IOWA ARMY AMMUNITION PLANT
RESTORATION ADVISORY BOARD
MINUTES

July 17, 2012

The Restoration Advisory Board (RAB) meeting was called to order by Elyn Holton-Dean at 5:05 p.m. on July 17, 2012 at the Comfort Suites Hotel.

Minutes Review
The minutes were accepted as written.

Agenda Review
There was one change to the agenda. Rodger Allison will be presenting the IRP Update in place of Rick Arnseth.

Public Comment
No public comment at this time.

Mathes Lake Inquiry
Rodger Allison briefed the RAB from a slide presentation. Please see exhibit 3 for his presentation.

The purpose of the presentation is to discuss some inquires that have been brought up regarding Mathes Lake and possible impacts from uranium.

Mark Hagerla asked if the 1970's report [as mentioned in the 2001 ATSDR Health Consultation] indicated that the radioactive levels in the lake sediment were below background, what was the decision to change from using the Lake Mathes as a drinking water source to Burlington water? Rodger said it was his understanding that the reason for the switch to Burlington water was more along the lines of cost and maintenance of equipment and functionality, not the fact that there was radioactive contamination at the site.

Paula Graham said that she read somewhere that there were metals in the water (the creeks and maybe Mathes Lake) that possibly could have washed into Lake Mathes during heavy rains. She said there could have been a lot of different things in there (i.e. Mathes Lake). Paula said common sense will tell you that with the big rains that happen throughout the year, a lot of contamination can be washed into that lake because it has certainly been washed into the Skunk River and the other creeks. From another ATSDR document that Paula read, she said we had two aquifers that were contaminated. Paula is concerned because Ft. Madison had three of their wells getting water out of an aquifer. Rodger explained that they [Ft. Madison] get their water out of the Jordan aquifer. The Jordan is very deep. In fact, it is much deeper than the perched aquifers impacted by Iowa AAP activity. Rodger said there is also another deep aquifer present but cannot recall the hyphenated name. In any case, we are not aware of any contamination originating from the Iowa AAP reaching these deep aquifers.

Paula asked if we were still sampling Lake Mathes. Rodger responded, "No, and I will explain why in my presentation."

Rodger provided an interactive presentation showing the pathway that any contaminant would take through surface water, sediment, and groundwater if it left the Firing Site. Focusing on Uranium-238 since it is the most active, Rodger showed it left the Firing Site and whether it made it to Mathes Lake. Sediment and surface water samples in Long Creek between the Firing Site and Mathes Lake show no levels of concern; therefore, there was no reason to sample further into Mathes Lake. Paula asked if it would be better to err on the side of sampling and find it ok rather than waiting longer to sample. Rodger said we usually have to have a reason to sample otherwise we have a hard time justifying the expenditure of funds. Otherwise, we could spend millions of dollars looking for nothing. This information does not provide us sufficient evidence that further sampling for Uranium in Mathes Lake is required. Rodger reminded the audience that past groundwater shows no uranium levels of concern migrating away from the Firing Site. This was confirmed during the recent surface water and sediment sampling.

Mark asked the timeframe for these samples as described in Rodger's presentation. Rodger said the recent surface water and sediment samples were taken in the 2006 timeframe. Mark added that the samples were collected after the Firing Sites Area was cleaned up. Rodger said the clean up from the Atomic Energy Commission (AEC's) portion was in the immediate vicinity of FS-12. Mark asked if we had any sediment and surface water samples from 10-15 years ago. Ron Frerker indicated that there is no surface water or sediment samples from 10-15 years ago that he knows of. The only reason they had the sediment samples was because they were aware of the contamination at FS12 so they looked at the drainages at FS12 to see if there was offsite migration. He said they also did gamma walkovers and there is no indication of offsite migration. Rodger said that the contamination resulting from the depleted uranium (U-235) binds to the soil and tends to stay there.

Vaughn asked what was found in the initial cleanup by AEC at the Firing Sites (i.e. in the 6 inches of dirt they scraped up around the pad). Rodger said he would have to go back and look at the documentation but it was his understanding that it was uranium. Vaughn said there were other things besides uranium. Rodger said he would have to look at the documentation. Vaughn said it was his understanding that they also dug up cesium.

