

**JOINT BASE MCGUIRE-DIX-LAKEHURST (JBMDL)  
LAKEHURST TECHNICAL REVIEW COMMITTEE MEETING  
JANUARY 27, 2016**

**1) Attendees:**

Ms. Carla Struble, Project Manager, USEPA  
Mr. Rob Alvey, Hydrogeologist, USEPA  
Mr. Joseph Marchesani, Hydrogeologist, NJDEP  
Ms. Donna Gaffigan, Case Manager, NJDEP  
Ms. Lisa MacCarrigan, Pinelands Commission  
Mr. Matt Csik, Ocean County Dept. of Health  
Ms. Theresa Lettman, Pinelands Preservation Alliance  
Mr. Michael Figura, Environmental Engineer, Joint Base McGuire-Dix-Lakehurst  
Ms. Andrea Graham, Technical Lead, USACOE, Baltimore District (by phone)  
Mr. Tom Crone, Asst. Project Manager, Arcadis  
Ms. Whitney Sauve, Lakehurst Task Manager, Arcadis  
Ms. Katrina Harris, Bridge Consulting/Arcadis

**2) Handouts:**

- Meeting Agenda
- Presentation Slides

**3) Opening, Introductions, Administrative Items, Minutes:**

Mr. Michael Figura called the meeting to order at 10:09 a.m., and everyone introduced themselves.

Mr. Tom Crone asked for any comments on the October 28, 2015 minutes and none were offered. Ms. Carla Struble asked that the July minutes reflect the email sent by EPA on June 8, in addition to mentioning the formal letter sent on September 28.

Mr. Crone reviewed the agenda and meeting objectives.

Mr. Crone reviewed Action Items from the last meeting and noted they had been completed.

**4) Update on Areas A/B and C:**

Mr. Crone stated there are six sites included in Areas A/B and C and displayed a map showing the location of Areas A/B and C.

Mr. Crone reviewed a chart showing the status of documents and sampling.

- **Interim MNA/PSS Report:** EPA accepted the responses to their comments, and NJDEP provided a concurrence letter; the report will go final. The report recommended three

sites return to active remediation. Another year of data is needed to make recommendations on the other three sites, and the collection of that data has just been completed. Data reports for the first three quarters of year two of the study have been shared with the regulators, and suggestions received from EPA for some improvements to the reports will be incorporated in future reports. The reports were issued for information only so they will not be revised.

- **Final MNA/PSS Report:** The internal draft is due to the Air Force at the beginning of March, and the draft will be submitted to the regulators by mid to late April.
- **Sampling:** The final quarterly sampling event has been completed. Sampling will begin again on a semi-annual frequency—April and October.

Mr. Rob Alvey asked if there is a figure showing the entire site with contours, and Mr. Figura said there is such a figure in the LUCIP.

Ms. Whitney Sauve presented a summary of the sampling results from November 2015 for Area A/B and C, with maps showing the location of detections above remedial goals. Ms. Sauve noted the November sampling was a semi-annual event which included more wells than the quarterly sampling events.

- **Area A/B November Sampling Results:** At Sites LF029 and AT014, there were no exceedances above remedial goals. The detection of naphthalene the previous quarter was not detected in this sampling round. TCE detections were below remedial goals, and no product was detected at EZ. Mr. Figura asked if no further action could be proposed if two seasonal rounds showed no detections above remedial goals. Mr. Crone said the options are still being discussed for three sites and input is needed from the regulators; a recommendation will be presented in the final plume stability study report. At Site LF042, CF, some PCE was detected, and TCE was slightly higher at MWAB-7 at 7ug/L. Well EH and all sentinel wells were below remedial goals; the detections of LNAPL will be further investigated and whether it is recoverable. Mr. Crone added that LF042 is in an area funded for active remediation; also, a purge is being considered for MWAB-7 as the results have been fairly static for a number of years. At Site TT013, Well FC, TCE concentrations have been fairly static so a purge is also going to be proposed. At Wells NG and NH, the results were above remedial goals. There was a new detection across the road of LNAPL which will be further investigated. Mr. Joe Marchesani asked if there had been any work conducted to remove the LNAPL, and Ms. Sauve responded there had not been work to date to remove the LNAPL. Mr. Marchesani said the LNAPL needs to be removed to comply with NJDEP regulations. Mr. Crone said Arcadis will be putting together a letter about proposed tests prior to remedial design. Mr. Alvey asked if there would be a before and after VOC sampling comparison with the proposed purges, and Ms. Sauve responded there would be comparative data.
- **Area C November Sampling Results:** Arcadis has not made any recommendation for AT016 but will in the final report; there were no detections above remedial goals in November. Naphthalene continues to be detected at TT017; a return to active remediation has been recommended and most likely this treatment system will be turned on again and optimized. Mr. Crone noted that AT016 was selected by AFCEC as part of

