

**Picatinny Arsenal Environmental Restoration Advisory Board
Meeting Minutes, Thursday, March 31, 2016
Cannon Gate Conference Center – Picatinny Arsenal, New Jersey**

Attendees

Name	Organization
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Members

Ted Gabel	Government Co-Chair, Picatinny Arsenal
Mark Hiler	Community Co-Chair, Rockaway Twp. Env. Commission
Tom Brackin	Community Member, Rockaway Township
Bruce D'Adamo	Community Member, Denville Township
Michael Glaab	Official representative, Jefferson Township
Pat Matarazzo	Community Member, Township of Verona; NJ Clean Water Council
Anne Pavelka	NJ Department of Environmental Protection (NJDEP)
William Roach	US Environmental Protection Agency (EPA)
Cara Sileno	Official representative, Rockaway Township

Members of the Public, Support Staff for RAB, Picatinny, EPA and NJDEP

LTC Ingrid Parker	Garrison Commander
CSM Hu'Dene Wright	Garrison Command Sergeant Major
Tom Solecki	Picatinny Environmental Management Division
Gil Myers	Picatinny Environmental Management Division
Frank Misurelli	Picatinny Public Affairs Office
Larry Brady	Picatinny Legal
Neil Julian	Picatinny/ARDEC
Sybil Lusardi	Picatinny/ARDEC
Frank DeSantis	EA Engineering
Richard Mendenhall	ECC
Mayble Abraham	HDR
Lisa Voyce	HDR
Russell Marsh	US Army Corps of Engineers
Eleanor Gordon	US Army Corps of Engineers
Deb MacDonald	ECC
Katrina Harris	Bridge Consulting Corp.

Mr. Ted Gabel convened the meeting at 6:51 p.m. He welcomed all to the meeting and thanked everyone for attending.

Attendance

Ms. Harris took attendance of the Restoration Advisory Board (RAB) members. Mr. Gabel invited all others present to introduce themselves.

Correspondence

Ms. Harris advised she had received an email from Ms. Carolyn Westerdahl advising of the passing of community member, Mr. Raymond Westerdahl, and the information had been emailed to the Board. Mr. Gabel advised Mr. Westerdahl had been with the Board and its predecessor, the Technical Review Committee, and expressed appreciation for his years of service. Ms. Harris stated she did not have a current address for Ms. Westerdahl, but a church was mentioned in the obituary notice. The Board agreed a card from the Board should be sent to the Westerdahl family through the church, if possible.

Membership

Mr. Hiler asked if some outreach could be done to obtain representatives from Picatinny Arsenal for the Board as discussed in the charter. LTC Parker said she could assist with sending out information, and after discussion with the leadership and Human Resources, potentially have their time counted as work time.

Resolutions, Motions, Significant Events

- The next meeting was tentatively scheduled for September/October 2016.
- A final version of the updated Charter approved at the October 2015 meeting was distributed. Mr. Hiler advised he had copies from the Restoration Advisory Board Handbook of the roles and responsibilities of Board members.
- A motion was made by Mr. Tom Brackin, seconded by Mr. Bruce D'Adamo, and passed to approve the October 29, 2015 meeting minutes.
- Mr. Gabel reminded the Board the election of the community co-chair would be conducted at the fall 2016 meeting.

Old Business

Mr. Gabel stated there were no Old Business items.

Agenda

Slides 1 and 2 (of Mr. Gabel's presentation): Agenda for March 31th Picatinny Arsenal RAB

Mr. Gabel reviewed the meeting agenda.

HISTORICAL AND ARCHEOLOGICAL UPDATE IN RELATION TO INSTALLATION RESTORATION PROGRAM

Slide 1 (of Mr. Huggan's presentation): Mr. Gabel introduced Mr. Jason Huggan, Picatinny's Cultural Resource Manager; he highlighted several awards won by Mr. Huggan in the last three years. He stated Mr. Huggan has been the Cultural Resource Manager for nine years.

Slide 2: Mr. Huggan stated cultural resources are defined by the Army to include Native American archeological sites, campsites, rockshelters, historic archeological sites (farmsteads, homesteads, iron forge remains such as those at Picatinny Lake and Lake Denmark, mining sites, stonewalls, associated land tracts), early military related resources such as Picatinny's test range facilities, and historic buildings, districts, monuments, objects (Picatinny's Cannon Gates), and their associated viewsheds and surrounding landscapes. He advised cultural resources must be evaluated for eligibility or ineligibility for inclusion on the National Register of Historic Places.

