



NAVAL AIR STATION JOINT RESERVE BASE (NAS JRB) WILLOW GROVE Restoration Advisory Board (RAB) Meeting Minutes RAB Meeting No. 45

Meeting Date: May 25, 2011

Meeting Time: 6:00 p.m.

Meeting Place: Horsham Township Public Library

	<u>Name</u>	<u>Organization</u>
Attendance:	Rick Myers	RAB Member
	Stacie Popp-Young	Weston Solutions
	Theresa Katalinas	PATCH
	Tom Ames	HLRA
	Bob Lewandowski (R)	Navy, BRAC PMO
	Hal Dusen (R)	Navy, Willow Grove
	Tim Sheehan (R)	PADEP
	Jessica Kasmari (R)	PADEP
	Lisa Cunningham (R)	EPA
	Kevin Kilmartin	Tetra Tech
	Russ Turner	Tetra Tech

(R) Designates RAB Member

Bob Lewandowski opened the meeting, thanking everyone for attending the 45th Restoration Advisory Board (RAB) meeting by noting that there were some new faces and asking each attendee to give a brief self-introduction.

Mr. Lewandowski provided a summary of the planned agenda and mentioned that in the process of closing the Base, a few things have happened since the last RAB meeting in January that although not related to the environmental program, will help, bring everybody up to speed and make sure that the public is aware. On March 30th The Navy held the disestablishment ceremony for the Base and the final flight. Then shortly after, April 19th, there was a change of command ceremony. Commander David Foster replaced Captain David Opatz as the commanding officer. Commander Foster will be here through operational closure scheduled for September 15, 2011. On May 11th, the Navy hosted the Horsham LRA (Horsham Local Reuse Authority) and Pennsylvania DEP's office of community revitalization and local government support personnel. Navy provided them a tour of all cleanup sites. Mr. Lewandowski stated that it was well attended and appreciated. Tom Ames agreed that the tour was very helpful.

Mr. Lewandowski introduced Russ Turner to give an update on the Site 1 post-ROD monitoring.

Mr. Turner provided a brief summary of the location, operating history, investigations and issues relating to Site 1, the former Privet Road Compound. Referring to a series of slides, Mr. Turner provided information on site issues including historical site use, cleanup and the record of decision (ROD) for soil, groundwater flow direction, and the ROD for groundwater. Site 1 was

an area behind the former bowling alley where waste was stored temporarily for disposal off-site. Drinking water for all of the Air Force, Navy and reserve units housed at the Air Station over the years came from two deep wells which are naturally upgradient from Site 1. This site underwent a fair amount of investigation to determine what compounds were here and what compounds are in the ground. There were PCBs in the soil mainly in this (referring to the projected slide) vicinity, which were removed by the Navy, and there was a record of decision written for soil. Mr. Lewandowski mentioned that the soil was remediated down to residential levels for unrestricted reuse. That's why we were able to proceed with this (land parcel) transfer and allow construction of the Consolidated Reserve Center to go forward. Mr. Turner continued that the Site 1 soil ROD included no (land use) restrictions at all. So that left the groundwater, and that's really what we're going to be talking about today.

Through the investigation, it was found that an off-Post source at a former industrial facility on the east side of Route 611 is the probable source of contamination beneath Site 1. An interim groundwater ROD was written and signed in 2008. This interim ROD will be replaced when EPA through their normal investigation process finds a potentially responsible party, PRP, to fund future steps, or they may decide there's no PRP available. Meanwhile, the Navy agrees to perform groundwater monitoring every two years. The purpose of that is to monitor the contaminants, and to support the five-year review process. Five-year review is required for this site because contaminants are left on-site, even though they're not the Navy's.

