
NAVAL AIR STATION WHIDBEY ISLAND
RESTORATION ADVISORY BOARD (RAB)
INSTALLATION RESTORATION PROGRAM STATUS MEETING

September 13, 2012
Oak Harbor, Washington

Taken Before:

Janette Curley, CCR #2030

Of

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APPEARANCES

- LCDR FRANK CARROLL - NAVY
- SHERRY RONE - NAVY
- DIANNE VOGEL - NAVY
- BRENT JONES - TETRA TECH
- PAUL McCULLOUGH - URS CORPORATION
- GREG BURGESS - URS CORPORATION
- MELISSA PALMER - NAVFAC NORTHWEST
- NANCY HARNEY - EPA
- JENNIFER MEYER - NAVY
- ALLISON CRAIN - NAVY
- KIM MARTIN - NAVY
- ARNIE PETERSCHMIDT - CITY OF OAK HARBOR PUBLIC WORKS
- JILL WOOD - ISLAND COUNTY PUBLIC HEALTH
- DOUG KELLY - ISLAND COUNTY PUBLIC HEALTH
- HELENA HENNIGHAUSEN - ISLAND COUNTY PUBLIC HEALTH

(LET IT BE NOTED THAT COCHAIR ED OETKEN WAS NOT IN
ATTENDANCE DUE TO PERSONAL REASONS.)

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Thursday, September 13, 2012

12:03 p.m.

DIANNE VOGEL: So my name is Dianne Vogel. I am the Navy cochair. Unfortunately my -- my other cochair, Ed, this is his first RAB he's missed in 17 years. His wife is unfortunately terminally ill, and he didn't want to leave her. And so our prayers go out to her. But anyway, he left me some of his instructions and I will host his segment. It's very brief.

You have an agenda. And Janette is our court reporter. So when you speak, if you can just be mindful that she is recording everything you say. And that's another thing; everything you say is on record.

Okay. So we'll have some introductions. We'll start with Janette.

THE COURT REPORTER: Hi. I'm Janette Curley, court reporter.

HELENA HENNIGHAUSEN: Helena Hennighausen, Island County Public Health.

DOUG KELLY: Doug Kelly with Island County Health.

JILL WOOD: And I'm Jill Wood, Island County environmental health director.

ARNIE PETERSCHMIDT: Arnie Peterschmidt, City

1 of Oak Harbor Public Works.

2 KIM MARTIN: Kim Martin, public affairs at
3 the Naval Air Station.

4 ALLISON CRAIN: Allison Crain, NAS Whidbey
5 environmental director.

6 NANCY HARNEY: I'm Nancy Harney. I'm the EPA
7 project manager.

8 JENNIFER MEYER: Jennifer Meyer. I'm the
9 community planning liaison for Naval Air Station.

10 PAUL McCULLOUGH: Paul McCullough with URS
11 Corporation.

12 MELISSA PALMER: Melissa Palmer with NAVFAC
13 Northwest.

14 GREG BURGESS: Greg Burgess with URS.

15 LCDR FRANK CARROLL: Lieutenant Commander
16 Carroll, NAVFAC Northwest.

17 BRENT JONES: I'm Brent Jones with Tetra
18 Tech.

19 SHERRY RONE: I'm Sherry Rone. I'm the
20 remedial project manager for the CERCLA sites at Naval
21 Air Station Whidbey Island.

22 DIANNE VOGEL: So we have a very -- have our
23 agenda since most of you have never been here. The
24 Navy will give presentations on their sites with
25 updates. Usually -- and community section, the

1 community can bring any concerns or any comments that
2 they had on pressing issues.

3 So from our last RAB that was in 2010, May 24,
4 2010 we --

5 NANCY HARNEY: We didn't do anything --

6 DIANNE VOGEL: Yeah. We were supposed to do
7 it in September and there was a lot of conflict with
8 scheduling so we didn't have it.

9 So in our RAB minutes we -- it was about community
10 relations. And Whidbey was tasked with getting
11 Internet sites that the public could use. So on your
12 handout there are two sites in blue, and these are the
13 sites that you can access Whidbey Island
14 communications. We will post things like prior
15 reviews, Sherry's [indiscernible] on there. And
16 there's Facebook as well. You can "like" us.

17 KIM MARTIN: For Facebook all you really have
18 to do is put in -- if you already have an account, if
19 you just say NAS Whidbey Island, and it will pop up,
20 and it's the one that says it's a government site. And
21 some things will be on there. We won't actually post
22 things there, but we'll put the link and the link will
23 click you back to where you need to go. And we are
24 posting things on our website.

25 NANCY HARNEY: So is there any chance that

1 the administrative record will end up being put on
2 either of these sites?

3 KIM MARTIN: I don't think so unless --

4 NANCY HARNEY: You know, all the documents
5 from the past?

6 KIM MARTIN: Not that I'm aware of. That's
7 not my plan. Our plan is to make this a public place,
8 accessible place that if people want to review
9 something that's up for public comment, or if they want
10 to have a chance to look through a study that's been
11 done, we post it, we actually hang it on the site. And
12 when that comment period is over, we remove it. It's
13 not a full archive type location.

14 NANCY HARNEY: Okay.

15 KIM MARTIN: And we've actually been very
16 successful getting them put up there. We've had
17 [indiscernible]. We've had INRMP management plan, and
18 we've had a study for a CERCLA site on there that had
19 been posted, and people actually get online and open
20 them up and say, Hey, okay. Thank you very much. And
21 this actually is for those people that are computer
22 savvy rather than ones that want to pick the copies up
23 at the library. So we do it for both sides.

24 DIANNE VOGEL: Any other questions?

25 Okay. So our next item is Sherry Rone. She's

1 going to give us a status on her CERCLA sites. Sherry.

2 SHERRY RONE: Yes. As Dianne said, we have
3 not met in about two and a half years, and so a lot of
4 activity has taken place at the CERCLA sites, and I
5 thought it was probably easier just to do a
6 presentation of what's happened and bring you all up to
7 date on the CERCLA sites.

8 At the last meeting we had some -- there was some
9 conversation about 1,4-dioxane. And there was also
10 conversation about the beach landfill and the necessity
11 to repair the beach landfill. So those are things that
12 we're going to talk about today.

13 Joining me in this presentation will be Mr. Greg
14 Burgess from URS Corporation, who is assisting me with
15 the treatability study for the 1,4-dioxane and the ROD
16 amendment. And also joining me is Mr. Brent Jones,
17 with Tetra Tech, who has been assisting me with the
18 stabilization of the beach and landfill over at Area 1.

19 All right. You guys have to bear with me because
20 this is not my computer. So the brief outline is very
21 simple actually. Again, we're going to talk about Area
22 6. We're going to also talk about the beach landfill,
23 1,4-dioxane, the vadose zone, and the current site
24 risks as well for the Area 1, the Phase I Time-Critical
25 Removal Action -- that's been completed, by the way --

1 and ongoing Phase II Non-Time-Critical Removal Action.

2 So for those of you who are new, this is actually
3 a picture of Area 6. That's going to be the first
4 topic that's going to be talked about today. And I
5 just wanted you to have a little brief history of Area
6 6 and how big it is and its actual location and what
7 the final remedies said. And the final remedy was
8 pretty simple; just, you know, make sure we cap the
9 actual landfill itself, which is the nice little -- our
10 pointer isn't working so I'm sorry. Thank you.
11 Someone has a pointer. That's Area 1 landfill. And
12 the rest of the tract is Area 6, 260 acres.

13 KIM MARTIN: Could you do that again, Sherry?

14 SHERRY RONE: Let me borrow your pointer,
15 please.

16 LCDR FRANK CARROLL: That mouse is fine, I
17 think.

18 SHERRY RONE: Yeah.

19 DIANNE VOGEL: Would you --

20 SHERRY RONE: So this is -- this is Area 6
21 tract. Right around this whole thing is Area 6. The
22 landfill is right here.

