TO: JIM COLTER (NAVFAC)

FROM: RUSS TURNER (Tetra Tech, NUS)

SUBJECT: NASJRB Willow Grove, Stenographers Transcript of March 6, 2002 RAB Meeting

Jim,

A copy of the subject stenographer's transcript is enclosed for your use. The original and the electronic copy have been sent to Jim Edmond at NASJRB Willow Grove.

Please call or leave a message if you have comments or questions.

Thanks.

Russ

Copy. Jim Edmond (NASJRB Willow Grove)
Garth Glenn (Tetra Tech NUS)
File
RESTORATION ADVISORY BOARD
FOR
NAS JRB/ARS WILLOW GROVE
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Willow Grove, PA, March 6, 2002
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Meeting held at the Naval Air Station Joint Reserve Base at 6:00 p.m. on the above date before Kimberly A. Overwise, a Registered Professional Reporter and Notary Public of the Commonwealth of Pennsylvania.

FOSTER COURT REPORTING SERVICE, INC.
1800 Architects Building - 117 S. 17th St.
Philadelphia, PA 19103
(215) 567-2670
SPEAKERS:
- JIM EDMOND
- JIM COLTER
- SCOTT SHAW

PRESENT:
- ERIC LINDHULT
- THOMAS HIBBS
- JOHN C. MARTIN
- LIZ GEMMILL
- RICHARD PEFFALL
- GARY HORN
- JACK DUNLEAVY
- MARIANNE MEKEL
- KUSS HOBILTZELL
- KATHERINE SHEEDY
- MARIA MAGILTO
- CDR. GILBERT VIERA
- APRIL FLIPSE
- SETH PELEPKO
- JEFF DALE
- RON SLOT0
- ARNOLD HAGGERTY
- RUSS TURNER
- TIMOTHY FREDRICKS
- HAL DUSEN
MR. EDMOND: Jim Colter.

He's from EFA Northeast. He's our IRP manager for you folks who don't know Jim.

MR. COLTER: Since we met last, basically what we've been working on are getting out RI reports in final form. As most of you recall, since April of '98 we sent out the draft RI report for four sites. Since then we've been working on satisfying regulatory comments. A various number of their comments required field work which we have been working on and have completed. All of you hopefully have received a copy of the final RI for Site 5, the fire training area, and in the same package the draft feasibility study for Site 5.

MR. EDMOND: And if anyone didn't, I have copies here to take home for your leisurely reading.

MR. COLTER: Basically the RI report incorporates those comments made by the regulators specific to Site 5. And we are currently doing a similar report for
Site 1, the Privet Road compound, and Site 2, the antenna field landfill. Hopefully we'll have both of those final RI reports out by the next meeting. Regarding the feasibility study for Site 5, it basically is just a report that outlines what technologies are out there and available to us to take care of the groundwater contamination at Site 5. There's a whole host of technologies but for one reason or another, they're not viable. Those get screened out and what's left is basically the best of the lot.

Just in summary, the alternatives that we're looking at is basically the no action alternative, which has to be carried through. It establishes a baseline that the other alternatives are compared to. Rarely is that ever chosen because it doesn't meet regulatory standards for drinking water. We're also looking at a monitor natural attenuation alternative, which basically is to put additional monitoring wells in around the site and measure the natural biodegradation
of the contaminants. While we were in the field doing other work for the regulators, we did take parameters that are indicative that natural attenuation is occurring. So we have that data and it is a viable alternative although it will take a good long time to get down to the 5 part per billion MCL for drinking water.

The other alternative we kind of split into two. It's basically a pump and treat with air stripping of the volatiles. And the one alternative is for the full plume and the subalternative to that is a more focused pump and treat system for the source area where the higher levels of contamination are.

And those are basically the four alternatives that we think are the most viable for this site. We're not going to really recommend a preferred remedy in the feasibility study. It's just a report that lets everybody know what are the technologies out there. And maybe there's something else out there that we may have forgotten and, if that's the case, that
will be a comment that we can incorporate into the final version.

What happens is now we'll sit with the RAB, the regulators, the Navy, and the Navy will kind of come up with what we think is the best approach. And I'm sure the community members and the regulators have their opinions. Through discussions, we'll come up with what the preferred remedy should be. We'll write that up in what's called a proposed remedial action plan. That's a public document that requires public comment, public meeting if required. And if there are no adverse comments, then that document becomes a record of decision that's legally enforceable.

Our goal right now is comments on the feasibility study are due in mid-April. After that we'll go ahead and start drafting up the preferred remedial action plan. If all goes well, we can hopefully reach a record of decision by the end of the calendar year and be ready to design and construct in fiscal year
2003, which is when the money for this site is available.

