
Science Advisory Council to the Environmental Management Commission Meeting
Building 5222
Camp Edwards, Massachusetts
October 19, 2017
5:30 p.m.

Meeting Minutes

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Handouts Distributed at Meeting:

1. SAC Meeting Minutes for May 18, 2017 and July 13, 2017
2. Massachusetts National Guard Environmental and Readiness Center Update
3. Massachusetts National Guard: EPS 15.3.3 “Field Refueling” Proof of Concept
4. Natural Resources Update

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 is pleased to have field refueling back on the agenda to continue the discussion from the last SAC meeting on July 13.

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

Dr. Cavanagh stated that there are two SAC meeting minutes, for May 18, 2017 and July 13, 2017. The May 18, 2017, SAC minutes were reviewed. Dr. Cavanagh made a motion to accept the May 18, 2017 SAC minutes; Mr. Schall seconded the motion and all were in favor unanimously.

The July 13, 2017 SAC meeting minutes were reviewed. Mr. LeBlanc stated that on page 4 of 6, third paragraph, first sentence from the bottom of the page “Mr. LeBlanc said there is a lot of debate being driven by concentrations in samples verses “mass” (*not max*) flux delivery.”

Mr. Gschwend said that on page 2, fifth paragraph down from the top of the page he asked for an explanation from Dr. Ciaranca when he was speaking about the “surface soil samples are multi-increment sampling (100 point).” Dr. Ciaranca replied 100 point multi increment samples in square footage take 100 points broken up into grades.

Mr. Gschwend said that on page 2, third paragraph from bottom, first sentence “Mr. Pinaud explained that the conceptual site model is a rifle, primer and smokeless powder.” Mr. Gschwend said that is not a conceptual model and Mr. Pinaud noted there are words missing. Mr. Pinaud stated the recording will be reviewed.

Mr. Gschwend said that on page 3, second paragraph, 5th sentence, Dr. Ciaranca stated (not Mr. LeBlanc) Mr. Gschwend doesn’t recall the statement from Mr. LeBlanc. “The drainage comes off the floor and sides of berms; phosphate allows antimony to become more mobile and episodic water and snow events.” The statement will be reviewed from the recording.

Mr. Gschwend said that on page 3, 4th paragraph from the bottom, Mr. Pinaud is speaking and there is an Action item: “Mr. Gschwend recommends ensuring that a leakage isn’t causing issues.” He asked what is meant by Action. Mr. Pinaud replied the item is denoting an Action item. Mr. Gschwend asked when there is an Action item does it mean at the following meeting there will be a response. Mr. Pinaud replied yes. Mr. Gschwend noted there was similar action “Dr. Ciaranca will provide the STAPP™ water data to the members.” (Action)Mr. Gschwend stated that he was inaudible on page 5, fourth paragraph from bottom of page, of the July 13, 2017 SAC meeting minutes. “Mr. Gschwend said that the presumption is the chemistry is constant, the pH and (inaudible),” He noted that redox or Eh reduction in oxidation was in the element of thinking. Mr. Gschwend said that in the last paragraph, “Mr. Pinaud said that the water budget is fairly easy to do;” He asked if the water budget will be done. Mr. Gschwend suggested the statement be denoted by Action and Mr. Pinaud said that the action item will be addressed at the SAC meeting.

Mr. Gschwend stated that page 6, last paragraph, third sentence in Agenda Item #2: “Mr. Gschwend stated that sampling will be directed towards data support as opposed to monitoring twice a year.” He said giving data to support the various levels of modeling getting into water cycle and antimony modeling. Is there a need for clarification and Mr. Pinaud suggested Mr. Gschwend clarify his statement. He said it is his intention when they were talking about monitoring and measuring with questions if it is too high or too low. Mr. Gschwend said that rather we should be directing the sampling at the concepts that we have as with what happens to the water moving around on the ranges first of all and secondarily putting antimony in that water moving around and does that all add up and emphasize our efforts to see if we understand those stories in a quantitative way..

Dr. Cavanagh stated that voting on the July 13, 2017 minutes with corrections will be held off until the next meeting.

