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**Science Advisory Council to the Environmental Management Commission Meeting**  
**Building 1805**  
**Camp Edwards, Massachusetts**  
**April 25, 2019**  
**5:30 p.m.**

**Meeting Minutes**

<b><u>Members:</u></b>	<b><u>Organization:</u></b>	<b><u>Telephone:</u></b>	<b><u>E-Mail:</u></b>
Dr. Paul Cavanagh	SAC	860-416-3978	conservationscientist@yahoo.com
Dr. Jack Duggan	SAC	617-504-4329	dugganj@wit.edu
Donald Schall	SAC	508-237-6738	redtop1017@icloud.com
Denis LeBlanc	SAC	508-490-5030	dleblanc@usgs.gov
Tara Nye Lewis	SAC	508-428-0469	tnye@horsleywitten.com
Dr. Phil Gschwend	SAC	617-253-1638	pmgschwe@mit.edu

  

<b><u>Environmental Officer:</u></b>	<b><u>Organization:</u></b>	<b><u>Telephone:</u></b>	<b><u>E-Mail:</u></b>
Len Pinaud, Environmental Officer	EMC	508-946-2871/508-968-5127	Leonard.pinaud@mass.gov

  

<b><u>Attendees:</u></b>	<b><u>Organization:</u></b>	<b><u>Telephone:</u></b>	<b><u>E-Mail:</u></b>
WO1 Chris Corbett	CE Range Operations	508-446-7044	Christopher.p.corbett.mil@mail.mil
MAJ Alexander McDonough	MA ARNG	774-286-1373	Alexander.v.mcdonough.mil@mail.mil
Brig. Gen. Chris Faux	MA ARNG	508-958-7259	Christopher.m.faux.mil@mail.mil
LTC Matt Porter	MA ARNG	508-789-8375	Matthew.n.porter.mil@mail.mil
Dr. Michael Ciaranca	E&RC	508-968-5154	Michael.a.ciaranca.nfg@mail.mil
Paul Rendon	JBCC	774-327-0643	paul.e.rendon2.nfg@mail.mil
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Jeremy Pettengill	Eversource	207-754-2416	Jeremy.pettengill@eversource.com
Mike Howard	Epsilon	978-897-7100	mhoward@epsilonassociates.com
Megan Aconfora	Eversource	203-499-9245	Megan.aconfora@eversource.com

**Handouts Distributed at Meeting:**

1. SAC Meeting Minutes for September 20, 2018
2. Massachusetts National Guard and Environmental and Readiness Center Update
3. Natural Resources Update

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

Dr. Cavanagh thanked everyone for attending the Science Advisory Council (SAC) meeting. He said that he would like to remember Ralph Vaccaro, who was an SAC member from 2002 to 2009. He recently passed away on April 16, two weeks before his 100<sup>th</sup> birthday. Mr. Vaccaro described his military service as “he has nothing bad to report; he was a lucky guy who had some adventures.” Dr. Cavanagh stated he turned out for his country and community, which is astounding, and was recognized as the “World’s Oldest Curler” in the Guinness World Records on June 5, 2018.

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

Dr. Cavanagh asked if anyone had any comments on the September 20, 2018 SAC meeting minutes. Mr. Cavanagh noted on page 4, RAW4 thinning “tiber” should be “timber” harvest and asked if that is correct. Mr. McCumber replied yes and the acronym RAW4 should be spelled out in the minutes “Range Area West 4.” Mr. Schall moved to accept the September 20, 2018 meeting minutes and Mr. Gschwend seconded the motion and all were in favor of the minutes as written with corrections.

**Agenda Item 3. Eversource Switching Station Update – Michael Howard, Epsilon Associates, Inc.**

Mr. Howard stated he is from Epsilon Associates, Inc., a consulting and engineering firm in Natick. He introduced Eversource team staff Meghan Aconfora, inspection services, and Jeremy Pettengill, project manager.

Mr. Howard displayed a map of the Eversource Switching Station location in the northwest corner of JBCC; there is an existing switching station that the project proposes to replace. He noted that the existing station has been in operation for over 60 years. The new switching station will deal with current and future demand on Cape Cod.

