RESTORATION ADVISORY BOARD MEETING

WEDNESDAY, OCTOBER 30, 2002

NATIONAL CITY, CALIFORNIA

REPORTED BY: Nancy A. Lee, CSR No. 3870

LEE & ASSOCIATES

A T T E N D A N C E

NAVY REGION SOUTHWEST:	Ms. Theresa Morley
SOUTHWEST DIVISION NAVAL FACILITIES ENGINEERING COMMAND:	Mr. Darren Belton
DTSC:	Mr. Douglas Bautista Mr. Dave Murchison
BECHTEL NATIONAL:	Mr. Tim Heironimus Ms. Karen G. Collins Mr. Pete Stang
PUBLIC WORKS OFFICER:	Commander James Wink
NAVY PUBLIC WORKS CENTER:	Mr. Leonard Sinfield Ms. Susan Van Winkle Ms. Adrianne Saboya Ms. DeEllen Brasher Mr. C.T. Sharpe
SCAPS:	Mr. Timothy Shields
PUBLIC ATTENDANCE:	Ms. Anita Boyd Ms. Nancy Lee Mr. Darrell Van Winkle
RAB MEMBERS:	Mr. Eugene Mullaly Mr. Peter Bishop Mr. Elias Margolin

NATIONAL CITY, CA., WED., OCT. 30, 2002, 5:50 P.M.

MS. MORLEY: All right. Let's go ahead and get started.

17:52:44 Welcome and introductions. Boy, there's a lot of people here.

17:52:46 You know Anita. You know Karen Collins. You know Dave Murchison from DTSC and Doug Bautista from DTSC.

17:52:52 That is the infamous Tim Heironimus. He's taking Jerry Bailey's place. Remember, Jerry Bailey retired, so he's the project manager for Bechtel. You know Pete Stang.

17:53:01 Commander Wink, this is Elias Margolin and Pete Bishop. He's the RAB Co-Chair.

17:53:08 This is Len Sinfield. He's from Navy Public Works Center, who's going to be presenting tonight. This is Commander Wink. He's our Public Works officer at Naval Station. This is Adrianne Saboya. She's also from Public Works Center going to be giving a presentation tonight. DeEllen Brasher, she's a project manager at Public Works Center, and you know Darren and you know me. That's everybody.

17:53:30 Does anybody have comments on the RAB

17:53:32 1 minutes from July? Okay. We will go ahead with
17:53:38 2 that.
17:53:39 3 And then just real quickly on the
17:53:40 4 proposed plan for IR Sites 5, 7, 11, and 12.
17:53:44 5 Remember last time we announced that we were going
17:53:46 6 to have our meeting? We had our meeting and nobody
17:53:49 7 came, and I felt very hurt about that, but I've
17:53:51 8 gotten over it with some therapy. But we also
17:53:55 9 received no public comments from the public. We did
17:53:58 10 receive comments from DTSC and from the Water Board.
17:54:01 11 The Water Board concurred with no further action,
17:54:02 12 but DTSC did not. So we're in the process of
17:54:03 13 working that out with DTSC, and that's where we
17:54:03 14 stand on Site 7.
17:54:10 15 You look like you want to say something.
17:54:16 16 MS. SABOYA: No.
17:54:20 17 MR. BELTON: We have letters from DTSC dated
17:54:21 18 September 15th and October 24th. I'll make these
17:54:21 19 available to the RAB.
17:54:26 20 MS. MORLEY: Thank you, Darren. Those are
17:54:28 21 both the letters from the agencies.
17:54:30 22 And this is C.T. Sharpe. He's also from
17:54:32 23 the Public Works Center. They wanted to give
17:54:33 24 support to all their presenters.
17:54:38 25 And this is Tim Shields. He's the head

of the SCAPS, which is the demonstration rig that we're going to be seeing today.

So with that, we will go ahead and get started with Len Sinfield. He's going to talk about the 32nd Street gas station. We've been working on that site for quite a while. It's not technically an IR site, but we figured since it's a good success story, we'll bring that up.

MR. SINFIELD: Welcome. This is actually a very happy talk. We have quite a success story to present here.

The Navy has been waiting a long time on this site. We've been doing work at this site for 14 years. Since 1988 is when they actually started and been working on this site.

They've had free product at this site since 1988, 14 years, and this has been adjacent to the bay. So it's something that needed to be done and, hopefully, we've reached that point, and that's what I'm going to talk about today is how we achieved that and what contamination at the site looked like.

So very quickly we'll talk about the site contamination, where it exists or where it existed -- past tense, hopefully -- and talk about

some of the remediation efforts we've done to take care of that problem, the gasoline at the site, and of course a little bit of oil as well in one well, and current site status where we are post remediation, and what we're going to do to prove that we've got site closure and hopefully that we've cleaned up the site and we can get site closure.

The site is located on the northern end of Naval Station. It's bounded by Harbor Drive and the railroad tracks here, 32nd Street right here, and Chollas Creek which is actually our risk driver for the site. That's the body of water that we're trying to protect. It discharges directly right into San Diego Bay, so that's why this site was very important.

