

**JOINT BASE MCGUIRE-DIX-LAKEHURST (JBMDL)
LAKEHURST TECHNICAL REVIEW COMMITTEE MEETING
APRIL 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. Nelson Santiago, 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. Jim Bedessem, Technical Lead, Arcadis
Mr. Tom Crone, Asst. Project Manager, Arcadis
Ms. Whitney Sauve, Lakehurst Task Manager/Technical Lead, 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 10:02 a.m., and everyone introduced themselves.

Mr. Tom Crone asked for any comments on the January 27, 2016 minutes. Ms. Katrina Harris noted she had received one comment from Ms. Donna Gaffigan about including the information sent out by Mr. Michael Figura after the meeting in response to a question asked at the meeting. No other comments were offered, and Mr. Crone advised the minutes would be finalized with the one change.

Mr. Crone reviewed the agenda and meeting objectives.

Mr. Crone reviewed Action Items from the last meeting and noted all but one had been completed.

Ms. Carla Struble asked for information on the roles of the various U.S. Army Corps of Engineers offices participating in the program. Mr. Crone explained Arcadis' contract is with the Tulsa Corps of Engineers and Ms. Susan Trussell is the main point of contact. He stated at Dix and Lakehurst, the Baltimore Corps of Engineers is providing technical support to Tulsa, and at McGuire, Tulsa is providing the technical support.

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:** Final year-one report submitted to EPA/NJDEP on February 10th.
- **MNA/PSS Update – Year 2, Quarter 3:** The year-two third-quarter data was submitted to the regulators; any comments will be addressed in the final plume stability report.
- **Final MNA/PSS Report:** The draft Final Plume Stability Report will be sent to the regulators this week. The draft report carries forward the recommendations from the year-one report that three sites return to active remediation and provides recommendations on the other three sites.
- **Pre-Design Scope Notification:** Submitted to EPA/NJDEP on April 14th. Considered a secondary document per the FFA; any comments would be appreciated and Arcadis would try to incorporate them into the field work. Data ultimately will be presented in a primary document, most likely a remedial design, and subject to full comment. Mr. Alvey asked for confirmation that the field work was starting the next day. Mr. Crone confirmed Arcadis had received the dig permit and begun the preliminary work, such as marking utilities. Mr. Crone said there would be more discussion on the work later in the meeting.
- **Pilot Test Notification:** Planning is underway and the notification will be submitted to the regulators a minimum of two weeks prior to the starting the pilot test. Will be following the format and approach used successfully for pilot tests at Dix and McGuire.
- **Sampling:** Semi-annual sampling began at Area A/B on April 11th and will be conducted again in October.

Ms. Whitney Sauve presented a summary of the sampling results from January 2016 for Areas A/B, noting there were no significant changes for prior sampling events. She displayed maps showing the location of detections above remedial goals. Ms. Sauve noted product was at RWAB-6 so it was not sampled. She said at Sites LF029 and AT014, there were no detections above remedial goals. Mr. Figura commented that there were now two rounds of data where the detections were below remedial goals, and Ms. Sauve agreed. Mr. Crone advised there will be discussion soon about no further action recommendations at these sites.

Ms. Sauve summarized the Area C January results. She stated at monitoring well CX, detections were above the standard; elsewhere there were intermittent detections. She noted monitoring well FQ was clean during this round of sampling (had detections of toluene in the past). Ms. Sauve discussed the number of wells with detections above standards and stated the Pineland Standards will also need to be considered.

Mr. Crone discussed the next steps at LF029, AT014, and AT016. He stated Arcadis had evaluated MNA versus active remediation and will be submitting its recommendations to the

regulators by the end of the week. He noted as soon as regulatory comments are received, funding for the selected recommendation can proceed to reach remedial goals by 2021.

Ms. Sauve gave a preview of the recommendations. She advised at AT014 there is only one well of concern, and the past two rounds of sampling were clean. She stated monitored natural attenuation is the recommendation for this site.

Ms. Sauve stated at LF029 there have been intermittent detections of TCE at monitoring well MWAB-1 and naphthalene at monitoring well CH. She advised the recommendation for this site is monitored natural attenuation.