Mr. Howard explained that the process to site the switching station started in 2016. After discussion with the Natural Heritage and Endangered Species Program (NHESP), the Division of Fisheries and Wildlife and the Massachusetts National Guard, Site 6 was identified as the appropriate site for the switching station. A land swap with the state was required. In order to obtain the land for Site 6, an Article 97 process required. The easement swap and modifications proposed by Division of Fisheries and Wildlife for the Natural Heritage Program resulted in protection of over 6 acres of higher quality habitat in exchange for 3.5 acres of habitat: a 1.7 to 1 protection ratio. The mitigation package includes demolishing the existing station after construction of the new station, and the area will be restored to a more natural state of habitat.

Mr. Howard stated that there will need to be 85,000 yards of soil removed. The soil has been sampled; suitable soil will be repurposed and disposed of on site or offsite.

Mr. Howard stated the construction schedule is anticipated to begin in 2020, quarter 1 and replacement of the switching station is scheduled for 2021-quarter 4. The underground utility lines will be moved and completed in 2023-quarter 4.

Dr. Duggan asked if the switching station equipment includes dielectric fluids and if they’ll be checking for Polychlorinated Biphenyls (PCBs) in soil. Mr. Howard said that there is sampling for PCBs; he will confirm with an environmental engineer.

Dr. Duggan asked if when discussing suitability of soils for other locations is that based on structural suitability and what is the definition. Mr. Howard said from a sampling perspective, there is nothing that is a reportable concentration in Massachusetts.

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Ms. Nye asked if there is a plan in place for in 30 years. Mr. Howard replied yes, the current plan for land swap does include space for a future two-bay expansion.

**Agenda Item 4. Election of SAC Chair/Vice Chair – SAC Chair/SAC Members**

Dr. Cavanagh asked if anyone is interested in being Chair or Vice Chair. Mr. LeBlanc asked if the term could be less than two years. Dr. Cavanagh stated that he will continue for another two years if there is no alternative. Mr. Schall would like to continue as Vice Chair.

Dr. Duggan motioned to reelect the Chair and Vice Chair to another two-year term. Dr. Gschwend and Ms. Nye seconded the motion and all were in favor of the motion.

**Agenda Item 5. EMC By-Laws and General Update. – Mr. Leonard Pinaud, EMC Environmental Officer**

Mr. Pinaud discussed the By-Laws, which have been under review for the last 1.5 years. In fall 2018, there were changes made to the By-Laws based on the SAC, CAC, and EMC Meetings. Mr. Pinaud stated that there were edits made to the By-Laws and asked the SAC if they had any comments or additional edits. He would like to bring the By-Laws to the EMC in May to be voted on at that meeting.

Mr. Pinaud stated the changes were on page 4, article 5 of the By-Laws, CAC and SAC membership. The changes include reducing the number of CAC members required for a quorum and a process added that in the event an advisory board member is delinquent in their duties, the Chair would make a recommendation to the EMC Chair who would then recommend to the Governor's Office that that member be replaced.

Dr. Gschwend stated that if he had to get an absence certificate from a physician he would "quit" but the SAC doesn't have membership attendance issues. Mr. Pinaud stated that the CAC requested a process for absences. Dr. Cavanagh said to remove the words "such as the certificate of a physician."

Mr. Pinaud discussed remote participation: page 5, paragraph G, from Open Meeting Law. There was a concern that the remote participation could be abused and the CAC requested language that talked about in what circumstances could there be remote participation. He said that there still has to be a quorum physically present with a Chair or Vice Chair also present.

Ms. Nye asked if the remote participation member could vote. Mr. Pinaud replied yes. Dr. Cavanagh stated that the By-Laws should state that the Chair and Environmental Officer should be notified of any meeting absences and remote participation requests.

Mr. Pinaud asked if there should be language in the By-Laws that explains the duties of the Chair and Vice Chair. Mr. Schall suggested there be language about the responsibilities of the Vice Chair.

Dr. Cavanagh requested an informal vote to support efforts to move forward with By-Law changes to the EMC. Mr. Schall said it should be an informal support of the By Laws as amended by members. All members polled were in favor.

