THE U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

convenes the

TWENTY-SEVENTH MEETING

CAMP LEJEUNE COMMUNITY ASSISTANCE

PANEL (CAP) MEETING

April 4, 2014

The verbatim transcript of the Meeting of the Camp Lejeune Community Assistance Panel held at the ATSDR, Chamblee Building 107, Conference Rooms 1B/1C, Atlanta, Georgia, on April 4, 2014.

STEVEN RAY GREEN AND ASSOCIATES
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C O N T E N T S

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TRANSCRIPT LEGEND

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-- "*" denotes a spelling based on phonetics, without reference available.

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P A R T I C I P A N T S

(alphabetically)

BOVE, DR. FRANK, ATSDR
BRIDGES, SANDRA, CAP, CLNC (via telephone)
BRUBAKER, MATT, FMG LEADING
CANTOR, DR. KENNETH, NCI TECHNICAL EXPERT
CLAPP, DR. RICHARD, SCD, MPH, PROFESSOR
DAVEY, DR. VICTORIA, VETERANS ADMINISTRATION (via telephone)
ENSMINGER, JERRY, COMMUNITY MEMBER
FRESHWATER, LORI, CAP MEMBER
FLOHR, BRAD, DEPARTMENT OF VETERANS AFFAIRS, COMPENSATION SERVICE
FORRESTER, DR. TINA, ATSDR, DIVISION OF COMMUNITY HEALTH INVESTIGATIONS
GILLIG, RICHARD, ATSDR
IKEDA, DR. ROBIN, ATSDR, ACTING DIRECTOR
MARKWITH, GLENN, NAVY MARINE CORPS PUBLIC HEALTH CENTER
PARTAIN, MIKE, COMMUNITY MEMBER
RAGIN-WILSON, DR. ANGELA, ATSDR, DIVISION OF TOXICOLOGY AND HUMAN HEALTH SCIENCES
RUCKART, PERRI, ATSDR
STALLARD, CHRISTOPHER, CDC
STEPHENS, DR. JIMMY, ATSDR ACTING DEPUTY DIRECTOR
STEVENS, SHEILA, ATSDR, CAP LIAISON
WILKINS, KEVIN, CAP MEMBER
WILKINS, STEVE, VETERANS ADMINISTRATION, PUBLIC AFFAIRS

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P R O C E E D I N G S

(9:00 a.m.)

WELCOME, INTRODUCTIONS AND ANNOUNCEMENTS

MR. STALLARD: All right. Welcome everyone, and we're looking forward to our time together today. And I'd like to turn it over to Dr. Ikeda who will provide some...

DR. IKEDA: Thank you, Chris. Good morning. And welcome to everyone. My name is Robin Ikeda, and I serve as the Acting Director for the National Center for Environmental Health, Agency for Toxic Substances and Disease Registry, NCEH/ATSDR. And we'll go around the room shortly, but I wanted to first extend an especially warm welcome to our three new members: Ms. Lori Freshwater, who is joining us as a community member, as has Mr. Kevin Wilkins. In addition Dr. Ken Castor -- I'm sorry, Cantor, has come on board as a technical expert. So I wanted to thank you all for your willingness to serve on the CAP, and we appreciate the time and look forward to working with all of you.

I also wanted to take a moment to reflect on why we're all here. As most of you know, a scientific expert panel recommended establishing the CAP in 2005, and the panel began meeting the

following year, 2006. The CAP's purpose is to provide a forum and a method to exchange information between ATSDR and the community and to facilitate participation by members of the affected community.

The Camp Lejeune CAP is critical to our work. We rely on the CAP to provide first-hand knowledge of the community, to help us understand the community's perspective and to identify community concerns. We also rely on the CAP to help us communicate and connect with veterans and their families.

And the Camp Lejeune CAP has been instrumental in enhancing and improving our work over the years. And just to give you a few examples, as we worked on the water modeling, it was the CAP that provided a previously unknown document to us that indicated a large loss of fuel at the Hadnot Point fuel farm, and it was the CAP that provided accurate data about when the Holcomb Boulevard water treatment plant was operational. And recently the CAP has encouraged participants to respond to our health surveys, which has been helpful in boosting our response rate. And these are good examples of how we can work well together.