Slide 3: Mr. Huggan advised cultural resources are managed per Army Regulation 200-1, Section 6, and Department of Defense Instruction 4715.16 as Historic Properties that have significance to the National Register of Historic Places and in consultation with the State Historic Preservation Office. He stated Picatinny agreed with the State Office in 2012 to provide an annual update. He advised to date Picatinny has surveyed 860 acres across the installation, and identified 57 archeological sites with 22 of the sites being Native American and 35 of the sites being historic. Mr. Huggan said more than 100 sites have been identified as potential archeological sites and still need to be evaluated. He explained 75 percent of Picatinny's buildings and structures have been assessed, with 118 contributing buildings/structures found within six Historic Districts.

Slide 4: Mr. Huggan discussed the building evaluations performed at Picatinny, with many buildings being more than 45 or 50 years old. He stated more than 1,200 facilities have been surveyed across the installation, and a cultural landscape analysis is currently being finalized with the US Army Corps of Engineers. Mr. Huggan discussed the various archeological evaluations performed.

Slides 5-7: Mr. Huggan displayed maps showing archeological sensitive areas and the same areas overlain with Comprehensive Environmental Restoration, Compensation and Liability Act (CERCLA) sites and Military Munitions Response Program (MMRP) sites.

Slide 8: Mr. Huggan displayed a map showing Picatinny's Historic Structures and Districts, as well as environmental sites within those districts.

Slides 9 and 10: Mr. Huggan discussed Picatinny's early years and displayed a map from 1879 showing the Arsenal's original 1,850 acres. He stated on September 6, 1880 the Dover Powder Depot was opened, and the location was picked because it was rural, in a valley with protective hills, and close to rail and canal connections. He said the name was changed on September 10, 1880 to Picatinny Powder Depot after a peak on the installation at Picatinny Lake; Picatinny is a Lenape word for "rugged cliff by water." Mr. Huggan displayed a picture from 1919 of Picatinny Peak.

Slide 11: Mr. Huggan explained the historical significance of the Cannon Gates which were installed in 1885 and which have become a trademark of Picatinny Arsenal. He noted the abutting stone was the original boundary until 1941 when the Army purchased the old Spicertown on both sides of Parker Road.

Slide 12: Mr. Huggan showed several pictures of the Administration and Research Historic District, including Building 151. He read the text on the posted sign which states: “Farley Avenue became the epicenter of Picatinny’s research and development program during the 1930s. Building 151, the original Arsenal Headquarters, stood at the nexus of the Power Intersection with Parker Road. This Colonial revival-style building is prominently situated near an open area that has functioned as parade ground, an airfield, and finally as a golf course. To the west are the Colonial revival Officer’s Quarters; to the east are the chemistry facilities. It continues to be a statement to the power of the Army to drive pass the Cannon Gates and towards Building 151.” Mr. Huggan mentioned this area is an example of the streetscape he had mentioned earlier.

Slide 13: Mr. Huggan displayed photographs of Quarters 110, the Wiggins Homestead, constructed circa 1860. He noted it was part of the non-time-critical removal action investigation, where unexploded ordnance clearance was done in 2007.

Slide 14: Mr. Huggan discussed Quarter 105, the Righter Homestead, and showed pictures of the building which was constructed in 1860 and relocated in 1921. He noted it had been used for Army housing. He displayed pictures of some of the historical metal objects found during the RCI unexploded ordnance clearance by the Baltimore Corps of Engineers and its contractors.

Slide 15: Mr. Huggan displayed photographs of Chemistry Row on Kibler Road, noting most of the building had been demolished about three years ago. He noted a posted sign reads: “These structures are associated with the evolution of Picatinny from a powder depot to a production arsenal. After the 1926 Lake Denmark Naval Powder Depot Explosion, Picatinny re-dedicated itself technologically and architecturally as a research and development facility. As part of this effort, laboratory facilities were constructed along Kibler Road, also known as Chemistry Row. Colonial revival was chosen as the architectural style for this area to be compatible with the original Headquarters, Building 151.” Mr. Huggan noted the woman in one of the photos had been interviewed about her work in that building just prior to her retirement; the interview is on the Historic District web site. Mr. Huggan showed the overlap of the historic buildings with the environmental program’s studies.

