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NAS WILLOW GROVE
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2 RESTORATION ADVISORY BOARD

3 FOR

4 NAS JRB / ARS WILLOW GROVE

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6

7 Wednesday, November 5, 2003
Willow Grove, Pennsylvania

8

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10 Meeting held in the above-captioned matter
11 held at the Naval Air Station Joint Reserve Base,
12 beginning at approximately 6:15 p.m., before
13 Kimberly A. Overwise, a Registered Professional
14 Reporter, Certified Shorthand Reporter, and Notary
15 Public.

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LAWYER'S NOTES

PAGE	LINE	

1

2 PRESENT:

3 Jim Edmond

4 Cdr. Richard Rosene

5 Lt. Jeff Kilian

6 Russ Turner

7 Charanjit Gill

8 Scott Shaw

9 April Flipse

10 Maria Magilton

11 Jeff Dale

12 Kevin Kilmartin

13 Hal Dusen

14 Jackie Siciliano

15 Ted Roth

16 Kaye Maxwell-Martin

17 Lisa Bradford

18 Jack Dunleavy

19 Gene Wingent

20 Ed Boyle

21

22

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2 MR. EDMOND: I'd like to thank our
3 community members for braving the elements and
4 security to get here. Thanks for coming because we
5 haven't had this in seven months, eight months. I
6 appreciate you guys showing up this evening.
7 To give you a little bit of an update
8 on what we're doing here at Willow Grove, you all
9 know we had the air show a couple months ago. That
10 was fairly successful. We will not be having
11 another air show next here year. They're on an
12 every-two-year cycle now. In '05 there will be
13 another air show. Next year in June '04, there will
14 be a commemoration of the Battle of Midway. I'll
15 let you guys know more information about this as I
16 get it, but in lieu of the air show will be this
17 commemorative celebration.
18 Some other things happening around
19 here, the Navy Lodge is being built right down the
20 street here. It's a hotel for retirees, military
21 people that are new to the area, have been
22 transferred here, they need a place for their
23 families to stay on station until they find suitable
24 housing outside. That will be probably open
25 sometime at the end of '04, I would imagine. After

that, we're doing an addition to the Navy Exchange with the commissary and a larger Navy Exchange. That's on tap for '06.

Some things we're doing environmentally, we just completed an auto valve job, which is basically the wash racks where we wash our vehicles and aircraft, we had problems with people turning the valves from sanitary to storm water when they're washing the aircraft. When you wash an aircraft, the wastewater goes to our sanitary treatment facility. When it's raining, snowing, ice, whatever, it's supposed to go to the storm water system. So we were finding people didn't understand the system, didn't care about the system, so we put in an automatic valve. When you turn on that hose to wash a truck or an airplane, the valve automatically switches to a domestic system so the water goes to domestic. When you turn off that hose, 15 minutes later it's going to switch right back to the storm system so we'll never have a problem with illicit discharges to our storm water system at least from our wash racks.

We're in the middle of starting a project to modify our dam. In the back of the Base

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2 right by the Horsham Commonwealth National Golf
3 Course, we have a dam that controls our storm water,
4 but it's been stocked with fish, small mouth bass,
5 bluegill, catfish. It's a recreational pond. The
6 dam left a lot to be desired. In rains like this,
7 it will flood over, do damage to the structure. So
8 we're reconfiguring the dam with sluice gaits,
9 overflow area. So it will be I won't say state of
10 the art, but it will be up there very close.
11 We are implementing our EMS. For
12 those who don't know, I brought some brochures for
13 some of our programs to hand out, storm water, waste
14 management, and affirmative procurement. On our
15 environmental management system, it's based on ISO
16 14,001. DOD has said all military installations
17 shall have an active, aggressive EMS system in place
18 and audited no later than December 1, 2005. We are
19 at the tip of the spear when it comes to the Navy
20 for implementing EMS. We're about 50 percent
21 implemented already. We feel we should be
22 implemented fully, ready for our audit no later than
23 June '04. That will put us about a year and a half
24 ahead of schedule. Right now there's only two or
25 three other Navy installations that have an EMS and

they were pilot programs with a product to sell. They are certified ISO 14,001. They sell things to Europe, NATO, the Saudis, whoever. Whether it's undersea warfare or aviation, they have products to sell. They had to get ISO certified. The Navy paid for them. We are doing this out of our own funds. This is an unfunded executive order that President Clinton signed called The Greening of America. You can read about that not only in the EMS but also in the affirmative procurement, which is Buying Green.

That pretty much gives you an update on what we're doing environmentally on the air station. We'd like to get on to the business. The agenda this evening starts with the Air Force Reserve presenting their -- oh, one other thing I wanted to let you know. The Assistant Secretary of the Air Force was here last week to look at our environmental programs, to look at the Air Station for the jointness that the Air Force, the Air Guard, the Navy, the Marines, and the Army are all playing well together, using the same facilities. Showing the jointness is what they're looking for when it comes to the BRAC next year. In '05 we're having another round of BRAC, base realignment and closure.