Agenda Item #3: By-Law Discussion – *Len Pinaud, Acting Environmental Officer, Environmental Management Commission*

Mr. Pinaud explained that there are By-laws governing the Environmental Management Commission (EMC) and its advisory councils. Dr. Ciaranca noted that Ms. McConnell, Community Advisory Council (CAC) member, brought the By-laws to their attention at the last meeting. In 2004, the By-laws were revised and reviewed by the SAC and CAC, but never voted on by the Commissioners. Mr. Pinaud said that the revisions consisted of changing the number of yearly meetings from four to two and updating the names of the Commissioner's agencies. The By-laws drafted in 2004 need to be updated again to make additional changes. Mr. Pinaud will make the necessary updates and have the SAC and CAC review them prior to the EMC's approval. (Action) He noted that the SAC can email him with comments.

Mr. Pinaud said that there have been some changes to the Open Meeting Law effective October 6, 2017. He asked the SAC members to familiarize themselves with the changes of Open Meeting Law and sign and return to him the document from the Attorney General Office stating that they have read the material and agree to follow Open Meeting Law. (Action)

Agenda Item 4: Proposed Ad Hoc Committee: Small Arms Range Monitoring – *Dr. Mike Ciaranca, Deputy Director, Environmental and Readiness Center*

Dr. Ciaranca discussed the formation of an Ad Hoc Committee, which could include members of the SAC and nonmembers to review the current Small Arms Range environmental monitoring processes, aid in developing monitoring and ensuring that environmental monitoring for the ranges provides the information needed to protect the groundwater at Camp Edwards .

Dr. Ciaranca said that the members for the proposed Committee are SAC members Phil Gschwend, Denis LeBlanc, and Jack Duggan and Jay L. Clausen PhD, Research Physical Scientist, Deputy RPM, USACE Cold Regions Research and Engineering Laboratory, Hanover, NH.

Dr. Ciaranca asked if everyone is in agreement to have the Ad Hoc Committee. Mr. Gschwend asked if Committee needs to be approved by the EMC. Dr. Ciaranca replied yes, they will need to vote on it.

Dr. Duggan asked if the Ad Hoc Committees is subject to the Open Meeting Laws. Mr. Pinaud will research whether the Committee is subject to the Open Meeting Laws. (Action)

Dr. Duggan stated the Ad Hoc Committee would have four members and quorum of three. Dr. Ciaranca doesn't believe the Committee would vote on anything, but rather would bring information back to the SAC for a vote.

Dr. Cavanagh asked the attendees at the July 13, 2017 SAC meeting how valuable was the process. Mr. Gschwend replied that he thought the discussion went into depth and they were able to get into esoteric aspects of the problems. He felt the process was very beneficial.

Mr. Schall stated with the focus on the antimony issue, he learned a great deal and was able to come closer to the issues.

Dr. Cavanagh stated that the Ad Hoc Committee being established sounds beneficial and useful. He asked if the MAARNG's perception was the same. Dr. Ciaranca replied, yes the focus on antimony, phosphate and liming and the review of the path forward is valuable.

Mr. Gschwend asked if a member couldn't come to all the meetings could there be an option to teleconference. Mr. Pinaud stated that the telecommuter couldn't vote and there must be a quorum at the meeting. Dr. Cavanagh stated that when revising the By-Laws, a written policy related to telecommuting could be put in officially.

Dr. Cavanagh asked what next needs to be done to establish the Ad Hoc Committee. Dr. Ciaranca stated that if the SAC agrees, it would be brought to the EMC Commissioners.

Mr. Pinaud asked if the SAC is proposing to move forward with asking the EMC to approve the Ad Hoc Committee. Dr. Cavanagh stated that there have been statements from the MANG that this something that they like and seems to be productive. All the participants that have spoken have said that they thought it was a productive experience. Dr. Cavanagh said that it should be taken to the Commissioners and request that they establish the Ad Hoc Committee in accordance with their existing By-Laws. (Action)

Agenda Item 5: Natural Resources Update – *Jacob McCumber, Natural Resource Manager, MAARNG*

Mr. McCumber said wildlife work is ongoing with acoustic surveys and regional coordination. The data is being reviewed for New England Cottontail pellet searches, diet analysis, coordination with technical committee. There will be upcoming reports on the state listed rare moths and bumble bee surveys, nothing radical was found. There were no rusty tussock moths. Dr. Cavanagh asked if there are any rare moths in the Brewster and Dennis area. Mr. McCumber replied in the Harwich area in the twelve year record. He said there was an intensive survey done this past year on JBCC and no rare species were found.