Slides 16 and 17: Mr. Huggan next discussed the Golf Course which was started in 1921 and is part of the Area D groundwater plume remediation. He showed a picture of the Golf Course which was originally used as an airfield, and an old picture of the building where this meeting was being held.

Slides 18-23: Mr. Huggan advised the 600 Ordnance Testing Area was constructed after the 1926 explosion and several other accidents when testing activities became more centralized. He displayed a number of photographs. He noted a number of environmental studies are being conducted in this area. Mr. Huggan read a sign posted in the Former Army Rocket Test Area which states: “This area served as Picatinny’s rocket engine test facility where functional and performance tests were conducted. The following rockets were tested here: Redstone, Honest

John (first U.S. tactical nuclear weapon), Loki, Nike Ajax, Shillelagh, Pershing I and the Sage (semi-automatic ground environment). Construction dates for the building span the Cold War era when a perceived Soviet military threat influenced objectives and policy in the U.S. In response, one of Picatinny's primary functions was the development of rockets and missile systems." Mr. Huggan showed pictures of the Rocket Test Range from the 1950s, and a picture when a large amount of debris was removed a few years ago.

Slides 24-26: Mr. Huggan next discussed the Naval Air Rocket Test Area Historic Districts, noting the site had been active from 1946 to 1960. He advised the Navy operated the Powder Depot from 1891 to 1926, which was operated sporadically after 1926 and then changed missions in 1946 to be the Navy's Rockets Test Station. He noted many of the former employees are still in the area and meet periodically. Mr. Huggan stated this area was the testing site for the X-1 Rocket Plane engine which was flown by Chuck Yeager to break the sound barrier in 1947, and the X-15 Rocket Plane engine. He stated many of the structures have been demolished. He noted the Environmental Restoration Program 3 Sites Group Record of Decision addressed groundwater in this area.

Slides 27-31: Mr. Huggan showed a map of the Former Lake Denmark Naval Ammunition Depot, noting it operated from 1891 to 1926. He advised after the Army purchased the land in 1880, it transferred 315 acres to the Navy 11 years later on what is now referred to as Navy Hill. He stated the area was designated a Historic District approximately six months ago, and a posted sign reads: "In 1891, 11 years after the "Picatinny Powder Depot" was established, 315 acres were transferred to the Navy Dept. The presence of a Naval detachment on this reservation was to last 69 years, from a powder depot to an air rocket testing facility. In 1960, the Navy closed its Lake Denmark site. In this vicinity, stood gates which separated the Naval Station and Picatinny Arsenal, and began the area which came to be known as 'Navy Hill.'" Mr. Huggan stated parts of the gates are still present at Navy Hill. He showed pictures of Quarters 3250 and Building 3316, formerly commander's quarters, and now a fire station. He pointed out the cannon balls in the photos which are now stacked in front of the building. He showed photographs of Building 3010 (former Administration Headquarters) and Building 3013. He noted the Environmental Restoration Program had included this area in a 21-Site No Further Action Record of Decision and a 45-Site Feasibility Study. Mr. Huggan showed photographs of the warehouses before the 1926 explosion.

Slides 31-36: Mr. Huggan next discussed the 1926 explosion at the Former Lake Denmark Naval Ammunition Depot. He explained on July 10, 1926 lightning struck temporary magazine 8, also impacting temporary magazine 9 and a shell house. He continued explaining that 19 deaths occurred during the fighting of the resultant fires and 38 people were injured. He noted the explosion happened on a Saturday, and thus few workers were present. He said at the time \$47 million of explosives were stored at the depot and were destroyed; there was \$3 million in building damage at Picatinny. Mr. Huggan said 2016 is the 90th anniversary, and a presentation is being done for the Rockaway Township Historical Society in May. Mr. Huggan stated there are several environmental and munitions sites in this area. Mr. Huggan displayed photographs of the remaining foundations which are still present at the site, and some of the unique buildings at Picatinny (Quarters 115, 117 and 119) that were damaged by the explosion.

Slide 37: Mr. Huggan stated there are 22 Native American sites on Picatinny, dating back to 4000 B.C. He displayed photographs of some of the significant artifacts and finds.

Slide 38-39: Mr. Huggan stated there are some rockshelters and overhangs at Picatinny which would have provided cover for the Native Americans for a short period of time as they were traveling to larger sites downstream.