But just like any relationship, we've had our

rough spots, too. The work is challenging and the relationship between the CAP and ATSDR has been rocky at times, particularly recently. And this is unfortunate because we have important work to do together. We've been doing a lot of thinking about our relationship and we really want to work in a positive and productive way moving forward. We can call this a reboot or we can call it a reset or a fresh start.

One important part of this fresh start is how we all interact with each other. And I understand that we may often disagree. I also understand that we all bring passion and commitment to the table, and that this combination can sometimes be a volatile one. It's okay for us to disagree and criticism of ATSDR or CAP positions is acceptable; however, criticizing or attacking individuals or making derogatory personal comments is not. We want to work with you to find constructive ways and approaches to address our differences, improve our relationship and do our work together. We're committed to listening to and considering your concerns. We also ask that you consider our perspective as well. Thank you.

And I'd like to just say a few words about the

agenda. We'll hear from the VA regarding disability claims, the 2012 Janey Ensminger Act and training activities. We've invited Dr. David Espey, our colleague from the Cancer Prevention and Control Program, to share information about working with state cancer registries. We'll hear from Dr. Tina Forrester about progress in developing the drinking water analysis and soil vapor intrusion sections on the public health assessment. Dr. Bove and I will provide an update about the cancer incidence study.

And I want to pause here for just a moment because I want to be clear where the agency stands on the cancer incidence study. The ATSDR has the authority to conduct it. That is not in question. And we recognize the strong interest in and the compelling reasons for such a study. Our bottom line is that we're committed to moving forward with the cancer incidence study and we'll share more about how we're going to do this at 11:15. We have a lunch break at 11:45 to 12:45, and then we'll hear from Ms. Perri Ruckart and Dr. Frank Bove about the birth defects paper and mortality paper. And then after that, Perri and Mr. Eddie Shanley will provide updates about ongoing health studies. And then our final session is devoted to CAP updates and

concerns, and at that time we'll also be selecting the dates for the next two meetings.

Just a few final announcements. We agree to appoint a seventh CAP member, and we'll move forward on that decision shortly. I've also heard that other current CAP members may be stepping down so we'll be looking to fill those slots as well, if indeed that is the case. Ms. Sheila Stevens will be joining us to serve as the Camp Lejeune point of contact and liaison. We've heard the concerns about delays in responding to inquiries and requests, and we wanted to bring somebody onboard whose sole responsibility it is to address and triage those incoming questions and concerns. And I do want to emphasize here that this is not intended to limit access to our staff, but we would ask that if you do reach out directly to staff, that you please copy Sheila as well. We've also asked our staff to do the same. And I've mentioned to some of you we've had problems in the past with multiple lines of communication, and this has resulted in mixed messages and sometimes even contradictory messages being sent out.

I also wanted to mention that Mr. Matt Brubaker from FMG Leading, seated there, has also joined us.

Matt is an expert in organizational assessment and transformation, and he will be assisting us in two ways. One, he can serve as our back-up facilitator in case Chris is not able to be here. And then as an observer, we've also asked Matt to help -- let us know how we might improve our process and enhance communications between ATSDR and the CAP. So I wanted to welcome both Sheila and Matt. They'll probably say a few more words about themselves as we go around with introductions, but they are two new faces in the room who will soon be familiar ones. But thank you again for being with us here today, and I'll now turn it back over to Chris to get us started.

MR. STALLARD: Thank you very much. So we have new people, new faces. It’s like a new CAP. And so welcome to those of you, and I've seen you in the audience and now I get to see you at the table. We welcome you.

So let's briefly go around and introduce yourself by name, and for the new members, what experience do you have and bring to the CAP and what’s your affiliation with the community. And the others, you know, name and affiliation will be just fine. Thank you.

DR. CLAPP: My name's Richard Clapp. I've been on the CAP for eight years. I'm at Boston University School of Public Health and the University of Massachusetts.