its laboratory performance program; a sample was spiked and included with Arcadis' samples, and no problem was found with the analysis by the laboratory (RTI).

Mr. Crone said the next steps at the three sites where no recommendations have been made yet are to receive data from the final quarterly sampling event, submit a final MNA/Plume Stability Study Report with recommendations, have the Air Force fund the selected option, and proceed with recommendations to reach remedial goals by 2021 or 2022.

Mr. Crone discussed the next steps for the three sites where option 2, active remediation, has been funded by the Air Force. He briefly discussed the limited field event scope of work to include purge testing at select wells and a geoprobe investigation at TT013 and TT017 to determine if there are still any impacted soils for pre-design purposes. Mr. Crone said a letter will be sent to the regulators, most likely in late February, outlining the proposed work.

Ms. Donna Gaffigan asked if the Records of Decision for soil had soil standards to be attained. Mr. Figura responded that the RODs used soil cleanup criteria, and the objectives were somewhat ambiguous as they stated the soil would be remediated until they no longer had any negative impact on groundwater.

Mr. Alvey suggested another parameter that might be a good indicator of whether the monitored natural attenuation has been effective is magnetic susceptibility; Mr. Crone said Arcadis will research this parameter further.

Mr. Crone said Arcadis will be developing a remedial action work plan to encompass everything needed to get these sites closed by 2021. In response to a question from Ms. Struble, Mr. Crone said the work plan would be to the regulators in the June timeframe; he noted it would also address any recommendations from the five-year review. Mr. Crone said the next step would be to install the remedial systems to reach the remedial goals by 2021.

##### **5) Update on Area H:**

Mr. Crone reviewed a chart showing the status of documents and sampling:

- **Semi-Annual Progress Update:** Draft submitted to EPA/NJDEP on November 10.
- **Annual Progress Report:** Internal draft to be submitted to Air Force by February 5<sup>th</sup>, and then to EPA/NJDEP in February/March 2016.
- **Sampling:** The next semi-annual sampling event is scheduled for April 2016.

Ms. Sauve discussed the October 2015 sampling results, highlighting results above the remedial goals. She advised product was seen at MWH-3 so the well was not sampled; no petroleum was observed at RWH-3, GX, and MWH-4. She stated RWH-2 continues to have low mass recovery and to be just above the standards for groundwater.

Mr. Crone mentioned before the April event the vegetation around wells MT and NR is going to be cleared with support by an UXO technician as the field crew had a hard time reaching these wells.

Ms. Sauve discussed the mass flux and advised when RWH-2 was turned off, there was an increase in flow rate at RWH-1, and the flow will be optimized more. She advised at RWH-3 there is some low level naphthalene with low mass recovery. She stated Arcadis is looking at better ways of treating the area and is recommending turning off recovery at RWH-3 to put socks in the nearby wells to recover LNAPL. Mr. Crone noted the recommendation will be proposed in the annual report. Mr. Crone asked for any initial thoughts about the recommendation, and none were offered.

#### **6) Update on Areas D, I/J, and K:**

Mr. Crone reviewed a chart showing the status of documents and sampling.