The first round of groundwater sampling at the former Site 1 occurred in September 2009, before construction began on the settling basin for the Consolidated Reserve Center that resulted in closure of the two monitoring wells in the footprint of the new settling basin. Referring to the projected slide, Mr. Turner explained that two of the wells (01MW01S and 01MW01SO) sampled in 2008 were properly closed by the contractor and later replaced in a nearby area agreed to by Navy, EPA and DEP team members. The two Navy production wells (and 01MW06S) were also sampled according to the Interim ROD. The shallow wells in the overburden were sampled because EPA had lingering suspicions that soil left beneath the former waste handling zone may have been contributing to the TCE (Trichloroethylene solvent) below in the groundwater. Our conclusion from the RI report investigation was that it was very unlikely that was the case. But to be safe and sure, the interim ROD was written such that those groundwater samples would be taken for at least two sampling events to compare the chlorinated solvent concentrations to MCL action levels, MCL meaning maximum contaminant level from the Safe Drinking Water Act. If solvent concentrations in the shallow wells over two sampling events were found to be below MCLs, then sampling of those wells could be terminated.

Mr. Lewandowski added, that the ROD required a land use control for groundwater that extends back from basically where the Navy property was at Site 1, all the way (southeast) back to Route 611 at the edge of the Navy property, across from where the source is believed to be located. That land use control says that no one may extract or use groundwater without proper treatment. Referring to the projected slide, Mr. Turner agreed. There's a map in the ROD that shows the impacted zone of Navy property, federal government property we have to call it now because the Air Force owns this part. The land use control on groundwater covers quite a large area, including all the way up here and to Building 1 where the main gate is. Essentially, this corner of the Base has that restriction that Bob just mentioned to protect against anyone using the water

untreated. As mentioned, there were two shallow wells here (in the former Privet Road Compound waste handling area) that were removed for the construction of the new detention basin. In addition, the soil from the area was also removed. When the Army went to build their foundations here, they found some waste in the soil, like pieces of trash, maybe pieces of metal. The Navy had previously done a whole series of soil borings in there and found no contaminants in the soil. However, this soil had to be dug out anyway to make the detention basin. Since the excavated soil had some waste in it, the contractor disposed of that soil excavated here off-site. So the soil that we're actually testing (for residual solvent) with the groundwater sampling, has been removed.

Results of the first round of sampling for the chlorinated hydrocarbon compounds of concern specified in the ROD were found to be very low in the area of the former waste handling. The MCL is 5ug/kg for PCE (tetrachloroethylene) and TCE. Concentrations found in 01MW01S and 01MW01SO were 0.59 and 0.11ug/kg respectively PCE and TCE. So we concluded at that point in September of 2009 that there doesn't seem to be a continuing contribution to groundwater from the soil in this vicinity. The second round of sampling can be done now that the replacement wells have been installed. That's scheduled for September 2011.

Mr. Lewandowski added that we'll be going back out and taking that second round of sampling, comparing them to the MCLs again. If results are consistent with what we saw previously, we'll make a case that we don't have to do additional sampling in those shallow wells because if the sampling comes back consistent as it was before, then there really isn't any remaining threat from soil there, as we suspected. Mr. Turner agreed, pointing out the well locations once again on the projected slide. If the shallow wells are found to be consistent with the low concentrations of the chlorinated compounds found previously, they'll be deleted from the sampling program. The two deep wells used by the Navy for potable water production will be the only two remaining (for periodic sampling). The sampling analysis done in the deeper wells however is a much wider suite. We're sampling for metals and VOCs (volatile organic compounds).

Tim Sheehan asked about the sampling and analysis. Isn't the groundwater sampled before treatment because you want to see what the groundwater's like? Mr. Turner replied that the routine analysis performed by the Navy is for potable water supply purposes. The treated water checks are on a routine basis (to verify potability). I don't think they check it on a routine basis before treatment. However, things could happen in the future which could affect the quality of water in these wells, so in accordance with the ROD, the Navy is doing a wider suite (of analysis in the deep wells). It's just the chlorinated VOCs that are a concern for the area, but since Navy assets are being impacted (from off-Base) the team decided it's better to monitor for a wider suite. Rick Myers asked if by any chance, was any test done for the LOX area when they took that out? Mr. Turner explained that this was an active Air Station and liquid oxygen (LOX) was stored here (in the area of the consolidated reserve training facility). In the comprehensive survey of environmental conditions of the Base, the Navy looked at a lot of things, including the LOX area, where possible asbestos was identified. Mr. Lewandowski pointed out that the building with possible asbestos on the outside of the building was identified for further investigation. When we actually went back out as part of our follow-up to examine that, it turned out it was not asbestos on that building. So there wasn't any need for any special handling there when the building was demolished (to prepare for construction of the consolidated armed forces training center). Mr Myers asked if the aerial photograph could be updated to show the