Ms. Sauve discussed the existing treatment system at AT016 and stated the recommendation for this site is to resume, and possibly expand, the existing treatment system. Mr. Crone advised that since the last meeting the system was checked, and all blowers were able to be re-started.

Mr. Crone noted that a return to active remediation had been recommended and funded for TT013, LF042, and TT017, and pilot studies are planned for each of these sites. Ms. Sauve said a limited field event scope will be conducted to include purge testing at select wells and a limited geoprobe investigation to determine soil concentrations at TT013 and TT017. She said the AS/SVE systems will be turned back on at TT013 and TT017, but not at LF042 as limited results are being seen at LF042. She stated a remedial action work plan will be developed to modify or replace existing treatment systems. Ms. Sauve said an Explanation of Significant Difference will be prepared if required. Mr. Crone said Arcadis had prepared an ESD for the New Egypt Armory and would plan to follow that format.

Ms. Sauve discussed the pre-design work that would be starting the next day and the tests and sampling that would be conducted. Mr. Crone added that the pre-design scope of work had been discussed in January, including conducting some confirmatory sampling, and a letter had been submitted a few weeks ago. Ms. Sauve said an objective of the pre-design work is to try and determine where the SVE treatment needs to be focused, or if the soils are clean and a request for no further action is appropriate. Mr. Alvey asked about the cost differential with respect to the sample analysis for the recommended magnetic susceptibility testing. Mr. Crone stated there are two outcomes: a determination that a certain compound is present and needs to be factored into the design to achieve remedial goals or sampling confirms the compound is not present. He said if the compound is not present, no further action would be needed with the soil and the SVE system will remediate the groundwater. Mr. Crone asked if there was a need to look at breakdown products, and Mr. Alvey said some breakdown products need to be examined. Mr. Crone said he would take the suggestion back for further discussion.

Ms. Sauve displayed a chart from the Record of Decision for Area C showing the contaminants of concern; she noted only xylenes need to be sampled for at TT013 as they are the only compound detected above remedial goals. She stated at TT017 petroleum hydrocarbons will be the focus of the sampling, and Method 1664 will be used. She advised if the sampling shows a need to extend the area being sampled, they will be able to move out to a limited extent; if a greater area needs to be sampled, additional planning will be needed.

Ms. Sauve reviewed the purge tests to be performed as part of the pre-design scope. She stated Arcadis will be drawing water for a period of three days and taking intermittent samples.

Mr. Crone said a more detailed discussion on the pilot test would be done at the next TRC meeting. Ms. Sauve said a pilot test performed at Dix would be used as an example. She noted the objective is to demonstrate the technology will be effective and to determine the basis of the design parameters. Ms. Gaffigan asked if there is a concern about vapor intrusion into Hanger 1, and Ms. Sauve said there would not be a concern, as vapors could be monitored between the sparge well and Hanger 1.

5) Update on Area H:

Mr. Crone stated the pump and treat system at Area H is still operating. He noted the regulators received a draft of the annual progress report from 2015 on April 7. Mr. Crone advised the first 2016 semi-annual sampling event had been conducted in April, and the next sampling event would be in October.

Ms. Sauve discussed the optimization recommendations in the annual report. She noted groundwater extraction at RWH-3 is recommended to be discontinued and to be replaced with passive recovery LNAPL socks to continuously retrieve LNAPL.

Ms. Sauve discussed the mass flux and advised when RWH-2 was turned off, there was an increase in mass recovery at downgradient RWH-1. Mr. Alvey commented that he would have liked to have seen the point at which RWH-1 was turned off shown on the treatment system summary charts, so the effects before and after could be observed, though the annual report graphs would not show this difference, as RWH-1 was turned off in December.

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

Mr. Crone updated the status of documents and sampling:

- **Groundwater Monitoring Work Plan:** Final submitted to EPA/NJDEP on February 10th.
- **Annual Progress Report:** Draft submitted to EPA/NJDEP on March 8th.

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. Alvey asked if the solar recovery system had been effective and if there are other places where the Air Force could use it. Ms. Sauve said she would need to look at the trends over time and see if it had any effect. She noted at Areas K it is still running as required by the Record of

Decision. Mr. Alvey said it might be time to re-assess the system as a technology. Ms. Sauve said Arcadis would look at the trends to determine if the systems have had an effect on concentrations, if enough data exists to perform the evaluation.