23 KIM MARTIN: So Highway 20 is where; along
24 that red line?

25 SHERRY RONE: Yeah. On this red line is

1 Highway 20.

2 KIM MARTIN: Okay.

3 SHERRY RONE: The blue line is a -- is a
4 proposed project that we have going on. The reason I
5 kept this slide is because this actually had a really
6 good indication where all the wells are.

7 So we -- as I was saying, the final remedy is just
8 landfill capping, groundwater extraction. We try to
9 contain the groundwater, and we treat the chemicals of
10 concern that you see listed there.

11 This is just a little picture of our treatment
12 facility. And what -- the best -- this small treatment
13 facility, we pull in about 200 gallons per minute, and
14 we store it in a 91,000 gallon capacity [indiscernible]
15 tank, and that we treat it by air-stripping for the
16 list of contaminants on the previous side. And after
17 we treat it, we discharge it to a low lying area for
18 surface re-infiltration.

19 One -- one of the things we talked about last time
20 was the amount of groundwater we actually pumped in.
21 We've pulled in thus far about 1.2 billion gallons of
22 water. We've treated it and discharged it back to the
23 aquifer. But we've had this emergent contaminant of
24 1,4-dioxane, which we will go into very shortly, that
25 we also need to now begin to treat because it was not

1 -- it's an emergent contaminant, so it wasn't part of
2 the original treatment. And they since have a problem
3 and asked us to look into it and found that we do have
4 an issue with 1,4-dioxane.

5 And I think we had a very long RAB on 1,4-dioxane,
6 for those of you who may have missed it. But just to
7 be clear, so no one walks away confused, this is not
8 1,4 -- this is not dioxin. This is not the bad one.
9 This is dioxane, which is a stabilizer that's stored in
10 [indiscernible] and is used a lot in cosmetics as well
11 as in shampoos. But now they've found that they are
12 beginning to have a problem with it, so we pulled back
13 from consumers using it, and now we would like to clean
14 it up. So because of that, I need to redesign this
15 plant. And the plant redesign will address the
16 remainder of contaminants that we have as well as
17 1,4-dioxane.

18 So that's my brief fast history that I can give
19 you. And as you can see, we had a series of wells. We
20 have about 34 wells that we continue to monitor to help
21 us to establish what is the conditions of the -- the
22 site and whether or not we've had any improvements and
23 where we think we need to make improvements.

24 And from this point on I'm going to turn it over
25 to Mr. Greg Burgess to begin talking in depth about the

1 issues that we have with Area 6 and where we're going.

2 GREG BURGESS: Thank you, Sherry.

3 Hello. We're looking to update and evaluate
4 options for the treatment system, primarily to address
5 1,4-dioxane which has -- was identified in groundwater.
6 Roughly 2003 or a little bit beforehand they started
7 looking at it. We want to evaluate the applicability
8 and effectiveness of different alternatives. And once
9 that evaluation is complete, in conjunction with the
10 EPA a decision will be made and presented to the public
11 in a proposed plan, and that will result in a ROD
12 amendment because the original ROD didn't consider
13 1,4-dioxane because it hadn't been identified in
14 groundwater at that point.

15 So if you'll go to the next slide, please. And
16 that evaluation has already started. We started a
17 couple of years ago looking at microbial mats with
18 Planteco Environmental Consultants out of Athens,
19 Georgia. This is a biologic process that removes
20 1,4-dioxane from groundwater. And it worked, but it
21 was very slow. And the high concentrations of iron in
22 groundwater that we're trying to treat pose some
23 significant challenges.

24 So could we go to the next slide, please. We also
25 looked at oxidation processes, chemical reaction

1 processes to break down 1,4-dioxane. Some of the more
2 classical ones for 1,4-dioxane are ozone and hydrogen
3 peroxide. This was conducted by the Waste and
4 Environmental Technology Center at Temple University.
5 And that showed some very good promise, and the
6 kinetics were faster. It was able to break it down
7 much quicker, but the iron again posed a problem for
8 us. As you can see, when they did the reaction, the
9 water from the site turned this orange color and iron
10 precipitated out. And that's a significant management
11 challenge with this process. So we thought, well, how
12 can we try and avoid this iron management process.

13 And so if we could go to the next slide. We're
14 currently looking at a couple of different scenarios.
15 Rominder Suri, who is the Ph.D. that was running these
16 tests up at the WET Center, is also looking at sonic to
17 try and destroy volatile organics, and it works well on
18 1,4-dioxane. And persulfate is a -- is a weak oxidant
19 that also can destroy 1,4-dioxane.

20 So we're going to be doing some bench-scale
21 testing using sonic and persulfate or persulfate alone
22 to see if this will help us with our problem. We have
23 -- we will be doing the bench-scale tests very soon.
24 We expect to be collecting water and shipping it to
25 Temple University towards the end of this month.

1 If we could go to the next slide.

2 NANCY HARNEY: So I don't -- I don't know
3 what sonic -- when you say sonic, what do --

4 GREG BURGESS: I will get right to that.

5 So with sonic they're introducing high energy
6 sound waves to the water from our actual site. In this
7 particular case, they did it from water with a
8 different site. And what the sonic is it creates
9 microcavitations or really really small bubbles, and
10 the bubbles collapse. And when the bubbles collapse,
11 it changes the chemistry of the water and creates
12 oxidants through production of radicals. These
13 oxidants are able to break down chemically 1,4-dioxane.
14 It also generates a bit of heat, and that heat could be
15 beneficial to us, which I'll explain in a minute.

16 The blue line here shows how 1,4-dioxane
17 concentrations decreased over time under sonic only.
18 And you can see that it resulted in about a 50 percent
19 reduction in 1,4-dioxane concentration after about 30
20 minutes of exposure.

21 So if you could go to the next slide, please.

22 Now, persulfate is a weak oxidant. This oxidant
23 chemically destroys 1,4-dioxane through a chemical
24 reaction. But because it's a weak oxidant, it needs to
25 be activated. You can activated it a number of

1 different ways. One is heat, which would be beneficial
2 from the sonic. One is to adjust the pH. You raise
3 the pH and that activates the persulfate. And also the
4 presence of iron will activate persulfate. And given
5 we have a high iron concentration at the site, and it's
6 causing us problems with other processes, this might be
7 useful to us.

8 And when the WET Center tested persulfate and
9 sonic treatment of 1,4-dioxane impacted groundwater,
10 the reaction was much quicker. They tested three
11 different strengths of persulfate with sonic. And with
12 the highest concentration of persulfate, you can see
13 that the concentration of 1,4-dioxane was reduced to
14 virtually zero in about four minutes. So it's much
15 quicker.

16 So what we need to do now is evaluate it using our
17 water. This was not a test on our water. So we need
18 to take a look at it using our water and our suite of
19 contaminants. Dr. Rominder does believe that this
20 could potentially reduce concentrations not only of
21 1,4-dioxane but also all of the contaminants at the
22 site.

23 It is a new technology. Ozone and hydrogen
24 peroxide are the more classic applications for
25 1,4-dioxane removal. But this is a new technology, and

1 it shows some pretty good promise.

2 So the treatment plant optimization will use these
3 bench-scale results to decide, in conjunction with EPA
4 and you, what the best approach is for the site. Some
5 of the possibilities are to treat the groundwater above
6 ground, pump it to a treatment plant that would use
7 sonic and 1,4 -- and persulfate or persulfate alone.
8 Another option will be to treat it in the ground, or in
9 situ, prior to removing it so you don't have to pump
10 it, or a combination of both.