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2 They'll be looking for candidates to close or
3 possibly realign somewhere else. The Assistant
4 Secretary of the Air Force was duly impressed with
5 what we've done here as a jointness, that we're
6 working together. The Air Force and the Navy are
7 going to start using the same facilities to store
8 hazardous waste and store and issue hazardous
9 materials. Instead of the Air Force going out and
10 building their own facilities, the Navy has two
11 facilities already built. We're going to comingle
12 those facilities. Our MWR assets are co now, the
13 galley is co-used. So the Base is looking pretty
14 well for the next round of BRAC because in the DOD
15 world, they call that the purple environment where
16 instead of you have the Air Force, Navy blue and
17 Army green and marine cami, everybody's in that same
18 DOD. We're all working together as a unit. That's
19 what they're looking to keep. They like joint use
20 ways. We're structured pretty well right now to
21 survive BRAC '05 is what it looks like. That's not
22 set in stone because the powers that be have their
23 own mindset, but it looks pretty good for NASJRB
24 Willow Grove.
25 Now, as I said, we'll go on to the

agenda this evening for the IR program. The Air Force Reserve is going to do a presentation on the groundwater sampling and biosparging pilot test and ongoing results of their in situ chemical oxidase results at the POL area. I'll turn it over to Gill.

MR. GILL: Thank you. Since it's been so long we had the last RAB meeting, I just want to give you some background on the Air Force program. We actually have seven sites in that program. And only one site is active. That's the one we do have no further action recommendation to EPA.

On this one active site, which is the POL site, I'll just give you some background on that. We had a spill back in '79 and one spill back in 1980. And over the years, we have tried all different processes, I guess. And we did use an application which kind of worked. And I guess during the last RAB meeting we gave a presentation we did a pilot test for the chemical oxidation process on this site and that was successful. And we are currently implementing that on this site. And at the same time, we did a pilot test on the biosparging, which we're going to be implementing

after the chemical oxidation process is completed.

So Mr. Scott Shaw, he's going to go ahead and give you --

RAB MEMBER: Question, if I may. You said one active site. Does that mean all others are cleaned up or nothing is being done?

MR. GILL: As far as we're concerned, we don't need any further action on that. That means they're cleaned up. All the contamination is below the limits or there is none. So we still need approval from EPA so we can officially close those sites. That's what we're waiting for.

Scott Shaw is going to go through the biosparging pilot test.

MR. SHAW: As Gill, said, I'm Scott Shaw, project manager for the investigation. I believe I spoke at the last RAB seven months ago. If you all recall, the prescribed remedy for the POL site is a combined what we call chemical oxidation process followed by biosparging. I'm here tonight to talk largely about some events that have taken place since the last RAB meeting and a biosparging pilot test we have completed over near the POL area.

Now, for those of you who don't know

where the POL area is, it's at the northern boundary of the Base. If you're driving along County Line Road and look south and see the two large fuel tanks, that's the POL area. The biosparging pilot test -- actually, to back up a little bit, the things we've done since the last meeting, we conducted a sitewide groundwater sampling event. We have a number of wells across the site that hadn't been sampled in a while. We conducted a sitewide groundwater sampling event. We installed about 50 new injection points used for both the chemical oxidation process and biosparging. And we've completed the biosparging test. That test was conducted from the 10th of September to the 18th in an area near the -- just off Base by those tanks.

Backing up just a bit, we had two key points that came from an investigation that we conducted about two years ago. One, that LNAPL or residual jet fuel is still present in the subsurface and is going to continue to contribute contaminants to the dissolved phase of groundwater. That's what you ultimately have to drop below state-regulated limits to have the site removed from the active list. And the other condition was that it was

1
2 determined that based on the concentrations in the
3 groundwater that we saw, it would take about 7 to 18
4 years to lower the dissolved concentrations of
5 benzene, one of the compounds of concern, below
6 state-regulated limits and one to two years for
7 naphthalene.
8 CDR. ROSENE: Starting when?
9 MR. SHAW: It would have been 2001.
10 Our results are fairly consistent
11 with that. The concentrations of naphthalene we're
12 seeing are right at the limit, anywhere from
13 about -- I believe the highest concentration we had
14 was about 130 parts per billion. The regulatory
15 limit is 100 parts per billion. That's down from in
16 the 200s a couple years ago.
17 Now, what is biosparging? Well, it's
18 a remedy that you use to basically activate or
19 provide nutrients to existing microbes in the ground
20 or the groundwater. You do that by injecting air at
21 a relatively low rate below the water table to
22 provide oxygen to stimulate growth and activity of
23 those bugs for lack of a better term. It's a remedy
24 that's recognized by the EPA as a reliable method
25 for conducting this type of remediation.

Now, how does it work? This is a cross-section, of course, of the ground with the water table here and a series of in this case injection wells, air injection wells, a compressor, which is what we used in the pilot test, and in some instances you may want to extract air. We did not do that during the pilot test. The water level and the depth to water in the pilot test area was relatively shallow on the order of a few feet making it literally impossible to construct a well to collect that air. There may be other places across site where you could do that. It may also not be necessary. So you inject air at a relatively -- we want to do it at a relatively low rate. In this case, we went up to about 10 cfm in this instance, cubic feet per minute. And the purpose of the pilot test is to determine in each one of those injection wells, how far out do you actually effect an increase in dissolved oxygen in the groundwater?

To give you another idea about where the POL area is, this is the northern boundary of the Base here. The tanks are here. It shows the array of monitoring wells across the site. The pilot test area was and still is down in this corner

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2 of the property near well DM-11, the well in the
3 past that's had the highest concentration of benzene
4 and naphthalene. This area was selected because we
5 have a considerable amount of data concerning the
6 flow and conditions of groundwater flow in that area
7 and data on contaminants of concern. There's an
8 existing monitoring well in this area. And free
9 product has been noted there in the past.
10 The purpose of the two-pronged
11 remedy, first, with chemical oxidation is to get rid
12 of that free product and residual contamination
13 that's adhered to soil particles. We follow that up
14 once it's been removed with biosparging to allow the
15 natural microbes to consume it and shrink the plume.
16 RAB MEMBER: What's getting rid of
17 the free product then?
18 MR. SHAW: Chemical oxidation with
19 we're using Fenton's reagent in this case. You
20 basically use hydrogen peroxide and a dilute iron
21 solution to mineralize the residual contamination.
22 RAB MEMBER: That goes where?
23 MR. SHAW: Where does it go? I'm
24 sorry. You inject it into the ground.
25 RAB MEMBER: The reagent goes into

the ground, but now you've got the broken down parts of the --

MR. SHAW: It's largely broken down by carbon dioxide and other nonhazardous carbon materials.