7) Military Munitions Response Program Remedial Investigation Update:

Mr. Figura displayed a map showing the sites, which are numbered ZZ001 through ZZ006, and stated the sites consist of:

- Site 1, Sub-Target Site: Established during WWII as a practice target set-up in the shape of a German U-Boat.
- Site 2, MALRE Site: Installed temporary anchors for aircraft landing system; holes were created with the use of C4.
- Site 3, Lakehurst Proving Grounds: Ranges used for testing of both high explosive and chemical munitions.
- Site 4, Small Arms Range: Located on the western Lakehurst area boundary.
- Site 5, Trap Range: Located in wooded area to the north.
- Site 6, Rifle Range: Located in northeast; site includes a rifle, pistol, and skeet range.

Mr. Figura discussed the MALRE remedial investigation (Site ZZ002) which is being conducted by Bay West. 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 field work also included soil sampling at 0 to 6 inches deep and at 6 to 12 inches deep. He explained incremental sampling was used for the soil, with 30 increments being collected from each of the five areas. Mr. Figura said the results showed non-detect for explosives in all samples. Mr. Figura said the results of the magnetometer and ground-penetrating radar surveys were reviewed, and 13 locations were selected by Bay West as potential anchor locations. He advised based on the ground truthing results, a determination will be made if further evaluation is needed. Mr. Figura said if an anchor is identified, samples will be collected; if no anchor is detected, no sampling will be conducted.

Mr. Figura next discussed the Small Arms Range (ZZ004). He stated the remedial investigation included semi-annual sampling of two newly installed monitoring wells to determine if groundwater was impacted by historical range operations.

Mr. Figura reviewed the field work performed at the Trap Range (ZZ005). He said the recommendations at this site were to perform a removal action to remove lead and PAHs above remedial goals which would be developed in an EE/CA. He noted it may take a few months to get the necessary contractual and safety documents in place for the proposed removal action.

Mr. Figura next discussed Site ZZ006, which consists of 3 smaller sites. He advised 139 XRF samples were taken and analyzed. He said the recommendations, based on the sampling results, are to perform a removal action at the former Rifle Range, and to install one groundwater well downgradient of the location where the highest level of metals were detected. He said at the former Pistol Range, in the northeast corner of the Rifle Range, 176 XRF and laboratory samples were collected and analyzed for lead and other metals. He said a removal action is also

recommended to remove lead above removal goals, as well as the installation of one new groundwater monitoring wells to determine if groundwater is impacted. Mr. Figura said at the Former Skeet Range, to the west of the Rifle Range, 107 XRF and laboratory samples were collected and analyzed for metals and PAHs. He said the results show the areas with elevated levels of PAHs are within the areas with elevated lead and metal and proposed for remediation. Mr. Figura said in-situ soil stabilization will mostly likely be proposed for a number of sites so the soil can be disposed of at a landfill. He noted an EE/CA will be distributed soon for review.

Mr. Figura reviewed the schedule for future efforts with the field work targeted for May through July, and borings after the bird nesting season in September 2016. He noted the Remedial Investigation Report is targeted for late spring or early summer of 2017, followed by Feasibility Studies. He stated the field work plan would be sent to the regulators for review in July 2016.

Mr. Figura reviewed the results from the Former Submarine Target (ZZ001) removal action. He advised 75 pieces of munitions and explosives of concern had to be detonated, with all being three-inch practice bombs with a charge. He noted they were not high explosive. Mr. Figura discussed the soil and groundwater sampling conducted at the site. He stated a draft Remedial Investigation Report is due in September 2016, and will be distributed to the regulators by November 2016, and finalized by January 2017.

Mr. Figura next discussed the two chemical munitions found at the Lakehurst Jump Circle Target. He showed a photograph of the Explosive Destruction System (EDS) which was on display during the JB MDL Earth Day event. He reminded the group that 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 stated the EDS would be used to destroy the two chemical munitions; the EDS would be inside a negative pressure tent.