11 SHERRY RONE: And before we go on, the only
12 thing that I wanted to make clear is that we're not 100
13 percent dependent upon the sonic and persulfate.
14 Because if the sonic and persulfate doesn't work, we
15 still have the hydrogen peroxide, which is also an
16 oxidizer which is just a very strong oxidizer. And the
17 reason we decided to look at the sonic is that we did
18 not want to introduce any other chemicals if we could.
19 And persulfate being a very weak oxidizer, we thought
20 that maybe that would be acceptable as long as it
21 worked in conjunction with the sonic. But so we're
22 still looking, you know. We -- we do have
23 alternatives. We have options. If the sonic does not
24 prove to be beneficial, we will still -- at that point
25 we will still have to deal with the iron issue. I just

1 wanted to make that clear.

2 GREG BURGESS: And we're hoping the sonic and
3 the persulfate do help us with our iron problem.

4 DOUG KELLY: I just have a question for you.

5 GREG BURGESS: Sure.

6 DOUG KELLY: Two questions, actually. First,
7 is the ultrasonic nonaudible?

8 GREG BURGESS: I don't know the specifics.
9 It's -- it's a high energy sound wave that they're
10 putting through. I don't know what the frequency
11 spectrum is, to be perfectly honest with you.

12 DOUG KELLY: So for oxidizing, whether via
13 this or hydrogen peroxide or whatever, you have
14 precipitating minerals, correct? And if it's in situ
15 do you end up with clotting formations?

16 GREG BURGESS: Well, that is a real
17 possibility when you conduct the oxidation with
18 hydrogen peroxide and ozone. Because we saw in those
19 pictures that the iron definitely precipitates out
20 rapidly.

21 DOUG KELLY: Right.

22 GREG BURGESS: This we're hoping that the
23 iron instead of precipitating out is actually
24 incorporated into the activation process for
25 persulfate. That's if we were to use it in situ. I

1 don't think the sonic is going to precipitate anything
2 out. It's going to be the chemical reaction with
3 either persulfate, ozone, or hydrogen peroxide that's
4 going to actually facilitate the precipitation. We
5 might get some precipitation by adjusting the pH, if
6 the sonic actually has an effect on the pH.

7 Paul, does that sound accurate?

8 PAUL McCULLOUGH: Yeah. The iron that's
9 being exposed to an oxidizing agent, it's reduced iron
10 that's in the ground. It's had significant
11 concentrations of two to 300 parts per milliliter. And
12 so the challenge is when the iron comes up and it gets
13 exposed to the air further with the ozonization
14 process, it turns that orange color. So the takeaway
15 message for a treatment technology black block ex situ
16 technology with the ozone system, you have to filter
17 out the iron before it gets ozonated. So that's a
18 challenge.

19 And so what we're looking at -- that's another
20 thing that the WET Center is looking at, is optimal
21 iron removal methods. But the idea of the -- the
22 cavitation ultrasonic is that the high iron levels in
23 conjunction with the persulfate and those collapsing of
24 those micro bubbles, those very localized high
25 temperatures which activate the persulfate. So in that

1 case, if the iron can stay and not precipitate through
2 that process -- and that's -- that's a challenge but,
3 you know, they're considering that the iron can pass
4 through the system. And so the goal on the cavitation
5 technology is that it -- if it works, then you wouldn't
6 have to go through a significant iron removal process
7 upfront.

8 So again, the takeaways, reiterating a couple of
9 the messages that Greg had, is the microbial mats do
10 not work efficiently with volumes that we're talking
11 about without having acres of real estate for
12 constructed wetland. And there's risks of treatment
13 effectiveness even at that. The message was if it's to
14 work good you have to inoculate the root zones with
15 certain inoculates that may or may not sustain
16 themselves over time. So there's a risk involved in
17 that. There's benefits. It's very green. There's
18 also challenges with creating wetlands near an airport.
19 So that's -- that's technically risky. A lot of good
20 advantages, but technically risky.

21 The ozonation with the peroxide, that is a fairly
22 mature technology now and it's being used more and more
23 for 1,4-dioxane treatment. The challenge on that is
24 the iron. So this other technology is trying to
25 leverage the high iron to our benefit.

1 GREG BURGESS: So the next step -- next
2 slide, please. So once we get through the evaluation,
3 in conjunction with EPA, and come to a recommendation,
4 the Navy will document the decision in a Record of
5 Decision Amendment. The Record of Decision Amendment
6 is envisioned at this point to comprise of treatment
7 system optimization decision. We'll have to establish
8 a cleanup level for 1,4-dioxane because cleanup levels
9 are kind of all over the map right now depending upon
10 where you're sitting. Talk about possibly removing
11 some chemicals of concern that have been identified,
12 based on the process of the cleanup and some other
13 factors, and talk about an alternate point of
14 compliance, namely the property boundary.

15 So before the Record of Decision Amendment is
16 finalized, the Navy and the EPA will prepare a proposed
17 plan for public review and comment. At this point
18 we're anticipating the public comment period to be
19 somewhere in the June -- somewhere in June 2014. And
20 then public comments will be incorporated into the ROD
21 amendment.

22 Some of the things we'll have to consider within
23 the ROD amendment are the current risks to the site.
24 And this is based on 2009 data. You'll see that TCE is
25 the primary risk driver. We want to see a cancer risk

1 less than ten to the minus five -- so we're above ten
2 to the minus five there -- and a non-hazard risk -- a
3 noncancer hazard risk of one. So TCE is by far the
4 primary driver. 1,4-dioxane does pose some cancer
5 risk, but no noncancer hazard.

6 This shows the distribution of trichloroethylene
7 or TCE in groundwater between 1997 and 2009. We do
8 have some 2011 data, and it's very similar in the
9 distribution and concentrations on the center axis of
10 the plume or a little bit lower, so concentrations
11 still continue to go down. What this slide shows is
12 that the groundwater pump-and-treat system has been
13 effective at reducing concentrations from 1997 in the
14 400 microgram per liter range down to 100 microgram per
15 liter or less, and it has decreased the lateral extent
16 of the plume in the leading edge or the down-gradient
17 portion of the plume.

18 Same thing is generally -- can be said about vinyl
19 chloride. The lateral extent has decreased somewhat in
20 the up-gradient area in this particular case. And the
21 highest concentrations of 2 to 4 micrograms per liter
22 in '97 have reduced down to one to one and a half
23 micrograms per liter.

24 The big one is 1,4-dioxane. And we didn't have a
25 comprehensive data set until about 2003 so we could

1 actually start plotting contours, so that's why this
2 one starts at 2003. The extent appears to have
3 expanded between 2003 and 2009. I think part of that
4 is a result of just expanding the monitoring network
5 and taking samples from more locations than we did in
6 2003. We also added a few more wells. This well right
7 here was not installed until about 2008. So that's --
8 basically we have refined our understanding of the
9 distribution of 1,4-dioxane at this point in
10 groundwater.

11 DOUG KELLY: Could I ask one quick question
12 on that?

13 GREG BURGESS: Sure.

14 DOUG KELLY: Where is your extraction taking
15 place, and where is the re-infiltration taking place?

16 GREG BURGESS: The extraction is taking place
17 along the line here, roughly, and then three or four
18 wells along the line here. And the re-infiltration is
19 occurring back up here in here.

20 Is that correct, Sherry?

21 SHERRY RONE: No re-infiltration is --

22 GREG BURGESS: More over here?

23 SHERRY RONE: We did move the re-infiltration
24 -- I'm sorry. I apologize. I have the wrong glasses
25 on.

1 GREG BURGESS: It's a surface discharge is
2 what it is.

3 SHERRY RONE: The re-infiltration was
4 originally supposed to be in surface ponds. But it's
5 no longer in the surface ponds because we started
6 accumulating quite a few birds directly over the flight
7 path. So we actually -- we moved the re-infiltration
8 to -- even though we have the pond -- I do apologize.

9 GREG BURGESS: I think that's right in here.

10 SHERRY RONE: That is. Yeah. So it's not in
11 the gray spot. It's further back. So that's where
12 we're re-infiltrating in the compost facility. It's
13 still within Area 6, but not in the ponds that were
14 designated for.