Vaughn added that when the hydroshots were set off particles went very high in the air. Whenever there is an explosion, that explosion creates a plume and whichever way the wind was blowing it will move what is in that plume around…what is not being addressed is what blew out there…also with big chunks of DU, it is going to go up and fall everywhere…particles from an explosion can spread a long way. Vaughn said he did a conservative check on FS12 and looked at sites within a one mile radius. Vaughn added that a one mile radius covers a lot of things within the plant…Lake Mathes, the IDA, Stump Lake, Line 3A, the Demo field, and parts of Yard G and Yard K. Vaughn said they have looked for things that are in the Firing Sites but they are not looking at things that left the Firing Sites. Vaughn added that if you talked to anyone who saw these hydroshots, they were very powerful and very tall. Vaughn said the other thing that has not been addressed is the research and development that went on in this area that was also shot off out there…there were things brought into this company from other companies, there were things here made for other companies, and things shot off and tested here for other companies…those were hush-hush projects and always have been. Vaughn said we may find chunks of DU laying around the FS which they already know is there, but it is all over the place.

Rodger said he understands, but the particular focus of this presentation was just for this media (sediment, surface water, and groundwater), it wasn't until after he started developing this

presentation to respond to Paula and the group that some questions started coming in regarding air. Rodger said based on what he knows about uranium and the heavier metals is that DU has much more density and it will not travel very far before it drops quickly. Rodger said he would have to defer this to a different session so that we could see if there were any air quality evaluations done throughout the years. Rodger thinks that the documentation discusses air as a potentially impacted media. Ron Frerker indicated that FUSRAP walked over a number of areas on Line 1, in addition to the Firing Sites, Yards C, G, L, E, F, an area near Line 5B…a lot of this information is in the FUSRAP RI Report…they performed a gamma walkover at these areas and this would pick up other contaminates in addition to uranium. Ron said there was also a radiological flyover conducted of the entire 19,000 acres. Rodger said just to clarify that when FUSRAP completed the gamma walkover, they did a very meticulous grid like pattern back and forth. Ron reiterated that this information should be in the RI Report and is available in the Burlington Public Library.

Rodger mentioned a statement in the 2003 ATSDR Health Consultation that states *"Because drinking water was drawn from Mathes Lake prior to 1977, there is a slight potential that the drinking water supply may have been contaminated with DU."* Rodger said he doesn't know what information they based this statement on. He can't find or recreate this information or what ATSDR based this statement on. Rodger deferred anyone interested in finding more on this matter to contact ATSDR so they might be able to assist in locating any supporting information.

Rodger also pointed to the following statement in the same document. *"No data is available to evaluate the potential for past groundwater contamination, therefore, ATSDR also recommends that groundwater sampling be conducted, down-gradient to the FS area, to determine if any DU-related, radiologic contamination exists in the shallow groundwater."* Rodger said based on what he researched for sediment, surface water, and groundwater, there is no further action expected for sediment and surface water in Lake Mathes and in Long Creek, however; the IRP effort will do some further evaluation on the groundwater in the FS Area because it does exceed screening criteria.

Vaughn said the reason they put that statement in the ATSDR Report was because two subjects died mowing the FS. They died within 6 months apart. Vaughn said when they were mowing they would hit chunks of DU which disturbed them. Vaughn said they carried their diner buckets right with them. Vaughn said that everyone knows if you disturb DU and it oxidizes and the particles go in the air and you breathe them in you are in trouble. Rodger pointed out that he was referring to the statement in the 2003 ATSDR Report *"there is a slight potential that the drinking water supply may have been contaminated with DU"* but he understands what Vaughn is saying.

Vaughn said that two individuals that worked at the IAAAP water treatment plant were notified in 1972 by the boss of the water treatment plant that they had to get a new water source because they had contaminated Lake Mathes. They didn't say what it was contaminated with. Rodger said he hasn't been able to recreate that and he will keep looking for why they switched to Burlington water. Thurman Huffman said that Rodger should look in the 1971 report. Rodger said that the 2001 ATSDR Health Consultation referenced a 1971 report, but Rodger does not have this report. Rodger said ATSDR evaluated all of the data.

Thurman said that he recalls about 1973 or 1974 the City of Burlington got a 4 million dollar grant to build a new water treatment plant from the government and this is when IAAAP got city

water because they contaminated the lake. Rodger said he respects this statement, but he cannot recreate this with the information and data that he has. If it was, he cannot show it through any documentation or data that this is the case. Rodger said he will keep looking.

Vaughn asked if Rodger had a copy of the 1963 US AEC Albuquerque Operations New Mexico Agreement with the Army. Rodger said he hasn't seen it but that doesn't mean it doesn't exist. Vaughn said it states that both parties recognize that due to past, present, and future operations they may be jointly responsible for any contamination of public streams and private wells outside the IAAAP AEC operations. They knew what was going on and when they found out they had major problems out there they took off and went to Pantex in 1975. Vaughn said they have gone over this with several people. The five guys that worked in the FS all came down with prostate cancer and was denied a claim but the female that worked there came down with cervical cancer, and she qualified for a claim. Vaughn said that when they were out there picking up the DU with their bare hands, they asked the ammunition plant to send them out something to handle the DU with. Mason & Hanger sent them out 12 pairs of cotton jersey gloves…no respirators.