Zooming in a little bit, you see the Chollas Creek. Some of the site characteristics here, Chollas Creek is right here, and most of the contamination, which I'll show in just a second, occurred in this area. It is an active gas station. We have dispensers here, new U.S. underground storage tanks here, but we did have USTs here, here, and I do believe they had some over here as well.

Most wells here within the property had contamination at one point. Just to point out, you

can see there is our groundwater treatment or free product recovery system here, and our thermal oxidizer here in the other corner. That's what we used to clean up the site.

This is an air photograph of the site. Again, you'll see Chollas Creek. And here Chollas Creek is so close to the bay that we are getting tides coming in and out. In fact, when the tide is rising, we'll actually see the water running up the creek basically.

Right now it's -- this photograph was probably taken at low tide. You can see some of the creek bottom here. Sometimes you'll see the whole creek bottom, no water in it; other times you'll see five feet of water in it. So it's definitely tidal.

And that tidal influence, the tidal pressures do transmit onto the site. Tidal pressures, and we'll talk about that a little bit more, the difference between tidal pressure and tidal flowing in and out.

Again, you can see 32nd Street, the Trolley tracks, Harbor Drive right here. Our remediation system -- free product recovery system is in this corner and our thermal oxidizer in this corner. You can see the dispensers here, all the

17:58:57 1 cars lined up, our current USTs, Buildings 3 through
17:59:01 2 7, and then the foot bridge -- and I'll refer to
17:59:03 3 this later because we have some sensors on this
17:59:06 4 bridge to monitor the tidal influence of this creek.
17:59:11 5 Basically we started out --
17:59:14 6 MS. MORLEY: May I interrupt for a second?
17:59:15 7 I just wanted to tell you that this gas
17:59:15 8 station sells 12,000 gallons of gasoline a day, so
17:59:21 9 it was never an option for us to shut the gas
17:59:21 10 station down. Like we see a lot of times in the
17:59:24 11 private sector they'll just shut the station down
17:59:27 12 and do the remediation -- install the remediation
17:59:29 13 system and everything. So the gas station had to be
17:59:32 14 operational the entire time or they'd lose $18,000 a
17:59:37 15 day.
17:59:39 16 MR. SINFIELD: At least. There are some days
17:59:41 17 they did $30,000 worth of business here, so it's
17:59:43 18 very critical to keep this open for the dependents
17:59:47 19 and military folks.
17:59:50 20 We did start out with five separate
17:59:52 21 gasoline plumes or five separate plumes for
17:59:56 22 gasoline, one of oil. The oil basically just
18:00:01 23 occurred in one well, and it was very limited. We
18:00:03 24 did some SCAPS pushes around that to prove that, and
18:00:07 25 of course, Tim will be talking about SCAPS later on,

so I won't be talking about that too much.

We started with 13 wells that had fuel, so we had gasoline and oil in 13 of the wells at the site, so it was pretty prevalent at the site up to five feet thick. So you drop your bailer down, you get quite a bit of fuel in some of these wells.

The site is tidally influenced so the groundwater is moving up and down with the tide. And that is not the same as water flowing in on a creek or a tidal flat in and out. It's more of a pressure change. If you think about a U-tube and put water in one end of the U-tube, the pressure will equalize on that U-tube. So one being the groundwater side and one being the creek. As the tide changes on one side, you'll actually see pressure changes within the aquifer on the other side. So it's not really water flowing into the aquifer and flowing out. It's more of a pressure change. But overall between the high tide and low tide, overall the groundwater flow is towards Chollas Creek.

Fuel, you can only see that in the wells during low tide. You don't see it during high tide. The fuel's in the sand at the site so that when the water table comes up to the pressure change, the

18:01:42 1 water flows around the fuel in the sand, so you only
18:01:45 2 see it during low tides. And we actually had to
18:01:49 3 deal with that in the design of our system.
18:01:51 4 There are two aquifers at the site. We
18:01:51 5 have an upper one. It's pretty silty, pretty tight,
18:01:55 6 doesn't move water very well. They're separated by
18:01:57 7 a clay layer which is called aquitard, the opposite
18:01:57 8 of aquifer. It doesn't keep -- basically it's not
18:02:06 9 very saturated. It separates the two water-bearing
18:02:08 10 units. And the lower aquifer is a lot more
18:02:11 11 transmissive. Water flows through it a lot more
18:02:11 12 easily, and it's more tidally influenced.
18:02:21 13 Here is a map of the free product at the
18:02:24 14 site or what formerly was the free product. We
18:02:28 15 actually -- these two are actually treated as two
18:02:31 16 separate plumes. I don't think they're actually
18:02:33 17 connected back here, but definitely all these plumes
18:02:37 18 here next to the creek are gasoline. This one here
18:02:42 19 was oil and, of course, all these plumes are gone.
18:02:45 20 Again, you'll notice our treatment
18:02:48 21 system in this corner and thermal oxidizer up in the
18:02:51 22 corner. And, of course, you can see Chollas Creek
18:02:53 23 right here. So it was a big problem at the site
18:02:58 24 being right next to the creek.
18:03:01 25 Groundwater flow. This is a map showing