RAB MEMBER: Send the comments to you?

MR. COLTER: Yes.

RAB MEMBER: E-mail okay?

MR. COLTER: E-mail or fax, either way's fine.

Okay. The only other item that the Navy's working on and we have been for the last several years regards the Navy's fuel farm or IR Site 10. I'd like to introduce Katherine Sheedy and Maria Magilto. They're from EA Engineering. They replace Carl Reitenbach, who has been the RAB representative for EA Engineering over the past couple years. Carl's moved on and Kass and Maria have now taken over. What we're doing at the fuel farm right now is reevaluating the system that's out there. The recovery system's been in place for three to four years, not including the pilot study that we did. We did recover in the beginning significant amounts of product but lately we haven't been getting
much of anything and more recently none at all. A lot of that has to do with the drought. The water table's way down. But even before then we weren't getting much recoverable product. So we're not getting much bang for our buck and we've asked EA to come in and do a study to see what other alternatives are out there to address what is left and maybe even come to some type of closure of the site with the regulators. So right now we're working on that issue.

That's about it.

RAB MEMBER: Jim, can I ask you, what does it take to close that site down?

MR. COLTER: Well, I wish --

RAB MEMBER: Who makes that ultimate decision?

MR. EDMOND: EPA and PADEP, depending on which site it is. The fuel farm site would be PADEP because it's Act 2.

RAB MEMBER: Is there a lot of bureaucracy to shut it down?

MR. COLTER: Any time you
deal with the regulators there's a lot of bureaucracy.

MS. FLIPSE: Thanks. We love you too.

MR. COLTER: Once we realized we had only petroleum type contaminants, we moved the site into the state spills program. I'm not sure what we need to do to close that out but that's one of the things I have EA looking at, what are the requirements and what do we need to do and what's the snapshot look like and what do we need to do maybe to get closure. I know that what we have right now is basically just groundwater, dissolved constituents in the groundwater at low levels. I mean, if you look at the data that we get every month, we're pumping the water out. It does have BTEX compounds in there. We're running them through carbon but the groundwater does still have some BTEX in there above drinking water standards. So at a minimum we need to address that.

MR. EDMOND: To defend
PADEP, they're easier to deal with than EPA. EPA is a much more strenuous affair to try to get a closeout of a site.

RAB MEMBER: Is EPA here to defend that?

MR. EDMOND: I knew they weren't. That's why I'm picking on them.

RAB MEMBER: That's what I'm picking on now. They don't tend to come to these meetings. They've missed more meetings than I've missed.

MR. EDMOND: They get invited every meeting. They're on the list. I can't force them.

MS. FLIPSE: For those of you who haven't met him, this is Seth Pelepko, who is the tank/hydrogeology person who is responsible for the fuel farm.

MR. PAPLEPKO: I know some of these people here. I worked formerly with Russ Turner at Tetra Tech and have met Jim Colter up in New York.

RAB MEMBER: You're taking the guy's place who went to Arabia?
MS. FLIPSE: No. Pam who used to come with me. And we have a new tanks specialist also but I'm not even sure who has Montgomery County this month. It's once again in upheaval and it doesn't make always a lot of sense for them to show up at the meetings. But Seth will be looking hard at how to close out the fuel farm.

MR. PELEPKO: I mean, we'll just have to take a closer look at Act 2 requirements basically. I mean, there's site-specific standards that will probably work in this scenario and that would allow you to leave those low level constituents in place, low level concentrations in place, but it will most likely involve a look at risks and things of that nature.

MR. COLTER: Well, we really haven't received our FYO stipend of environmental money yet. So once that comes in, we'll be pursuing something with you guys through EA to come up with a strategy, see what the snapshot looks like, come up with a strategy, so we'll probably have more detail on that at the next RAB
I

meeting.

MR. EDMOND: Anybody have any questions for Jim on the materials they were sent or Russ?

RAB MEMBER: I do. Just a real quick question on the feasibility options that were evaluated. It looks as though with the compounds that were there and with remediation versus natural attenuation, actually the alternatives that were reviewed in my humble opinion would be the one I would probably lean towards without knowing more detail as a Monday morning quarterback. And that's what it was was a Monday morning review of the report. I just took a look at it and it looked like that would be more suitable for what you're dealing with there.

MR. COLTER: All I would say is finish your review and provide that comment and we'll get Tetra Tech looking into that.