Vaughn voiced that the plant is designed and built as a drainage footage for every line out there and built by a creek or a drainage area that runs to these creeks to get it out the plant and get it downstream. Vaughn said they come up with everything they can to counteract and discard this information. Vaughn doesn't care how much it costs the government, he wants the stuff cleaned up…fencing areas in and leaving them is not cleaning them up, putting stuff in a creek intentionally is fraud… Vaughn briefly describes the contamination…everything adds up if you look at the big picture. Vaughn doesn't want to hear anymore about how much tax dollars were saved…all he wants is to get the sites cleaned up. The fence around the plant does not stop things…water and air flows through them...the fence didn't stop anything.

Rodger said any time you have an industrial setting you are going to have effluent or releases that are going to have to be addressed. Rodger said the effluent they released all through the years was legal and disposed using the best available technology of the time. As science improved, they found out that what was released is not healthy. Rodger added that he cannot go back and tell what was there in 1942 or 1951 but he can tell what is there today. He said that he, and the rest of the cleanup team, is trying to go through this and make sure it is clean and acceptable. He is making sure that the Army is doing the right thing by the public and the taxpayer, but he doesn't know how to make it any clearer that he can't fix the health issues caused by what happened back then. All that he and the Army can do is look at it today and ensure it doesn't happen in the future. Rodger indicated that the team moves with the science. If the Army or its contractors release it, they make sure that it is within the permits that scientists and other experts agree is safe…everything released is not perfectly clean but what is released is within the permitted levels that are not going to have any health issues for anyone downstream. As the science gets more restrictive, the Army does its best to improve its processes. Rodger added that we are trying to fix the ills of their grandfather. We are doing the best we can with the resources we have and we don't have unlimited resources. However, we are trying to address every concern that the public has. Now Rodger has some air issues to research and he will talk to the experts about that and try to find out.

Paula Graham said she knows that Rodger is not responsible for what people did in the 1940's. But she has some meeting minutes from older RAB meetings when Scott Marquess with the EPA was here and he said that he thought some of the contamination offsite down there by Wever/Skunk River was probably there for 50 years. What she is concerned about is if the lake

was contaminated…that means that she drank contaminated water because she worked here through two wars. The thing she is concerned about is there are a lot of people that worked on the Division A side who were exposed to a lot of toxic substances and many of them are dying of the same diseases that the people on the nuclear line died of…she is concerned that those people get help with their medical expenses. She would like to have cooperation from the plant to help these people. Rodger said he thinks the folks at the plant have made documentation available and that they are trying to be as cooperative and as open as possible.

Rodger said he hopes that they can continue to focus on the cleanup and the restoration with this dialogue. He understands there are some past and current worker health issues, but the RAB is focused on cleaning up the right areas and giving the public an opportunity to participate in this process. He just wants to ensure that we also spend our time and energies with the restoration.

IRP Project Update

Rodger Allison was going to brief the RAB from a slide presentation, but in the interest of time decided to forego the IRP Presentation since there is nothing new for the IRP efforts. Please see exhibit 4 for the IRP presentation.

MMRP Update

Alex Smith from Shaw Environmental briefed the RAB from a slide presentation. Please see exhibit 5 for his presentation.

Regarding the Feasibility Study Amendment discussion on slide 8 of Alex's presentation, Rodger added that currently the shaded area is operational and there are particular MMRP rules that someone would have to follow to dig, put up a building, etc. They would need UXO techs present to clear the area to ensure it is safe. After the Feasibility Study Amendment, they will transfer that portion of land back over to the operational side of things, and will just have to follow current law and procedure instead of MMRP rule It meets the same safety needs just doesn't involve the MMRP.