RAB MEMBER: And carbon dioxide goes where?

MR. SHAW: (Indicating) or into the groundwater.

RAB MEMBER: That's permissible? Warming of the earth?

MR. SHAW: Yes. It's a relatively small volume and it's not a constant source of carbon dioxide. We did the chemical oxidation pilot test in that plot. The injection of hydrogen peroxide took about two weeks total to complete. So it's not --

RAB MEMBER: You're proposing ongoing? Once you leave the pilot, it's going to be an ongoing?

MR. SHAW: Yeah, but it becomes fairly dilute in groundwater fairly quickly and does exit to the air. It doesn't become a continuing source of carbon dioxide to the atmosphere.

1

2 What did we learn? Oh, I'm sorry.
3 This is the pilot test area. You want to, like I
4 said before, establish that radius of influence.
5 These circles are 5 feet apart. So we have two
6 injection wells separated by about 25 feet with a
7 number of monitoring wells, including vapor
8 monitoring points, around the perimeter. We want to
9 determine what those concentrations of carbon
10 dioxide are going to be in the air as well as if
11 we're able to detect free product -- not free
12 product but gasoline vaporizing -- I keep saying
13 gasoline, I'm sorry -- jet fuel vaporizing. We were
14 pretty fortunate during both of these that we saw
15 very little of the volatilization of free product.
16 In other words, when you were standing in the test
17 plot with the process ongoing, only occasionally did
18 you actually smell jet fuel.
19 What did we learn? We learned or
20 continued to confirm that the degradation of -- when
21 we say organic compounds in this case, we're talking
22 about jet fuel -- is very dependent on the
23 concentrations in groundwater. At equilibrium,
24 water has a concentration of about 10 micrograms per
25 liter. We varied the injection rate of air in a

number of ways, up to in this case 12 cfm, to determine what those radii of influence would be. What we found was at about 4 to 6 cfm, you could develop a radius of influence about 5 feet. This is all once again dependent on the position of the water table. In this case, the water table was fairly shallow, only about a foot and a half below the ground surface. At higher injection rates with deeper groundwater table, you could extend that radius of influence out to the 15 feet that our network was set up and designed to monitor for. We also determined that based on the concentrations of the dissolved oxygen that we saw after just a few days of injection, we could increase this dissolved oxygen concentration by an order of magnitude. We saw dissolved oxygen concentrations during the test on the order of 5 milligrams per liter, 4 to 5 milligrams per liter, and that's literally after just a few days of air injection. So we're fairly confident that once the air is delivered, it will dissolve in groundwater and become available for microbial growth. Like I said, in some situations because of this lower water table, this relatively shallow water table, it may require some form of

vapor abatement. If the water table, for instance, were deeper and we had a considerable amount of water above our screens, we may need some type of vapor abatement. That was that other array of wells I showed you in that earlier diagram.

That's all I have. Does anybody have any questions?

RAB MEMBER: I have one for the EPA. When can we expect to know if those inactive sites are clean or contaminated in EPA's vernacular?

MS. FLIPSE: I have to wait for the documents to go to the hydrogeologists. Once they've reviewed it and provide me with comments --

RAB MEMBER: How long have they had them?

Bradford

MS. ~~FLIPSE~~: Do they have them?

RAB MEMBER: Have they had them.

Bradford

MS. ~~FLIPSE~~: We only get one document. We have to pass that one document to everyone that has to review it.

RAB MEMBER: And how long has that been?

Bradford

MS. ~~FLIPSE~~: I don't know.

When did you send it, Gill?

RET

Cathy's had it for a long time, but she only works three days a week and I haven't gotten comments from her yet.

MR. GILL: About six months ago.

RAB MEMBER: Six months and you don't have an answer?

MS. ~~FLIPSE~~ Bradford: No, but that's not unusual.

RAB MEMBER: Can we review this document, the RAB members?

RAB MEMBER: Has anybody thought of photocopying it and sending it to the other person, running parallel tracks?

MS. ~~FLIPSE~~ Bradford: It still wouldn't help. When we got the document, we put it on a list of documents to review in order received. Everybody puts it on their list.

RAB MEMBER: Everybody does even though they don't have the document?

MS. ~~FLIPSE~~ Bradford: Right, to review. So whoever gets the document, whoever has the document first to review it -- I mean, whoever is able to review it first gets the document.

RAB MEMBER: So the three-day-a-week

person had the best availability?

MS. ~~FLIPSE~~ Bradford: Well, at the time when it came in, Linda was on travel. She was out of the country. And she was gone for a while and she had vacation and the schedule was busy. But that's not unusual for EPA to take that long to review a document.

RAB MEMBER: I hear you. I'm just trying to get these people off the hook and get an answer.

RAB MEMBER: Gill, what's the title of the document?

RAB MEMBER: Do not photocopy.

MR. GILL: It's a site investigation.