**Agenda Item 6. Ad Hoc Committee Update – Dr. Phil Gschwend, Professor, MIT**

Dr. Gschwend said the second meeting was refocusing on when (a) sampling should happen and (b) what chemicals should be measured so they are in a position to understand antimony when it moves from ground in type of environment but also any other chemical of interest. There was a list of analytes with chemicals that would matter to the fate of antimony may want to stick to iron oxide need to know what type talking about and have a sense of competition in the environmental setting of interest. The conclusion was that there should be background testing pre and post training. Secondly, to have a focus on the different chemicals that are normally measured but will be captured all the same time to see what is happening underground with the fate of chemicals. Dr. Gschwend said if we understand how it is

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working and go to once every three years to get more information in intense ways than every year. If you would put a pound of antimony into the world what sort of mass balance model would describe what happened to that antimony in general and contact people for the information (Action Item). Dr. Ciaranca said that will be doing speciation.

Dr. Gschwend stated that Mr. Clausen proposed to do a set of observations having to do with moving chemicals through the soil columns in the lab.

Dr. Cavanagh asked if Mr. Clausen did any baseline sampling in the late 1990s on the ranges. Dr. Ciaranca replied that there has multiple fate and transport studies done, but never with these pieces. Dr. Ciaranca would like to have an earlier warning system that will measure increases in substance levels that may mobilize lead and antimony.

Dr. Gschwend stated that there are empirical observations but he doesn't know those relate to real world conditions. He suggested Mr. Clausen "go back a little and think about what he will be doing" before investing in a hard plan.

Dr. Ciaranca stated that Dr. Clausen will also do the speciation contract.

**Agenda Item 7. Camp Edwards Update – Dr. Michael Ciaranca, E&RC, MAARNG**

Dr. Ciaranca reported that MAJ Alex McDonough is now Plans and Training Officer. Warrant Officer 1 (WO1) Christopher Corbett is the new Range Control Officer.

Dr. Ciaranca stated that the Trespass signage is being made and contract bid out to install them in the Reserve. Mr. Pinaud stated that the cameras and stands are at Range Control and Jason Zimmer, DFW, has the signs and needs to choose a contract for land surveying.

Dr. Ciaranca stated that cameras will be coordinated with Range Control. Dr. Cavanagh asked what the penalty is after the cameras identify trespassers. Dr. Ciaranca replied he is not sure. MAJ McDonough stated that the cameras main reason isn't to identify people but to identify trespassing trends; a no trespassing order could be issued by the Environmental Police if there are identifying marks.

Mr. Pinaud stated that last year there were a number of partnership meetings and there was a subcommittee where police, fire and public safety were looking for opportunities on the base. In return is there an ability to have public safety patrol the perimeter of the Reserve if trends are established with cameras; they need to know certain areas where people were frequenting to target the areas. There is an informal commitment from outside public safety agencies and they are working on ways beyond the environmental and state police for assistance, he noted.

Dr. Ciaranca reported that the draft SOP and map are ready for review for the Reserve Training Area Refueling EPS 15.3.3 update: Draft EPS language has been developed. In Fall 2019, the EPS change will be proposed to the SAC, CAC, and EMC.

Dr. Ciaranca said that Camp Edwards has only 29,567 rounds of lead ammunition left in its inventory. With the exception of Echo Range, Camp Edwards will be using only copper ammunition. He said that Echo Range was used by Rhode Island Special Forces on April 6. They suggested adding two targets at each end of the range for corrective actions. The range should be opening by summer 2019.

Dr. Ciaranca stated that STAPP systems on Juliet and Kilo ranges will be dismantled upon availability of funding. There is the potential to retain one range for outside agency use.

Dr. Gschwend asked if there will be any cleanup activity associated with the STAPP system removal. Dr. Ciaranca that there will be. Dr. Gschwend stated that the berm material may be a problem. Dr. Ciaranca said that when the Juliet Range STAPP system was opened, there were no penetrations on the bottom

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liner, but there were penetrations in the lanes used for machine guns. Dr. Gschwend stated he is concerned about Zinc and the materials comprising the STAPP system.