DR. CANTOR: My name is Ken Cantor. This is my first meeting at the CAP. I'm a new member. I'm here as a technical expert. My background is as an epidemiologist, environmental and occupational epidemiologist, at the National Cancer Institute. I retired from that position about five years ago, in fact I think it's five years ago today. And since then I've been on a part-time contract with my former group at NCI, helping them with a number of issues, ongoing issues, there.

I actually had some experience with this incident. I was chair of the scientific advisory group that met nine years ago, and haven't been in contact with the issue too much since; although, I must say in the last three weeks or so, I've been studying and carefully going over minutes of these meetings and the various scientific literature that's been published.

MR. STALLARD: Mr. Cantor was the chair of the expert panel that created the CAP. Welcome back.

DR. CANTOR: Thank you.

MR. STALLARD: Okay.

MR. ENSMINGER: I'm Jerry Ensminger, CAP member.

MR. PARTAIN: Mike Partain, CAP member.

MR. WILKINS: Steve Wilkins, I'm a public affairs officer with VA.

MR. FLOHR: Brad Flohr, senior advisor of compensation service, Veterans' Benefits Administration.

DR. BOVE: Frank Bove, ATSDR.

MS. RUCKART: Perri Ruckart, ATSDR.

DR. RAGIN-WILSON: Angela Ragin, ATSDR.

DR. IKEDA: Robin Ikeda.

DR. STEPHENS: Hi, I'm Jimmy Stephens. I'm the acting deputy director of NCEH-ATSDR.

MR. MARKWITH: Hi. I'm Glenn Markwith. I'm with the Navy Marine Corps Public Health Center, and my area of expertise is community involvement planning and public outreach. And the Marine Corps sent me to the CAP meeting to observe and take notes.

MR. STALLARD: Welcome.

MS. FRESHWATER: Hi, my name is Lori Freshwater, and I appreciate being allowed to be a part of this discussion and look forward to working

together. I lived on Camp Lejeune from 1979 until about 1983. My mother lost two babies to neural tube defects, and then in January of '13, she died of two types of leukemia. So I would like to try and find some good that comes out of all this and work -- my whole life I've worked for veterans and veterans' issues and the environment, so this isn't exactly the way I would want those two things to meet but here I am and I look forward to working with everybody. Thank you.

MR. STALLARD: Welcome, Lori.

MR. WILKINS: I'm Kevin Wilkins. I'm a Marine Corps veteran and Camp Lejeune victim.

MR. GILLIG: Rick Gillig, ATSDR.

DR. FORRESTER: Tina Forrester, ATSDR.

MR. STALLARD: And we have the two who were introduced by Robin.

(Two speakers off microphone, both inaudible)

MR. STALLARD: So that was a fascinating example in group learning, so I don’t have to tell you to push the button and speak your name. In the future, when you have a comment, we have only one speaker at a time. For those of you who are new, we have some operating guiding principles and some ground rules that we abide by to enhance our

interaction together. So again, we talked about one speaker at a time. That's primarily because we have an audience that's listening in on webcast, and it's much easier to listen if there's only one speaker at a time.

The audience who are here, this is a public meeting, and so we welcome you to be here but please, you're not to engage in any dialogue unless you have been called upon by the CAP because of your relative expertise in the past.

MS. RUCKART: Excuse me, Chris?

MR. STALLARD: Yes?

MS. RUCKART: I was just asked to let everybody know that when they're speaking, even if they're in the audience, if they can go to the microphone so that our court transcriber can pick it up.

MR. STALLARD: Good, thank you. I've also been asked, those of you who might have a slide presentation that you brought, that you plan to address, we need to make sure we get that right away so we can get it through clearance and be able to load it up for you.

Cell phones, if you have them, please turn them off or on silent stun mode so that we're not distracted by strange noises in your pocket. And

then, as you heard us speak about earlier, the ground rules about the personal attacks, criticism and derogatory comments. If we go -- I don't anticipate that but if need be, as we did in the last meeting, the first time in seven years, we had to call a time out and sort of recess so that we could refocus on the topics that we need to discuss together in an appropriate manner. So is there anything else that we should add to the ground rules or guiding principles that you would like to offer at this time?