RAB MEMBER: Is it available at the information repository?

MR. GILL: Yes, it is. It's been there since we got it.

MR. EDMOND: Is it possible, Gill, to make copies available to any -- it's that big?

MR. GILL: It's that big.

MR. EDMOND: Is it like two volumes, analytical data and other, the summary?

MR. GILL: Yes, we can do that.

MR. EDMOND: We could give them the summary to read and that way they'd get an idea of what's -- okay. Just throwing it out there.

RAB MEMBER: If there's an executive summary or something, I'd love to see that, yes.

MR. GILL: We can do that. Just get it to Jim, I guess.

MR. EDMOND: I'm the mailman.

MR. GILL: You know, all the documents we get we do put in.

MR. EDMOND: Update, we're uploading documents onto our web site now. We've been promising this for a year and a half to two years. It is happening. The Navy has done their consolidation. We are part of the Navy-Marine Corps information center now. It's there. You can find our web site. By the next RAB meeting, the administrative record will be loaded and you will be able to download documents, view documents at your discretion. What we did is took all the documents and my friend and contractor Russ Turner over there got them all put on CDs for us. We have a CD and the first CD has an index of all the documents, which includes letters that go back into the '80s.

1
2 It's a complete record, more than you'll ever want
3 to know about the IR program at Willow Grove. We're
4 on, what, is it three CDs now?
5 MR. TURNER: Three or four.
6 MR. EDMOND: But it will be made
7 available webwise in the very, very near future.
8 This isn't a false alarm this time. It's happening.
9 The web site's there. Honestly, you can go on the
10 web site now and it has an environmental page and it
11 says administrative record waiting to be uploaded.
12 So it's in the process. Before we never even had
13 the web page, but we have a web page now.
14 MR. TURNER: You know what took a lot
15 of space were the figures, color figures.
16 Everything's in there.
17 CDR. ROSENE: I have a quick question
18 here. It's concerning the use of the term oxygen
19 versus air. Are we injecting --
20 MR. SHAW: We're injecting air.
21 We're using the O2 component of air.
22 CDR. ROSENE: So you don't have
23 tanks, it's all compressed on-site?
24 MR. SHAW: That's right.
25 CDR. ROSENE: That's how you get your

1
2 O2 concentrations?
3 MR. SHAW: We run it right out of a
4 compressor, remove oil and other things from it.
5 CDR. ROSENE: I want to make sure
6 we're not mixing terms here. I have some exposure
7 to the refraction process from recovery of petroleum
8 products and that's where you use things like
9 nitrogen and air is not a player.
10 MR. SHAW: In this case, bringing
11 oxygen in -- we just only really need the
12 concentrations of oxygen that you see in air and
13 there's no really need to bring in pure oxygen to do
14 it, not something we really want to handle anyway.
15 CDR. ROSENE: That's the other issue.
16 RAB MEMBER: In the slides, it says
17 benzene and naphthalene, which are highly volatile,
18 but you said also jet fuel.
19 MR. SHAW: They are two compounds of
20 a part --
21 RAB MEMBER: They're volatile and
22 will go off with the air, won't they?
23 MR. SHAW: They do. And benzene is
24 definitely the more volatile of those two. It's
25 just that benzene is such a large component of any

petroleum hydrocarbon that it's always there and it's always going to be there as a source. So with the chemical oxidation, we're going to try to get rid of it from a source material and break it down to just the bare carbon that it is.

Anything else?

RAB MEMBER: Just one more, probably not for Scott but for Gill or Hal. This is a pilot test. Are there any plans -- it seems like it has some positive effect. Are there plans to expand it?

MR. SHAW: Well, the chemical oxidation has begun. We've actually begun the injection process to implement that part. We're out there not as we speak but --

MR. EDMOND: When I was running by, I saw people in the field doing stuff.

MR. TURNER: Injecting off-post or just on-post?

MR. SHAW: Eventually, we will do some injecting on-post, but it's always an access issue. And those are the most accessible areas right now and we wanted to get started.

MR. EDMOND: Anything else for the Air Force? All right. Well, I had penciled in a

1
2 break. Do you want a break or do we want to move on
3 to the next presentation? It's up to the community
4 members.
5 RAB MEMBER: Move on.
6 RAB MEMBER: Move on, go home early.
7 MR. EDMOND: I like his attitude.
8 Well, I'll give Maria a minute to get her
9 presentation in. I'd like to do a little
10 introduction here. At the last RAB meeting,
11 Lieutenant Commander Shane was the public works
12 officer. We have a new public works officer. It's
13 Lieutenant Commander Select Jeff Kilian, my boss,
14 new public works officer. And we have Jim Colter,
15 our long-standing RPM, who's now moved on to bigger
16 and better things at Engineering Field Activity
17 Northeast. We have Mr. Ed Boyle who will be taking
18 his spot.
19 And after we're done, after the Navy
20 presentation, if we have any questions, please come
21 up. I brought these documents for you guys to look
22 at. This is part of our EMS project is to
23 communicate not only to the people on the Air
24 Station but our stakeholders, which are the people
25 off the Station, the regulators, that they all know

exactly what we're doing. I'll bring to your attention in the front of the EMS is our policy statement. Right now I'll say the policy. This policy statement is up all over the Air Station. It is signed by the skipper. It's the cornerstone of our environmental programs. And the skipper holds everybody's feet to the fire for that. So when you see an environmental policy, it's not just lip service. We mean what we say and the skipper backs that up.

So I'll move on.

RAB MEMBER: I think it's a good idea to have them out, but they don't get off the Base.