18:03:03 1 the groundwater contours. The blue arrows are
18:03:07 2 groundwater flow. This was taken from last year,
18:03:10 3 October at this time, during our very low tide, just
18:03:14 4 showing that the groundwater flows through here
18:03:16 5 during low tide cycle.
18:03:19 6 Looking at some cross sections of the
18:03:23 7 site, we have a long one here and then a shorter one
18:03:26 8 next to it.
18:03:28 9 The green stuff is actually free-product
18:03:35 10 globs. You can see your silt here, the aquifer
18:03:38 11 where the first bearing unit is, and then below that
18:03:42 12 we have the much more transmissive sand. You can
18:03:45 13 see that the contamination of the free product
18:03:49 14 occurs in both units. These lines right here are
18:03:52 15 the SCAPS pushes, and these black things are the
18:03:57 16 signal coming off the SCAPS rig. Higher, thicker
18:04:04 17 areas indicate that there was free product. Right
18:04:07 18 here you can see almost all free product in that
18:04:10 19 area. So it's rather very blobby, separated plumes.
18:04:19 20 Going on to the remediation at the site,
18:04:22 21 it started in 1988 with sporadic baildown of
18:04:27 22 free-product in the wells. In 1996 there were two
18:04:35 23 horizontal wells installed at the Site, one
18:04:36 24 Air-Sparging well at 18 feet and one horizontal well
18:04:41 25 at five feet or equal to about 400 feet long.

They conducted Air-Sparging on one of them and, unfortunately, that resulted in fuel bubbling up in the creek. They did that for half an hour and shut it down and it's never been used since. So that did result in fuel in Chollas Creek.

After that time, PWC came on board and we started vapor extraction using our thermal oxidizer to pull a vacuum on the wells that had gasoline in it, and pull up the gasoline vapors and oxidize those using our thermal oxidizer.

We also put in a vacuum-enhanced product recovery system. It works in conjunction with the thermal oxidizer to pull up free-product gasoline out of the wells and water -- we're getting water and gasoline. Getting more attrition that way in pulling out the gasoline. We separate it, treat the water, store the fuel, and we discharge the cleaned up water into the sewer.

So here's our remediation system. This is where we did the groundwater treatment. We pulled up the fuel and the water mixture and treated it here in this area in the thermal oxidizer. All our piping ran along the fence line, and we just ran piping out to the wells that had free product.

This one didn't need treatment. After a

few months, this plume went away. We haven't had any detections in this well since then, and groundwater monitoring of this has not indicated anything associated with gasoline or oil or that might be associated with oil have not shown up as well as metals have not shown up.

Here's a picture of our thermal oxidizer. You can see it's got a stack on it. We permit this through the local San Diego County Air Pollution Control District. It runs approximately 150 CFM, cubic feet per minute.

Here's a close-up. Basically this is -- we had just disconnected it. You see we had to cut the inlet piping. This horizontal part is the oven where we heat the gases coming out of the ground, 1400 degrees thermal mode. We can also put catalyst right in here. I think it's tungsten group catalyst that allows us to lower the temperature to 900 degrees Fahrenheit, yet have it meet the same emission standards. That unit now has been demobed. It is no longer at the site.

This is a picture of our groundwater treatment system. We pump from the wells up to an old webbed separator in the stand to separate the fuel and the water. The fuel is stored in this

white fuel storage tank. The water we send to basically a loading equalization tank, so we don't have surges of water coming through our system. And we ran that through an air stripper -- which is behind there, and there should be a picture of that in a second -- through a series of back filters back here, loading them to a carbon polishing and then to our sewer connection right here.

Here's a picture of our air stripper. The air stripper works basically by we dump water into the top. It runs through like a bunch of open beads to try to get more turbulence as it drops, and we also inject air on the bottom and it runs countercurrent to the water, and we strip off the volatile portions of the gasoline that's in the water. And the air comes up here and we actually run them through the thermal oxidizer. Since we're doing treatment anyway, we might as well use it to treat the off gas here as well.

All of the tanks here were also vented through carbon, so we didn't have any air emissions coming off of our tanks. It all went through a carbon treatment before discharge.

We ran the whole remediation system using a computer on board or what we call a process