Slides 40-43: Mr. Huggan displayed a land deed map of Picatinny showing all the land acquisitions from 1880 to 1947 and an 1867 iron mines map used to identify homesteads across Picatinny. Mr. Huggan said the iron mines map has proven to be very accurate in the field, and he would be highlighting some of the homesteads identified from the map. He showed photographs of the Walton Burial Ground, circa 1750 to 1884. He stated the only known published records of its existence are within Munsell's History of Morris County and Bob Illig's report on Rockaway Township Cemeteries. He added that many of the graves and identities of the occupants are unknown due to the lack of documentation and the nature of the cemetery; he said more than 100 headstones have been identified. Mr. Huggan showed pictures of Mt. Hope School No. 3 which may have been used for religious services at the Walton Burial Ground. He displayed old and current photographs of the Doland House, noting it is the oldest structure on Picatinny having been built circa 1785 to 1803.

Slides 44-48: Mr. Huggan discussed the forges and mines at Picatinny, starting with the first forge referred to as the Middle or Aetna Forge established in 1749. He noted this forge was at the outlet of Clifford Pond which is now Picatinny Lake. He stated Picatinny Lake is a Military Munitions Response Site. Mr. Huggan displayed photographs of some of the artifacts recovered from the forge. He showed a map of Denmark Forge, the second forge at Picatinny, built around 1750 near the outlet of Lake Denmark. He added that Lake Denmark is also an environmental and Military Munitions Response Site. Mr. Huggan showed historical photographs of the area around Denmark Forge. Mr. Huggan discussed the Denmark Mine and advised it was likely started during the 1850s.

Slides 49-54: Mr. Huggan mentioned a Preliminary Assessment will be completed this year for the Railroads at Picatinny and briefly discussed their history. He said the Railroads run the length of Picatinny, and the tracks going into Wharton are still owned by Picatinny. He advised the railroads used to bring personnel to the installation, as well as coal and other materials. He said there were five stations on the Arsenal, including a factory station which has been identified as an archeological site.

Slide 55: Mr. Huggan showed photographs of the most recent significant find which is a Civil War-era revolver.

Slides 56: Mr. Huggan showed a photograph of the artifact curation and research room located in the Environmental Affairs Division Office.

Slides 57-58: Mr. Huggan provided additional information on the awards mentioned by Mr. Gabel which included Recipient of a 2013 New Jersey Historic Preservation Award, the FY2014 Secretary of the Army Environmental Award for Cultural Resources Management, and the FY2015 Secretary of Defense Environmental Award for Cultural Resources Management. Mr. Huggan stated much information is on the Cultural Resources web site at: <http://pica2w4.pica.army.mil/ead/Cultural/> and the Historic District web site at: <http://www.pica.army.mil/ead/Cultural/picatinnyhistoricaldistricts/index.html>.

Mr. Pat Matarazzo asked if Denmark Village had been surveyed, and Mr. Huggan responded the Arsenal was aware of the Village but it had not been investigated yet.

UPDATES ON PERFORMANCE-BASED CONTRACTS

Slide 1 (of Ms. MacDonald's presentation): Mr. Gabel introduced Ms. Debra MacDonald, Project Manager for ECC. He noted she had provided a synopsis of the contract recently awarded to ECC for environmental work at Picatinny at the last Board meeting and would be presenting an update on the scope of work and the Feasibility Study for Picatinny Lake. Ms. MacDonald reminded the Board the contract included sites which had not yet reached the Record of Decision stage so the performance objectives would be either a Preliminary Assessment/Site Inspection, a Remedial Investigation/Feasibility Study, or a Proposed Plan/Record of Decision.

Slide 2: Ms. MacDonald first discussed the Preliminary Assessment for the Abandoned Railroad Tracks, noting all the railroad tracks are being treated as one site. She advised a draft Preliminary Assessment is being prepared, and the final Preliminary Assessment is due November 2016.

Slide 3: Ms. MacDonald said there are a few Site Inspections included in the contract. She advised the sampling for the Site Inspection of the Eastern Edge of Green Pond Brook was conducted March 22-23, 2016, and the final Site Inspection Report is due October 2016. She stated a work plan is being developed for the Site Inspection of the ORAP Ranges, and the final Site Inspection Report is due May 2017.