new buildings in that (former Privet Road Compound, Bowling Alley and parking lot) area. Mr. Sheehan asked if the Navy could have a new photo taken from the air? Mr. Lewandowski explained that no more aircraft are flying from the Base. We are using the latest photos we have available, provided by the Delaware Valley Regional Planning Commission. When updated photos are available, we will use them. Mr Myers asked about the status of investigations of the off-Base groundwater contamination source. Mr. Turner and Lisa Cunningham explained that the off Base source investigation is part of an EPA investigation managed by another section of EPA. We understand that there will be more action on that issue.

Stacie Popp-Young asked if the groundwater data from 2009 (Site 1 groundwater sampling event) is available in the admin record. Is it an interim report? Mr. Turner replied that the report is final and should be available on the Horsham township library Internet site. Referring to a copy of the document, Mr. Turner summarized the results of the 2009 sampling program for Site 1 monitoring wells 01MW01S, 01MW01SO and 01MW06. Jessica Kasmari asked about well construction of the replacement wells and the depth to bedrock and groundwater and if the replacement wells have been sampled yet. Kevin Kilmartin replied that total depth of the wells would be about 35 or 40 feet. Monitoring well 01MW01SO terminates just at the top of bedrock. 01MW01S would have been completed at the first water-bearing fracture, which generally is not right at the top of bedrock because the fractures are filled with clay. Mr. Lewandowski and Mr. Kilmartin explained that the Navy did not install the replacement wells for the abandoned wells. So we're actually waiting on the (well construction) logs for those replacement wells to verify that the new wells have been installed according to agreement among the EPA, the Navy and PADEP before sampling them this year in September according to plan. Mr. Myers asked if the replacement wells were placed back in properly? Mr. Lewandowski and Mr. Kilmartin explained that is why we want to review the logs, to make sure the new wells have been put down in the proper depths. There was a lot of back and forth discussion with the Navy before the wells were replaced. The Army's construction contractor asked where the wells should be placed and how deep should they be. We gave the contractor all the specifications on what size the well should be, where it should be screened, and everything else.

Mr. Lewandowski introduced Mr. Kilmartin to give an update on the Site 5 fire training area groundwater remediation pilot test.

Mr. Kilmartin mentioned that since our last meeting, our last presentation, we have done one more sampling round in early March. So we wanted to use tonight to get everybody up to date on what's going on out here with what we feel has been a very successful pilot test. Referring to a projected slide of the site, Mr. Kilmartin reiterated that the fire training area is in the southwest corner of the Base adjacent to Horsham Road. The Navy used to conduct fire fighting training exercises there. There was a burn ring here (referring to the slide) where the Navy would ignite solvents and practice extinguishing the fire. But as we've discussed several times, this is not where the actual contamination is at the site. The source area is over here adjacent to the (runway access) road where they used to store the drums of solvents before they'd be brought over to the burn ring to be ignited. So the source area's right here (referring to projected slide) near the former storage area. The chemicals of concern are the chlorinated solvents, the VOCs. And as you may remember for the bioremediation, the Navy constructed a recirculation cell, which Mr. Kilmartin described using a projected slide, and injected chemical amendments to