RAB MEMBER: I'm not sure how much more I'll review it but just the chlorinates that are there, you said
there's natural attenuation occurring now and the concentrations are high but not that they're that high.

RAB MEMBER: Mid-April for comments? 15th?

MR. COLTER: April 12.

MR. EDMOND: Anyone have anything else for Jimmy or myself on the Navy side? If not, we'll turn it over to Mr. Hal Dusen, the environmental director for the Air Force, and get on with the Air Force presentation. Okay, Hal.

MR. DUSEN: What we'd like to do today is bring everybody up to date on our POL site and work being done out there. I have Mr. Scott Shaw from Tetra Tech who is going to give a presentation today.

MR. SHAW: I thank everybody for allowing me to present and give you all an update on what's going on over at the POL area. The first thing I want to call your attention to or re-call your attention to was groundwater quality. I know this says 2000 but this also combines a lot of
the 2001 results specifically from February and the distribution of contaminants at that time. We had two areas of concern. We had one on-Base area up in here around what's called DM-4 and DM-3 and we had another area down around well DM-11. There were two constituents of concern in groundwater at that time and some recent sampling has reconfirmed that, that there are benzene and a compound called naphthalene are the compounds that are currently above PADEP action levels or standards for this type of site.

More recently, actually towards the end of November and into early December, we collected a series of groundwater and soil samples roughly in the areas on property from over here, from in this area here on-Base to roughly in this area here to attempt to confirm what we already suspected and to actually put some numbers onto some concentrations and that type of stuff. What we found still pretty much confirms what you see here as far as groundwater concentrations are concerned.
The naphthalene concentration that you see going in the orange or the green actually probably extends a little bit further up in this direction. The benzene is almost -- almost has the exact same footprint.

What we did, the other thing we did was we collected soil samples for those same compounds and confirmed that we are not over PADEP standards for those compounds in soil though we do have a certain amount of free product still in the ground. For the most part, it is a sheen. The best way I can describe a sheen is if you've ever been to the gas station and seen a little bit of gasoline on top of a puddle of water, that's a sheen. We can't measure that thickness. We just know by looking at it that it's there. We had one location where we did see an accumulation of product. It was at approximately here on the map.

Backing up, the project completed immediately before this one was a determination of natural attenuation, in other words, how quickly the groundwater
system was cleaning itself up for lack of a better description, how quickly those compounds, especially benzene and naphthalene, were degrading in the subsurface under normal conditions, presence of bacteria, levels of oxygen in groundwater and that type of thing. We also confirmed at that time that there was a certain amount of what we call LNAPL, free phase product still present in the soil on the site. That's the reason we conducted the baseline sampling that I just described.

Also in the natural attenuation project we confirmed that under the current conditions, the concentrations of benzene would drop below Pennsylvania standards within 7 to 18 years and naphthalene within one or two years. As was stated before, the standard for benzene is about 5 parts per billion while the naphthalene standard is somewhat higher. In both cases we're very close to standards. Concentrations in some wells rise and fall above that standard any time
you sample them. You go out one month and sample it's a little bit above, the next month it's a little bit below, but we still haven't quite achieved that standard on a frequent basis.

At the end of the natural attenuation study, we looked at five remedial measures to address what was going on at the site. The last one, in situ chemical oxidation, is what I'm here to discuss now. It involves the application of a compound called Fenton's reagent, which is a solution of hydrogen peroxide and ferrous sulfate with a small amount of acid. That particular reaction is what's shown here. Ferrous iron and hydrogen peroxide react to get ferric iron, hydroxide, and this small compound over here called a hydroxyl radical. That's a very important compound to form because it's key in the oxidation of petroleum hydrocarbons. It loves to oxidize that. And when that happens, a process called mineralization takes place where what is produced is carbon dioxide in water. In
the process of doing this, the pH of the
natural aquifer is lowered drastically.
Remember, we add a small amount of acid.
Once the process has taken place, though,
natural conditions of groundwater flow and
buffering will return the groundwater to
ambient conditions fairly quickly. It's
one of the -- it's actually one of the
things we monitored in the process of
completing the remedial process.

RAB MEMBER: When you say
fairly quickly, you still mean years,
though, right, as opposed to pump and treat
which could take 30 years?

MR. SHAW: It depends. It
is a much quicker process than typical pump
and treat. It could take anywhere from six
months to a year to two or three years.

What I'm here to discuss	onight is the first step in the remedial
process. And that's a bench scale
treatability test. The first samples we
collected during the baseline sampling
event were soil samples from the upgradient
source area, that area around DM-3 and
DM-4. We also collected groundwater from that area. Those were submitted to a lab for the treatability test. The other two steps you see here follow the bench scale test, a pilot study where you actually go out in the field in a very small area, conduct a test to determine effectiveness, and then large-scale application.