Mr. McCumber stated that the Frosted Elfin was confirmed this year as a species being considered for Federal listing. The Massachusetts Division of Fisheries and Wildlife (DFW) is setting up a regional partnership with the Department of Defense (DoD). There were twenty sites surveyed but only one was found behind the Environmental & Readiness Center (E&RC). The DFW published an article “singing the praises” of DoD Conservation for all the work JBCC has done to support rare butterflies and other various species. The Associated Press cut that article with a nationwide story about butterfly conservation and the work that DoD installations in Northeastern New England and specifically called out Camp Edwards in June 2017.

Mr. McCumber stated that there are annual rare (state-listed) plant surveys, fire effects monitoring plots, seed harvesting and planting (restoration sites). Two seeds focused on this year were Big Bluestem seed and *Asclepias tuberosa* (Butterfly milkweed). There was planting on restoration sites such as Demo 1, he noted.

Mr. McCumber said that the rare species consultation projects include frost bottom plan conservation for Broad Tinker’s weed (*Triosteum perfoliatum*) and Adder’s tongue fern (*Ophioglossum pussilum*). These plants need open canopy frost bottom depressions, but are being choked out by invasive shrubs and grasses. They have contracted a vegetation management plan and are coordinating with the Natural Heritage and Endangered Species Program (NHESP), so as not to have unintended consequences when using a combination of mechanical and chemical treatment to remove the invasives.

Dr. Cavanagh stated the two rare plants have rich organic soils which is good for honeysuckle. He said that is typical where you find invasive plants.

Mr. McCumber stated that there was confirmation from NHESP that state endangered Agassiz’s clam shrimp (*Eulimnadia agassizii*) were found in multiple areas in trail/road puddles. He said that several road puddles are in severe condition and are requiring repair; they have contracted support to coordinate a conservation plan, mitigation, and coordination with NHESP and the Town of Bourne. A plan will be developed to address the issue and some sites will not have impact to training; other sites will be created vernal pool sites.

Mr. McCumber said that prescribed burns were completed in April and June for 107 acres; approximately 100 acres will be burned October 20 behind Range Control. He noted that approximately 50 acres were burned recently. The annual fall fire training consisted of four courses with 21 agencies/organizations

participating. Fire partnerships through the Stafford Act for emergency response were signed with DFW; the Stafford Act signature is still required from DCR. The program is working with mutual aid. The Stafford Act is not active for any partners until all have signed.

Mr. McCumber said that the a wet year contributed to well established restoration efforts (non-fire) for the BP 27 and BP 28 rehabilitation; pitch pine thickets were removed and converted back to native grass/forb. He noted that in OP 9 and 10 over story thinning is completed for shrub savannah. Conversion to native grass/forb is in the planning stages for BP 11; C 14 forest thinning and shrub restoration is also planned.

Mr. McCumber discussed emerging or recurring threats including the Gypsy moth. He said that the virus and fungus finally took hold in late June at the early stage of defoliation. The Southern pine bark beetle is a major concern. There is a regional meeting this winter amongst managers. They are developing proactive and reactive response plans and attempting to add response tools (e.g., burning debris). There was significant pitch pine mortality this year due to the black turpentine beetle (*Dendroctonus*) and three species of *Ips* bark beetles. MassDEP has been very helpful, he noted.

Mr. McCumber said that the youth deer hunt was held on September 30, with 16 hunters and six deer taken. Upcoming deer hunts include the paraplegic sportsmen's hunt, and Archery, Shotgun, and Muzzleloader seasons. There will be a military-members only hunt December 1-2.

Dr. Cavanagh asked if there are any Gall wasps issues with the trees here. Mr. McCumber replied he hasn't seen any impacts but there hasn't been any direct monitoring nor mortality.

Agenda Item 6: Combined Arms Exercise Update – Dr. Michael Ciaranca, E&RC, MAARNG

Dr. Ciaranca stated that the Combined Arms Exercise in 2018 and 2019 is a brigade force level, multi-echelon, multi-domain, combined arms exercise with joint elements (multiple units and scenarios with different levels conducting training as a joint force). The purpose is to build ready army units and organizational readiness to conduct Unified Land Operations and to demonstrate the capability to integrate National Defense requirements.