Slide 4: Ms. MacDonald next discussed Military Munitions Response Program sites which have been combined with the Installation Restoration Program site components and where Feasibility Studies are being prepared. She stated a draft Feasibility Study is being prepared for the 600 Hill Waste Pit and Mortar & Skeet Area, with a final Feasibility Study scheduled for November 2016. Ms. MacDonald said a draft Feasibility Study is also being developed for the Shell Burial Ground with a final Feasibility Study scheduled for January 2017.

Slides 5-6: Ms. MacDonald reviewed the sites at the Proposed Plan/Record of Decision phase. She stated sampling had been conducted that week at the PICA 207 Sites after discussion of the sampling locations at several meetings with the Army and regulators. She noted at the PICA 111 sites ECC has also conducted sampling, as well as the sampling for the 3 Sites Group. Mr. Gabel reminded the Board there had been a public meeting on the Proposed Plan for the 3 Sites Group in October 2014, and ECC is now conducting additional delineation sampling. Ms. MacDonald advised a draft work plan is under development for the Non-Lakes Group, with a final Proposed Plan scheduled for July 2017 if no additional work is required or March 2018 if more work is needed. She advised ECC is working on regulatory comments on the draft Proposed Plan on the 45 Sites Group, with a final Proposed Plan scheduled between December 2016 to July 2018, depending if further work is needed.

Slides 7-8 : Ms. MacDonald next discussed the Lakes Group which includes Picatinny Lake, Lake Denmark and the EOD Pond. She advised the performance objective for the contract is to achieve a Feasibility Study within 16 months from award. She stated a draft Feasibility Study had been completed by the previous contractor, and ECC is responding to regulatory comments

on that draft with respect to Picatinny Lake. Ms. MacDonald stated additional horizontal and vertical delineation is required to refine the excavation volumes of sediments at Picatinny Lake. She stated a Proposed Plan, Record of Decision and Remedy in Place are follow-on contractual options. Ms. MacDonald advised a Feasibility Study had recently been approved for EOD Pond and Lake Denmark, and a Proposed Plan/Record of Decision option had been awarded. She said the final Proposed Plan is scheduled for December 2016, and the final Record of Decision is scheduled for April 2017.

Slide 9: Ms. MacDonald summarized the nature and history of the Lakes, including environmental studies. She noted they were all man-made waterbodies used for boating and fishing; swimming is not permitted. She stated Lake Denmark was created in the early 1900s and is approximately 174 acres with an average depth of six to seven feet. She advised the EOD Pond was created in 1945-1953 and is approximately 9 acres with an average depth of six to seven feet. She said Picatinny Lake was created in 1880s and is approximately 108 acres with a maximum depth of 15 feet.

Slide 10: Ms. MacDonald stated the Human Health Risk Assessment for Lake Denmark and the EOD pond indicated the site risks are within the acceptable range for receptors, as well as residential scenarios. She said the assessment found the Hazard Index for fish consumption is greater than 1, but existing restrictions are consistent with statewide fish consumption advisories that are in effect on Picatinny. Ms. MacDonald explained the baseline Ecological Risk Assessment indicated potential risks to ecological communities are unlikely. She stated another finding of the studies was the overall condition of the surface water for all three lakes is good. She advised the regulators have not indicated a need for further evaluation at Lake Denmark or the EOD Pond so ECC is moving forward with a Proposed Plan and Record of Decision for these two sites.

Slide 11: Ms. MacDonald discussed the Human Health Risk Assessment for Picatinny Lake, noting it indicated site risks and hazards are within the acceptable range for current military/industrial uses as well as residential use. She stated the Hazard Index for fish consumption is greater than 1, but existing restrictions are consistent with statewide fish consumption advisories which are due to the elevated levels of mercury in certain fish species. She said the primary concern from the evaluations and assessments was a potential risk to benthic organisms.

Slide 12: Ms. MacDonald summarized the Phase II Environmental Risk Assessment performed in February 2000 during which sediment, surface water and fish tissue samples were collected. She stated benthic community surveys and sediment and surface water toxicity tests were completed, and a bioaccumulation by benthic organisms was modeled using conservative bioaccumulation factors or worse case scenarios. She said the conclusion was that ecological risks were not significant for the Picatinny Lake as a whole; however, some sediment toxicity test results suggested hot spots existed along the shoreline of Picatinny Lake.