achieve the chemical conditions that the bacteria would like. Mr. Lewandowski added that the bioremediation project we've been doing here is actually a pilot project. We haven't reached a remedial decision yet, but it was something that we felt had a good chance of working and we wanted to put in a system and test to make sure it was going to be effective before we went full scale. Mr. Kilmartin continued, after that we did a round of sampling and found that even though the population of the bacteria had increased, which, of course, we had hoped it would and it should, it really didn't increase to the point where there were enough bacteria to do the job. And we also found through DNA analysis that these bacteria were lacking some of the specific genes that are needed to completely destroy these chlorinated solvents. The Navy performed a round of what we all call bioaugmentation, which is where commercially prepared solutions that contain the right bacteria with the right genetic makeup produced in a laboratory were purchased to inject into the aquifer along with the sodium lactate and sodium bicarbonate amendments. The current status is very much like our last update. What we have found is that concentrations of the original solvent compounds that were spilled at the site in groundwater have been sharply reduced, even to the point in some wells where they don't even exist anymore. Certain intermediate compounds that are produced as the original compounds break down have been noted. Remember as the parent compound breaks down, it produces an intermediate compound. As the parent compound decreases, an intermediate compound will increase originally because you're actually creating it through the destruction of your original compound. These intermediate compounds have been steady to even a declining concentration. The compounds that signal end stage of the process, the complete destruction of the original solvents, are starting to appear. This shows that the biological process is going all the way through to completion. We did find, and we talked about this last time, that periodic biostimulation is required. That again is the addition of the sodium bicarbonate and a lactate nutrient compound. What the Navy is currently doing, even right now today, is we're still adding lactate, but we're adding it in a slightly different form. Rather than just pure sodium lactate, we're adding it as a form commercially available with emulsified oil. This compound has just as much lactate available, but it will be longer-lasting because it releases the carbon at a slower rate so we won't have to be going out there quite as often to replenish the supply. As Bob mentioned, the Navy has incorporated bioremediation into the proposed plan for Site 5 groundwater remediation as the primary remedy for groundwater within and surrounding the source area where the drums were stored. That will be combined with natural attenuation for the downgradient portion of the plume. What that means is, as you reduce the source of your plume, the downgradient portion of the plume will start to attenuate or eventually disappear because the source material is being removed right up at the point of origin. The Proposed Plan is currently under review by EPA at Lisa's group. The goal is to attain a record of decision in this current fiscal year. Mr. Lewandowski added that the current fiscal year ends September 30, 2011. Mr. Lewandowski, Mr. Ames and Ms. Cunningham provided an update on the review process for the Proposed Plan that is expected to be released final in time to support a ROD (Record of Decision) this fiscal year.

Mr. Kilmartin continued with a series of slides depicting the area of the treatment system extraction/injection/monitoring wells, charts of the current concentrations in those wells compared to historical concentrations, and discussed the mechanism by which the larger original contaminants are broken down through a series of "daughter" compounds in the biologically mediated process. Mr. Ames asked at what levels are the latest sampling rounds as compared to

MCLs? An order of magnitude above or below? Mr. Kilmartin replied that they're approximately actually right about at the MCL for TCA (approximately 50-70 ug/L). The concentration of TCA for instance has gone from well above to maybe right at or even a little bit below MCL already in just the pilot test. Ms. Popp-Young asked if the Navy has published pilot test results yet in a report or you just have the graphs? and asked if the Navy continues to inject (nutrient)? Mr. Turner mentioned that we have issued the final report that should be available on the Admin Record in the (Horsham Township) Library. Mr. Kilmartin added that we're injecting the emulsified oil, the lactate now and for another couple of weeks. Mr. Turner explained that we're a little over halfway into the eight-week biostimulation program. We're in a treatment period adding nutrients and also sodium bicarbonate just to make sure to maintain those ORP and pH conditions. We're a little over halfway. Upon completion, we hope to stop, and not reinject for another number of months, maybe six months. Mr. Kilmartin added that by switching our carbon source, we are getting out into a little bit of new territory. We know how long the lactate solution lasts, which was not very long. We know that the emulsified oil lactate is going to last longer, but we can't quantify that yet because this is the first time we've injected it. Ms. Popp-Young asked did you see any rebound between the other injections or was it too short of a period? Mr. Kilmartin replied that no rebound in contaminant concentrations was seen. But where we see a little bit of rebound is in the ORP (oxidation/reduction potential). Ph and DO (dissolved oxygen) both are holding in really well. The challenge has been keeping the ORP negative. What we have found is once the lactate is consumed, even though the DO is staying low, the ORP is starting to creep back up until we get that carbon (nutrient source) back into the aquifer to get the ORP back down again. Ms. Popp-Young replied - Thank you. Mr. Myers asked at what point are you done to the point where the Navy says okay and to the point of the township saying okay? Who makes the final determination on handover of the property - whether the job is done out there? Is there a point or level that is adequate for everybody to be happy? And what is the time frame? Mr. Lewandowski explained that will be a part of the record of decision. Where we talk about what our remediation goals are. Our remediation goals out here are going to be the MCLs, maximum contaminant levels, from the safe drinking water act, which is a pretty universally accepted level. I think it's the same limit that the township would use in their potable water supply. Kevin can address this, but it's going to be quicker in the area where we're putting all the amendments and recirculating because we're hitting that harder. The attenuation, natural attenuation, is going to take a little bit longer. We're saying it may take up to ten years ultimately for the natural attenuation to get everything. Mr. Sheehan asked if the Navy would be increasing the area of treatment compared to the pilot area. Are you making that area any bigger in the remedy? Mr. Lewandowski explained that the remedy area would not be bigger but there will be additional wells that we're proposing to directly inject nutrient as opposed to recirculate, to try to treat some of those tough areas that maybe aren't getting caught so well with the recirculation. The whole theory is, if you get the source and you can get that knocked down really well, and I think we see that happening, then the effects of the bioaugmentation are going beyond where our source area was. So, I think this proposed approach will be pretty effective. The other important thing is that it doesn't really restrict development out there. We would still have to place a land use control for withdrawal of potable water. But it wouldn't restrict the development of that land, putting a building up or something like that. There may still be some concern about vapor intrusion that would have to be built into (the design for) whatever structure was put there if the groundwater is not totally remediated yet. That's why we're working together so we can make sure that the development concepts are