Dr. Ciaranca stated the primary goals are to take collective units tasks and incorporate them into a training scenario to meet training requirements. The Units include: Infantry, Artillery, Engineers, Military Police, Chemical Signal, Cyber Aviation, Intelligence, Close Air Support, Brigade Support Battalion, Explosive Ordinance Disposal, and Transportation.

Dr. Ciaranca stated that in 2018, the MAARNG would like to conduct an exercise involving combat support units. The primary area of operation will be Dig Site 3 near Tactical Training Base Kelley and Connery Avenue. Dr. Ciaranca stated there are plans to conduct a simulated retrograde movement of troops hit with a chemical attack, with the soldiers pulling back to decontaminate.

Dr. Ciaranca stated that the exercise in 2019 will build on the scenario and incorporate relevant lessons learned from the 2018 training. He noted it will include more integrated units within the scenarios.

Mr. Gschwend stated in Desert Storm chemicals were used in unknown places. As part of the exercise, is there any idea to measure which way the wind is blowing and temperature? The information could be utilized in future actions because during Desert Storm information was not utilized. BG Magurn replied that during the Cold War, one of the core competencies was predictive analysis. The scenario hasn't been written yet; it's a Company-level decontamination, and that's above that level. BG Magurn said he will take that idea back.

Agenda Item 7: Small Arms Ranges – Dr. Michael Ciaranca, E&RC, MAARNG

Dr. Ciaranca said that during the July 13 SAC meeting, they reviewed the environmental monitoring for the small arms ranges. There is annual sampling, which consists of surface soil sampling, pore water sampling, and groundwater sampling. Levels of antimony are rising in porewater in some ranges; copper and lead

remain static. Mr. Jay Clausen, Cold Regions Research and Engineering Laboratory (CRREL) was at the meeting. He is experienced with the JBCC soils and experiments with metals movements, etc.

Dr. Ciaranca discussed the action items from the July 13 SAC meeting: the water budget for the ranges and a document that brings together all this information: sampling, history of the ranges, and remediation work completed so they can look at a focused information packet for better evaluation. Mr. Pinaud was given a draft of that document, which will be provided to the SAC soon. Mr. Clausen sent out a report that addresses some of the information and that will be merged in. Mr. Clausen also prefers further action to review the metals. He said that the CRREL research evaluation believes that information available - phosphate can be a culprit in increased antimony, but more likely after the MANG limed the ranges antimony levels started shooting up. The view is the lime treatment on the ranges, which was required, sent antimony levels upward. Juliet and Kilo Ranges are the worst ranges, the trough has about six inches of lime stone chips, which could be making it worse. The information will be included in the draft write up and Ad Hoc Committee will review further after the EMC meeting on November 2, 2017.

Dr. Ciaranca stated the annual sampling has been completed. Each STAPP™ system was sampled for metals, and soils and pore water have been analyzed for phosphate levels; some were high at 16,000 and 30,000, he noted.

Mr. Pinaud stated that the original concept of the document was scoped out from the discussion in July. The goal is to incorporate all the suggestions, background, information requested and recommendations.

Mr. Gschwend stated that the document is somewhat counterproductive and suggested reviewing a water report for a single range first, followed by reports for the other ranges so that we can constantly be proceeding on certain topics. Mr. Pinaud said we can do that. Dr. Ciaranca stated that after sitting with Mr. Pinaud, he may just provide the 2014 Investigation Report that addresses those and the data for the four ranges that are similar; we will discuss what make sense

Dr. Ciaranca stated that Echo Range is a pistol range, which is not yet operational. They are installing range markers and an ammunition supply shed. Echo Range will be going live tentatively 2 November 2017.

Dr. Ciaranca stated that the Tango Range STAPP™ system is being removed and the range reconfigured. There is a contract, but the start date is not available. The STAPP™ liner, materials, rubber granular and lead will be removed off post by an environmental company. Tango Range will become a copper-only range. Currently, Tango Range is a 15 lane range; a standard range is 32 lanes, therefore, Tango Range will be expanded to 32 lanes. The berm and firing line will move north 20-25 meters and lanes will extend to either side.

Dr. Duggan asked if the material will be the same in the berm. Dr. Ciaranca replied that the berm will be constructed of core material, ballistic sand and top soil. Dr. Duggan asked if all the material is brought in. Dr. Ciaranca replied yes. Dr. Duggan asked if the contractor was going to do any sampling beyond the STAPP™ system. Dr. Ciaranca replied that the sampling will be contracted out. Dr. Duggan asked if the berm material was originally new material. Dr. Ciaranca said that the material came off other ranges but there were not highly elevated levels and it didn't meet the 200 ppm standard, but it will be checked with XRF and soil samples.