15 GREG BURGESS: And originally it was being
16 reinjected into some wells in about this area here.
17 But because of the iron precipitation problem, it just
18 wasn't feasible to continue.

19 Yes.

20 KIM MARTIN: I don't know if this is the
21 appropriate time to ask, but are we still engaged with
22 the people in those areas and have wells in those
23 areas?

24 GREG BURGESS: I believe -- go ahead.

25 SHERRY RONE: Yeah. When -- when the EPA

1 first asked the Navy to look -- to start looking at
2 1,4-dioxane in 2003, in 2006, when we realized that it
3 was beginning to leave the site, what the Navy did is
4 they went to the homeowners directly within a quarter
5 mile from the boundary, the property boundary, and they
6 reinstalled all of those wells.

7 NANCY HARNEY: No, I don't think -- I don't
8 -- I think we sampled existing wells.

9 SHERRY RONE: We sampled existing wells, but
10 the Navy replaced their wells and put filtration
11 systems on them. I know one of the filtration systems
12 has reverse osmosis filtration system on it.

13 So they -- also one thing I need to make clear.
14 This is not the drinking water aquafer. This aquafer
15 is not used for drinking water at all. This is the
16 uppermost aquafer. The drinking water aquafer is much
17 lower, and there's a nice big boundary in which the two
18 -- the twain shall never meet.

19 KIM MARTIN: But when you say it's not the
20 drinking water, what about the ones -- I just remember
21 we had someone who was growing vegetables and was very
22 concerned about the damage that water would cause her
23 vegetables because she was an organic gardener. Is an
24 irrigation well different than a drinking water well in
25 this case?

1 NANCY HARNEY: No. And I think in that case,
2 if I -- I definitely recall that person, and -- and the
3 levels of 1,4-dioxane in their -- in their private well
4 were still below --

5 KIM MARTIN: Miniscule levels.

6 NANCY HARNEY: -- the level of concern that
7 we had.

8 BRENT JONES: Only one outside well was
9 detected, and that's the one that Sherry said that we
10 replaced. So all the other private well sampling
11 indicated no detection of 1,4-dioxane.

12 KIM MARTIN: Did the EPA finally come out
13 with what a health hazard is?

14 SHERRY RONE: Actually, EPA does not have
15 one. Island County has one.

16 NANCY HARNEY: And Ecology has --

17 SHERRY RONE: I know --

18 NANCY HARNEY: I don't think there's a
19 federal --

20 SHERRY RONE: Right.

21 (Speaking simultaneously.)

22 KIM MARTIN: Because at that time they
23 weren't able to determine where that level was so they
24 really couldn't say.

25 SHERRY RONE: And that's -- that's why this

1 is called an emergent contaminant. Everyone is taking
2 a look at is. It's not just here. It's all over the
3 country that we're having problems with this. And --
4 and so a lot of -- like EPA has done quite a few
5 studies and there was a major change in 1,4-dioxane
6 that just occurred in August of 2010 or 2011?

7 NANCY HARNEY: I can't hear. Just wait.

8 SHERRY RONE: I'm sorry. In August of 2010
9 they came out with risk base for 1,4-dioxane, and at
10 that point they said they believe 1,4-dioxane is a
11 potential carcinogen. So we treated it as a
12 carcinogen. But it was very tricky in a lot --
13 everyone is having a really difficult time to try to
14 get a clear picture of 1,4-dioxane. So we're being
15 prudent in dealing with it, and we have been prudent in
16 dealing with even though there were no formal guides,
17 no formal regulation as to what the actual limit is.
18 In 2010 Island County had a -- had a limit that was 4,
19 but I think they pushed it to .4.

20 Anybody from Island County, if you could verify
21 that for me I would greatly appreciate it.

22 NANCY HARNEY: I think that was Ecology.

23 SHERRY RONE: Was it Ecology?

24 NANCY HARNEY: I don't think that was the
25 County. I think it was --

1 SHERRY RONE: Okay. So if Ecology pushed it
2 from 4 to .4, then Island County is 3. Because prior
3 to that, Island County's level of concern is when you
4 need to take action, which was 3 micrograms per liter,
5 is what I always set my goal by. And I could -- you
6 know, I can actually find it and answer the question
7 correctly and send it out to everybody. So I can do
8 that. I'll take that down, and that will be one of my
9 action items.

10 NANCY HARNEY: I think we did use 3. I think
11 you're right. And I think that was also a number that
12 ATSDR was on board with. It was not -- I don't even
13 know that it was a risk-based number. I'm not really
14 sure --

15 SHERRY RONE: It was an action level number.
16 They wanted you to take action.

17 NANCY HARNEY: And we used that because that
18 was the --

19 SHERRY RONE: Only thing --

20 NANCY HARNEY: -- only thing that we had --

21 SHERRY RONE: -- we had. Right.

22 NANCY HARNEY: -- at the time. But we had --
23 we were getting results that were well below that.

24 KIM MARTIN: Thank you.

25 DIANNE VOGEL: So we do have in the minutes

1 from the last meeting what Island County quoted for
2 1,4-dioxane. I can supply that to you if you'd like.

3 GREG BURGESS: And I believe that was all I
4 had.

5 SHERRY RONE: So from this point forward
6 we're going to talk about something really exciting.
7 Area 1 beach landfill. And I'm going to have Mr. Brent
8 Jones come up and --

9 BRENT JONES: So I'm Brent Jones. I'm with
10 Tetra Tech. I'm the project manager supporting Sherry
11 Rone, the RPM on this project, with the repair of the
12 seawall at the Area 1 beach landfill.

13 We'll go over a little bit of the history of Area
14 1, talk a little bit about the project, and then where
15 we currently are today. So Area 1 landfill is on NAS
16 Whidbey proper. It's on the kind of right central
17 shoreline of the station. And the landfill was
18 operated between the '40s and '70s. It was closed in
19 the '70s. At that time they capped it, built the
20 seawall. The seawall at that time was constructed with
21 large chunks of concrete riprap. "Large" meaning some
22 of them half as big as a house.

23 So and also starting in the late '80s, early '90s,
24 the Navy implemented a RIFS investigation. From that
25 RIFS investigation came a Record of Decision that

1 required land use controls at this site. And land use
2 control, so everybody knows, include engineering
3 controls and institutional controls. So engineering
4 controls would be a landfill cap with the seawall, in
5 this case, since it's on the shoreline and we want to
6 protect the contents.

7 The reason it's LUCs is because the RIFS did not
8 identify any chemical hazards of concern, although it
9 did recommend that monitoring during a following
10 five-year review be conducted. And then also as part
11 of the land use controls the Navy does annual land use
12 control inspections. Starting in about 2009 the Navy
13 noted that there was some erosion starting on the
14 landfill cap and the follow -- following that, in 2010
15 we implemented a formal surveying program.

16 So that surveying, in the initial phases between
17 December 2010 and February 2012, you can see -- and I
18 remember working out at this site back in 1997. And
19 this vertical bluff here wasn't a vertical bluff. And
20 this concrete riprap here was -- this was a sloped
21 surface composed mostly of this riprap. So between
22 December 2010 and February 2012, our formal surveying
23 identified up to 16 feet of erosion in some of these
24 spots along here. And so that -- you know, that's
25 pretty significant. Go ahead.

1 remember when it was --

2 SHERRY RONE: If you can get me some
3 information on that, I'd like to take a look at --

4 KIM MARTIN: Because that might have made the
5 difference. I can imagine it would cause the tide to
6 hit our coastline differently if it wasn't there.

7 SHERRY RONE: Yeah. That would be great
8 information to have. Thank you.

9 BRENT JONES: All right. So here's just some
10 pictures of what the seawall looked like during that
11 timeframe. You can see that -- you know, what the Navy
12 put in this landfill back in the '40s and '70,
13 construction and municipal waste. Some of -- a few
14 items like a 55 gallon drum. This one was empty.
15 There wasn't anything in it. But you can see from the
16 materials that are potentially washing out, you want to
17 get this and you want to correct it pretty quick, get
18 the engineering control put back in place.