realistic. Thanks, Kevin. Russ will give us just a quick rundown where we're going with the Phase 2 remedial investigation at Site 12.

Mr. Turner began by summarizing the history and locale (referring to a projected figure) for meeting attendees not familiar with the site. The Navy had been investigating for many years at Site 2, adjacent to Site 12, for evidence of reported landfill operations, without finding significant evidence of the reported landfill. Since then, a (no action) record of decision was completed for Site 2 a little over one year ago and signed. Meanwhile, there was some question (referring to the projected slide of Site 12) about this area. From inspection of old aerial photos, EPA noticed (what appeared to be) drums out here about five years ago. The Navy went there and confirmed in person that yes, there were drums, all rusted, no bottoms, and some other debris. The Navy hired a firm to clean up that area. But there was a lingering doubt whether that was sufficient. Samples were taken. Some petroleum-type compounds and some metal compounds were found in soil. Eventually the site this was raised to the level of an installation restoration program site, just like Site 2 was before it, Site 5 is, and the other landfill, Site 3, which is nearby.

Mr. Lewandowski added that coupled with the fact that we never really found the waste at Site 2 that we thought we were going to find, we realized we simply had been looking in the wrong place. Now we've found that waste at Site 12. Mr. Turner continued, saying that the old original investigation in the late 1980s suggested that there was a landfill here. Site 2 looks like a typical landfill with the steep embankment. However no appreciable waste was found at Site 2. When the Navy found out it (the historical landfill) was here (at Site 12) and discussed the issues with Pennsylvania DEP and EPA, Site 12 was raised by EPA and given an official designation as one of the IR program sites. The Navy has completed a work plan and one round of investigation. The first phase of remedial investigation is complete. A series of test pits –a backhoe digs up the soil, finds things, and takes soil samples – was completed. Soil borings, sampling and other investigations were implemented to determine what activities occurred there in the past. Those (Phase I) field investigations were actually following an electromagnetic survey using a device that can read densities beneath the ground. Phase I investigations found evidence of the suspected former landfill. For those familiar with it, Site 12 history of use was very much like at Site 3, which is also a former landfill, where the Navy historically would dig a trench, put some waste things in there, burn it, cover it with soil and move to another trench nearby.