DR. CLAPP: Is there anyone on the phone?

MR. STALLARD: I don't think so. I didn't hear -- thank you for that. Tom Townsend, who's been with us since the beginning practically on the phone, early, early in the mornings for him. He's not with us at this time on the phone. So, anybody on the phone? All right, so if there are no other operating principles or ground rules, can we abide by them? Can we abide by them? I need a little acknowledgment that we're all on the same sheet of paper. Okay, thank you. And please, sign in if you haven't signed in. There's a sign-in sheet; it's at the back. And with that, we're going to turn it over to Angela for an update.

ACTION ITEMS FROM PREVIOUS CAP MEETING

DR. RAGIN-WILSON: There were a few action items from the September 6, 2013 in-person CAP meeting. The first action item was from Glenn Markwith. And Glenn, there was a request for the CAP or the public to view un-redacted versions of documents on CCE that were posted on the Senate Judiciary Committee website. And also there was a request to invite subject matter experts from the Marine Corps to attend the CAP meetings.

MR. MARKWITH: Yes, ma'am. Those two action items I took back to the Marine Corps, and got the responses, which I forwarded, for the record. Regarding the first question, on the un-redacted versions of the documents, the 8500 documents were provided in 2012. And with the exception, I think, there was 19 attorney work-related products that were redacted. All of those documents were un-redacted. So the redactions were actually made at the Senate Judiciary Committee level. So everything that we provided, with the exception of those attorney work products, were provided as un-redacted documents.

DR. RAGIN-WILSON: Are there any questions?

MR. PARTAIN: The, the disks and the UST portal

that the Navy released, were those un-redacted documents too?

MR. MARKWITH: On which one, Mike?

MR. PARTAIN: The same documents that you're saying you provided un-redacted, to the Senate Judiciary Committee, there were disks given to Senator Burr's office. Were those un-redacted?

MR. MARKWITH: That I'm not aware of. The information that they gave me was that the 8500 that were provided to the Senate Judiciary Committee were un-redacted. That's the information they provided.

MR. PARTAIN: Okay. 'Cause the -- our understanding from the committee was that the -- there were documents that were redacted from the Marine Corps, and that they weren't permitted to put on there entirely so that's a little bit of contradictory information.

MR. MARKWITH: Well, I can certainly take that back and see if I can get that resolved.

MR. PARTAIN: Specifically what I'm interested in is the Navy UST electronic portal. There are several documents that do not appear to be in any formal work -- attorney work client privilege protected. Some of the FOIA notes don't even -- they don't even list that. And they're heavily

redacted in certain areas. And things like that. One document in particular was a press release write-up for the Hadnot Point fuel farm, that apparently was never released. That was -- the entire page is gone -- redacted.

MR. MARKWITH: I can take that back. And the information that they gave me was related to the original question on the Senate Judiciary Committee, the 8500 documents that were turned in to them.

MR. PARTAIN: Okay.

MR. MARKWITH: But I can certainly take that back.

MR. PARTAIN: And I'd be curious to know who -- and I guess that's contradictory to what we've been told from the Committee, that the documents were sent are redacted, so I'd like to have a name for that, please.

MR. MARKWITH: And on the second issue, the Marine Corps is committed to the founding principles of this meeting, and that's why they sent a representative. And I asked them, you know, I took for an action to take this particular one back to invite subject matter experts, and the original press release says that we would continue to send a representative to observe and take notes. And they

asked that I continue to attend to observe and take notes.

MR. PARTAIN: And this is Mike Partain again, with all due respect and no disrespect to you, Glenn, a note-taker is, is not what we're asking for.

MR. MARKWITH: Understood.

MR. PARTAIN: Okay. And the continued absence of the United States Marine Corps from these meetings sets the revelation of the benzene and redaction of the revocation of the public health assessment has been noted in the community, and their absence is -- (indiscernible).