19 This is a -- what's really interesting from this
20 is this is how powerful Google Maps can be. We went to
21 -- I initially, in trying to get a visual indication of
22 how much erosion was going on here, used Google Maps.
23 If you go on Google Maps and you click on the history,
24 you could go back to, in this case at this location,
25 1990 or '91. And then they've got a series of six

1 different aerial or satellite images to look down on
2 the site. Along with our surveying, we -- what you see
3 here is the green is 2000 and...

4 SHERRY RONE: February 2012. I'm sorry. The
5 green is 2004.

6 BRENT JONES: 2006. Yeah. So between 2006,
7 which really came from our Google Maps, to our
8 professional surveying that started in 2010, you can
9 see how much erosion has gone on in this section of
10 beach. Now, the other thing that goes with this
11 section of beach is it's a feeder bluff. So it's known
12 for feeding sediment into the near coastal environment.
13 Although at Area 1 the tides hit almost exactly
14 perpendicular, which is really good when we get to what
15 we're talking about the design we're putting in. So
16 from 2006 to 2012 there's some spots that have eroded
17 up to 42 feet, and with an average rate of about seven
18 and a half feet. That's a lot.

19 SHERRY RONE: Yeah, actually, I think the
20 green is 2004, if I'm not --

21 BRENT JONES: Four or six. Somewhere in
22 that.

23 SHERRY RONE: Green is 2006. Okay.

24 BRENT JONES: So our first response is we,
25 you know, need to get out there pretty quick --

1 (Interruption by the court
2 reporter.)

3 BRENT JONES: -- and get out immediately,
4 stabilize the shoreline, and while we're developing our
5 Phase II plan for permanent remedy.

6 And so Phase I is a Time-Critical Removal Action
7 that was completed in February 2012. What we did
8 during that immediate rapid response is we came out and
9 we put riprap along the toe here so that any storm
10 events that would occur between February and June,
11 July, August, when we actually got out there to start
12 Phase II, would not continue to erode the bluff.

13 And then Phase II, which is completed as far as
14 the design goes now, shows the permanent remedy. And
15 we'll talk a little bit about that on the next slide.

16 DIANNE VOGEL: Question?

17 DOUG KELLY: So it's called a removal action
18 but it's armoring?

19 BRENT JONES: It's -- it's -- the removal --
20 Time-Critical Removal Action and Non-Time-Critical
21 Removal Action are CERCLA terms because this site is
22 under CERCLA, and we need to do some action beyond what
23 was specified in the ROD.

24 NANCY HARNEY: But so it's called a removal
25 action and -- but the term "removal" covers a lot of

1 different kinds of activities. So it's really, you
2 know, any action to fix a problem.

3 LCDR FRANK CARROLL: It's removing the treat,
4 correct?

5 BRENT JONES: Yeah.

6 NANCY HARNEY: It doesn't have to be taken
7 away.

8 SHERRY RONE: And the difference between a
9 time-critical and non-time-critical, the time-critical
10 you're going to go out right away. If you have six
11 months to plan it, then they said that is a
12 non-time-critical. So we knew we needed to do
13 something right away, it was critical. But what the
14 non-time-critical means is that we had a chance to plan
15 it, and the planning took greater than six months.

16 DOUG KELLY: Thank you.

17 BRENT JONES: All right. So here's a good
18 example of what you saw before Phase I, the immediate
19 rapid response action, and, you know, here we've put in
20 the riprap just for a short-term stabilization armor
21 rock.

22 Phase II. So this is one of the neat aspects to
23 the project. We'll talk some more about some of our
24 green stable technology we built in. But we were
25 looking for an innovative low-impact design that would

1 include dynamic stabilization, in other words, you
2 know, addressing moving waves and the energy from
3 moving waves, static stabilization to keep things in
4 place on the bluff face, static stabilization along the
5 gullies. And there we're looking at A-Jacks, and we'll
6 show you a picture of those in a little bit, as well as
7 maintaining a green component to the project and
8 putting in vegetation stabilization on the crest and in
9 the gullies.

10 So some of the design elements for the project
11 include a foreshore slope protection. And I mentioned
12 before how in this particular shoreline the waves --
13 I'll just come in and point. Basically the waves come
14 in perpendicular to the shoreline here. They're
15 hitting at almost 90 degrees, which for stabilization
16 purposes works out well because we're going to be
17 putting gravel on the beach. And so we're going to be
18 hitting about a six horizontal one vertical down on the
19 beach itself, which is down in this area, that
20 foreshore slope stabilization. And that gravel will
21 just go back and forth. Our coastal engineers have
22 done an engineering design that it will move around,
23 but it will basically stay in place. So that's the
24 first component of it.

25 Second component is the bluff protection where we

1 have a minimal four-foot thick armor rock over a
2 six-inch -- and this is the innovative part here --
3 marine mattress. So if you guys are keeping up with
4 the downtown Seattle tunnel project, that seawall,
5 they're also planning on putting in marine mattress.
6 It's -- well, we'll see some pictures of that here in a
7 minute.

8 In the drainage valleys -- and there's three of
9 them, one here at the south end, one here in the
10 central, and one at the very north end -- what we'll do
11 there is we'll put in the A-Jacks, 24 inch A-Jacks with
12 gravel and vegetation in those areas, and then use the
13 vegetation along the crest, and then in the gullies as
14 well.

15 KIM MARTIN: Are drainage gullies natural or
16 are they created?

17 BRENT JONES: Well --

18 KIM MARTIN: Are you putting them where they
19 are naturally going to hit? I'm trying to figure out
20 where the little indents go.

21 BRENT JONES: Yeah. The one at the north
22 end, one at the south, those are natural. They're just
23 natural low depression areas. The one in the central
24 location here, Lexington -- not Lexington. Might be
25 Lexington. Lexington Avenue that runs along this area

1 collects stormwater. That stormwater goes through a
2 collection system and discharges in this area. It runs
3 across the landfill cap and discharges in this
4 location. So what we've done there is we've stabilized
5 that entire gully. We've put in -- we've lined it with
6 filter fabric material and put in filter rock in that
7 area. So it will not continue to v notch erode that
8 area, and it will be stable, and it's built into our
9 design with these A-Jacks.

10 KIM MARTIN: And do gullies go down the --
11 down the incline or do they just come out at the
12 bottom?

13 BRENT JONES: No. All three of these incise
14 through the valley and would if left -- two things
15 happen. If left unalone [sic], the waves -- wave
16 action and the 25, 50, 100 year storms will wash up and
17 they'll creat significant erosion from the waves coming
18 in and eroding. And then you also get the erosion from
19 terrestrial waters that are coming through eroding.

20 KIM MARTIN: Okay. Thank you.

21 BRENT JONES: Some of the benefits of our
22 design. Foreshore gravels --

23 SHERRY RONE: I apologize. I want to
24 interrupt for one second. So the reason -- for those
25 of you who weren't at the last presentation, what I

1 wanted to make clear, the reason that we chose hard
2 armoring, we talked about that they performed a wind
3 and wave analysis. What their wind and wave analysis
4 showed us is that we had a 65 mile fetch that was
5 hitting that beach. And so we're getting hit with
6 waves that are -- that are just unheard of. And so any
7 type of soft armoring, whether it's timber or any other
8 type of soft armoring, just is not going to work here.
9 So we don't have -- we didn't have a choice. We have
10 to put in hard armoring or we would completely lose the
11 landfill.