18:09:00 1 logic controller. We opted for one that was a touch
18:09:04 2 screen. This is exactly what it looks like. This
18:09:05 3 is a picture of it right now. So if I wanted to
18:09:09 4 look at some of the pumps and stuff, I'd just have
18:09:09 5 to walk up and touch the button. It gives me all
18:09:11 6 the information. Here if I wanted to touch the tide
18:09:16 7 button, you can see we -- it shows us the control
18:09:21 8 for this.
18:09:23 9 What we did for this site, since the
18:09:24 10 fuel is exposed during low tide, we wanted to make
18:09:25 11 sure that we pump mainly during low tide, so we put
18:09:31 12 an ultrasonic sensor. This is a schematic of it
18:09:36 13 being shown, and it was installed on the foot bridge
18:09:38 14 across Chollas Creek. So basically we were
18:09:44 15 measuring the tide level in the creek, and based
18:09:47 16 upon that tide level, we can turn on and turn off
18:09:49 17 our remediation system.
18:09:51 18 We turn it on two or three hours before
18:09:53 19 low tide in the morning and two or three hours after
18:09:53 20 low tide. We try to get that low tide cycle. Not
18:09:58 21 exact, but it has that low portion. And, of course,
18:10:03 22 it was fully programmable. We could have the start
18:10:07 23 and stops at different levels. Usually we try to
18:10:09 24 have the start below the stop so that at low tide we
18:10:13 25 can come down and we can start and go through low

tide and come back up and we stop.

So this PLC is very nice. It's so nice to have. You can get all the information with just a touch.

So what did this result in? Over almost four years we treated about 5800 gallons of gasoline out of the subsurface. That's volatilized. The only problem when you volatilize it, you take gasoline -- it's like leaving a bucket of gasoline out. You'll actually turn it into something that's thick like a lacquer almost.

Well, that's where our free-product recovery system really helped out, getting most of that heavier stuff that could volatilize up. So a lot of this stuff that we get up last was very sludgy, very heavy. And our system got that, actually pulled it out of the wells. So we got a lot less fuel in there, but we're only operational two years with the free-product recovery system as opposed to four years with the other system. But we also treated 380,000 gallons of contaminated groundwater, and that was important to the site. Moving the groundwater and getting fresh oxygen into that system probably helped remediate the site as well.

18:11:35 1 Current site status: Shut down the
18:11:39 2 system. We shut down September 30, October 1, and
18:11:46 3 we have a secured system and are slowly demobing it.
18:11:49 4 Only one well out of the original 13 has a little
18:11:53 5 bit of fuel, has a sheen, and we're treating that by
18:11:56 6 just putting in a sock -- an absorbent sock. They
18:11:58 7 say if you pulled off your sock and filled it with
18:12:01 8 some absorbent material, tied it up and put it in
18:12:02 9 the well, that's basically what we're doing.
18:12:08 10 And we only have three wells that have
18:12:08 11 benzene above the Bay Standards. That's really
18:12:13 12 cleaned up well. Hopefully, we can do one year of
18:12:18 13 groundwater monitoring to show that natural
18:12:22 14 attenuation can take care of the rest of the
18:12:24 15 contamination. We're set to do the next groundwater
18:12:30 16 sampling hopefully next week.
18:12:30 17 This is what the current dissolved
18:12:33 18 phased benzene looks like. So we have basically one
18:12:38 19 well up here up near the railroad tracks, one well
18:12:42 20 here, and one well here that has benzene over the
18:12:45 21 levels. And we hope that -- and this is actually
18:12:49 22 before we shut down. Since that, we did take one
18:12:53 23 sample from this well, and it was half of what this
18:12:57 24 concentration is, so we're hoping that natural
18:13:00 25 attenuation will take care of it.

18:13:03 1 Remember, when I first started with
18:13:04 2 remediation, this 400 line of concentration probably
18:13:07 3 was drawn over almost this whole site, so we've
18:13:11 4 greatly reduced the contamination and the threat to
18:13:13 5 Chollas Creek.
18:13:15 6 So how do we know that we're truly done,
18:13:20 7 other than groundwater monitoring? We're going to
18:13:23 8 use our SCAPS rig, which you'll see later on this
18:13:25 9 evening, to investigate the areas -- maybe those
18:13:28 10 three areas that you saw and the areas that formerly
18:13:30 11 had fuel on the water table -- to make sure that
18:13:33 12 we've got all of it. We'll also do confirmation
18:13:35 13 sampling based upon the LM and try to get samples
18:13:41 14 from the highest readings from each push.
18:13:44 15 If we do see free product or we think
18:13:46 16 it's significant, we'll install some microwells to
18:13:49 17 confirm. If it is there, we may even do some
18:13:49 18 spot -- you know, small test bits to get those small
18:13:56 19 spots out, if needed.
18:13:59 20 Of course, we're quarterly groundwater
18:14:00 21 monitoring for one year, and hopefully we can close
18:14:00 22 this site by next year. Hopefully by this time next
18:14:00 23 year, I'll be abandoning those wells and we'll be
18:14:00 24 shutting this thing down.
18:14:19 25 That's it. Questions? (Applause)

MR. BISHOP: Not so fast. Just a question or two.

You've got that little pool over there by the underwater storage tanks that was oil, and you said it went away.

MR. SINFIELD: Yes.

MR. BISHOP: Where did it go?

MR. SINFIELD: It just naturally attenuated. We're not sure. It's not there.

MR. BISHOP: It's not real volatile. What kind of oil are you talking about here?

MR. SINFIELD: It looked like a motor oil.

MR. BISHOP: It's a pretty good sized pool from this slide to just go away.