MR. EDMOND: We had an environmental trailer at the air show with show and tell, brochures, the Navy's good stewardship to the environment, hand things out, let people know we're here and what we're doing.

Maria Magilton from EA is going to give us a presentation on some field activities that we've done this summer on the Air Station at Sites 10 and 11, Site 10 being the Navy fuel farm and Site 11 being an aircraft defueling area.

A little history on the aircraft

1
2 defueling area, this wasn't one of our original
3 sites. The Air Force was building a corrosion
4 prevention facility at the edge of the apron. When
5 they were putting in their foundation for the
6 building, we found product. So we did some
7 investigation right there. We did some sampling.
8 We found out it was okay for the construction
9 workers to be working there, but we did put it into
10 the IR program. Further investigation, we did find
11 some markings on the apron right next to the site
12 that were all faded probably from the '50s, '60s,
13 maybe even I'll say to the middle '70s, but it
14 showed an aircraft defueling area. What they would
15 do is take the aircraft there that had just flown in
16 or it had a problem and they needed to defuel the
17 aircraft before they worked on it, they would push
18 it there and take the fuel out of the aircraft. And
19 we imagine from spills or not good management
20 practices some of these fuels spilled, rolled due to
21 rain, snow into the grass, and this is the
22 contamination. And EA was doing the site
23 investigation on that this summer.
24 So without any further ado, I'll turn
25 it over to Maria.

MS. MAGILTON: Before I get started, did everyone get a copy of the slides? All right then. Good evening, everyone. Tonight I'm here to talk about the field investigations at Installation Restoration Sites 10 and 11. I'm here at the Naval Air Station Joint Reserve Base. Tonight's presentation, the agenda, I'm going to begin with background for both Sites 10 and 11 followed by an objective, the field scope, the field results, the validated analytical results, the groundwater contour map, report preparation, and then at the end of the presentation I'll take any questions that anyone might have.

For the background for IR Site 10, this area is a former fuel farm where light nonaqueous phase liquid and petroleum product releases occurred in the past. And due to this, a remediation system was installed in 1998. The system was discontinued because groundwater monitoring results indicated that the majority of the contamination was removed. The Navy now is currently working with PADEP towards site closure. Just so you guys know, for both Sites 10 and 11 they're regulated by PADEP, Pennsylvania Department

1

2 of Environmental Protection, and not EPA.

3 If you flip to the back of your

4 slides, there's three maps. And this is the first

5 map of the three. In 1986, right here, Tank 115,

6 this little circle here, it overfilled and fuel

7 flowed from the vent pipe into the ground. In

8 addition to that, JP-5 jet fuel was emanating from

9 two dead patches of grass in 1989. In addition,

10 right below these two tanks, which is 115 and 116

11 right about in this area down here, LNAPL, which is

12 light nonaqueous phase liquid, which is petroleum

13 products, was discovered floating in a utility

14 trench adjacent to a dry well. This dry well

15 accepted water syphoned from those two tanks, 115

16 and 116. Therefore, due to all these releases, both

17 Tanks 115 and 116 were removed in 1991.

18 The background of IR Site 11, again,

19 this is a separate site, it's a former construction

20 area along the Navy's aircraft parking area. And

21 during past grading activities,

22 petroleum-contaminated soil was discovered and

23 removed. Thus, EA was contracted to collect both

24 soil and groundwater samples to confirm that the

25 site was cleaned up.

Again, this is the second map. This is a map of IR Site 11. The area that's outlined in dark black, the square, that's the former area that was excavated. Again, in 1990, during grading, petroleum products were found in the soil. There were samples collected by NASJRB and the soil was removed according to the samples. However, there was no record that any soil samples were collected from the bottom of the excavation so that is why EA recently this summer came in and collected those samples.

The objective for Site 10 is to demonstrate attainment for groundwater under following Act 2 of the PADEP land recycling program. And this is for us to get closure for groundwater for Site 10. In addition to that, Site 10 soil is treated as a separate report. For the soil in particular, we're trying to demonstrate no further investigation at this time. And the reason why we can't go for closure right now for IR Site 10 soil is because the area where the releases occurred are unaccessible today due to present day tanks and piping. So right now we're going for no further investigation at this time. Later on in the

presentation, I'll explain that further.

For the Site 11 soil, again, we're going for closure by following PADEP's land recycling program under Act 2.

For IR Site 10, this summer what we did was we collected groundwater samples from 19 existing wells that were already on the site. In addition to that, we collected groundwater and soil samples from five new wells that we installed this summer. So we collected surface and subsurface samples from each location and also groundwater samples. In addition to that, we measured all the groundwater levels from the existing wells and the new wells.

For IR Site 11, we also collected soil samples. We collected these soil samples via direct push methods in the area of the former excavation. This was to confirm, again, removal of the contaminated soil. We also installed two groundwater monitoring wells and from those two wells we collected a soil sample from the surface and subsurface again and also groundwater. Again, we did the same thing as for Site 10. We measured all the groundwater levels.

For sample analysis for both Sites 10 and 11 for both groundwater and soil, we sent these samples to the lab to be analyzed for a target compound list volatile organic compounds, target compound list semivolatile organic compounds, and target analyte list metals. In addition to that, we took the groundwater samples and analyzed those for methane, ferrous iron, sulfate, and hydrogen sulfide.

If you flip back to the next map again at the back of your slides, if you look closer at the legend, the first item underneath the legend, the new monitoring well locations, the checkered pattern type circle, they're all the wells we installed this summer, the new wells. From all these wells on here, we sampled all these wells except for the ones that are the hollow circles. That's a different site. That's Site 1. Besides those, all the other ones were sampled this summer.