12 So because we have to use hard armoring, it
13 doesn't mean that it can't be green and innovative and
14 sustainable. So what we decided to do is, well, we're
15 stuck with hard armoring. How can we make this as
16 green as possible, as sustainable as possible, and
17 something that is going to be aesthetically pleasing to
18 a boater or to the public as well. But for the most
19 part it is going to stabilize that beach and we won't
20 lose it. So when you hear us talk about the things
21 that we did, and we talk about hard armoring, I would
22 like you to please pay attention that, yeah, there's
23 hard armoring, however it is still green and
24 sustainable. I just wanted to make that clear for
25 everybody.

1 BRENT JONES: So on the forebeach, I
2 mentioned the gravel that we're going to be putting out
3 there to get that six-to-one slope. That dissipates
4 energy at the toe of the slope and protects the
5 revetment that we're putting in along the toe. That's
6 one benefit.

7 The other benefit that's not in here, in talking
8 with Fish and Wildlife, both NOAA and Washington Fish
9 and Wildlife, it will improve fish habitat. So we've
10 got courser forebeach environment that doesn't have
11 large concrete debris out there, scattered, you know,
12 concrete, and just sand. So we're improving the
13 habitat. Although my biologist says be careful how we
14 say that, it still does improve the habitat.

15 The bluff protection benefits. Sherry mentioned
16 the marine mattress underlying will protect, acting as
17 a filter layer for water, versus what can happen with
18 just a hard armoring, big large four-foot diameter
19 riprap, is infiltration of water can get underneath
20 that and it can erode and you can lose even the riprap
21 that you put in. So and then the other benefit of the
22 marine mattress is we're putting less thick armoring
23 than you typically would if it were just large rock.

24 Drainage gullies. The drainage gullies, when they
25 turn landward from the -- the seawall itself, we'll be

1 flanking those with our A-Jacks that we're putting in.
2 We'll see more about that here in a minute.

3 So here's the two really innovative components.
4 The marine mattress. It kind of looks like a gabion,
5 but this is made of -- I want to say PVC. It's not
6 PVC, but it's --

7 SHERRY RONE: High density polyethylene.

8 BRENT JONES: HTPD. It's a bag. We fill the
9 bags with -- in this case another green component of
10 this project is the concrete that we picked up off of
11 the beach to improve the fish habitat, we're sending
12 off site, we're having that crushed to the right
13 specifications to fill these bags back up with. Have
14 it washed so we don't create high pH conditions. Have
15 it brought back to the site, and we're using that as
16 fill in our bags.

17 And then the second component of it is our
18 A-Jacks. There aren't too many locations on the West
19 Coast where these A-Jacks are being used. But think of
20 them like, you know, when you were a kid you had -- you
21 had the jacks, ball and jacks, and that's what these
22 things look like. And in our situation we don't need
23 really large ones. These are two-foot lengths. So you
24 build them on site. A guy can actually pick up one arm
25 of it, walk it down to the site, and then we can build

1 them on the site. On the East Coast you'll see some of
2 these that are up to 12 foot high, big ones.

3 And then utilization of the native vegetation is a
4 benefit of our Phase II. And we've worked with our
5 biologists and so forth to, you know, develop what's
6 the best in this area. Snowberry, thimbleberry, and
7 strawberry.

8 DIANNE VOGEL: We have a question.

9 JILL WOOD: Are you proposing that the
10 mattress and the use of the A-Jacks are used along the
11 entire length of the shoreline there or just in certain
12 sections?

13 BRENT JONES: The marine mattress will be
14 laid along the entire section. And so the way it
15 actually will work is, we'll have a filter layer
16 underneath the marine mattress on the entire 940 feet.
17 Then we'll have the marine mattress that sits on top of
18 that filter fabric, and then we'll have the hard --
19 reduced thickness of the hard armoring on top of that
20 for the entire distance, 934 feet. But in the -- in
21 the valleys -- or in the gullies, those three gullies,
22 the north end, the south end, and the one in the
23 center, those will transition from marine mattress as
24 we move back up into the gully with our A-Jacks, and
25 they'll be bedded in gravel and then we'll plant

1 vegetation in that. Eventually the vegetation will
2 grow up over the A-Jacks.

3 Some of the environmental protection measures that
4 we're taking for the project. We're only working at
5 high tide. We're not going down on the beach. You
6 know, no in-water work is going to be conducted. Work
7 during favorable weather conditions. In September we
8 couldn't have asked for anything better. This has just
9 been the best month. So hopefully it continues well
10 into October. Our equipment that we're using on site,
11 using biodegradable hydraulic fluid so if we do have a
12 spill that we've got biodegradable fluids rather than
13 the typical hydraulic fluid. We're working in the
14 allowed fish window, which for this area is July 15th
15 through February 15th. We do daily water quality
16 measuring. And we use silt fencing and straw booms in
17 areas where there could potentially be surface water
18 runoff.

19 So here we've got some photos, the next three
20 sides, of where we are today, what we're doing at the
21 site. This first picture here shows us loading up the
22 concrete to be taken off site to be recycled. Second
23 photo here is this is what the marine mattress bags
24 look like empty. Shows the framing that we put in in
25 order to fill them up. And then this picture here

1 shows some of the filled marine mattress. It's some of
2 the activities that we're doing right now while we're
3 waiting for our final approval from the Navy to start
4 the full project in earnest.

5 And then also here we're starting to lay a few of
6 the marine mattress in place. This is our -- our
7 initial slope in prepping to set the marine mattress.
8 And then here you can see the marine mattress, and then
9 we're laying the armor stone on top of that. That's
10 it.

11 ALLISON CRAIN: Which water quality
12 [indiscernible] --

13 (Interruption by the court
14 reporter.)

15 ALLISON CRAIN: Which parameters are they
16 monitoring?

17 BRENT JONES: Turbidity; pH. Those are the
18 two main ones. And then the guys are told that if
19 anything unusual, other than, you know, those
20 parameters, to identify that, call our compliance
21 person and identify that.

22 DIANNE VOGEL: Any other questions?

23 So we can take a five-minute break if you'd like.
24 Be back at ten after one, please.

25 (A break was taken.)

1 DIANNE VOGEL: So we have some time right
2 after for discussion. Just want to get through the
3 agenda. So the next one will be the State Petroleum
4 Cleanup program or the MTCA, Model Toxics Control Act.
5 And this is a site that I take care of, Dianne Vogel,
6 and it includes the fuel farms. On Ault Field we have
7 Fuel Farms 3 and 4. And Seaplane Base, down the
8 street, we have Fuel Farms 1 and 2.

9 So over the last two years we've made a lot of
10 progress in trying to close out the farms and to return
11 them to the base for use. The farms were closed as
12 active fuel farms in 2009. And during that time we've
13 done groundwater mapping of the plume, and we've done
14 soil mapping to see how -- how much impact we've had.

15 The soil is glacial and it's very very hard.
16 We've actually broken bits getting down there. So
17 Ecology decided -- and they have been out there many
18 times to the different sites -- to leave that
19 contamination in place because for the most part it's
20 16 feet below ground. And the MTCA level is zero to 15
21 for cleanup. But even if we wanted to, it would be --
22 it would be very difficult to remove that soil because
23 it's so tough.

24 So right now we are in the process at Fuel Farm 2,
25 which is on Seaplane Base, we will return it as a

1 limited recreation, meaning they can use it for
2 recreation but digging will have to be approved by
3 Ecology because we are leaving contamination in place,
4 and we'll have land use controls to that effect.

5 KIM MARTIN: So 1, 2, and 4 are the ones at
6 Seaplane Base?

7 DIANNE VOGEL: One and two are at seaplane,
8 and three and four at Ault Field.

9 KIM MARTIN: Thank you.

10 DIANNE VOGEL: So Fuel Farm 2 is overlooking
11 the bluff so we're trying to make it look pretty. The
12 wells, we are currently working on abandoning them. We
13 have to do the four-quarter sampling that's required by
14 Department of Ecology to abandon wells. And then what
15 they do is look at all the data that we had for these
16 wells for 20 years to see what impact from up-gradient
17 to down-gradient is to make sure that we are abandoning
18 wells that we can abandon without impacting the ground,
19 for the impact of the groundwater.