MR. SINFIELD: Yes. I think, A, that that drawing showing it was probably too large. It was based upon a model that was run. Also, I think it was just a small spot and just happened to show up in that well.

We'll confirm with SCAPS. We'll go back in there and take a look. Also, motor oil is not very mobile. It's going to say put right in that spot. Also, based upon groundwater monitoring of that well, which we've done I don't know how many times -- eight times since the oil disappeared --

18:15:45 1 things that would leach off of that oil we have not
18:15:48 2 seen. We have not seen the PNAs. We have not seen
18:15:52 3 those amounts.
18:15:53 4 MR. BISHOP: Well, the groundwater flow will
18:15:53 5 move away from where you've got your pump towards
18:15:56 6 the creek.
18:15:57 7 MR. SINFIELD: Yes.
18:15:58 8 MR. BISHOP: Wouldn't that naturally tend to
18:16:00 9 move that body of oil, that plume off the --
18:16:05 10 MR. SINFIELD: The oil is very thick. It's
18:16:05 11 going to stay. I don't think it's going to migrate
18:16:09 12 towards the creek. It is so thick and so viscus,
18:16:11 13 it's going to take a lot to move that fuel.
18:16:16 14 We'll check it with SCAPS definitely.
18:16:17 15 That is definitely one of the areas we need to
18:16:19 16 check.
18:16:20 17 MR. BISHOP: And we're going to talk about
18:16:20 18 SCAPs later, so you'll tell me how that works;
18:16:22 19 right?
18:16:24 20 MR. SINFIELD: Right. And the good thing
18:16:25 21 about SCAPS is it checks almost continuously as
18:16:25 22 you're doing a push, as opposed to a drill rig,
18:16:30 23 depends on if you can even retrieve a sample. It's
18:16:35 24 continuous, which is very nice.
18:16:37 25 MR. BISHOP: You made a statement that the

three wells dissolved benzene above Bay Standards. How much above?

MR. SINFIELD: The worst at that time in July was 4,300, so about ten times over. But that well a couple of quarters ago had 15,000 PPB. It's on the decline.

So I'm pretty confident that we're going to see that drop off, especially if the source has been removed. It's been on a decline for the last three quarters.

MR. BISHOP: Okay. Good. So we have a rate of decline, and we can project then when it's going to be beyond the Bay Standards?

MR. SINFIELD: Yes. I'll have to calculate that out. I'm pretty sure -- well, it's been basically half of each time, so it should be within Bay Standards within three quarters.

MR. BISHOP: Thank you.

MR. MULLALY: Is that site going to be residential standards or commercial standards?

MR. SINFIELD: This is a UST site. We don't -- are we using PRGs for this? I know it's going to be -- so we're -- PRGs aren't really applicable here. We're more or less using the Bay Standards for our cleanup, at least for groundwater.

I guess you'd have to look at benzene's migration off of that for the soil vapor. But as far or PRG, nothing is applicable to this site.

MS. MORLEY: Gene, we said this wasn't an IR site but it was a success story, and we wanted to bring that up. But with the USTs in San Diego County, we go by the Water Board standards which are the Bay Standards, which mostly benzene is a risk driver in MTBE.

While Adrianne is getting ready, why doesn't everyone get some food because we'll be going straight from Adrianne's presentation out to the field to see a SCAPS demonstration, so we'll just all chew quietly while she's talking.

MS. SABOYA: My name is Adrianne Saboya. I am the Quality Assurance Manager with the Public Works Center for the Navy, and I'm here today to just give you a brief overview of the environmental data quality control process that is used in the Naval Installation/Restoration program.

We spend a lot of money trying to collect environmental data, so there is a quality system in place to make sure that that data collected is actually legally and technically defensible.

18:27:24 1 Basically data quality management has
18:27:27 2 three data specs: you plan, you implement, and you
18:27:28 3 assess, obviously, to evaluate whether or not what
18:27:35 4 you implemented was what you planned for.
18:27:39 5 This next slide gives you a better
18:27:42 6 overview of those three stages. When you're doing
18:27:47 7 your planning, you have key elements which is the
18:27:49 8 quality assurance project plan and data quality
18:27:49 9 objectives, and I'm going to be talking in a little
18:27:49 10 bit more detail throughout the presentation about
18:27:56 11 those.
18:27:57 12 Once you have your project plan, you
18:27:59 13 have a work plan -- some of you, I'm sure, have seen
18:28:03 14 the work plans -- and they get approved by the
18:28:06 15 regulators. Once it's approved, you're ready to go
18:28:09 16 to implement what you said you were going to do.
18:28:12 17 So you go in and acquire your data. You
18:28:12 18 go to the field. You collect samples. You submit
18:28:16 19 your samples to the laboratory. And during both
18:28:21 20 stages, field and laboratory analysis, they're going
18:28:26 21 to use standard operation procedures to make sure
18:28:29 22 we're doing things in a consistent way.
18:28:32 23 And during also the implementation,
18:28:33 24 we're going to have technical assessments, and a
18:28:33 25 good example of that will be like a field audit to

ensure that the things -- you know, all the sampling procedures are being done in accordance with procedures we said we were going to do in our plan.