Dr. Ciaranca stated that Tango Range STAPP has been removed. The design for rebuilding it as a copper zeroing range is at more than 30%. The range size will double from 15 lanes to 32 lanes.

Dr. Ciaranca stated that the Multi-Purpose Machine Gun Range is a Military Construction (MILCON) project for 2020. The design is at 35% and the Environmental Performance Standards are being incorporated. The NEPA/MEPA is being developed and coordination with the Natural Heritage Endangered Species Program (NHESP) is ongoing.

**Agenda Item 8: Natural Resources Update – Mr. Jacob McCumber, Natural Resource Manager, MAARNG**

Mr. McCumber gave an update on Natural Resources activities and said that two puddles on Hebert Road were pumped out in December in support of the Clam Shrimp mitigation. Five gallon buckets full of material were placed in the new vernal pool created for the Clam Shrimp as the first relocation effort of the small invertebrates. He noted the Conservation Management Plan on Cat Road will be finished this year.

Dr. Gschwend asked how it is determined that the Clam Shrimp relocation is working. Mr. McCumber replied if there are Clam Shrimp in the new puddle. Dr. Gschwend asked if he is concerned with the rest of the ecosystem of the puddle or only the Clam Shrimp. Mr. McCumber replied they are only focused on the endangered Clam Shrimp. Dr. Gschwend asked if it is only a single year observation. Mr. McCumber replied there is long-term monitoring of Clam Shrimp on the base. Dr. Gschwend said picking up an ecosystem and moving is not trivial. What happens to the Clam Shrimp that were dewatered? Mr. McCumber replied that those Clam Shrimp are under the layer of gravel. Dr. Gschwend replied that there is no way to reverse the process and Mr. McCumber said that is correct and is part of the Conservation Management Program with Natural Heritage.

Mr. McCumber said that this site has been a heavily investment of Clam Shrimp species in the entire world. The Clam Shrimp are throughout the road network on the base; therefore, none are in isolation. The Clam Shrimp puddle was a critical one and East of road there are five more puddles which is part of the strategy. The site specific strategy is not that critical and one of the biggest values to Natural Heritage is relocation and management for the species. Mr. McCumber said it is a struggle that the puddles are on the roadways and benefit of the project is relocation, he noted. There are approximately 30 puddles on base. The species known locations has increased by five new towns in Massachusetts and in the past three years has gone from five known locations for the species to now identified in over 50 locations. He noted that is mostly MA Army Guard Natural Resources at JBCC looking to demonstrate the sole focus for the species conservation doesn't have to be the base. Mass Wildlife is looking at down listing species of concern from the Matrix. There are other puddle management incorporated that haven't been done yet that will be investigated. He said that there isn't a "terrible" concern about creating this new ecosystem partly because the main habitat there are "thrashed" road puddles. One of the things is to disturb as regularly as can so it doesn't become a functioning vernal pool. They don't want it to be a good ecosystem because the clam shrimp don't want it to be a functioning ecosystem if it starts getting all the amphibians the clam shrimp don't seem as persistent. The clam shrimp are in an area driven by convoy as much as possible.

Mr. McCumber stated that the prescribed burn season was the best spring season with 524 acres burned and all were very complicated, high-priority projects to try and box in the Impact Area.

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Mr. McCumber stated that the Integrated Natural Resources Management Plan (INRMP) update has been contracted out. Dr. Cavanagh asked if the contract has been awarded. Mr. McCumber replied no; they have gotten all the bids and there is a request for award at Camp Edwards Headquarters.

Mr. McCumber stated that most of the winter was devoted to establishing a mitigation bank for the Massachusetts Air and Army Guard at JBCC. The big initial focus was the MPMG Range; how to mitigate that range became more and more complicated. Mr. McCumber pointed out the MPMG Range, Infantry Squad Battle Course, and Sierra Range and Tango Range expansion projects, as well as Cantonment area projects. He said there needed to be a more holistic view of mitigation for the base at both Mass Wildlife and Camp Edwards. There was a meeting with BG Faux, LTC Porter, and others which was key to making it possible. There are some land transfers that are part of this to get the land protection ratios.