Mark Hagerla asked how we can clean up a cleanup area when we are just fencing it off. Alex said the sites could always be cleaned up in the future, but you have to put them in order as to which ones are posing a hazard… and right now the fence is a much cheaper alternative for keeping people safe, which is the primary objective. Rodger mentioned the UXO issue…and even if we enter the site and complete a 100% removal action there is the likelihood that we will leave something behind. If you leave one thing after cleaning up the area and don't put the fence around it, that can be more problematic. We can keep people safe and not make the area available for use. Mark said he understands, but wanted to know how we would not forget about this site 10-15 years down the road. Rodger said the site is completely fenced in and we will have to inspect the fence annually. We will have Long Term Management (LTM) requirements with the property which is almost like a deed restriction. We will also have a Land Use Control document where we will have to report to the EPA once a year. Mark asked about the type of fencing. Rodger said it is permanent wire fencing (see photos later in the presentation of the 6 ft chain link fence). Alex added that if you leave waste in place you cannot close out the site, you cannot forget about it, and every five years you are required to do a Five-Year Review, and have to look at what the decision was and see if it is still protective and see if the fence is still in good shape. This is required every five years in perpetuity.

Regarding UXO, Paula Graham asked if they are referring to unexploded detonators within Line 6. Rodger concurred and said right now Line 6 is within a fenced area and he thinks they are going to put up some internal fencing around the identified hazard area inside Line 6.

Vaughn asked about the building within the Central Test Area (i.e. building 600-84)…he asked about the egress and if this was the incinerator. Rodger said the egress is towards Lines 5A/5B. Rodger said they will put up a fence around the MMRP site, probably put a 3 strand wire all the way around the MMRP site with signs to point out the boundary.

Trent Henkelvig asked the timeline to get fences up. Rodger said the fences are already up at the Incendiary Disposal Area (InDA) and the Possible Demolition Site (PDS). Trent was concerned about the National Guard Reserve. Rodger said the restoration map should be given to the squad leaders when they are onsite. Rodger doesn't foresee any issues for the troops and their safety in this regard.

Regarding the recently installed fence installation at the PDS, Vaughn said when he was out here for the RAB tour he noticed that the fence didn't go all the way to the top up the hill and that there used to be a road at the top of the hill where you could enter the site. Alex explained the boundary as defined during the RI when the nature and extent of contamination was defined.

Regarding the sampling taking place at the Historical Small Arms Range (HSAR), Vaughn asked how far down Long Creek they are going to check for lead. Alex said these are the preliminary sampling locations, as shown on slides 23 and 24, and it depends on what they find during the sampling event. If they see no change along this stretch then they wouldn't go any further, but if they see an increase when they get to the HSAR they will continue downstream until the results return to normal. Vaughn said in the old days you use to be able to walk right across the creek and pick up lead by the handfuls.

Regarding the sampling taking place at the HSAR, Paula Graham asked if there was lead drifting into the water, would they have to clean up the sites. Alex said this is a possibility; they will have to look at what the risk is…if there is high enough concentrations that people or animals are put at risk. Dan Cook indicated that lead cannot be risked away in the state of Iowa. You have to clean up to industrial or residential standards. Cleanup levels are 400 ppm for residential or 1200 ppm for industrial standards.

Vaughn asked about the old tank trail maneuver area south of Line 3A. Rodger said they have looked and there hasn't been anything that leads them to any particular contamination in that area. They have found some cisterns and things of that nature.

Herbert Price asked if they could share what the unexploded munitions are at the InDA and the PDS. Alex and Rodger explained some of the items found…fuzes, 75mm projectiles, M1A1 mines, and blasting caps. Rodger added that it looked like they had set up for particular blows but cut the wires. Herbert said they don't have any documentation of what they left in place. Rodger said "no"…initially they thought the InDA comprised of three small pits where they burned some incendiary items. Rodger added that Vaughn and a few other folks went out with the Army circa 2000 or 2001 and they did a site walkover and found indentations all over the place and that is when the Army initiated some interviews and that is when they discovered there was much more activity out there than was documented.

FUSRAP Update

Tony Jones from the US Army Corps of Engineers briefed the RAB from a slide presentation. Please see exhibit 6 for his presentation.

Regarding the 40% explosive seam near excavation EU7-A/B as discussed on slide 3, Tony indicated the Explosive Safety Submission (ESS) they are preparing will need "CX approval". Rodger asked what "CX" means. Tony and Ron explained this as the Center of Expertise, Army Corps of Engineers, Omaha District. Ron added that the Omaha folks are associated with the ordnance and explosive folks out of Huntsville and the ESS will have to go through them for approval. There is a rather involved process with the Army when you are dealing with contamination greater than 10%. Ron explained the tiller mixing insitu method of the 40% explosive seam so that they can get the concentration low enough to ship to the landfill in Michigan.

Vaughn asked about the mixing. Ron and Tony indicated that URS Corporation would attempt to mix in the ground with an inert agent with additional soil to stabilize and lower the concentration. Dan Cook said to be careful of the regulations that don't allow mixing clean soil with contaminated soil. Ron said that it will be mixed with soil that is already contaminated with RDX…this is the only way you can handle this kind of MEC material.