Once you acquire your data -- meaning now you submitted your samples to the lab, you have a data package coming from the lab -- now you go into your third and last stage where you need to verify that data to make sure it's correct and complete, and you're going to validate it against a certain criteria that you specify in your plan.

And the very final stage into this quality system is actually to do a data quality assessment to see whether or not you met your project goals. If you did, great. You're ready to go. You can make your decision. If you're not, you're going to have go back and plan again to maybe collect additional samples. So we're going to talk about all these three stages.

During the planning stage, like I said, we have the data quality objectives. This is a process that was developed by EPA in 1986, and it's a mandatory element in the Navy IR program.

Basically that process was designed to, one, clarify the study objectives: what is needed, why it's needed, and once we get it, what are we

18:29:56 1 going to do with it. You just don't want to go out
18:30:01 2 there collecting samples not knowing what you're
18:30:01 3 going to do with it. So you establish that during
18:30:02 4 your planning stages.
18:30:08 5 It also translates non-technical
18:30:08 6 specific project goals into technical decision
18:30:12 7 goals. A good example would be go out there and you
18:30:16 8 have a site that's contaminated. You need to
18:30:18 9 delineate the contamination to determine whether or
18:30:21 10 not a removal action needs to occur. Well, that's a
18:30:26 11 non-technical specific goal. What is contamination?
18:30:27 12 What are your target analytes? And once you get
18:30:31 13 that data, what is the criteria that you're going to
18:30:35 14 say whether or not your site is contaminated.
18:30:36 15 So you do actually have some numerical
18:30:38 16 values and technical aspects that go into that
18:30:42 17 non-technical role.
18:30:47 18 Another big item on the data quality
18:30:48 19 objectives is that's where you specify tolerable
18:30:54 20 limits on decision errors. And by that I mean most
18:30:56 21 of these -- all these investigations deal with
18:31:00 22 subsurface. It can't be 100 percent correct. It's
18:31:03 23 inherent in this process that you have some
18:31:07 24 uncertainty. So you have to establish right in the
18:31:10 25 beginning, and that's the time when you want the

stakeholders, the regulators to all sit together, planning together, making sure we all accept -- you know, that's what we want to do. Let's say this is a high risk site, so you might be very tight with your windows there, and basically all that does is say how much risk I'm willing to take to make a mistake here to say the site may be clean when it might not be actually clean. So you set that ahead of time during the planning.

It does involve some statistical tools you have to use, but I'm not going to go into that right now. But once you establish those decision limits, you define the actual type and quantity and quality of data to support defensible decisions.

Another key element is the quality assurance project plan. That specifies quality assurance and quality control activities for the project. It actually defines appropriate methods for sampling, analysis, data generation, and data handling. That's the data acquisition.

It's quite important during that stage that we work with the laboratory, if we know at that time what laboratory is going to be doing the analysis, so we don't put methods that the labs cannot do. We need to make sure that the lab's

18:32:27 1 going to be able to do the methods that we're
18:32:30 2 requiring the reporting limits. So it's very
18:32:32 3 important to work with the laboratory to get some
18:32:36 4 input from the laboratory.
18:32:38 5 We also addressed the activities for
18:32:40 6 assessing the effectiveness of the implementation of
18:32:42 7 the project. That's oversight. You just outline
18:32:46 8 pretty much how you're doing to do your oversight,
18:32:49 9 basically field audits and surveillance.
18:32:53 10 You also address the activities that
18:32:54 11 will occur after data collection and generation to
18:32:57 12 ensure that the data meets the specified criteria.
18:32:59 13 Again, you're just going to outline step by step
18:33:03 14 your data validation criteria, how is this data
18:33:05 15 going to be validated, and once it's validated how
18:33:08 16 are you going to assess the usability.
18:33:10 17 Okay. Now your project plan, your work
18:33:15 18 plan has been approved by the regulators and you're
18:33:15 19 ready to go. You're ready to go in the field.
18:33:21 20 Basically during data collection, like I
18:33:23 21 said, we use standard operation procedures. They
18:33:28 22 provide consistent and uniform field procedures for
18:33:30 23 sampling, records, and documentation. It's really
18:33:33 24 quite important -- obviously, you want to make sure
18:33:35 25 you have sampling procedures, but it's very

18:33:39 1 important to also make sure you document things
18:33:42 2 correctly. Basically if you didn't document, you
18:33:46 3 can tell me as much as you want that you did, and
18:33:47 4 I'm going to tell you you didn't do it. You didn't
18:33:51 5 document it. So it's crucial that we document every
18:33:54 6 step of the way.
18:33:56 7 That's also very crucial when you're
18:33:56 8 doing the data assessment phase, which we're going
18:33:59 9 to talk about, where you look at the whole spectrum
18:34:04 10 of the project and try to really see if there's
18:34:07 11 anything there that might prevent you from using
18:34:08 12 that data, and documentation is key to that.
18:34:12 13 Technical oversight, again, provides a
18:34:15 14 systematic examination of data collection activities
18:34:18 15 to determine compliance with the QAPP. And right
18:34:21 16 before we go to the field, we want to make sure we
18:34:27 17 have readiness reviews like meetings, check lists to
18:34:27 18 make sure we have everything we need.
18:34:32 19 Then we do the field audit. Someone
18:34:33 20 like me will go out there and actually check on what
18:34:36 21 they're doing in the field, and that way we make
18:34:41 22 sure that things are going at that point -- that
18:34:44 23 they are doing the procedure according to plan. And
18:34:46 24 you might happen -- let's say I go out there and
18:34:49 25 check and a procedure is being done incorrectly. So

corrective action could be as easy as saying "You're doing this wrong. You've got to do it this way." So you do that at the time of sampling.