Mr. McCumber explained that the Solar Project on the landfill isn't happening. There were already parcels of 132 acres of pitch pine scrub oak that were transferred from the Special Military Reservation Commission (SMRC). Another part of the mitigation is 150 acres of old parade field which is being managed as grassland. Those are being put into the mitigation bank for other projects.

Dr. Gschwend asked if the mitigation spaces are contiguous with other places that you care about; do they have the same value if animals can't go between the different areas. Mr. McCumber replied that the mitigation parcels have to be suitable habitat or they cannot be used for mitigation. He said if they aren't currently suitable habitat they have to be converted and you want them to be contiguous.

Mr. McCumber stated that Box Turtles are a concern for Mass Wildlife. There is an agreement on suitability of Pine Barrens for box turtles with Natural Resources and Mass Wildlife forest cover retention areas on the base supportive of the forest cover for Box Turtles. All of the machine gun range footprint is going to be considered a take of the Box turtles, but there are reserves that are going to be put into mitigation banks and established through the INRMP. There is ten times the capacity than the actual needs, he noted. The grassland mitigation will mostly be focused in the holding parcel. Transferring this to Mass Wildlife but we will also receive credit for habitat conversion.

Mr. McCumber stated that there will be a CMP associated to establish the mitigation bank formally with Mass Wildlife.

**Agenda Item 9: Combined Arms Exercise – Request for the Use of Training Simulators** *MAJ Alex McDonough, MAARNG and Dr. Mike Ciaranca, E&RC, MAARNG*

MAJ McDonough said the Combined Arms Exercise (CAX) will be held 27 July -10 August 2019. It is an exercise for units getting evaluated and assessed on readiness at Camp Edwards. The first CAX was done last year in 2018; this year's CAX this year is built on improving from the previous year, he noted. There will be approximately 900 soldiers and staff attending this year. The primary units are Combat Service Support and Infantry, Engineers, Military Police, Chemical Signal, Cyber Aviation, Intelligence, Close Air Support, Brigade Support Battalion, Explosive Ordnance Disposal, Transportation, and DoD units. The main goal of the exercise is to bring units into a tactical setting so they can be evaluated against any threat.

MAJ McDonough stated that the primary areas of operation are Demo 2, BA-6, TTB Kelley and Dig Site 3. There will be Non Standard Training Request for tactical fueling, one for non-standard use of Sierra Range, use of CS (tear gas) outside the former NBC Chambers (metal Quonsets), and use of training simulators.

MAJ McDonough displayed photos of training simulators for use in the CAX: Smoke Grenades (M18), Star Clusters, Parachute Flares and Smoke (M158a1 and M127a1), Ground Burst (Artillery) Simulators (M115A2).

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MAJ McDonough stated that the objective is to provide data regarding potassium perchlorate residue from simulators in a field training setting and to determine whether or not the simulators are appropriate for use at Camp Edwards during the 2019 CAX.

Dr. Ciaranca stated that the constituent of concern is potassium perchlorate, which can inhibit thyroid function. The regulatory standards are USEPA reference dose 0.0007/mg/kg/day or 24.5 ppb. MA GW-1 and MMCL Drinking Water Standard: 2ppb. MA S-1 Soil Standard: 100 ppb.

Dr. Ciaranca said that the M115A2 (artillery or ground burst simulator) has the greatest concentration of potassium perchlorate as compared to the other proposed devices. Testing was done in 2009 with twenty simulators in a partially sand filled shipping container. Sand samples and dunnage (paper debris) were analyzed for potassium perchlorate. The results were: in sand 3 to 78 ppb (0.15-26 ppb/device) dunnage was 2840 ppb.

Dr. Ciaranca said that the proposed testing will be to test smoke grenades and ground burst simulators, as used in the field, outside of Reserve/Training Area. It will be analyzed for  $\text{KClO}_4$ , with two 20 x 20 testing grids, a 25 Point Multi-Increment Sampling (MIS) Scheme, and pre-, post-, and replicate samples to be taken. Three smoke grenades and three ground burst simulators will be deployed for testing. Soil and dunnage will be analyzed for Potassium Perchlorate.