Vaughn asked what was being mixed up that they were trying to dilute. Ron said this was RDX, TNT, and HMX all together and it constitutes about 40% of explosive material. Tony said all of this will be documented in the ESS.

Regarding slide 4 mentioning waste disposal sites, Paula asked if they mentioned the Ft. Madison Landfill. Ron said they only used this landfill to dispose of low level PAH soil.

Regarding excavation EU5-P on slide 10, Paula asked what the contamination in this excavation was. Tony indicated "RDX".

Regarding excavation EU7-E, Mark asked if this was the excavation that Ron used to refer to where they had to disassemble equipment to get in to. Ron thinks that he was referring to excavation EU7-A/B. They are finished with the EU7-A/B excavation with the exception of the 40% explosive seam.

Vaughn asked if they had much trouble with the water this year considering the drought since Line 1 typically has a high water table. Ron said "no" that is why they have made good progress this construction season.

Regarding the Firing Sites discussion on slide 19 and the upcoming remediation, Vaughn asked how big an area they were cleaning up. Tony said it is too early to discuss, but there is going to be a lot of tree clearing in FS12, there were other firing sites that were impacted, and there are 2 buildings on Line 1 that were affected by DU, one was an air filter and one was a floor grate. Ron added that 99+ % of everything will be found in a 500 ft radius of ground zero, they are not seeing anything in the drainages or other firing sites. They found one chunk between FS1 and 2 that has been cleaned up. There is one chunk at FS5, there were two chunks at FS6 and one of those was picked up. They do walkover surveys and find anything that give off a gamma signature. Vaughn asked about the building at FS12. Tony indicated that the building and structure will have to be cleared. They found some minor contamination in sediment on the floor

of the bunker. They will have to look at an iron structure at FS12 to see if anything is embedded in it. Vaughn asked about the tunnel that they run the wires out of. Tony said the entire area would have to be cleared.

Paula mentioned the Line 1 DU contamination found in the buildings…in the air filter and floor grates. Tony said they have done a lot of sampling and these areas have been determined as isolated. They are pulling out anything that was contaminated. Ron said there would be some additional sampling to ensure that the duct itself doesn't have anything in it.

Thurman asked that Ron talk to him before they start working around the 1-73 building.

Public Comment

Vaughn asked why Long Creek was backed up at the pistol range. He noticed it during the RAB tour a couple months ago. He said he has never seen that creek that deep. Rodger unsure but he will look into it with the natural resources manager.

Vaughn asked where the caps and rock went from Building 1-85-2, especially cell 6. Rodger unsure but he will do some researching. Vaughn said he would be very interested in the disposal of this.

Thurman said he has never seen so much water in Long Creek in his life. Rodger said he knows the natural resources manager will occasionally run into beaver causing problems. However, he doesn't know if this could be a possibility or not.

Next Meeting/Draft Agenda

The next meeting was scheduled for October 16, 2012, at the Comfort Suites Hotel. Agenda topics suggested were, IRP project update, CC Update, possibly an MMRP and FUSRAP Update if sufficient information is available. Potential agenda topics include Technical Assistance for Public Participation and Potential for Airborne Contamination from FS Operations.

The meeting was adjourned at 7:30 p.m.

Original signed by:
Sara Garland
Secretary

Original signed by:
Elyn Holton-Dean
Community Co-Chair

Original signed by:
Rodger Allison
Army Co-Chair

Exhibits:

	1	Attendees
	2	Agenda
	3	Mathes Lake Inquiry
	4	IRP Project Update
	5	MMRP Update
	6	FUSRAP Update

Exhibit 1

RAB MEMBERS PRESENT
Mark Hagerla
Elyn Holton-Dean
Dean Vickstrom
Vaughn Moore
Alan Koenig
Hans Trousil

RAB MEMBERS NOT PRESENT
Eric Orth
Bruce Workman
Kim Perlstein

GOVERNMENT MEMBERS PRESENT
LTC Michael Bruens
Rodger Allison
Sandeep Mehta
Dan Cook

PUBLIC
Dean Johnson
Alex Smith
Thurman Huffman
Tammy Allison
Paula Graham
Luenne McCracken
Sivert Iversen
Linda Wobbe
Ron Frerker
Cyril Onewokae
Anna Christensen
Tony Jones
David Evans
Christinia Crippes
John Carroll
Steve Bellrichard
Jim Bard
Herbert Price
Dave Germeroth
Lee Young
Trent Henkelvig
Aaron Steele
Sara Garland