Ravenna Army Ammunition Plant
Restoration Advisory Board (RAB)
Meeting Minutes
November 16, 2005

1. Call to Order & Reading of Minutes

The meeting was called to order by Community Co-Chair LTC Tom Tadsen at 6:08 p.m. at the Windham Township Hall, Windham, Ohio.

LTC Tadsen introduced Mr. Howard Furl RAB Member and resident of Windham Township. Mr. Howard Furl requested a moment of silence to honor the passing of Jess E. Starkey, Mayor of Windham. Mr. Furl's long time friend passed away at 80 years of age on Friday November 11, 2005. Mr. Jess Starkey was not only the Mayor of Windham he was a veteran and was recognized as a community leader. Mr. Howard Furl said that Jess Starkey was a very dear friend and will be sadly missed.

LTC Tadsen asked the board members if they had any additions or corrections to the minutes. No comment from the RAB members present. Mr. Tom Smith made a motion to suspend with the reading of the minutes of the previous meeting. The motion was seconded by Charles Ramer. LTC Tadsen called the motion to question…."All those in favor please say 'Aye.' All those opposed?" The motion carried, and LTC Tadsen announced the minutes were approved as printed. LTC Tadsen announced that copies of the September 26, 2005 minutes are on the back table.

Secretary Christy Esler took attendance with 17 members present, 2 excused and 4 absent (Kevin Cooper, Mr. Christopher Smeiles or representative, Milan Markov and Mark Zigmund).

2. General Business

LTC Tadsen directed everyone's attention to the back table to pick up tonight's meeting presentation handouts.

LTC Tadsen announced that there are a total of 2 standing vacancies on the RAB and 3 members are over the maximum number of absences allowed. One member who is over the maximum absence allowed is a Trumbull County Commissioners' representative. Secretary Christy Esler will contact the Trumbull County Commissioners' office to request that a new representative is assigned to the RAB board.

LTC Tadsen announced there are blank interest surveys on the back table if anyone is interested in applying for an open position on the RAB.

Nina Miller made a motion to relieve the absent members at large: Mr. Kevin Cooper and Mr. Milan Markov. The motion was seconded by Delbert Woloski. LTC Tadsen called the

motion to question…."All those in favor please say 'Aye.' All those opposed?" The motion carried, and LTC Tadsen announced the members have been relieved.

LTC Tadsen introduced Glen Beckham, as the newly appointed U.S. Army Co-chairman of the Restoration Advisory Board. LTC Tadsen then introduced Mr. Irv Venger the RVAAP Industrial Specialist. Mr. Venger has been filling in for Mark Patterson since his transfer from Ravenna.

Glen Beckham took a couple of minutes to thank the RAB members and public attendees for the opportunity to serve as the U.S. Army Co-chairman and present an update on the proposed trial burn. Glen explained to the RAB members that Francis Zigmund of the Kansas City Corps of Engineers has been working with technical experts to plan and design the laboratory (bench scale) test burn study. Glen commended the public for suggesting the laboratory test burn to determine the effects of the burn on the environment. The kick off meeting is scheduled for the 1st week of December. Glen announced that he speaks to Francis Zigmund weekly to remain updated on the project's progress.

Eileen Mohr indicated to Glen that the kick off meeting date has been changed to the second week of January.

LTC Tadsen announced that the next RAB meeting will be held on January 25, 2005, at the Windham Township hall.

LTC Tadsen introduced the presenter for the evening

3. Presentation on the Characterization of the 14 Areas of Concern at RVAAP. Mr. Stan Levenger, MKM Engineers, Inc.

After completion of the formal presentation, the RAB Members proceeded with questions directed to Stan Levenger.

Barb Andreas- What is the size of Load Line 10?
Stan Levenger- 40 to 60 acres in size.

Nina Miller asked did I hear you right that 62 ground water wells were installed for this project.
Stan Levenger- Yes that is correct.

LTC Tadsen requested that Stan explained the definition of SAP.
Stan Levenger explained that SAP stands for Sampling and Analysis Plan. Contractors performing work at the Ravenna location follow this plan. The SAP is a very detailed plan regarding sampling procedures and technical aspects.
Rick Callahan of MKM Engineers added that the plan also provides the laboratory specifics to the contractors.

LTC Tadsen asked if all multi-increment samples are flagged and how many are counted.
Stan Levenger- John Jent of the U.S. Army Corps of Engineers (USACE) – Louisville District made a presentation a few months ago that explained the multi-increment sampling procedures. We lay out 30 sampling locations in an area and a volume of soil is collected from each. The 30 increments at one location are combined and processed consisting of the 30 sub samples and counted as one. This ensures that we are effectively evaluating the entire area.

Charlie Ramer- After ground water hydrological analysis you then determine the number and location of the up gradient and down gradient wells?
Stan Levenger- We develop, sample and measure the depth to ground water in each well. Then a professional survey is conducted to confirm the elevations in the area to construct a potentiometric map.

Nina Miller- How fast does ground water travel?
Stan Levenger- That depends on the material the water is traveling through (bedrock, sand, aggregate, or soil).