Mr. Gschwend stated that the field device is not as sensitive as the lab device. Dr. Ciaranca replied that is true, but the newer XRF has a better sensitivity than the past ones. Mr. Gschwend said for antimony and soil you may have to use the lab. Dr. Ciaranca replied if metal detections are above the action levels then soil samples would be taken.

Mr. Pinaud stated that when the contractor vacuums out the regrind and projectiles, he recommended that there should not be any separation at Tango Range after the Juliet Range experience, which was messy but not a problem. Dr. Ciaranca replied separation will not be done on site; it will go to a waste facility.

Dr. Ciaranca discussed the MANG's request to end the pilot period on Sierra and India Ranges. The MANG requests that the EMC authorize its Acting Environmental Officer (Len Pinaud) to close out the Pilot Period for India and Sierra Ranges and allow the MANG to continue to operate the ranges in accordance with EPSs and the Operations, Maintenance, and Monitoring Plans (OMMPs) for these ranges. (Action)

Dr. Ciaranca noted that in 2012 and 2013 respectively a two-year Pilot Period for Sierra and India Ranges was approved. In 2014, the EMC extended the pilot period for India and Sierra Ranges through December 31, 2016. It was extended so that further soil, pore water and groundwater monitoring data could be collected.

Dr. Ciaranca said that sampling of groundwater and soil have shown no level of metals that exceed regulatory limits. Porewater on India Range has shown antimony concentrations above the OMMP action level of 6ppb. The berm on India Range is constructed from legacy range soils, he noted.

Dr. Ciaranca stated that the primary lessons learned were bullet pockets and auxiliary berms soil screening size and repair timing.

Mr. Pinaud asked for clarification on the original reason for the Pilot Period. Dr. Ciaranca replied on the copper ranges, there were questions such as does the range operate effectively with the berms, etc. and whether the line of site is intact with the bullets hitting auxiliary berms and backstop berms. Mr. Gschwend stated it was the new approach to capturing the bullets, and there was a desire to be cautious and have a period of time where we were assured it was working on the ranges. The Pilot Period was a deadline to keep track of everything, and if the Pilot Period is stopped does tracking slip past in the future, he asked.

Mr. Pinaud replied that we have an OMMP that describes how the ranges can be maintained and operated. Dr. Ciaranca noted that the OMMP is in constant review, which will continue. Mr. Gschwend asked is there a way to make sure that monitoring continues to happen. Mr. Pinaud stated that the OMMPs are living documents that are reviewed and revised. The Pilot Period doesn't provide anything more and the monitoring is not going away. In order to operate the ranges there has to be monitoring and funding for the maintenance.

Ms. Nye stated what the Pilot Program does is keeps the monitoring on the "radar." Dr. Ciaranca replied the monitoring is on the "radar" with constant review by the Environmental Officer. The OMMPs are living documents with the ranges operating as intended and regulators have noted how safely and effectively the ranges are operating.

Mr. Gschwend stated that if for some reason if we stopped hearing how well the ranges were operating, the SAC could vote for termination of the ranges. Mr. Pinaud replied that could be recommended.

Mr. Gschwend stated that it has been proven that all the bullets have been captured, but haven't proofed where the water is coming from. He doesn't feel the Pilot is needed, however, he can wonder if anything was missed.

Dr. Ciaranca noted that annual sampling is being completed and will be forwarded to Mr. Pinaud. The data sets are being transferred into the EDMS system by the Impact Area Groundwater Study Program (IAGWSP). He recommends ending the Pilot Period because there haven't been any critical threats to the environment. Mr. Pinaud would like to review the original reasons of the Pilot Period. Dr. Ciaranca stated that the OMMP has sections about range operations, which have been operated well and safely. There have been inspections, coordination and monitoring and the MANG will continue to do so in the future while protecting the resources.

Mr. LeBlanc asked if this only applies to ending the Pilot Period on Sierra and India Range. Dr. Ciaranca replied that the Juliet, Kilo and Tango Range Pilot Period ended a while ago. Mr. LeBlanc asked which range reported antimony. Dr. Ciaranca said India Range had antimony levels.