Dr. Gschwend stated that 20 by 20 feet is the entire space to be tested. Dr. Ciaranca replied yes for three devices. Dr. Gschwend said have been seen thrown before and presume goes up not down. Dr. Ciaranca replied the parachute flairs go up but smoke grenades go down on ground. Dr. Gschwend said that he doesn't know where it will all go and wondered if that will be figured out. Dr. Ciaranca said that historically 50 lbs. of pyrotechnics were used from 1980-1986 and IAGWSP found no contamination associated with pyrotechnic smoke in soil or groundwater. Dr. Gschwend asked if all of the chemicals were found. Dr. Ciaranca replied that every area was tested at training site.

Mr. Pinaud asked is the grid large enough. The 20 by 20 foot grid may need to be adjusted to expand testing.

Mr. LeBlanc asked how much perchlorate is consumed. Dr. Ciaranca replied in the sand test box there was approximately 99 percent consumption.

Dr. Duggan asked what perchlorate turns into when it reacts. Dr. Ciaranca replied chlorine dioxide.

Mr. LeBlanc asked what is the density of pyrotechnics use. MAJ McDonough replied that in a standard lane no more than three artillery simulators in one area. Smoke is given to the units to use at their lanes which is one or two per lane using smoke grenades.

Mr. LeBlanc stated the pyrotechnics usage will be in prescribed locations in the lanes. MAJ McDonough replied yes, the lay out of the exercise is lanes, choreographed to a reaction point or locations. LTC Porter said that the area of use will be very specific location.

Dr. Ciaranca stated that the soils will be tested and analyzed and results will be provided, evaluated, and discussed with the EMC EO to determine if use of the simulators is acceptable in terms of environmental protection and compatible military training.

Mr. Pinaud asked for the SAC's feedback; is the test set up correctly? Dr. Gschwend said there should be a test done, but the calculations should also be done.

Dr. Duggan asked if the soil standard is based on GW3or GW1. Mr. Pinaud replied that takes into account leaching into groundwater; it is based on GW1.

Dr. Duggan stated that when you identify that the perchlorate is the contaminant of concern you have looked at the description of the entire composition. He asked if you have ruled out everything else being of concern. Dr. Ciaranca replied that guidance is taken from the regulatory agencies. Dr. Duggan said that smoke has different colors and has been troubleshot. Dr. Ciaranca stated that different color smoke doesn't have any more or less concentrations of the oxidizer and perchlorate.

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Mr. LeBlanc stated that 8 lbs. in 20 by 20 feet is different than 8 lbs. spread out over dozens of acres. What is going to be the impact on groundwater resources? BG Faux said that to have a realistic training environment needs to find a way to do an evaluation to see if a feasible concept. He suggested getting through testing phases to make a decision.

Dr. Gschwend asked if meteorology information will be collected. MAJ McDonald stated that the evaluators will collect information during testing.

Mr. Pinaud said that after the SAC's feedback they will: do the calculations, go through with the test at TTB Kelley; get the rough numbers in the soil and the deposition; note the weather and film the field test.

BG Faux stated if the SAC would like to observe testing to let Mr. Pinaud know soon.

**Agenda Item 10. Public Comment** – *Dr. Paul Cavanagh, SAC Chair*

There was no public comment.

**Agenda Item 11: Adjourn**

The meeting was adjourned at 8:11 p.m.



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## Action Items

- Mike Howard will check if dielectric fluids were used at the proposed switching station. Dr. Duggan said the type of dielectric fluids (PCBs). Dr. Gshwend added “What kinds of materials were used in electronic devices, transformers, etc. and what were they?”
- Mike Howard will provide Len Pinaud with the Phase 1 site history, completed by GE Environmental.
- Mike Ciaranca will provide a copy of the video of the testing conducted on snow at Fort Devens.
- Mike Ciaranca will calculate the amount of perchlorate that could be in the soil as a result of using the simulators during the CAX.
- Film the testing and make note of the weather.