Again, if you flip to the second map, Site 11 again, in the middle of the excavation, you can see right in here this line. We did nine borings and that is where we collected a surface and subsurface soil sample from each of those locations.

Right about where it says grassy, there's two dark circles around there. They're the two wells we installed. And we also did the same for those. We collected a groundwater sample and surface soil and subsurface soil from those while we were drilling.

During the drilling of the new well locations, we encountered overburden. Overburden for anyone who doesn't know is the material that's found above rock, above bedrock. That consisted of fine sand and clay. The bedrock is sandstone and siltstone. Average bedrock was also encountered between 10 and 27 feet below the ground surface. Within the bedrock is where we found water at different intervals. Later on in the presentation, I have graphs showing that. During the geoprobe activities, which are the direct push activities for Site 11, overburden consisted of fine and coarse sand. Water table was not encountered. At SB-6 through SB-8 we encountered refusal. We hit bedrock at about 11 feet.

These are the high water flow zone areas. It's this slide and the next slide. The diagonal lines show the overburden. The gray parts show bedrock and the dark blue shows the high water

flow scenes. This was obtained by USGS in the field through the use of a resistance probe which they inserted inside the borings before I installed the wells. This also shows the rest of the wells -- by the way, the wells are identified right here. This is 10MW26, 27, 28, and the same thing again. These wells, these two, we found a low water flow zone in here and moderate and high water flow zone area.

For the analytical results we received back from the laboratory, for the Site 10 groundwater analytical results, the ones that are above the respective PADEP criteria that PADEP puts out that we calculate, if any of our results are above that, they're considered contaminants of concern at the site. For Site 10 groundwater, contaminants we found of concern for metals are aluminum, iron, lead, and manganese. For the SVOCs, it's bis(2-ethylhexyl)phthalate and benzo(a)pyrene. In addition to that, we only found one VOC, benzene. As for the Site 10 soil analytical results, none of the results that we got back showed any contaminants of concern. It was all clean. In addition to that, Site 11 soil, there were no contaminants of concern.

For IR Site 11 groundwater, our

analytical rules, there were only two considered contaminants of concern and they were metals that consisted of iron and manganese. However, if you refer back to the beginning of the presentation, Site 11 soil was the main concern. This is where they found the petroleum products at the soil. However, the only reason why we sampled groundwater is to see if those contaminants had reached the groundwater. Based on these two contaminants, iron and manganese, these are not associated with petroleum type spills and, therefore, they're not related to that. So it's not an issue when it comes to the Site 11 soils.

Now, if you flip back to the last map, which is the last page in the packet I gave you, you will see here this is a map showing the color-coded contaminants of concern I just talked about. The blue circles show all the metals that were contaminants of concern and showing the wells that they're in. In addition to that, the yellow circles show the SVOCs. There's only one red circle, which is where only one contaminant was found, benzene.

I'll also note right now that based

on the past releases that I had talked about in the beginning of the presentation, the main contaminants of concern were VOCs, of course, the benzene, toluene, and that was from 1991 and 1997 sampling events. However, if you notice by looking at this map, none of the existing wells that were sampled contained the VOC. The only well that contained that was 10MW24. That was a new well we had installed this summer. The bottom of it is about 70 feet deep. The existing wells only went to on average about 35 feet deep. In addition to that, I wanted to add that we also inserted the new wells, other deeper wells that were 70 feet deep and 120 feet deep and we didn't get benzene. So for now all we found was one in that area. Hopefully, when we go to do the second round of groundwater sampling we'll see what happens. Again, this is the same map you were just looking at. This map shows the groundwater contour lines. This was obtained through surveying and through the groundwater measurements we did. It kind of flows in this direction. And, actually, here's Route 611. Building 1's probably off the map a little bit. Here's the aircraft parking area and here's the Air

1
2 Force side of the base. So it's kind of flowing
3 from that sort of direction.
4 As for the reports, for IR Site 10
5 groundwater, what we're going to do is a petition
6 report entitled a petition to reduce the number of
7 sampling events to demonstrate attainment. This is
8 going to be submitted after we do the second round
9 of sampling. This summer we only did one round.
10 After the second round of groundwater sampling,
11 we're going to submit this report to PADEP to see
12 how many more rounds we need of sampling. That will
13 give us more information about how much more we need
14 for closure.
15 For IR Site 10 soil, again, as
16 before, like I mentioned, there's going to be no
17 further investigation at this time letter report.
18 The internal draft has been submitted to EPA
19 northeast. It's under their review right now. The
20 reason why Site 10 soil is not for closure is the
21 area is unaccessible. However, if the property were
22 to transfer due to sale or the tanks or piping were
23 removed, the site could be reopened to go toward
24 closure.
25 And for IR Site 11 soil, a report

will be completed also for closure and it's going to be following the PADEP Act 2 final report format to demonstrate attainment for Site 11 soil. Again, the Site 11 groundwater is just going to be attached as supporting documentation. As I said before, groundwater at Site 11 is not impacted and not an issue concerning the Site 11 soil.

That's about it. Are there any questions?

RAB MEMBER: You said earlier on you were looking for methane?

MS. MAGILTON: Yes. In the field, we actually looked for natural attenuation parameters for methane. At this time, the reason why I didn't have any results is we haven't looked at the data analysis yet.

RAB MEMBER: How about radon? Radon is far more common in this area than methane.

MS. MAGILTON: We didn't do radon for this project.