Mr. Gschwend stated that environmental impacts of lead were discussed in the past, but antimony wasn't discussed. Dr. Ciaranca said that antimony is not used in copper bullets. Mr. Gschwend said that the understanding is that the antimony came from old range materials. It is complicated, but monitoring should be conducted continually. Dr. Ciaranca said that the requirements for monitoring in the OMMP have been met for five years on Sierra and India Ranges.

Mr. Pinaud stated if there was no funding for the OMMP or it was stopped, he would go to the EMC to request the range be shut down because the sampling would be affected. He said that the SAC and EMC have the power to shut down the ranges.

Dr. Duggan asked if there was a standing agenda item every year on the summary of the OMMP results and make a recommendation for continuing or altering it for one reason or another. Dr. Ciaranca said that exists already; there's a requirement to review the OMMP annually and coordinate with the Environmental Officer. Any of that information would be brought to the SAC.

Mr. Pinaud suggested formalizing a standing agenda item every year on the summary of the OMMP results. Dr. Duggan said if antimony detection limit changes, the frequency of sampling could be changed.

Mr. Pinaud said that in order to recommend ending the Pilot Period to the EMC, he needs to know the comparison of pilot periods since the first pilot period.

Dr. Cavanagh recommended reviewing the letter for the first Pilot Period against the meeting minutes from that time and then offer an assessment to how it is working against those requirements. Dr. Ciaranca said that there is no letter; the meeting minutes could be reviewed. Dr. Ciaranca stated that in the Juliet and Kilo Pilot Period, it was as he has been explaining: that the MAARNG meet the tenants of the OMMP and that the STAPP™ was protective of the environment. For the copper ranges it is the same: meet the tenants of the OMMP and that copper bullets are not impacting the environment. He said that the issue of antimony is independent from the use of the ranges, the OMMP, and firing copper rounds; it is a legacy issue that is being investigated.

LTC Cody stated that the Pilot Period concept started with EPA in 2007 and recommended that the original letter language be reviewed. (Action)

Dr. Cavanagh said that the answer may be that it (metrics for assessing the pilot period) wasn't articulated (or presented in writing) for Sierra and India Ranges.

Dr. Cavanagh said that for disturbances under the MHC, there's a Bourne listing and a Sandwich listing for firing ranges; he believes there's an agreement with MHC which doesn't require the MAARNG to do a project notification form every time there's a project on the range. He said that there should be a letter from MHC that reflects that. He is requesting that the letter be added to the 2017 Annual State of the Reservation Report. (Action)

Agenda Item 8: EPS 15.3.3 “Field Refueling” Proof of Concept Review, Discussion, and Next Steps – CPT Alex McDonough, MAARNG

CPT McDonough displayed a video for the Proof of Concept for EPS 15.3.3: Reserve/Training Area Refueling. He said that EPS 15.3.3 states “No storage or movement of fuels for supporting field activities, other than in vehicle fuel tanks, will be permitted except in approved containers no greater than five gallons in capacity.” He said that implementing EPS 15.3.3 has been a user concern through the existence of the EPSs. There have been multiple exceptions to the standard granted so that critical remediation, range construction, and training area and habitat management can be completed.

CPT McDonough stated that the purpose is to illustrate that field refueling can be conducted in a safe and environmentally protective manner. He said that there is a need is to be able to refuel vehicles for remediation, range construction, and training area and habitat management in a cost effective, efficient, and, most importantly, an environmentally protective manner. CPT McDonough stated that the most critical need is for MANG Soldiers to be able to train effectively with refueling being a primary training task for many MANG Soldiers.

CPT McDonough stated that it was decided to conduct a Proof of Concept to provide information for evaluation. The Proof of Concept would help develop best management practices for refueling for habitat management, contract work, and training purposes. CPT McDonough said that the SAC and CAC provided input and asked for action items to be addressed. On 8 June 2017, the EMC concurred that the MANG conduct a Proof of Concept. The Proof of Concept was conducted 13 June 2017 within TTB Kelley.

CPT McDonough said that the future steps are to prepare further information as needed and requested, develop BMP/SOPs, a Go/No Go Map, the proposed EPS change (i.e. language) and in Spring 2018 propose EPS change to the EMC.