No other questions were fielded from RAB members for the MKM Engineers' presentation. LTC Tadsen opened the floor to public attendees for questions.

Ron Duncan (Middlefield Resident) - Commented that a lot of time has been spent on presentations, but what about the results.
Stan Levenger- The project is in its preliminary draft stage; once the internal review process is completed and approved by the Ohio Environmental Protection Agency (Ohio EPA), U.S. Army and the USACE, we can introduce the results.

Eileen Mohr- The report is in our office and we are concerned about addressing the results prematurely if they may have an omission or error. We review for accuracy and completeness prior to the report going public.

LTC Tadsen - The Environmental Working Group consist of the Ohio EPA, U.S. Army, Ohio Army National Guard (OHARNG), U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) and contractors involved in reading and reviewing the content of the document. Comments are collected from the various agencies and a comment resolution meeting is conducted to discuss and resolve comments submitted. This is a long and involved process to ensure the most accurate information is provided to the public.

Julie Smeiles (The Villager) - According to the chart in your presentation for the NACA and Load Line 12 AOCs, multi-increment samples were not taken - just discrete samples. All of us heard the presentation that told us the discrete samples are not as accurate as the multi-increment samples.
Stan Levenger - We were unable to collect sediment multi-increment samples from a three-foot in diameter sump, which is the reason why discrete samples were collected. examples: man holes, ground water wells.

Eileen added that both NACA and Load Line 12 Remedial Investigations (RI's) were completed and collected discrete samples. The recent discrete samples taken were compared to the discrete samples from the initial RI data.

Charlie Ramer- At the pistol range, you weren't allowed to take soil samples where there were concentrations of metal.
Stan- The difference is that, at the pistol range, we were looking for lead. Historically, only small arms ammunition was used there. The difference is the type of metal.

Charlie Ramer used this example, What if you dug up a bullet? Would that throw the sampling off ?
Stan Levenger- We screen the soils so any projectile would be screened out, since all these lead bullets impacted the soil. Disintegration takes place, but some lead pieces could fit through the screening used in this process.

Bill Krimmer (Paris Township Resident) - C Block Quarry - historically chemicals were dumped there that were used in the metal cleaning process.
Mark Patterson mentioned in the past that hexavalent chromium was used. Are you testing for that?
Stan Levenger said that yes Chromium 6 (hexavalent chromium) was analyzed. The chromic acid dumped there was used for stripping and rehabilitating shell casings in the 155 mm size range. Chromium 6 is a byproduct of chromic acid for processing metals.

Bill Krimmer (Paris Township Resident) - So what about hydrochloric and sulfuric acid ?
Stan Levenger- Not sure about hydrochloric acid use here, but we tested for sulfuric acid.

Barbara Gaskin (Streetsboro Resident) - Were these munitions produced anywhere else for World War II, Korea and Vietnam?
Glen Beckham- Yes - 40 mm grenades. It is a logical assumption that they moved this production to another installation.
Barbara Gaskin- Why move these demilitarization and manufacturing processes from Ravenna to turn around and do the same process elsewhere?

LTC Tadsen explained that over time the general size of conflicts became smaller. The volume of production was no longer needed from Ravenna. The installation was transferred to the Army's Base Realignment and Closure Office (BRAC-O). Many Army Ammunition Plants produced munitions during World War II – fewer during Korea, and even fewer during Viet Nam. As the need for finished munitions diminished, BRAC-O began closing Army Ammunition Plants – including Ravenna. There are very few remaining Army Ammunition Plants in the U.S. today that still producing ammunition. The U.S. Army has gone almost completely to commercial suppliers. These closed plants are being cleaned up and are either being maintained and used by the U.S Army for other military uses, or returned to public use.

Ron Duncan (Middlefield Resident) - Referred back to Mr. Bill Krimmer's last question regarding Chromium 6 test results. Are these documents available?

LTC Tadsen- Yes in the public library repositories. Chromium 6 is a by product of chromic acid used to typically clean steam pipes at Ravenna and throughout the U.S. in industry. Best management practices in use at the time required it to be diluted and released into the surface water.

Laura Duncan (Middlefield Resident) - Are the results available? When can we expect to see the results, next year? Also, are there any groundwater sampling wells off the installation?

Stan Levenger- The field work was conducted in October and the water sampling was completed in January. Once these results have been reviewed and approved, we will release the document.

Laura Duncan (Middlefield Resident) - How do we know chemicals didn't migrate offsite?
Eileen Mohr- In 1997 OEPA conducted residential ground water testing around and outside of the installation.

Laura Duncan (Middlefield Resident) - Why did you sample these residential wells in the first place?
Eileen Mohr- This resulted from a request by some concerned residents attending RAB meetings.
Laura Duncan (Middlefield Resident) - Did you test just from the water spigot?
Eileen Mohr- No, we bypassed filtration systems and water softeners. The water needed to run for an appropriate period of time to ensure that water from the holding tanks was not being tested and that it represented formation water.