- **Groundwater Monitoring Work Plan (draft):** EPA accepted the responses to its comments and NJDEP provided a letter of concurrence; the plan will be made final.
- **Annual Progress Report:** Internal draft submitted to the Air Force on January 21<sup>st</sup> and will sent to the regulators in February/March.

Ms. Sauve reviewed the Area D October 2015 sampling results, highlighting the locations with detections above remedial goals. She noted there typically have been three wells above the standards, but in October only two wells, HP and DU, were above the remedial goals for chlorobenzene.

Ms. Sauve reviewed the Area I/J November 2015 sampling results for the two plumes. She advised 29 wells were sampled, with 11 of the 20 main wells showing results above the standards. She stated Well NI is considered a source area well and is showing a decreasing trend, as is Well LM. She noted Well MA is further downgradient where there are impacts, and the concentrations are less stable. She said there is degradation occurring, but the well is being closely watched.

Ms. Sauve reviewed the Area K results above remedial goals from the November 2015 sampling event. She advised seven wells were sampled, and three had results above the standards.

Ms. Sauve reviewed several recommendations from the annual report including relocating the solar-powered spray aeration system at Area D to Area K and to move the system at well KH to KG. She explained another recommendation is to remove well LG from the Area I/J sampling program as there have been four sampling events with results below remedial goals. She stated another recommendation is in place of the five-year report for Area I/J and extensive model runs, additional analysis would be added to the Annual Progress Report every five years.

Mr. Crone advised Arcadis had submitted an initial document to the Air Force in line with the requirement for the contract to have “Plan A and Plan B technologies” showing where each of

these three sites are in regard to performance and reaching the goals. He said the next step for these sites is to submit the 2015 annual report to the regulators after the Air Force finishes its review, implement the recommendations, and perform sampling in November 2016.

#### **7) Five-Year Review Status:**

Mr. Figura advised EA Engineering had submitted the internal draft on December 1, and a site tour was conducted with the regulators in December. He stated EA is in the process of preparing a redlined version to address the many Air Force comments, and the Air Force expects to receive that version by the end of the month, with a draft to the regulators by the end of February or early March.

#### **7) Military Munitions Response Program Remedial Investigation Update:**

Mr. Figura stated the remedial investigations are proceeding simultaneously under three contracts.

Mr. Figura said the small range sites are being addressed by Bay West and Weston as their subcontractor. He discussed the MALRE remedial investigation (Site ZZ002) where temporary anchors were installed for airfield testing by using C4 to create holes. He said the work at this site involved 100 percent magnetometer and ground-penetrating radar across the site to identify anomalies and the locations of the temporary anchor systems. He stated the results are being reviewed, and the contractor will propose boring locations around each of the anchor areas to determine if there is impact from the C4 at depth. Mr. Figura displayed an aerial photograph and explained the surface has been divided into five sections as shown by black dots; the contractor has taken 30 incremental samples and field duplicates in each grid and will include the sampling results in their report. He stated their plan for proposed soil borings will be to the Air Force by the end of February. Mr. Marchesani asked which analytes would be associated with C4, and Mr. Figura said he would send Mr. Marchesani a list. (Mr. Figura emailed the information after the meeting. He advised C4 is 91% RDX and some binders that cannot be analyzed. He said soil samples will be analyzed for the entire 8330A list of explosives. He also noted the work plan indicates that soil borings will be done, and if they are below PALs, then no groundwater investigation is needed.)

Mr. Figura next discussed the Trap Range shallow and deep soil results. He said the contractor will be preparing an EE/CA and then a removal action work plan and Action Memorandum. In response to a question on the timing of the EE/CA, Mr. Figura estimated it will be ready in three months but will verify with the contractor. He advised 400 mg/kg is the proposed cleanup standard and 90 mg/kg is the screening level for lead. He stated the contractor will be providing the results for petroleum hydrocarbon results and most likely will have to excavate the soil. Mr. Figura showed an aerial photograph with the sampling performed at the deeper level (12 to 18 inches) where the results did not exceed the standards.