20 So the pipelines have all been removed above
21 ground, and all the sources of contamination have been
22 removed.

23 At Fuel Farm 1 we've separated it into two parts.
24 We have an upper part and a lower part. The upper part
25 by the astronomy. I've never been up there to the

1 astronomy building. It's an historical site. The
2 upper Fuel Farm 1 we'll make another recreational area.
3 And there we'll have something called a bioventing
4 tank. What we did is create a tank where contaminated
5 soil can be put and be degraded through natural
6 attenuation on site. It has weather vanes. It's using
7 oxygen to break it all down with fertilizer. No, it's
8 not a bomb. But just a little bit of fertilizer to
9 give that bacteria something to work with. So the hope
10 is that we can make this into an area where the
11 community, the military community that lives on base,
12 or visitors, can see what remediation can do for the
13 environment.

14 Now Fuel Farm 1 lower is where the marina is, and
15 the pump house there. So part of the Fuel Farm 1 is
16 going to remain industrial because of the pipeline pump
17 house. The bay is protected. We check the wells, and
18 we don't have a lot of product, if any at all, coming
19 out of the wells anymore. We just have a trace
20 depending on the tide. Fuel Farm 1 lower is very
21 tightly -- it's fill, sandy fill, and the groundwater
22 is ten feet below, so we don't get a lot of movement of
23 anything at all from the pump house, so anywhere from
24 the top to the bottom.

25 Fuel Farm 3 is on Ault Field and will remain

1 industrial. We are still recovering product. Fuel
2 Farm 3 was the site of a large spill in the '40s. And
3 we were able to recover 40,000 gallons of petroleum
4 from that site. The site itself -- I have a joke with
5 my contractors. Depends on the alignment of the stars
6 the moon if you have a little movement or not that we
7 get product out of those wells. Sometimes we get five
8 gallons. Sometimes we get nothing. So it's been
9 really difficult to determine how to optimize the wells
10 to get more product. We are going to make a parking
11 lot. I'm not sure what the plans are, if they have
12 changed, but that's what the plan is for that area, to
13 make it into a parking lot. Any kind of construction
14 in any of these sites with regards to buildings will
15 have to have an [indiscernible] attached to it because
16 of the contamination.

17 Fuel Farm 4 again will remain as an industrial
18 area. It can be used as a recreational area if the
19 base so chooses.

20 We just finished our third five-year review on the
21 fuel farms, and Department of Ecology has agreed to go
22 to final without comment. They were very pleased with
23 the progress we've made at the farms. And -- and
24 that's -- the well abandonment will happen in phases.
25 And what we'll do is, the wells are mostly above

1 ground. They have yellow [indiscernible] that we'll --
2 we'll cut them and abandon them in place and make sure
3 that the walkways and so forth are safe for human --
4 human people to walk on, and that the kids don't eat
5 the dirt and so forth. So that's the fuel farms.

6 Any questions? No?

7 Go ahead. So the next one we have is Melissa.
8 She's going to discuss the munitions sites.

9 MELISSA PALMER: I have two sites to give an
10 update on. The first one is the former Lake Hancock
11 target range, which you -- you may know back in the
12 World War II era up until the early '70s it was used as
13 a practice target range for air-to-land rockets and
14 bombs. And they were, as far as we can tell, all
15 training rounds. There's no record of any live
16 ordnance being dropped there. But the aircraft used to
17 come in and fly over Lake Hancock, which is really a
18 saltwater lagoon rather than a lake, and drop the bombs
19 on this target area that was maybe halfway between the
20 lake and the beach area. And back in the '70s they --
21 explosive ordnance detachment did several removals of
22 old rocket motor bodies, mostly, and some old bombs and
23 pyrotechnics. They used flares so that if they went
24 out at night and dropped bombs they could see where it
25 landed and whether it hit the target.

1 There are still some rocket motor bodies in the
2 target area. And so the Navy is planning to remove
3 these from the beach in the 2014 timeframe. And so in
4 preparation for that, we are in the middle of doing a
5 wetlands delineation study there and looking at the
6 feasibility of digging -- doing subsurface removal of
7 any -- any items that might be there. We definitely
8 will remove the ones on the surface, and we're just
9 evaluating whether subsurface removal is safe for the
10 area.

11 ALLISON CRAIN: At what depth?

12 MELISSA PALMER: Down to one foot is what
13 we're considering.

14 KIM MARTIN: When you do the delineation
15 study, how do you do that?

16 MELISSA PALMER: Biologists go out and look
17 at the plant life and look at the soil that's there to
18 see how much of it is wet, how much is dry. It pretty
19 much boils down to what type of plant life it supports.

20 Lake Hancock is a very unique wetlands area in
21 that it's the northernmost saltwater wetland of its
22 kind. The others being San Francisco Bay area. Those
23 are a pretty unique and valuable resource.

24 KIM MARTIN: What about all the logs, the
25 creosote logs that end up piling up --

1 MELISSA PALMER: Yeah, they removed them
2 several years ago.

3 KIM MARTIN: They did. But they haven't
4 built back up again?

5 MELISSA PALMER: Not to my knowledge.

6 ALLISON CRAIN: They just did the wetland
7 delineation and they didn't report any.

8 MELISSA PALMER: Yeah. And I've been out
9 there several times and I haven't seen any creosote
10 logs out there.

11 KIM MARTIN: And the only rocket they found
12 was the one leaning up against the tree?

13 MELISSA PALMER: The only -- the only one
14 they found that we didn't know about before. Yes. And
15 they did -- EOD did come out and remove that. So I put
16 a note in this update here reminding people it is Navy
17 property, and people are not supposed to be walking on
18 it. And even though they're training rounds, there
19 could still be some propellents, or in the case of the
20 flares or the spotting charges there could be other
21 chemicals in there. They used white phosphorous in the
22 spotting charges, for example, and that's very reactive
23 with air. So, you know, try to encourage people to
24 stay off of the property and not go onto the beach or
25 bother the rocket motors.

1 The other site to update you on is the -- what we
2 call the aviation fleet and gunnery school. This is
3 also a World War II era site, and it's between the golf
4 course and the beach at Whidbey Island. That whole
5 area was the aviation fleet gunnery school. And when
6 we did a -- what's called a preliminary assessment and
7 we looked at sites, all potential former ranges under
8 the military munitions program, there were a couple of
9 areas within that aviation fleet gunnery school that
10 were identified as needing further investigation. One
11 were machine gun ranges, and one was what they called
12 the mobile turret tower range.

13 And the machine gun ranges are these big huge
14 acres' worth of bermed areas. And then they had a
15 railroad track inside that berm with a rail car that
16 had like a goal post with canvas across it. That was
17 the target. And they had a railroad track went ran
18 back and forth on a line, and they had cars on there
19 with these machine gun turrets, and they taught gunner
20 -- the gunners would be on a moving track and shooting
21 at targets that were moving in front of them, and
22 shooting out toward the ocean, and shooting 50 caliber
23 machine guns.

24 And then the mobile turret tower range, they had
25 kind of a similar setup where they had a tower where

1 they would shoot at clay pigeons and they had a moving
2 tack that gunners would shoot on with 12 gauge
3 shotguns.

4 So we did a site investigation in 2009 timeframe,
5 and we did soil sampling there. Overall, the site was
6 fairly clean, which actually surprised me considering
7 they were shooting thousands and thousands of rounds of
8 machine gun. But then it makes sense if you think
9 about the direction they were shooting and how far out
10 a machine gun carries. But there were a couple of
11 locations where there was lead in a couple of samples,
12 and PAHs in a couple of samples that were just very
13 slightly over cleanup levels. And so Navy and EPA have
14 agreed to limit the use of this site and restrict it so
15 that there will never be a residential use there. So
16 we're in the process of doing what's called a
17 Non-Time-Critical Removal Action, just to formalize the
18 -- the land use controls so that we don't build houses
19 there in the future, don't build daycare centers, that
20 kind of thing. And I could -- I can talk a long time
21 about these sites. They're very fascinating to me,
22 so...