MR. PELEPKO: Methane is associated with the breakdown of the fuel so it's an indicator parameter to ensure that natural attenuation of this fuel is occurring.

RAB MEMBER: We didn't find any?

MS. FLIPSE: She doesn't know yet.

MS. MAGILTON: We haven't looked at that part of the data yet.

MS. FLIPSE: It might exist but it would be natural. It wouldn't have anything to do with the fuel spill.

RAB MEMBER: He says it would. It's a --

RAB MEMBER: Radon's not.

MR. PELEPKO: The methane would.

MS. MAGILTON: Any other questions?

RAB MEMBER: Isn't Site 10 the one where we had a lot of free product years ago?

MS. MAGILTON: Years ago.

RAB MEMBER: Are we still seeing it or is it gone?

MR. EDMOND: Site 10's the Navy fuel farm, Jack. Where the new fuel farm is --

RAB MEMBER: Weren't we seeing product in those wells?

MR. DALE: There was a system operated to recover the product.

RAB MEMBER: We're done with that?

MS. FLIPSE: It's been turned off.

MR. EDMOND: For a year and a half.

RAB MEMBER: And we're not seeing any free product?

MR. EDMOND: That's why we stopped because we were getting no bang for our buck. We were pulling up water, treating it, and putting it back into the ground and seeing minute drops of fuels.

RAB MEMBER: And we're not seeing any free product anymore, that's good.

MS. MAGILTON: Is that it then? Any other questions?

MR. KILMARTIN: For the deeper wells, did USGS do a flow log or did you see any flow within those bore holes or I guess any indications?

MS. MAGILTON: I do have the printouts back at my office. I don't think -- they literally just wrote high flow, low flow. I could fax you those because I have those printouts.

Is that it then?

MR. EDMOND: Thanks, Maria.

MS. MAGILTON: Thank you.

MR. EDMOND: The next Navy

presentation, Jeff is from Engineering Field Activity Northeast. He's going to speak about the drum removal effort. I think at our last RAB meeting we informed you Jeff was out here looking at anomalies that the EPA saw on aerial photos. He was going through a wooded area adjacent to the runway and found several rusted barrels, all 55-gallon drums we had never known were there. It was in a very forested type environment, a lot of shrubbery -- shrubbery, I mean poison ivy and sticker bushes. Jeff in his best Inspector Clouseau smelled them out and he's going to give a presentation on the removal and what he found.

Jeff.

MR. DALE: Thanks. As you know, I work for the Navy at Engineering Field Activity Northeast supporting the project managers on some of the more technical issues. Now, the first thing I have to warn you is when people say we went out in the woods and found drums, people get concerned about threats to public health, steady work for environmental consultants. It was not this. When I say drums in the woods, these are very old, rusted drums and about half of them weren't even drums.

They were metal objects like old water heaters, unidentified metal objects that were probably airplane parts or heating systems or something. So they weren't leaking anything. They were all empty. They were mostly rusted. They were more like the next slide, which I had to stage this because I didn't take pictures of the drums. But the drums, they looked like that. They were rusted. They looked like the old burnt barrel rolled into the woods or something like that. But it's our job to -- this is at an undisclosed location.

MR. TURNER: But he sniffed it out in your backyard.

RAB MEMBER: Undisclosed dog too?

MR. DALE: I just wanted to warm you up for what we were talking about here. It was not the big missing drum landfill.

So I'm going to give you a brief history of the site. And the significant thing that led us to this was something called an EPIC study that I'm going to cover briefly, the removal and sampling and our future plans. I'll try to keep moving because Jim skipped a break there. Site 2 is the antenna field landfill. It's on the other side

1

2 of the runway. I think they built the other new
3 Wawa across the street from it if I'm correct. It
4 was active in the late '40s and '50s and we've been
5 studying it longer than it was a landfill, I think.
6 When we were in the middle of the Phase 2 remedial
7 investigation, the EPA provided us the results of an
8 EPIC study that I will cover in a minute. And part
9 of the study is you go out and field verify some
10 things, which I did in March of 2002. And I
11 stumbled upon a couple of these rusty drums. So we
12 immediately hustled out there with our contractor
13 and I couldn't find the drums again. My sketch was
14 bad. My compass must not have been working that
15 day, something. So we had to wait until all the
16 vegetation died back down in October and I took
17 another person out to help me make a better map.
18 And we actually found one or two more drums. We
19 cleared paths. We moved them so that we could hire
20 our contractor to do the removal and sampling in
21 April of 2003. And a lot of it was limited with
22 access on days of the week. There was a lot of air
23 field activity at this point in time.
24 So what is an EPIC study? There's a
25 group of government experts. I don't really don't

1
2 know who they work for. I think they're various
3 agencies. But they are experts at interpreting
4 aerial photos. A lot of their work is beach
5 erosion, wetland loss. I think they were even
6 involved looking for shuttle debris. In our line of
7 work, they evaluate old aerial photos for suspect
8 release areas. EPA does this at a lot of sites. We
9 do them at all of our bases. And it helps when you
10 track down this farmer with drums buried in his
11 field and he says I only use that for farming. The
12 EPA shows him a picture of the truck burying things
13 in his field. It's very helpful. Part of it is you
14 follow it up with a field verification because from
15 some of the aerial photos, a drainage ditch can look
16 like a trench. I was doing the field verification
17 to show the EPA was wrong and I found drums right
18 where one of the features was. So they were right.
19 So what they provided us with was a
20 Power Point presentation that's very busy. I
21 apologize for it, but this odd pork chop-shaped item
22 unless somebody can come up with a better shape is
23 the antenna field landfill. And all the red
24 features that you can't really see but, trust me,
25 they're all the sampling locations we've already