MR. ENSMINGER: Their silence is deafening.

DR. RAGIN-WILSON: If there are no further questions, we'll move on to the next action item. The next action item was for ATSDR. And the request came from the CAP. They asked the agency to invite representatives from CDC's Division of Cancer Prevention and Control to the next in-person meeting to discuss their work on cancer registries. And as Dr. Ikeda mentioned earlier, Dr. David Espey, he's the director of the Division of Cancer Prevention and Control, he's scheduled on the agenda to give a presentation on their work with cancer registries.

For those of you who are streaming online, Dr. Espey's presentation will begin promptly at 10:00 a.m.

The next action item was also for ATSDR. We were requested to provide ongoing updates to the CAP about the progress of the cancer incidence study. And again, as Dr. Ikeda mentioned in her opening remarks, she and Dr. Frank Bove will provide an update on the cancer incidence study, and this session will also begin promptly at 11:15 a.m.

The next action item is also for ATSDR, and specifically for Dr. Tina Forrester, to provide a response for why tank farm site 22 was not included in a 1997 public health assessment and also to assess which cancer slope factor is best to use in a PHA and vapor intrusion evaluation. Tina?

DR. FORRESTER: I went back and checked the records, and we do need to do research on tank farm 422, like you requested.

MR. ENSMINGER: Which site?

DR. FORRESTER: Twenty-two. We are currently doing that and the investigation of the soil vapor intrusion. I have made sure that we're using the most current cancer slope factor for TCE based on human studies at renal endpoint, which will be used

in all the water and vapor intrusion analysis cancer risk.

DR. RAGIN-WILSON: Are there any questions?

MR. ENSMINGER: Yes. What dates are you using for your vapor intrusion?

DR. FORRESTER: Right now we're currently focusing on 2001 forward. But we want to have a discussion with the CAP about previous times. I'm going into a discussion of all the data that we're looking at, and the decision to go back further is going to be dependent on the available data to get results, so I will discuss that later.

MR. ENSMINGER: Okay, but my -- our point is we have documents of -- where their contractor told them they needed to do the ambient air quality monitoring in the buildings that were located over these massive plumes. They announced at a public meeting that they were going to -- that they were going to be conducted. We found a letter in October of 1988 stating that (indiscernible) requesting funding. And then nothing, okay? So, and then in 1998 -- or was it '98 or '99, '98, when they evacuated the 1108? Huh? '99. There were buildings evacuated that were above the fuel farm.

Now, Morris and his team had all of these

plumes delineated when they did the water model. You have an exposure dose reconstruction team here on staff that have all this information, and they could model these plumes and give the estimates of what they think the vapor would have been in those buildings. And why aren't they being used?

DR. FORRESTER: Well, that's -- they're not not being used but we're actually going back through all the data, because actual environmental measures are better than modeled results.

MR. ENSMINGER: Oh, I agree but they're telling you they don't have the...

DR. FORRESTER: Well, okay, Jerry, I'm going to go -- my presentation, we received 40,000 documents on soil vapor intrusion that date back a long time, and we are doing key word searches on every one of those documents regardless of date to look at these issues.

MR. ENSMINGER: All right, when did you get those?

DR. FORRESTER: We've had them since maybe, last year.

MR. ENSMINGER: Really?

DR. FORRESTER: Yes, sir.

MR. ENSMINGER: Well, why didn't you tell us?

DR. FORRESTER: I guess we didn't have a good talking relationship, and I'm sorry about -- I'm sorry about that, but we have done due diligence on these. We have a long way to go on these records. We do want to discuss going further back. We've looked particularly in that time period from 1998 to 2001, because of the issue that it was recorded they were going to do an investigation, that the letter from the military that says they are not sure they did or didn't, so we're actively looking for that material as well.

MR. ENSMINGER: Has anybody gone back and requested for them to look at their contracts? They might -- they may not be able to find, and they will certainly be able to tell you all of that happened such a long time ago, we didn't retain all that stuff. Well, number one, they're in violation of CERCLA, okay? Number two, if they can't find the documents for the actual tests and the results, let’s see if they released a contract, because that's what the last letter was for, was to get an external contractor to come in and perform the ambient air quality sampling. But we're going to have this discussion later.