Mr. Figura next discussed Site ZZ006, which consists of 3 smaller sites. He advised at the Rifle Range samples were collected to delineate the lead-impacted areas at the end of range, and he displayed the lead contour levels on an aerial photograph. He noted this site will be included in

the EE/CA and removal action. Mr. Figura advised at the Pistol Range the backstop area was delineated, and he displayed the results. He noted a removal action will be proposed. He stated some tree clearing may need to be done which may be a consideration in determining cleanup levels. Mr. Figura discussed the sampling performed at the Skeet Range; he advised he would send a larger map to the group so they could see the impacted areas.

Mr. Figura reviewed the results from the Submarine Target field work and advised the only items found were practice bombs with a signal cartridge which would give off a smoke signal so the accuracy of the hit could be assessed. He noted two on-site demolitions of these items were conducted on August 24 and November 20, 2015. Mr. Figura added that no items were found south of the road.

Mr. Figura advised soil and groundwater sampling would be conducted upon approval of the memo emailed to the regulators on December 21. Ms. Struble advised she would have comments in about a week, and Ms. Gaffigan advised she would check with Mr. Greg Zalaskus on his review of the memo.

Mr. Figura next discussed the Lakehurst Proving Grounds, Parachute Jump Circle, which was a short-range target used in the World War I time frame. He stated it was used by the Eddystone Ammunition Company and the Chemical Warfare Service to test high explosive and chemical munitions. Mr. Figura advised in the late 1930s and early 1940s, the site was used for bomb training and practice aerial drops. He stated an investigation of anomalies began on September 17, 2015; work ceased between September 30 and November 3 to get new funding put in place for the fiscal year for support agencies conducting air monitoring and potential handling of any chemical munitions found. Mr. Figura advised the investigation was completed on December 10; 37 items were found that needed to be detonated, 23 munitions and explosives of concern, 14 munitions posing potential and explosive hazards, and 2 chemical munitions (the locations of the chemical munitions were shown on an aerial photograph). Mr. Figura showed pictures of the field work involved in reacquiring every anomaly. He advised air monitoring was conducted on a continuous basis, and after an item was removed, the metal detector would be used to verify no additional metallic objects were in that location. He noted 90 percent of the items were debris; the debris was checked for chemical residue, and if none was found, the debris was disposed of as scrap metal. Mr. Figura showed a photo of a 75mm shell which was removed and detonated. He also showed a photograph of flares found in a flare disposal area, along with illumination markers; none of these items are considered to be high explosives. Mr. Figura showed a photograph of a large piece of metal that looked like a propeller but was very heavy and not aluminum; it was determined to not be munitions-related debris. Mr. Figura said a large chain was also found anchored in the ground that was used in the 1920s to hold blimps in the circle. Mr. Figura showed photographs of the shells found and advised five different detonations were done; he noted the detonation were scheduled for Saturdays when possible.

Mr. Figura next discussed the two chemical munitions. He stated a 75mm shell, 12 inches long and 3 inches in diameter was found which is 50 percent full with mustard. He advised a Livens projectile, 60 percent full of phosgene, was found which is 22 inches in length and 7½ inches in diameter. Mr. Figura explained that when a suspected chemical munition is found, the Mobile Munitions Assessment System which is used all over country by the Chemical Materials Activity

from Edgewood Arsenal in Maryland, is used to package the item in a container and take an x-ray of the item. He continued explaining that the system can determine how much fill is in an item and assess the munition. Mr. Figura said a Portable Isotopic Neutron Spectroscopy (PINS) is used to identify what material is in the round so it does not need to be pierced. He stated the items are in a secure interim holding facility with round the clock security guards until the items can be destroyed. He advised the Chemical Materials Activity will bring in an Explosive Destruction System (EDS) to dispose of the chemical munitions. He stated the EDS has been used throughout the county including a site in Washington, D.C., near American University. Mr. Figura displayed diagrams of how the EDS works and the negative pressure enclosure used to ensure there is no release of air outside of the enclosure. Mr. Figura showed photographs of the EDS set up at Dover Air Force Base, and before and after photographs of a munition which was detonated in the EDS.