Bill Krimmer (Paris Township Resident) - Paris Township is at a lower elevation than the Arsenal. I have heard stories of large fish kills during the production years from the pink water that was dumped into sumps and streams. Do you have any plans to sample stream sediments? Ponds and rivers leading into the Arsenal could have been contaminated years ago.

LTC Tadsen- the Army cannot sample offsite on private property or establish ground water wells. LTC Tadsen asked Mr. Krimmer after public action how many buildings are on the list to burn.
Bill Krimmer- Answered by referring to the Installation Action Plan of 2006.
LTC Tadsen- asked Mr. Krimmer how many buildings are on the list after public action. There are 6 buildings still remaining on the burn list, of the initial Department of Defense number of 121 buildings to be burned. That change resulted from public action. Mark Patterson asked the Department of Defense (DOD) to please return to re-evaluate the number of buildings to be burned, because of the public concern. The DOD returned and did a building-by-building analysis that resulted in only 6 buildings remaining on the burn list. During demolition, if concealed explosives are found, additional buildings may be returned

to the burn list. As of today, public action has reduced the number of buildings to be burned significantly.

Bill Krimmer (Paris Township Resident) - From 1941–1945 production was at its highest. After the flood in 2003, the wash out needs to be considered, contaminants could end up downstream and off site. The further your travel downstream, the more contaminates could be located. I think that future sediment samples need to be collected offsite.

LTC Tadsen – Unfortunately the items in sediment are primarily heavy metals and explosives. Some explosives are water soluble and as they go down stream they would dissolve. This is a valid question and for sometime in the future.

Julie Smeiles (The Villager) - What if the local residents want streams tested? Wetlands are a primary collection area, also.

Glen Beckham- Mark Patterson has worked at the Arsenal for 8 years. Please bear with me during this learning curve. At USACE – Louisville, we have a team of 20 members that cover 5 different facilities. My role is to collect all the public concerns to address. The U.S. Army policy is to look at the identified environmental areas of concern and test the area for contaminants. Glen announced that he will research the subject regarding off site contamination and report his findings at the next scheduled RAB meeting.

Julie Smeiles (The Villager) – At the Badger Ammunition Plant, unique chemicals were found and traced back to the ammunition manufacturing. Why wouldn't the Army want to test outside the area after the Badger incident?

Glen Beckham asked Ms. Smeiles to please be patient and that he will report his findings regarding contaminants off site at the next RAB meeting.

Barbara Gaskin (Streetsboro Resident) - Has the health of residents been affected by residential wells?
Eileen Mohr- I will need to look up the information. The one well had a concentration of arsenic that was a little above maximum contamination levels (MCL). Again, MCLs are only applicable to public water supplies; we only use them for comparison. However, the Health Department was given all our results.

Sarah Lock- My parents' well was the well that tested over the limit for arsenic. The local Health Department advised my parents not to consume the water from our well. My parents still reside in the same home and we have not had any health concerns.

Barbara Gaskin (Streetsboro Resident) - How long ago was this?
Sarah Lock answered that this was in 1997.

James Mayer (Paris Township Resident) - Do you use the water for anything other than consumption?
Sarah Lock- Yes

Eileen Mohr- Arsenic concentrations that were found were a little above the MCL. In Northeast Ohio it is elevated levels of arsenic, manganese or iron. These are common to find and are naturally occurring. The arsenic can't be attributed to the Arsenal.

Julie Smeiles (The Villager) - Is arsenic naturally occurring or caused by industry?
Eileen Mohr - The Geological survey put out on a bulletin years ago that described the aquifers throughout the state. They tested through limestone, sandstones, sand and gravel to determine water quality. Of course ground water may be impacted by industry. It is not uncommon to find elevated levels of certain constituents.

Julie Smeiles (The Villager) - Naturally occurring versus Industrial - is there a way to determine the source of contamination?
Eileen Mohr- There are background groundwater monitoring wells at Ravenna. Some wells are in bedrock, shale, sandstone and some are in glacial material. We have sampled and analyzed for metals, as well as other constituents. The metal samples were both filtered and unfiltered from both the bedrock and unconsolidated units. When we drill at the areas of concern, we cross-check against what we have seen in our background well samples.

Ron Duncan (Middlefield Resident) - In our town (Middlefield) manganese illustrates a point source. How close is the bedrock at Ravenna?
Stan Levenger- 0 to 50 feet below the surface to bedrock.

Ron Duncan (Middlefield Resident) - What about cracks in the bedrock and is there more than one aquifer in the facility?
Stan Levenger- Yes

Ron Duncan (Middlefield Resident) – Have the aquifers ever been tested?
Stan Levenger- Yes that is what we are currently conducting with the OEPA.

LTC Tadsen also informed the audience that we have placed a question box with 3x5 cards in the back of the room, for any additional questions or comments. He thanked the RAB members, presenters, and members of the general public for their interest, attention, and their attendance this evening.

Since there was no further business, the meeting was adjourned at 7:57 pm.

Respectfully submitted,

Christy Esler
RAB Administrator