Slide 13: Ms. MacDonald stated the toxicity tests reported toxicity in one sample each from Sites 65, 82, 108, and 113; sites 65, 82, and 113 also had samples that showed no toxicity. She said the same sites were identified by the NJ Department of Environmental Protection as hot spots based on metals concentrations. Ms. MacDonald said Site 157 was identified as a hot spot

for explosives, but there have been no detections of explosives during sampling over the last couple years.

Slides 14-16: Ms. MacDonald discussed supplemental sampling in 2011 where sediment samples were collected at the four hot spot locations, and metals were detected at concentrations greater than levels of concern. She stated supplemental sediment sampling was performed in 2013, along with macroinvertebrate sampling. She advised the results showed metals at concentrations greater than levels of concern; results also showed a low potential for bioavailability with the benthic community structure similar at the Picatinny Lake sites and the reference site (Lake Denmark). Ms. MacDonald stated the lines of evidence show the chemistry and toxicity data support the conclusion that the potential for risk to the Lake-wide benthic community is low, but there are hot spots offshore at specific sites where there is a potential for greater risk. She said bioavailability and the community survey support the conclusion that chemical concentrations in the sediment of Picatinny Lake were not adversely impacting the benthic community as a whole. Ms. MacDonald said the metals identified through the investigations were discussed with the regulators and are copper, lead, mercury, silver; not all the metals were identified as chemicals of concern at all locations, sometimes just one or two of the metals were found at each location.

Mr. Brackin asked about the source of the metals. Ms. MacDonald responded there are sites/buildings onshore associated with the hot spots so it might have been an outfall or a spill or release. Mr. Michael Glaab asked if the hot spots would be excavated, and Ms. MacDonald responded excavation would be an alternative evaluated in the Feasibility Study. Mr. Glaab asked if the community had access to the hot spot areas, and Ms. MacDonald stated there is no swimming or human contact with the hot spot areas. Mr. Gabel added that the potential risk was identified as the benthic organisms in the sediment.

[After the meeting, Ms. Anne Pavelka commented that “in Debra’s presentation on Picatinny Lake at the RAB meeting last week, the slides stated that there is no bioavailability in the macro-invertebrates. My recollection, and Allan Motter confirmed, is that you could not collect enough macro-invertebrate tissue during your sampling effort to determine if there was any bioavailability in the macroinvertebrates. I would like the slides updated before they are posted on the website.”

Ms. MacDonald responded that the slide says “low” potential and provided the following additional information. The statement “low potential for bioavailability was found” is derived from the 2014 Feasibility Study (page 49 and Appendix D-2), in which the measurement of Total Organic Carbon (TOC) and Acid Volatile Sulfide/Simultaneously Extracted Metals (AVS/SEM) were used to evaluate the bioavailability of metals. Based upon these test results, bioavailability of metals is not expected in most sample locations (Appendix D-2, page 10). An additional ecological evaluation, the collection of macro-invertebrate tissue, was also proposed to evaluate actual site-specific accumulation of constituents. However, an inadequate volume of tissue was obtained during that 2013 sampling effort. The TOC and AVS/SEM results and low-bioavailability conclusion, and the macro-invertebrate tissue analyses were two separate ecological assessment techniques.]

Slides 17-20: Ms. MacDonald discussed the next steps for Picatinny Lake which includes performing additional delineation to better define the hot spots and impacted areas and what

potentially needs to be removed or treated. Mr. Bruce D'Adamo asked for confirmation that if the areas are undisturbed, the metals are not migrating, and Ms. MacDonald agreed. Mr. Glaab asked if the metals could be mixing with the surface water and migrating; Mr. Gabel responded that surface water sampling has been conducted, and the water quality is good. LTC Parker asked how long sampling of the surface water has been conducted, and Mr. Gabel responded Picatinny Lake was sampled very early in the environmental investigation history, and Green Pond Brook continues to be sampled. Mr. Hiler expressed support for the option of hot spot removal.

Ms. MacDonald said a work plan has been developed for the additional delineation, the plan has been approved by EPA, and is under review by the NJ Department of Environmental Protection. She said the sampling is planned for late May or early June. Ms. MacDonald displayed two figures showing previous and planned sampling locations. Mr. Glaab asked the depth of the sample locations, and Ms. MacDonald said the depth of the current samples was dependent on the depth of the previous samples as some may be down to three feet if the location was not vertically delineated previously.