1
2 taken. So we're able to say this area has been very
3 well characterized. And I think the Wawa is down
4 here. This long feature that looks like a trench is
5 a drainage ditch.
6 Well, the experts identified some
7 odd-looking things up here. On the aerial photos --
8 I brought an example, but it was pouring rain so I
9 left it in the car. You can actually see some
10 airplanes parked out there that the fire people use
11 to practice rescuing people, things like that.
12 These, in particular, were some scarred areas of
13 ground. And the blue is a road, which is why this
14 was so hard to figure out. This road is now
15 straight as you'll see in later pictures. So this
16 area is no longer accessible. So I got back to
17 Lisa, I said, look, I went out in the field, I
18 couldn't find any evidence of these features. Can
19 your EPIC people tell us where they are? Because
20 the road's not even in the same place.
21 So you go to the next slide and it's
22 a little bit of a closeup, but this heart-shaped
23 thing is two former ammunition bunkers. They're
24 still in the same place. So people at the EPIC
25 center were able to give me -- they took the

1
2 features off the 1958 photo and put them on a 1992
3 photo where now at least the road is straight and
4 this new fence line is in, so we were closer to
5 being able to find them. And also I said pick 20
6 points where you want us to sample. They gave us
7 coordinates and the Pennsylvania surveying
8 coordinate system so we could now know where these
9 were. I couldn't tell out in the woods. I got lost
10 a couple times. These are handy because all our CAD
11 maps are done in this same surveying system so this
12 will match up with the wells, the buildings, the
13 runways. And all you need is a handheld GPS unit to
14 go out and find these.
15 We hired RMC Environmental who walked
16 out with me and couldn't find them the first time.
17 Now we could find them because we had good trails
18 and coordinates where to sample. Each of these
19 unidentified features they used a GPS unit to find
20 these and they sampled them. They also went in and
21 removed the drums and debris. And, again, in their
22 report, they noted half of it was not drums and they
23 wanted to state that again. Some was electrical
24 equipment. They collected samples at each drum site
25 to see if these were full when they got out there,

they rusted, they would have immediately contaminated the soil beneath them.

RAB MEMBER: Transformers maybe?

MR. DALE: No. I described it as a piece of conduit with an electric meter on the end of it it looked to me. Then they used the GPS unit to get the coordinates of the drum. And we're going to go back and put the coordinates on the figure and we'll have one figure and won't have to rely on my poor quality maps I drew up.

Now, I will warn you these are not the GPS units that are on the heads of bombs going into Saddam Hussein's bunkers. These are mail-ordered so he predicts the accuracy of 6 to 14 feet. The locations are flagged, but we're not precise to hundreds of an inch with the commercially available GPS. For this line of work, we think that's adequate. We didn't hire RMC to do any data interpretation because we already had Tetra Tech on board working on finalizing an IR. We're going to hand this to Tetra Tech and say is there anything in this set of data that doesn't match up with the existing data. We didn't really evaluate it. I looked it over real quick and nothing jumped up that

we got to get out there and remove this. I figured Tetra Tech already had all the statistics available for the Site 2 area and we're just going to expand it to include this area and hope we don't have to do anything and finalize the report. And that's coming as soon as our fiscal year money arrives to fund it. But that's about it for me. The next slide is just question marks if anybody has questions.

RAB MEMBER: That airplane wasn't there that long ago for fire fighting. I'm getting older but it seems to me it was the '80s.

MR. DALE: These airplanes they only used to practice getting people out of airplanes. They didn't burn them or anything. That took place further up at road at Site 5, the fire training area.

RAB MEMBER: Norristown Road?

MR. EDMOND: No. It's like right across -- you know where the F-14 mishap site was? It's a little down the road from that.

MR. DALE: You wouldn't have I don't believe seen these from the road because they're back behind where the landfill was going on. The fire guys, I'm glad I talked to them. They would

1
2 just practice unstrapping people from harnesses and
3 taking them out of planes and they actually burned
4 the planes up at Site 5. So we didn't suspect any
5 major petroleum problems in this area, but the
6 aerial photo that's in the back of my car, you can
7 see three or four planes there. And due to
8 location, they didn't wheel there on their own.
9 It's well off the runway. They were dragged there
10 for practice.
11 Any other questions?
12 MR. EDMOND: No other questions,
13 that's our presentation for this evening. If
14 anybody has anything for the Navy, the Air Force...
15 MR. DALE: I didn't know to bring
16 copies of the handouts. They'll show up in the RAB
17 minutes.
18 MR. EDMOND: I put down a tentative
19 date for the next RAB meeting as 10 March. Again,
20 as you know from the last two we canceled, if we
21 don't have anything really to give the community,
22 we're not going to take your time and have you come
23 here and do a dog and pony show. We're waiting for
24 it to get warm and nice so we can give you a bus
25 ride.

1
2 MR. ROTH: Maybe we should introduce
3 ourselves for the notetaker. Ted Roth, Horsham.
4 MS. MARTIN: Kaye Maxwell-Martin,
5 community member.
6 MR. DUNLEAVY: Jack Dunleavy.
7 MR. EDMOND: I've put down the 10th
8 of March as our next meeting. It will be
9 springtime. Subject to change, we'll stick with
10 that. I'd like to thank you for coming out.
11 - - -
12 Reported By: Kimberly A. Overwise, RPR.
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