DR. FORRESTER: Yes, yes, we are.

MR. STALLARD: Thank you.

DR. RAGIN-WILSON: Thank you. The next action item is also for ATSDR. There was a request from the CAP to update the ATSDR website with TCE is a known human carcinogen. And I'll turn it over to Captain Ed Murray.

CAPTAIN MURRAY: Good morning. I'm Ed Murray. I'm the acting director for the Division of Toxicology and Human Health Sciences. So we had this discussion last time about the classification of cancer. That has been changed on our website to reflect not only the EPA classification but the other two. For your information also, we have an addenda that is updated in the literature that we will attach also to that website that has -- it reflects all three, including the EPA classification. And then we have the updated tox profile. It is going out for public comment, and that will be released probably late summer-early fall, and that will also reflect the updated classification.

DR. RAGIN-WILSON: The next action item is for the Veterans Administration. And the request was to clarify the Veterans Administration was in the first or second year of their budget cycle, and this was

regarding funding for the caring for the veterans -- Camp Lejeune Veterans Act. Dr. Terry Walters is unable to join us. Dr. Victoria Davey is here by phone, and also we'd like to welcome Steve Wilkins. Would you like to provide a response or wait until the VA session at 10:00?

MR. STEVE WILKINS: My understanding is that Dr. Davey is going to provide a response when she comes on.

DR. RAGIN-WILSON: So we'll wait until she's on the line at 10:00. The last action item is also for ATSDR. There was a request from the CAP to fill the open community member and technical expert vacancies on the CAP. The vacant community member positions were filled by Ms. Lori Freshwater and Mr. Kevin Wilkins, and Dr. Ken Cantor was selected as the technical expert to serve on the CAP. So again, I'd like to welcome Ms. Freshwater, Mr. Wilkins and Dr. Cantor.

If there are no further questions, I'll turn it back over to Mr. Stallard.

MR. ENSMINGER: That last action item, I sent an email couple of weeks ago, addressing Mr. Smith, and never got a response back.

(Audio problems)

MR. ENSMINGER: Turn your mic off. That's what makes this thing ring. You want to talk about improving communications. You can't improve the communications, whenever we send comments or requests for action items, whatever -- what have you, and we never get a response back. I mean, and yet we're supposed to be sitting out there -- and then there's this -- once we get frustrated, then we're being disrespectful. I mean, what do you expect whenever one side is communicating and the side that's supposed to be working for us isn't?

I mean, you have 40,000 documents that you got last year, the affected community didn't even know about. We have -- you know, you know, the frustrations -- Dr. Ikeda, you and I had a discussion over the phone last Friday, and we were talking about a certain individual that works for the CDC, and that that could represent a conflict of interest, okay? Put yourself in our shoes. I'm a career Marine, retired. Who was responsible for the contamination at Camp Lejeune? Who was it? The Department of the Navy. When I come to a CAP meeting the first time, I look at a room that's filled with Navy uniforms and Navy ranks. You want to talk about a conflict of interest, something that

makes me suspicious right from the get-go about the intentions? And then the actions that have been taken that we had to fight every step of the way to get the initiatives that have been taken by this agency? We had to fight for everything, almost everything. And I don't get it. Why? You have people from ATSDR -- I talked to the head of the environmental management department at Camp Lejeune, that told me an individual from ATSDR showed up at Camp Lejeune in 1991. She was wearing her Navy uniform with captain's insignias and was walking around purposely in her uniform getting saluted. Really? I mean, you know, this concerns me.

MR. STALLARD: Would you like to briefly respond before we move on with the VA?

DR. IKEDA: I was just going to respond to the original point. I don't know about the communication regarding Mr. Smith, but one of the purposes of Sheila's presence is to be that point of contact. And here we've heard the concerns about lack of timeliness in terms of responding or even acknowledgment of emails and other requests. So again, Sheila's presence, I think, will be very helpful in that regard towards getting timely responses and acknowledging the emails and sharing

information.