Mr. D'Adamo asked about the form of metals. Ms. MacDonald responded the investigations found bioavailability is very low, and the metals were not found to be in a form that would make them more available to organisms or in solution. Mr. D'Adamo stated they had probably already oxidized. He asked if there were any compounds nearby that would put the metals in solution, and Ms. MacDonald responded only the metals she mentioned were identified as contaminants of concern in the sediment.

Mr. Matarazzo mentioned a draft report was just published by the State on New Jersey lakes and streams and which are impaired. He stated there has also been sampling and testing performed for the past 15 years by local coalitions that might have helpful data. Ms. MacDonald said she would talk with Mr. Matarazzo after the meeting and obtain more information on the reports.

Mr. Brakin asked if the water that migrates from Picatinny Lake is above the level of concern, and Ms. MacDonald responded it is not.

Slide 1 (of Mr. DeSantis' presentation): Mr. Gabel introduced Mr. Frank DeSantis of EA Engineering. Mr. Gabel advised EA Engineering was awarded the contract for long-term monitoring and remedial operations. Mr. DeSantis stated he would be discussing Area C and the Southern Boundary.

Slides 1 - 3: Mr. DeSantis showed a map and aerial photograph of Area C and the Southern Boundary and noted it includes Site 19 (Pyrotechnic Demonstration Area), Site 180 (Waste Burial Area), Sites 25/26 (Sanitary Landfill and Dredge pile), Site 163 (Baseball Fields), and the Southern Boundary area (downgradient groundwater moving off Picatinny). Mr. DeSantis said it does not include other areas monitored under separate monitoring programs (Area B groundwater, Lower Burning Ground groundwater, Post Farm Groundwater, and Green Pond Brook).

Slide 4: Mr. DeSantis summarized the background of Area C noting there was concern about potential groundwater contamination due to historical activities including landfilling, dumping, and testing activities. He stated there have been multiple environmental investigations since 1981

which have found sporadic low level concentrations of explosives, volatile organic compounds, dioxins and furans, naturally occurring metals, and other constituents not related to site activities (sodium and chloride). He said arsenic and lead are widespread in the area, likely from naturally occurring sources as there was no identifiable source.

Slide 5: Mr. DeSantis displayed a graphic showing general groundwater flow direction, with the groundwater flowing from the higher elevations into the Valley deposits and then flowing through the aquifers.

Slide 6: Mr. DeSantis stated the Remedial Action objectives are to prevent human consumption of and contact with contaminated groundwater, protect uncontaminated groundwater for designated uses, and attain groundwater site cleanup levels. He said the 2009 Record of Decision called for maintaining land-use controls to preclude activities that could lead to unacceptable human exposure and developing a long-term monitoring program.

Slide 7: Mr. DeSantis advised the groundwater monitoring program was developed in 2009 and originally included 32 wells of which 16 were Southern Boundary wells, with wells screened in each of the aquifers. He noted wells have been removed and analytes removed from the list as cleanup levels are met.

Slide 8: Mr. DeSantis stated the current monitoring program consists of 10 site wells (including two upgradient wells) and 16 Southern Boundary wells with four wells located off-post, across Route 15 on the Wharton railroad line still owned by Picatinny. Mr. Matarazzo asked if there are wells on the Pondview property. Mr. Gabel responded the wells are on the railroad tracks that are within the Pondview property.

Mr. DeSantis said vinyl chloride, arsenic and lead are the constituents which remain in the monitoring program; however the Southern Boundary wells are sampled for a larger set of analytes as a warning system for potential off-post migration.

Slides 9-11: Mr. DeSantis discussed the results from the September 2015 groundwater sampling. He stated the samples were analyzed by Accutest Laboratories and third party validated to ensure usability. He said the analysis for the Site wells showed two wells had vinyl chloride exceedances, no wells had exceedances for lead, and five wells had exceedances for arsenic. He noted an upgradient well also had an exceedance for arsenic which supports the likeliness that the arsenic is naturally occurring. He stated the analysis of the Southern Boundary wells showed no exceedances for volatile organic compounds, and no explosives were detected. He stated there were sporadic metals exceedances likely due to naturally occurring local geology (aluminum, arsenic, iron and manganese) or not related to Picatinny activities (sodium). Mr. DeSantis said the 2015 report is being finalized. Mr. Gabel said the report will be placed on Picatinny's environmental restoration program web site.