23 KIM MARTIN: I just have one question. I
24 know we have a range out there now. Is that not in the
25 same location?

1 MELISSA PALMER: The area where the machine
2 gun ranges are borders that rifle range. In fact,
3 there used to be three machine gun ranges, and the one
4 machine gun range was removed and they put in that
5 rifle range. But we're of course avoiding that active
6 range area.

7 DOUG KELLY: You said you had lead and PAHs?
8 Those are soil samples?

9 MELISSA PALMER: PAHs at tower range were
10 probably from the clay pigeons because they use
11 petroleum as a binder.

12 DIANNE VOGEL: Any other questions?

13 All right. So thank you, Melissa.

14 So we are actually going to the public arena, and
15 since Ed is not here he -- again he apologized. But do
16 you guys -- does anybody from the public, I guess Oak
17 Harbor, do you have any comments you'd like to present
18 at this time?

19 DOUG KELLY: So I don't know to what degree
20 any of you have heard about Gallery Golf Course and
21 they're switching over from using pipeline water for
22 irrigation to wells. And they got a permit, a water
23 right from Department of Ecology. They went through
24 expedited review. There is a fair amount of community
25 concern from the neighbors about that impact to

1 potential wells. And one of the other concerns that
2 has been raised is the potential for this withdrawal
3 impacting existing contamination sites, such as Area 6
4 or Area 29. Area 6 was kind of targeted because of the
5 level [indiscernible], you know, errantly. It's pretty
6 far away. And Area 29 is right there and pretty close.
7 And I just thought we should throw it out there so
8 those of you that are involved in monitoring those
9 wells. The aquafer in which the Navy wells completed
10 is about 50 feet below sea level. It's very transient
11 [indiscernible] so not a lot of drawdown, but it
12 extends a long distance, and so there's a possibility
13 that it might show up in some monitoring that you guys
14 do at these various facilities. I just thought it
15 should be put on you all's radar.

16 DIANNE VOGEL: Thank you. Do you have any
17 other comments?

18 NANCY HARNEY: I just was wondering what the
19 latest is in terms of where things stand from the
20 community folks or the people who have the wells, you
21 know, the residents. Are things just -- I mean,
22 there's --

23 DOUG KELLY: There's still a lot of anxiety.
24 You know, groundwater, you can't see it, you can't
25 touch it, so people -- a lot of unknowns, and they

1 don't necessarily trust government and so they -- and
2 they don't trust the science, and so there's just a lot
3 of concern, and it hasn't really gone away. I suspect
4 it won't go away until we've gone three or four years
5 out without problems, and then maybe perhaps people
6 will calm down. But really rational discussions about
7 what the science says hasn't had a big impact on
8 consoling, I guess, people.

9 ARNIE PETERSCHMIDT: What's the breakdown
10 products of oxidizing 1,4-dioxane? What do you get
11 after you oxidize it?

12 GREG BURGESS: If we're doing sonic and the
13 oxidation [indiscernible] destruction. If you use
14 persulfate, you could have some is residual sulfates.

15 DOUG KELLY: It ends up being something.

16 BRENT JONES: Carbon dioxide and water --
17 carbon monoxide -- carbon dioxide and water.

18 DIANNE VOGEL: Any other questions from
19 anyone? Comments?

20 NANCY HARNEY: I -- just on the -- Greg, the
21 bench-scales that -- the bench-scale study that you're
22 going to be doing on the sonic, is that what that is, a
23 bench-scale study?

24 GREG BURGESS: Yes.

25 NANCY HARNEY: And when is that supposed to

1 happen?

2 GREG BURGESS: It's going to take the WET
3 Center about 300 days or so to get that done. We're
4 planning on getting the water that they would do the
5 testing on, send it out to them at the end of this
6 month.

7 NANCY HARNEY: So by the end of next summer?

8 SHERRY RONE: Right. I had ask you for an
9 extension, and you gave me an extension until December
10 2013.

11 NANCY HARNEY: That's right.

12 SHERRY RONE: You know, we've gone back and
13 forth with them for quite some time. They're academic
14 and so -- academia, I should say, and so they need more
15 time. But, yeah, you know, if we do choose persulfate,
16 like Greg said, we will definitely -- there's potential
17 to having [indiscernible] remaining. If we choose
18 peroxide ozone, we won't have anything. It will just
19 be CO2 and water.

20 GREG BURGESS: And a lot of iron.

21 SHERRY RONE: A lot of iron. Iron seems to
22 be an inhibitor here, you know. And, you know, we
23 finally said, you know, let's find a technology in
24 which iron can help, and that's how we're looking at
25 the persulfate.

1 DIANNE VOGEL: Anyone else?

2 So Nancy, do you have any old business?

3 Any new business anyone wants to bring up?

4 Okay. Have all your questions been answered, your
5 concerns?

6 Okay. So our next meeting date, just something we
7 need to discuss. Ed Oetkin, he recommended September
8 2013, however this is up for discussion for the group
9 to vote on.

10 Kim, you had a suggestion?

11 KIM MARTIN: I was thinking we meet in
12 another six months because I think there's a lot of
13 ongoing issues that might be wise to chat about and not
14 go that long.

15 NANCY HARNEY: I think next spring might
16 be --

17 SHERRY RONE: I was thinking March or April.
18 I was thinking like Kim and Nancy. Six months, March
19 or April.

20 DIANNE VOGEL: Okay.

21 MELISSA PALMER: April.

22 DIANNE VOGEL: So it's voted on. Can I get a
23 second on April 2013?

24 NANCY HARNEY: I'll second.

25 DIANNE VOGEL: So the next meeting with be

1 April on a date to be determined.

2 And Island County, if you have any changes to
3 personnel, can you please let me know so I can send
4 invites and updates? I will send you the minutes from
5 the last RAB. It's a verbatim, so you'll see what was
6 said about dioxane from Island County. And then you
7 can respond to Sherry if you need to.

8 Commander Carroll, did you have anything you
9 wanted to add?

10 LCDR FRANK CARROLL: I appreciate everybody's
11 time for coming out. We're trying -- the Navy is
12 trying to do these things in a very transparent manner.
13 I believe we are a society -- the Department of Defense
14 society is not built on giving up what we do behind
15 closed doors. So understand that despite our best
16 efforts, sometimes we have missteps in our
17 communication protocol. This is one effort that we're
18 bringing forth to rectify that, particularly in
19 situations like this where there is so much interest
20 and the fear of the unknown no matter what the science
21 says. We understand that, that no matter how much
22 science you have there's still a public aspects to
23 public health. That's the fact of the matter. So
24 again, appreciate your time and effort for coming up.
25 And certainly the contractors and my employees, I

1 appreciate the job you've done.

2 DIANNE VOGEL: All right. So it's 2:36.

3 Meeting adjourned.

4 NANCY HARNEY: 1:36.

5 DIANNE VOGEL: 1:36.

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7 (Whereupon at 1:36 the meeting
8 was adjourned.)

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CERTIFICATE

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I, Janette Curley, a Certified Court Reporter in and for the State of Washington, residing at Kingston, authorized to administer oaths and affirmations pursuant to RCW 5.28.010, do hereby certify;

That the foregoing proceedings were taken stenographically before me and thereafter reduced to a typed format under my direction; that the transcript is a full, true and complete transcript of said proceedings;

That I am not a relative, employee, attorney or counsel of any party to this action, or relative or employee of any such attorney or counsel, and I am not financially interested in the said action or the outcome thereof;

That upon completion of signature, if required, the original transcript will be securely sealed and the same served upon the appropriate party.

IN WITNESS WHEREOF, I have hereunto set my hand this _____ day of _____, _____.

Janette Curley, CCR No. 2030