Well, the bench scale treatability test, as I've just described, we collected groundwater samples from the POL area and soil samples. Those samples are brought into a specialty lab where they are sampled again and analyzed for the compounds, the BTEX compounds and things like that that we discussed earlier. And then a series of tests are performed on the soil to determine the adequacy of Fenton's reagent remediating the problem. We also conducted tests to find out how reactive the soil is to hydrogen peroxide. Everybody thinks of hydrogen peroxide you buy at a drugstore. This is somewhat more highly concentrated.

RAB MEMBER: What's the
strength of that?

MR. SHAW: Of the concentration we use? About 15%. I am not sure what the concentration of a drugstore brand hydrogen peroxide is.

RAB MEMBER: I think around 3.

MR. SHAW: And then we actually have the Fenton's reagent test where mixtures of soil and groundwater are placed in large vessels. We maintain records and observations of temperature, pressure within the vessels, and the quality of the gases that come off of those solutions.

What did we find? Well, three compounds in particular were detected in the baseline groundwater samples and those were benzene, xylene, and naphthalene. Remember, the groundwater and soils -- I apologize. Of those three, we are over the Pennsylvania standards for benzene and naphthalene. We aren't for xylene though the concentration is measurable.
The results of the compatibility testing, the hydrogen peroxide compatibility testing, indicated the 15% solution of peroxide and distilled water were appropriate during the test. In other words, if you applied that percentage of peroxide to groundwater mixture, you weren't going to get an extreme reaction to generate a lot of heat. In the end, the Fenton's reagent application appeared to be effective in reducing the concentrations to below PADEP action levels. In the end, there was no more benzene or naphthalene left in the reaction vessel. In other words, they had been mineralized in that same reaction that I showed you before, the carbon dioxide and water.

In the areas where residual JP-4 is accessible to the surface, in other words, we can get to it in this case with a geoprobe, the Fenton's reagent will be effective in remediating those concentrations to below PADEP action levels. In some areas we will need to use other methods, larger drillings and that
type of thing.
The last thing is this is just one approach of a multiple method of remedy for the site. We talked about those five remedies. A couple of them involved injecting air into the subsurface at different levels to facilitate either off-gassing of the JP-4 compounds or additional bioremediation with the oxygen added from that air. We are currently leaning towards injecting air to continue to facilitate the bioremediation process. We feel that the distribution to do that is going to be easier to attain than the other and with somewhat better results. And that's all I have. Are there any questions?

RAB MEMBER: How would this chemical, Fenton's reagent, how would that react if it got into a good well?

MR. SHAW: If it got into a good well, it would lower the pH. Largely the acid would lower the pH of the well. We are doing this closer towards the creek in that area. We intend to do it down
closer towards that tributary that was on the first map.

RAB MEMBER: Well, how would it affect the quality of that water?

MR. SHAW: It will lower it some, but the actual lowering of the pH -- the concentrations of pH and the heat are relatively close to the points where you inject. Once you move away, those dilution and buffering reactions that I talked about earlier actually bring the pH back up to normal fairly quickly. The area we're talking about doing it at least initially is down in this area here.

RAB MEMBER: That was similar to my question. I was wondering what would happen to the Fenton's reagent if it didn't react with the petroleum products.

MR. SHAW: Well, that reaction, the reaction with the petroleum products, is one of many reactions that take place, but that second equation is fairly complete regardless of whether this is petroleum hydrocarbon or other compounds
in the ground.

RAB MEMBER: Just given
time?

MR. SHAW: Yes.

RAB MEMBER: Do you need a
better water table situation for this to
work more efficiently?

MR. SHAW: I think every
person in this room would say we need
better groundwater conditions.

RAB MEMBER: Do you do the
injection strictly in the water table or do
I understand also --

MR. SHAW: Strictly at the
water table.

RAB MEMBER: And the heat of
the reaction, are you anticipating getting
much volatilization of the JP-4 with the
off-gas?

MR. SHAW: That's one of the
reasons we do a bench test and a very small
pilot test is we want to control that as
closely as we possibly can. That's why we
start small and attempt to go larger. I
don't want to say go large because that
would lead you to all sorts of conclusions.

RAB MEMBER: You said that you anticipate it could take anywhere from six months to a year?

MR. SHAW: That's a pretty much off-the-cuff answer.

RAB MEMBER: I guess my bottom line question is with the peroxide, what's the life expectancy of the duration of the chemical down there being active? I would imagine with the peroxide in there it doesn't last more than a month or two.