Mr. Figura distributed the schedule provided by the Chemical Materials Activity. He stated there are many documents that need to be prepared and approvals that need to be obtained (including the Chemical Weapons Convention Treaty) prior to destruction. Mr. Figura estimated the destruction would take place in the July timeframe. In response to a question from Mr. Figura, Ms. Struble and Ms. Gaffigan said they would like to see the safety plan. Ms. Gaffigan said if the report sections reference which sections of RCRA they are substantively complying with it would help speed up the review. Mr. Figura noted the Restoration Advisory Board will be briefed at the February meeting. Mr. Figura will also notify the regulators of the dates of the detonations.

### **8: Open Discussion:**

Mr. Figura invited discussion or comments.

Mr. Figura advised the Ocean County Library had contacted him and asked if they can house only the electronic copy of the Administrative Record and not the paper copy. Ms. Struble said she had also gotten a phone call, and she planned to discuss it with Mr. Tamn at the RAB meeting. Ms. Lettman advised she has always had to use the paper copy as she was not offered the electronic copy when she visited the Library; she did not see any information indicating the electronic copy was available at the reference desk. Ms. Lettman suggested the Air Force require the library to include in their catalog reference that the electronic copy is available.

### **9. Action Items** (all from January 27, 2016 meeting):

1. Ms. Struble asked for the meeting agenda to be provided in MS Word so notes can be taken or the copy of the slides be provided in Notes format.
2. When distributing documents, NJDEP needs one hard copy and one CD. Keep titles exactly the same from draft to final. If no changes to draft, can just provide a new cover noting the document is final. If there have been changes, preference is for a new document versus replacement pages. If NJDEP approves the draft, their approval letter will be attached to the final and a second approval letter will not be needed.

3. Air Force to send document tracker, with MMRP documents included, to NJDEP on a monthly basis.
4. Arcadis to research the suggestion of magnetic susceptibility of the soil as an additional parameter as suggested by Rob Alvey.
5. Mr. Figura to keep EPA and NJDEP advised of schedule regarding the CWM destruction.
6. Mr. Figura to send a larger map of the Skeet Range sampling results.
7. Arcadis to update the Basewide QAPP, worksheet #15, to reflect final dispute resolution regarding the Pineland Standards as suggested by Ms. Gaffigan.

**10. Next Meeting:**

The next TRC meeting is scheduled for April 27 in Building 5 at 10:00 a.m.

The meeting was adjourned at 12:05 p.m.

## LAKEHURST 2016 DOCUMENT TRACKING

IRP Documents			
Area/Site	Document	Date <sup>1</sup>	Notes
D, I/J, K	Draft Annual Report	<i>3/7/16</i>	AF has completed review early. Will be submitted ahead of this date.
A/B, C,	Quarter 3, Year 2 Results of Plume Stability Study	<i>3/2/16</i>	AF completed review.
H	Draft Annual Report	<i>3/21/16</i>	
A/B, C,	Draft PDI and Confirmation Sampling Notification Work Plan	<i>April 2016</i>	
A/B, C	Draft Plume Stability Study	<i>April 2016</i>	

MMRP Documents			
Area/Site	Document	Date <sup>1</sup>	Notes
Site ZZ001 (Submarine Target)	Draft RI Report	June 2016	
Site ZZ001 (Submarine Target)	Draft Well Sampling Report	June 2016	
Site ZZ002 (MALRE site)	Draft Well and Boring Location Report	March 2016	
Sites ZZ005 (Trap Range) and ZZ006 (Rifle, Pistol and Skeet Ranges)	Draft EE/CA	April 2016	
Sites ZZ005 (Trap Range) and ZZ006 (Rifle, Pistol and Skeet Ranges)	Draft IRA Work Plan	June 2016	

Footnotes:

1. Dates which appear in italics are planned submittal dates.