Mr. Figura discussed the schedule for the destruction of the two chemical munitions. He advised the regulators had just received the destruction plan, and the safety plan will be submitted to the DoD Explosive Safety Board. He advised the team would start setting up the EDS and enclosure in mid-June and then be able to conduct tours for regulators, stakeholders on base, press and local township officials. Mr. Figura said an inspection by the safety team would then be conducted. He noted the detonation is scheduled for the second week in July, with one item being detonated on Friday and the second on Sunday.

8. Five-Year Review:

Mr. Figura advised the five-year review had been submitted to the regulators, and comments are requested by mid-May. Ms. Struble stated the timeframe is likely doable for EPA but she will get back to Mr. Figura to confirm. Ms. Gaffigan said NJDEP would most likely have comments within the next two weeks. Ms. Gaffigan suggested waiting until all comments are received to issue a revised document or pages.

9. Perfluorocarbons Update:

Mr. Figura advised 33 sites across JB MDL had been identified as potential sources, with 8 sites being at Lakehurst. He stated the internal draft Site Inspection work plan was due the next week to the Air Force and to the regulators in Mid-June. Mr. Figura said the field work would begin in August.

Mr. Marchesani asked what criteria was being used for the investigation, EPA's or NJDEP's. He noted the state was issuing a request to promulgate and then it would take another year to promulgate. Mr. Figura said the standards will be in the work plan so the regulators can comment on the standards.

10: Open Discussion:

Mr. Figura invited discussion or comments. No comments were offered.

11. Action Items (1-7 from January 27, 2016 meeting; 8-13 from April 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. (COMPLETED)
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. (COMPLETED)
3. Air Force to send document tracker, with MMRP documents included, to NJDEP on a monthly basis. (COMPLETED)
4. Arcadis to research the suggestion of magnetic susceptibility of the soil as an additional parameter as suggested by Rob Alvey. (COMPLETED) (Ms. Sauve advised the sampling is not being done to establish degradation of chemicals of concern to support MNA, but to determine if the levels are above cleanup goals; for this reason, Arcadis does not think magnetic susceptibility applies.)
5. Mr. Figura to keep EPA and NJDEP advised of schedule regarding the CWM destruction. (COMPLETED)
6. Mr. Figura to send a larger map of the Skeet Range sampling results. (COMPLETED)
7. Arcadis to update the Basewide QAPP, worksheet #15, to reflect final dispute resolution regarding the Pineland Standards as suggested by Ms. Gaffigan. (PENDING)
8. Mr. Figura to send to Ms. Gaffigan the email regarding groundwater sampling by Bay West.
9. Mr. Figura to check with Weston and provide Mr. Alvey with data on Lakehurst groundwater monitoring points, including coordinates and elevations.
9. Mr. Figura distributed memo about step-out sampling at Proving Grounds for informational purposes; let Mike know of any needed changes or comments.
10. Mr. Figura to check on whether the correct term is Livens projectile or projector.

11. Arcadis to review Mr. Alvey's suggestion regarding additional sampling.
12. Arcadis to review solar-powered spray aeration system trends.
13. Ms. Struble to advise Mr. Figura on EPA's review time for the five-year review report.

12. Next Meeting:

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

The meeting was adjourned at 12:07 p.m.

LAKEHURST 2016 DOCUMENT TRACKING

IRP Documents			
Area/Site	Document	Date ¹	Notes
D, I/J, K	Draft Annual Report	3/8/16	EPA/DEP reviewing
H	Draft Annual Report	4/8/16	EPA/DEP reviewing
A/B, C	Draft Plume Stability Study	4/26/16	EPA/DEP reviewing
A/B, C,	Draft Pilot Test Notification Work Plan	<i>June 2016</i>	

MMRP Documents			
Area/Site	Document	Date ¹	Notes
Site ZZ001 (Submarine Target)	Draft RI Report	<i>September 2016</i>	
Site ZZ001 (Submarine Target)	Draft Well Sampling Report	<i>September 2016</i>	
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	<i>June 2016</i>	
Sites ZZ005 (Trap Range) and ZZ006 (Rifle, Pistol and Skeet Ranges)	Draft IRA Work Plan	<i>June 2016</i>	

Footnotes:

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