Other key elements on the sampling collection are field quality control samples. Those are designed so we can measure the effectiveness of the field procedures. We collect a bunch of blanks. I'm not going to go into detail on each one, but basically these are blanks that we collect and we prepare them based on decontamination procedures, and we will use them to evaluate the efficiency of the field procedures -- sampling, decontamination procedures.

And we also collect field duplicates. We use those to assess field and laboratory variability.

Now, we're pretty much done with the field work. We submit that data to a sampling laboratory. Well, first of all, in the Navy IR program you have to make sure you use the right laboratory. It needs to be certified and they also go through the Navy approval process, which is the NFESC. I have a list of acronyms for you guys if you want to use them later.

So you get a laboratory that is

18:36:19 1 certified so you can feel good about that lab. You
18:36:23 2 also, the same way we in the field use standard
18:36:25 3 operation procedures, the laboratory uses standard
18:36:29 4 operation procedures, and they're going to use
18:36:32 5 approved methods to the ones that we specify in our
18:36:35 6 quality assurance plan.
18:36:39 7 Technical oversight is also quite
18:36:41 8 important. It provides a mechanism for corrective
18:36:42 9 action and for documenting deficiencies or use of
18:36:47 10 inadequate procedures. This is quite important
18:36:51 11 because it's almost like you have to have daily
18:36:53 12 communication with the laboratory. You can't be in
18:36:57 13 the field -- you know, you're going to be in the
18:36:58 14 field for five days or maybe two weeks, a month, and
18:37:02 15 it's quite important to have someone outside of that
18:37:07 16 field location to be making sure that the laboratory
18:37:09 17 is receiving the samples correctly. Is there any
18:37:12 18 problems with those samples because if -- maybe I
18:37:16 19 need to go back and resample, remobilize. We can go
18:37:18 20 ahead and retake a sample.
18:37:20 21 So really you've got to communicate
18:37:21 22 daily with the laboratory because what you don't
18:37:26 23 want to do is go check your documentation and figure
18:37:29 24 out a month later that they didn't collect a certain
18:37:31 25 sample or they didn't analyze something or missed a

18:37:36 1 whole different type because they didn't have too
18:37:37 2 many samples, and then you're going to have to
18:37:38 3 remobe and you're going to spend a lot of money.
18:37:41 4 The same way you have field quality
18:37:48 5 control samples, you have laboratory quality control
18:37:51 6 samples through check on the laboratory activities.
18:37:53 7 For example, method blanks. Those are samples that
18:37:57 8 are prepared by the laboratory. It's just a lot of
18:37:57 9 samples and they go through the same preparation
18:37:58 10 procedures as your samples. They are grouped with a
18:38:08 11 batch of samples, and they're going to be analyzed
18:38:10 12 with those samples, and you basically don't want to
18:38:12 13 see contamination on method blanks.
18:38:22 14 MR. BELTON: Adrianne, you need to kind of
18:38:19 15 wrap it up. We're running late.
18:38:23 16 MS. SABOYA: Okay. So you have method blanks
18:38:23 17 used to evaluate potential contamination. You have
18:38:23 18 laboratory control samples. Those are matrix free.
18:38:28 19 They're not site samples. They are prepared by the
18:38:29 20 lab. We spike them with a known amount to see if
18:38:33 21 the analytical system is in place.
18:38:35 22 Then you have matrix spikes. Those are
18:38:36 23 actually site samples. We spike them with a known
18:38:36 24 amount to see how much we recover. And a lot of
18:38:43 25 times we will have matrix effect that will interfere

with the analysis.

Surrogates are just another type of spike. They are added to organics, and they are used to evaluate the effect of the matrix on individual samples.

This is just an example of a laboratory report. It's not even an IR site. It was for the NEX gas station, but just to give you another idea how they target analyze the results and reporting limits.

This is just the QC data that comes with the analytical report, basically reporting the method blanks first. There is nothing in that particular one, so that's good.

This is a laboratory control sample. Like I said, you have the 50. You add up the known amount of concentration and then you run that sample and see how much you recover. And in that case you recover 89 percent, and that's well within the laboratory control limits. As you can see, all that started analyzing were well within the control limits. And that's good because the laboratory results should not be out of the control limits. If it is, there is a problem.