Mr. Hiler and Mr. Matarazzo both stated it was important to keep sampling the Southern Boundary wells. Mr. D'Adamo asked what would occur if there were detections. Mr. Gabel responded there are provisions in the Record of Decision, and there would be follow-up confirmatory sampling and perhaps additional wells installed. He said if needed the Army would take appropriate action.

Slide 12: Mr. DeSantis said 2016 activities include sampling all the Southern Boundary wells, as well as the remaining site wells in the program. He stated land-use controls will be inspected.

INSTALLATION RESTORATION PROGRAM/MILITARY MUNITIONS RESPONSE PROGRAM UPDATES

Slides 3-7 (of Mr. Gabel's presentation): Mr. Gabel said Picatinny continues to implement land-use controls from the non-time critical removal action for the Military Munitions Response Program sites, primarily construction support so those workers are protected from any potential unexploded ordnance. Mr. Gabel showed maps of the sites, and a list of the construction support avoidance performed since 2013.

Slide 8: Mr. Gabel summarized programmatic developments and advised the 2016 Installation Action Plan is being developed. He stated this plan provides the pathway for sites and justification for funding. He said the Picatinny Environmental Restoration Program web site continues to be updated with approved documents. Mr. Gabel stated the two-year Joint Execution Plan for Defense-State Memorandum of Agreement (DSMOA) has been completed; this agreement is how the Department of Defense provides funding to NJ Department of Environmental Protection.

Slides 9-12: Mr. Gabel next discussed the five-year review that is underway. He advised the review is being implemented with the Kansas City Corps of Engineers and will include all sites with Records of Decision for the period 2011-2014. He stated previous five-year reviews were conducted in 2011, 2006, 2001 and 1996. Mr. Gabel said the target date for submittal of the report is April 2016, with a public notice of the report's availability scheduled for September 2016 or after EPA has approved the report. Mr. Gabel said the purpose of the report is to evaluate the protectives of the remedies in the Records of Decision. He reminded the Board the purpose is not to re-open the remedy unless a new or modified requirement calls into question the protectiveness of the selected remedy. He noted the five-year review requirement is legally required after remedial action when hazardous substances, pollutants or contaminants remain on-site and the Decision Document or Record of Decision was signed on or after October 17, 1986.

Slides 13-14: Mr. Gabel displayed a chart showing the Records of Decision for Picatinny in the order they were signed and a map showing the location of the sites with Records of Decision.

Slide 15: Mr. Gabel displayed a graphic showing the three questions the five-year review answers: (1) Is the remedy functioning as intended by the decision documents?; (2) Are the exposure assumptions, toxicity data and remedial action objectives used at the time of the remedy selection still valid?; (3) Has any other information come to light that could call into question the protectiveness of the remedy?

Slide 16: Mr. Gabel displayed a graphic showing the steps in the five-year review process including review of data reports, including the 2015 sampling reports. He noted the community involvement activities include public notices and community interviews, and the public notice on the intent to conduct the review has been added to the web site.

Slide 17: Mr. Gabel advised the solar panel project is in testing mode with an existing 1,782 panels and 110 panels that are to be added.

Next Meeting

Mr. Gabel suggested the next meeting be late September or October based on current field work progress and availability of results. Mr. Hiler expressed a preference for late September and suggested a tour to include the solar panels also be conducted. Mr. Glaab expressed a concern that only two meetings would be held for the year. Mr. Glaab also expressed a concern that there has been no correspondence or updates since the last meeting. Mr. Gabel stated he is adding correspondence and documents to the web site. Mr. Glaab asked for the Board members to be informed when the web site is updated with new information and documents, and LTC Parker agreed the Board members would be notified.

A motion was made by Mr. Brackin, seconded by Mr. D'Adamo, and unanimously approved to adjourn the meeting at 8:46 p.m.

**Picatunny Restoration Advisory Board Meeting
 March 31, 2016
 Pending/In Progress Action Items**

Date Created	Action Item	Person Responsible	Status
March 2016	Schedule next Board meeting for September/October.	Ted Gabel	Pending
March 2016	Recruit additional Picatunny representatives for the Board	Ted Gabel/LTC Parker	Pending
October 2015	Provide an organization chart showing prime contractors and sub-contractors for new contracts.	Ted Gabel/ECC/EA	Provided with April minutes.