From the Phase I investigation it was concluded that Site 12 is a historical landfill that has not been used for many years, since the mid '60s when this one was closed down. However, there are residual compounds. There are compounds of concern to be investigated, along with groundwater, in Phase 2 which will be upcoming in the fall, maybe in the summer. The step that we're in is that a work plan has been written. It includes additional soil borings and test pits so we can close the loop on former disposal pits, things that we know of there. After this next phase of remedial investigation, we expect to proceed with the next logical step, which would be the feasibility study for Site 12. EPA is in the last step of reviewing the sampling and analysis plan (SAP) for Site 12. That SAP is in the hands of EPA. Very likely we'll have that back within a month, and that would put us in the field mid-summer. After that, there would be a remedial investigation report written in the fall and a feasibility study approximately next winter or spring. Mr. Lewandowski added that this is the most recently identified site that we have.

That's why at most of our other sites we're beyond this remedial investigation stage. At this particular site, the goal of the remedial investigation is to define the nature and the extent of the contaminants that are in the soil and the groundwater by doing this Phase 2 investigation. We've already begun that process with Phase 1. By the time we're done Phase 2, we ought to be able to definitively answer both of those questions about what are the contaminants and exactly where they're located, and as Russ said, move on to the next phase, which would be a feasibility study, which is developing alternatives on how to remediate or clean up the site. Mr. Meyers asked if Site 2 is done now? Mr. Lewandowski replied that Site 2 is done (with a ROD for) no further action. Mr. Sheehan explained that they thought there was a landfill there, but Site 2 was never the location of the landfill. Site 12 is where the landfill turned out to be. Mr. Lewandowski added that the reason we did it as two separate sites is because we knew that Site 12 was going to take us a while because we were just starting. Rather than have that whole triangle (of land) tied up with Site 12, if the LRA and everyone gets to the point where they want to do development down in that corner, that whole area from Horsham Road back to Site 12 now has a no further action ROD. There are no restrictions on developing Site 2. Meanwhile we could continue to work back in Site 12 if necessary. Rather than keep that piece (Site 2) hostage to the work that we're doing on Site 12, we thought it was better to move forward, to do the no further action for Site 2. Mr. Ames asked if the funding has been locked in for the RIFS for Site 12? Mr. Lewandowski replied, yes that's already been awarded. So that's been obligated. There won't be any issues with executing funding for that. Ms. Popp-Young asked about funding for the FS (Feasibility Study) Proposed Plan and ROD. Mr. Turner explained that The Navy has awarded mods (modifications) to the contract to go through ROD at Site 12. Mr. Lewandowski added that we've programmed dollars in for, I believe it's fiscal years, '13, '14, if I'm not mistaken, for remedial design and remediation.

Mr. Lewandowski stated that's it for our presentations tonight. If there are any additional questions, we'll try to answer them at this point. The other thing we want to do is talk about the next RAB meeting. But just to make you aware, sometime in between the next RAB meeting and now we plan to have the public meeting for the Proposed Plan for Site 5 groundwater. If you're on the mailing list, we'll let you know when that Site 5 groundwater Proposed Plan public meeting will be held. Mr. Myers asked if the meeting (time and date) will be published in the newspaper. Mr. Turner mentioned that you'll get the little blue notice in the mail followed by the newspaper ad a week later. This will be a stand-alone meeting for a Proposed Plan. We never have done that before. Mr. Lewandowski confirmed that we'll still send out the meeting notice to everybody on our RAB mailing list. We'll send out an announcement and then we'll put it in the paper as well.

Mr. Lewandowski asked if anyone has suggestions for an August date? We usually do a Wednesday night. Does anyone have preferences, want to avoid their vacation, their two weeks in Wildwood or whatever? After discussion of personal vacation plans and other issues, August 17th was proposed and accepted by those present. Mr. Lewandowski asked if anyone has information about the Air Force Reserve involvement. Will they wish to participate in the next RAB meeting? Ms. Kasmari noted the Air Force shifted project officers. The (Air Force Reserve) point of contact is Carlton Crenshaw now. He goes by Cren. They submitted a report (to PADEP). It's kind of difficult to come to some agreement. The report is being held up on my side for reasons I can't quite approve it. So they (the Air Force) have to do some additional

work. Why they're not here, I can't comment on that because I don't know. Mr. Myers asked if we are going to invite the Army or National Guard or Reserve? Mr. Lewandowski explained that in the DoD, it is the property owner, which is either Air Force or Navy that is responsible.

Mr Lewandowski said thank you very much everybody for attending.

(Meeting adjourned.)