Mr. Gschwend asked what is the secondary containment material. CPT McDonough stated the material is made of plastic much like the liner for the STAPP™ system. Mr. Gschwend stated that the material is risky with fuels, which can eventually go through the plastic. Dr. Ciaranca replied the secondary

containment is developed for fuels specifically. Mr. Gschwend asked for the specific type of secondary containment material being used. (Action)

Mr. Gschwend asked if the secondary containment material is reused. LTC Cody confirmed that the material is reused. Mr. Gschwend stated the liquid fuel will permeate the material and will be distributed by reuse.

CPT McDonough stated the fueler is a self-contained pumping truck to fuel the aircraft. There is a qualified operator who operates and directs the refueling. CPT McDonough noted that there are containers and/or sand bags in place on the secondary plastic containment. CPT McDonough noted that there is dual belt system on the aircraft to prevent overfill and fueler has a pressure sensor to stop filling.

Mr. Gschwend asked if any of the couplings have shown corrosion. CPT McDonough replied not in his experience. He noted that all equipment goes through preventive maintenance inspections before being utilized.

CPT McDonough stated that the refueling is protective of the environment and meets all the requirements for refueling as was discussed at the last SAC meeting.

Dr. Cavanagh said that after the last meeting, Mr. LeBlanc sent out an email which said how this could be approached in terms of knowing our depth to groundwater; this is a transport issue ; we know to a fair degree that our soil maps aren't great, we know how long it is going to take if we spill a gallon of diesel fuel, how long it is going to take going to groundwater, how much time to respond before it hits that. He said with Go No/Go Maps a lot seems to be a GIS exercise in terms of depth to groundwater, how quickly it will move through soil and coming up with a map that says this is how many hours or days, maybe longer, if we spill on ground to get to the groundwater. Dr. Cavanagh said that the comments that Mr. LeBlanc made got him thinking that is there a way in his perspective to get to a certain level of comfort. The issue becomes how long is a time acceptable between a spill and how far it will get to groundwater before you get a response team in to clean up. It should at least identify the areas that are too sensitive. If you don't have a clear path of roadways, then how do you approach it? Dr. Cavanagh said that the other thing that increases his level of comfort is that he knows in the past from the environmental office there was someone that was with a spill response vehicle if needed. A vehicle could accompany you in the field with a spill kit. He said that a lot of the discomfort was getting from point A to point B and based on what Mr. Leblanc said it makes a tremendous amount of sense, if you know the horizontal spread and vertical change and know how much time you have to respond. That helps a lot in terms of how we approach this, he said.

Dr. Duggan stated if the connection fails with no one standing there, there could be a 10-15 second release. He suggests having a person standing there to prevent that. CPT McDonough said that there are a series of valves that have to be disengaged through the pipe before the fueling operation happens, a storage device until the pump is engaged and started.

Dr. Cavanagh asked what the volume is when the pump switches on--how much is being dispensed. CPT McDonough will research how much fuel is being dispensed. (Action)

Dr. Duggan recommended that annual inspection of the secondary containment pads be added to the OMMP.

Dr. Cavanagh asked for clarification on the training maximum expected for refueling in a calendar year. He asked if the 30 days total expected for this type of training includes aircraft and motor vehicles. CPT McDonough stated that nine times out of ten fueling operations would consist of motor vehicles. He said when we talk about fueling operations going out for 30 days you are looking at 2 to 3 days within those 30 days where you are actually doing heavy fueling operations. Dr. Cavanagh asked when we are refueling vehicles is there a single vehicle that comes in. CPT McDonough said that there is an area called a Brigade Service Area where fuelers are set up and, like a service station, the vehicle drives up onto a secondary containment pad, the fueler takes in the administrative information for that vehicle, and fuels that vehicle. This happens from a convoy, so three to five vehicles at a time at the (inaudible) of

training exercise you will have one top off, meaning one fueling operation prior to moving back to home station. CPT McDonough said that when he was at Fort Drum, his battalion did a mass refueling when we got there; 76 vehicles were refueled once we arrived on site. They were doing maybe two or three vehicles every two or three days and then every vehicle got refueled before we made the 8 hour drive from Fort Drum back to Springfield. .

Mr. Gschwend asked if locations on the map is in the process right now. CPT McDonough stated that refueling locations are being reviewed with GIS.

Agenda Item #9: Public Comment

There was no public comment.

Agenda Item #10. Adjourn

The meeting was adjourned at 8:00 p.m.