This is a matrix spike and matrix spike

duplicate. Again, here the percent of recovery for antilum was 50 percent on the MS, 42 percent on the MSD. That one you can see is below the lower control limit. Therefore, it gets automatically flagged by the laboratory.

Now, you have that laboratory report. That laboratory report is going to be submitted for a third party validator. According to the IR, it has to be independent. They are going to evaluate QC sample results with respect to the data validation criteria that you authorize, and data that does not meet that criteria is going to be flagged by the data validators.

These are just examples of qualifiers that we use to detect values estimated. There's many reasons why a value can be estimated, so you just have to be cautious, specifically when you're talking about low levels and you're comparing low levels with low action levels.

UJ is a known detect. They had some kind of out of control quality control sample, and finally rejected value of data as not usable. Something really went wrong, and it was assessed that it's so questionable that that data needs to be rejected. You can't really use it.

18:41:20 1 This is just an example of a Data
18:41:22 2 Validation Report. In this example the method
18:41:27 3 blank, which is also the trip blank, they detected
18:41:27 4 zinc at a certain concentration. The first thing
18:41:32 5 you've got to do is this method blank is associated
18:41:34 6 with what kind of sample. Then what they're going
18:41:39 7 to do, they're going to evaluate the sample
18:41:39 8 concentrations. Let's say zinc was detected in this
18:41:43 9 sample. They're going to look at the zinc
18:41:45 10 concentrations in the samples, compare the
18:41:48 11 concentration in the method blank, and they're going
18:41:51 12 to use a specified criteria -- I'm not going to go
18:41:51 13 into that right now -- to determine whether or not
18:41:56 14 that zinc in the site samples are really from the
18:41:57 15 site or maybe due to laboratory contamination. And
18:42:02 16 if it's determined that it's due to laboratory
18:42:02 17 contamination, they're going to put a U flag on the
18:42:09 18 associated sample result.
18:42:11 19 And this is just another phase showing
18:42:15 20 organics now, how two compounds have had a problem
18:42:22 21 with some of the validation criteria. Therefore,
18:42:25 22 all of them are going to be qualified accordingly.
18:42:28 23 So basically you have now your data
18:42:34 24 validation, and now you're going to do the last
18:42:37 25 thing, which is really the final assessment. A lot

of people think that that final assessment is really just looking at laboratory QA/QC. That's not really true. That's when we actually look at the whole spectrum of documentation. You review field records. You look at your lab data. And based on that evaluation, further qualification may result.

So based on data quality assessment, you may have to take additional samples because maybe you didn't meet your project QOs. And so if you do, you're going to have to go back and collect additional samples. But hopefully, things are going to go the way we want to, and we won't have to collect any more samples.

So that's it. I had to rush through the end. Any questions? (Applause.)

MR. BISHOP: This process is mandated by EPA?

MS. SABOYA: Well, it's a process that was created by EPA for their Superfund sites, and the Navy has adopted for the IR Navy program.

MR. BISHOP: So we modeled our program.

MS. MORLEY: This will be helpful when you guys review like Sections 4 and 5 normally. It will talk about things like the sampling plan or how many samples were taken in the trip blanks, method blanks, field blanks and you're probably wondering

what the heck is that. Or when you see that hard data -- that tabulated lab data and it has those R and J qualifiers off to the side, now you know that's where this is coming from. So you can use this presentation to help you when you look at reports to kind of get a better idea of the quality control that -- more what that means then as you're reading through your reports.

MS. SABOYA: This is just a basic overview of it. I tried to give really a brief overview, but let's just say hopefully it's going to help you when you get the reports and not go "Oh, what is this." At least you have a basic understanding.

MS. MORLEY: If you have any questions, you can talk to Adrianne and I'll give you her home phone number, too.

Before we go out to the SCAPS demonstration, Tim wanted to go over some safety rules.

MR. SHIELDS: I'm Tim Shields. I'm the coordinator of the West Coast Navy SCAPS program.

We have the truck set up. I just want to let you know what you can expect. We have a 24-ton truck out there ready to do a push. We're going to do an investigation right now, realtime in

place contaminant investigation. So you'll see the truck out there. It's a very clean system. You don't have to worry about any chemical exposure or anything. The most dangerous part on that truck is the ladder, so be very careful getting up and down on the truck.

And you'll also see a black umbilical. It will be a black cord covered in plastic. It will be snaking around the truck. Be careful not to step on it because it contains fiberoptics and it will break.

Other than that, we can go out and it will be fun.

(Whereupon, at 6:50 p.m. the attendees left to go on a SCAPS demonstration field trip.)

STATE OF CALIFORNIA)
: ss
COUNTY OF SAN DIEGO)

I, Nancy A. Lee, CSR No. 3870, do hereby certify that I reported in shorthand the above proceedings on Wednesday, October 30, 2002, at Anchors & Spurs, 2245 Division Street, City of National City, County of San Diego, State of California; and I do further certify that the above and foregoing pages numbered 1 to 37, inclusive, contain a true and correct transcript of all of said proceedings.

Dated: _____, 2002.

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NANCY A. LEE