter 47 the Acts of 2002, provides for external oversight and authority for range development and operations on Camp Edwards. The MAARNG would like to move forward with Echo Range and is asking for the SAC's support of this effort for this critically important and required range for Soldier training.

Mr. Gschwend inquired about the geochemistry of metals of the soil serves to retard lead metals migration in groundwater but he is not sure about antimony. MAJ Bagaglio replied for the presence of lead in groundwater. Mr. Gschwend said for the non detect results of lead and antimony what are the detection limits because they could be too high. MAJ Bagaglio replied that he is making the assumption that the detection limits were in line with if the metals of items of concern if there is a drinking water standard close to the detection limit would have to be close to that level. Mr. Gschwend would like to know the detection limits.

Ms. Dolan said (inaudible).

Dr. Duggan inquired when there is metal removal the sand is removed. MAJ Bagaglio replied yes, the loam is removed, 6-8 inches of the bullet pockets are removed, it's sifted, the sand material and loam are replaced and the area is reseeded.

Dr. Duggan asked if the loam is replaced. MAJ Bagaglio replied the loam would be sifted and replaced if needed. Dr. Duggan asked if any sand and loam would be taken off site. MAJ Bagaglio replied the loam would be tested and disposed of if necessary. Dr. Duggan asked if the stability of the berm depends on the seeding taking and grass growing. MAJ Bagaglio replied yes and no, there is a slope that meets the requirement without grass cover. He said there hasn't been a concern without grass cover if there is no erosion issue.

Dr. Duggan asked if the sand is approximately 18 inches thick and loam is 3-4 inches, after the loam and sand are removed will they be put back the same they were originally. MAJ Bagaglio replied that it would be the same as it was originally built. Dr. Duggan asked why use this method instead of STAPP system for Echo Range. CPT McDonough stated the STAPP system creates its own unique challenges: the material tests hot for constituents of concern and maintenance costs for recovery. A managed berm berm is easy to manage, monitor and maintain.

Dr. Duggan asked if the STAPP material gets contaminated with lead. CPT McDonough replied the material does have lead. MAJ Bagaglio replied that the rubber it is made of breaks down. Dr. Duggan asked if the STAPP material has harmful ingredients. CPT McDonough said from an operational standpoint the STAPP system poses challenges and risks.

Dr. Duggan inquired about the schedule for testing and sampling the lysimeters and working with the SARWG. MAJ Bagaglio replied that is an annual requirement.

Dr. Duggan stated that the annual sampling plan is fine, but if there are if there are changes to the bullets' composition in the future, would there be a conversation with the SARWG. MAJ Bagaglio replied yes. Mr. Gschwend suggested discussing that before the new bullets are fired. MAJ Bagaglio said that they would have to be added to Camp Edwards approved ammunition list.

Dr. Cavanagh asked with the 95% capture rate, how big is the area to be sampled versus hot spot size.

CPT McDonough stated that the targets and pockets (answer inaudible on recording).

Dr. Cavanagh asked is the area being sampled large enough that it is "capturing the parentheses." MAJ Bagaglio replied that there would be four areas. Dr. Cavanagh replied that if the area was much smaller than the 95% capture rate are you only sampling 95%.

CPT McDonough replied that he is confident that the area being captured is accurate.

Mr. Gschwend stated that there is an interest in not having the bullets hit each other. MAJ Bagaglio said that the bullets will move too slow and don't fragment, but that will be monitored. Mr. Gschwend suggested to look and see what one year monitoring looks like and then decide.

Mr. LeBlanc asked about the groundwater monitoring being in the right location and asked if the samples will filtered or unfiltered. Mr. Pinaud replied that filtered low flow sampling will be done. Mr. LeBlanc said that the lysimeters on the STAPP systems were set up near the drainage points so there was significant run off through the system down to those locations and there would be detections in the lysimeters. He asked where are the lysimeters going to be relevant to the berm on Echo Range. MAJ Bagaglio replied that there will be three across the total berm. Mr. LeBlanc wonders if the monitoring is being looked at holistically in the right area. What is the total amount of environmental protection monitoring that is going on at Camp Edwards for their activities as opposed to the Impact Area? Does Camp Edwards have their own contractors? The SAC would like to review that, he said.

CPT McDonough stated there's an annual contract for \$30,000 that is adsorbed by Camp Edwards.

Dr. Cavanagh asked what would be the appropriate sampling and monitoring. What would it take to feel comfortable to know where the lead is migrating down the berm; how will they know it?

Mr. Gschwend stated that he would use core sampling and would look at the metals as a function of depth going below. He said you can look at many metals at the same time and ask that digestion (unclear on recording). He thinks \$30,000 would easily cover that. It would serve an early warning system. He suggested taking a split tube sample or two and slicing it up into a few depths and sending it off for an organic analysis.

Dr. Cavanagh suggested an SAC recommendation to the EMC if they believe what is proposed is safe because Chapter 47 refers to compatible military training. He asked do we feel comfortable that things are being monitored in such a way that lead will be detected early in the process and can be stopped before it migrates to the groundwater.

Dr. Cavanagh asked the SAC members if they think what the Guard is proposing is appropriate.

Mr. Gschwend stated that a sand berm is easier to work with than a STAPP system. Cores could be taken without a lot of effort.

Mr. LeBlanc stated that he feels it is safe and is comfortable with a recommendation. He suggested a future discussion with the National Guard about monitoring.

Mr. Pinaud recommended that the SAC could attend a SARWG meeting in the future to discuss that.

Dr. Duggan feels comfortable with the regular monitoring and proactive review.

Dr. Cavanagh stated that the SAC would recommend to the EMC to support the proposed return of live fire at Echo Range and Dr. Duggan added with the OMMP plan, as described.

Echo Range and MANG Request

Dr. Cavanagh stated that the Science Advisory Council recommends that the Environmental Management Commission permit the return to live fire using lead projectiles at Echo Range in accordance with USEPA's Administrative Order 2 and the Environmental Performance Standards as set forth in *Chapter 47 of the Acts of 2002*. Mr. Gschwend motioned to accept the recommendation to the Environmental Management Commission and Dr. Duggan seconded the motion and all the SAC members voted in favor.

Agenda Item #5: Public Comment

There was no public comment.

Dr. Cavanagh addressed the remote meeting policy and explained that the Attorney General's decision is that members can remotely participate in meetings but the council has to vote to adopt a remote participation policy. There also has to be a quorum of members physically present at every meeting.

Dr. Cavanagh suggested seeking additional, local members for the SAC. Mr. Gschwend recommended a colleague at MIT be nominated.

Agenda Item #6. Adjourn

The meeting was adjourned at 7:10 p.m.