MR. SHAW: As you know, peroxide likes to break up into water very quickly. Typically when these applications are done, they're done in two to three applications a couple days long separated by about ten days of monitoring in between and then you monitor to watch those field parameters come back into normal ranges.

MR. EDMOND: With the hydrology the way it is now, you really couldn't go and do this this week? I mean, you're going to have to wait until the
water table recharges and we get out of a
drought situation?

MR. SHAW: Well, we did. We
did the baseline sampling in November and
December. The conditions haven't changed
that much. And we have identified a couple
areas where we think we can do this
effectively now.

RAB MEMBER: With the water
table being so low, would it be an
appropriate time to try something like soil
vapor extraction?

MR. SHAW: Well, soil vapor
extraction has been tried at this site
before.

RAB MEMBER: I blur them all
together.

MR. SHAW: What happened
there was the system was installed, it ran,
and the water table came up. They had to
turn it off. For those of you who don't
know, if you have soil vapor extraction,
you need a certain amount of soil above the
water table to effect a decent
remediation. If your water table is very
close to the surface, you aren't treating that much of the soil. Of course, they turned it off. It stopped working. The water table went down. They turned it on. It came up again. That's the history on soil vapor extraction. If it was always like this, it would be great, but it's not always like this.

MR. EDMOND: Hal, we need you to hook that back up. We need some water around here.

Any other questions for Scott?

Well, really we moved rather quickly tonight. I'd like to open the floor to the community folks if anybody has anything they want to add, comments, anything to say. Feel free.

RAB MEMBER: I'd just like to add what I already said at several other meetings. I think the EPA should be attending these meetings. This is a national priorities list site. If they really felt it was that important, they should be here.
MR. EDMOND: I concur. It will be in the minutes. They get a copy of the minutes. I'll try and E-mail the appropriate folks of your concern, Jack.

Well, I had planned the next meeting for the 5th of June. That's in three months. And as we do in the summertime, we're going to have a tour. But since most of us have seen all the sites and been around, I was going to have a tour -- the XO here, Commander Viera, and Captain Blake cut the ribbon about three weeks ago on our new haz mat building, our state-of-the-art hazardous materials warehouse, which may soon, if things go right, be the regional warehouse for this region. We'll give you a tour of that, show you how we store our hazardous materials, how they're segregated, the building and all that. That will be at 5:30 and the meeting will be at 6:00, 6:15, whatever time we get back. For the folks who have never been on a tour, I'll have a bus down in front. I am the licensed tour guide and bus driver for these tours, so
you'll see me. We'll get on the bus, our
natural gas-powered bus, and go for a
tour.

RAB MEMBER: You got some
springs in this one?

MR. EDMOND: John, your
doctor tells me to get the bus without the
springs. He needs a little bit more
money. He can maybe get another operation
out of you.

RAB MEMBER: I don't need
any more of those.

MR. EDMOND: The next
meeting will be on the 5th of June. It's a
Wednesday as usual. It's three months from
this meeting. Any other comments? If not,
like I said --

MR. COLTER: I have one more
thing we're working on. I forgot to
mention earlier we're working on putting
the administrative record on a CD format,
basically taking all the books like this
that are in the repository and scanning
them into a CD which will have search
capability by word and things like that, so
probably by the next meeting. We're scanning all the documents now so possibly at the next meeting we may have something to show.

MR. EDMOND: And our ultimate goal is to have a server where you folks from the community or the regulators or the Navy for that matter can go on the Internet, go to our server, and view the administrative record, all the notes and minutes from the meetings, et cetera, et cetera. We basically have that now to a point but the problem is firewalls. And with 9/11, it has increased the firewalls around government web sites. So we're trying to solve that problem as we speak. We're working on it. Russ and I are working together trying with New Orleans to have them come on board. They control our servers here at the Air Station. And with a little cajoling and then moving into the EMS world, it may be a little easier if we go down and talk to Vice Admiral Totushke and give him the presentation on EMS. That may be doable.
MR. TURNER: I like New Orleans this time of year.

MR. EDMOND: Like I said, if any of you want copies of any of the old newsletters, I have them here. There's a copy of the ASTR reports here with their reader evaluations I have and I also have if anyone would like the full-blown version of the RI for Site 5 or feasibility for Site 5 or I have one or two copies of the Reader's Digest condensed version for Site 5.

Without anything else, the meeting is over. Thank you all for coming. Have a nice spring. We'll see you in the summer.

(Whereupon the meeting adjourned at 6:50 p.m.)