MR. STALLARD: Thank you. And we will have time toward the end of the program to address additional concerns that have yet to be addressed. So we have limited time available for our VA colleagues right now, and I'd like to turn it over to -- we have -- it's 9:30, right?

DR. RAGIN-WILSON: She's supposed to be calling in.

MR. STALLARD: Calling in, who?

DR. RAGIN-WILSON: Dr. Victoria Davey.

MR. STALLARD: Dr. Victoria Davey, so I will ask the question. Dr. Victoria Davey? I hear not. So you're on the phone but we can't hear you just yet.

MS. FRESHWATER: Somebody told me online that they could hear people that we can't hear.

MR. STALLARD: Okay.

MR. PARTAIN: There was something about, too, the video was -- wasn't centered on the CAP.

MR. STALLARD: All right, so do we have some technical support work -- we can see how we're being viewed on the screen? That would be helpful. Can you hear us on the phone? How would we know? I can hear everyone in the room.

MS. FRESHWATER: Someone said that they could hear Victoria on the line -- on the live feed.

MR. STALLARD: Okay. We're experiencing -- for those of you who are on the phone, there's a lull in activity at the moment as we're experiencing technical difficulty calling in our next presenter. So not calling her but hearing her in the room. Should we go on to Brad in the meantime?

DR. RAGIN-WILSON: The people online can hear the people on the phone but we can't hear them.

MR. STALLARD: And the people on the phone are the people out there, hear us.

DR. RAGIN-WILSON: Yes.

MR. STALLARD: Okay. That's progress so it's just a connection. So until we get that clarified, let's move on to those in the room.

VA UPDATES

MR. FLOHR: Okay. Brad Flohr. Of course we continue to process claims for disability benefits and health benefits at our Louisville regional office. Recently we had a request from the staff director of the House Veterans' Affairs Committee to go to Louisville. She wanted to see how the claims process was being done there. She wanted to look at

medical opinions. I think perhaps they had not seen the regular reports we provide to Senator Burr and his staff before, and so she went and I went down there as well, and we had three of our subject matter experts who provide medical opinions to go there as well.

We met with her for a full day, discussed the claims process, how it worked, the issues. She went around with people in the office, and then she spent most of the afternoon looking at claims files and actually sitting down with one of the medical professionals providing medical opinion as he explained how -- what he looked at, what would result in the decision he would make.

It went very well. She in fact did not even see a need for exit briefings. And I want to assume that she went back and told Chairman Miller that she was satisfied. I don't know that for a fact 'cause I haven't heard, but that's what I'm gathering.

Recently we sent a report to Senator Burr's staff and the (indiscernible) as well for the 14 or so listed conditions that were in the NRC report, plus a couple of others like prostate cancer and one other. We have a grant rate there of approximately 27 percent of claims are being granted. The

majority of claims continue to be nonrelated miscellaneous type issues like arthritis and hearing loss and tinnitus that people are still filing and there's just no scientific evidence that contaminants in the water would cause arthritis or hearing loss. But we keep getting those claims. That's the majority of the claims, about 9,000 of the 11,000 claims we've received are for miscellaneous type conditions. We continue to work it though and through due diligence we're getting medical opinions whenever someone can provide any kind of evidence to show that what they're claiming may have a relationship with the water, then we get a medical opinion, and even though it generally will not be favorable in those circumstances, we still do it because we are -- we have granted some of those miscellaneous conditions, a couple hundred. So that's really -- that's about all I have right now for the claims.

MR. ENSMINGER: What about claims for like leukemia? I mean, we -- they're denying people with claims with leukemia.

MR. FLOHR: Yes, they are; they're also granting them. The grant rate for leukemia cases is somewhere around 30 percent.

MR. ENSMINGER: Why?

MR. FLOHR: Why?

MR. ENSMINGER: Why is it only 30 percent?

MR. FLOHR: Well, Jerry, you know, I've explained this on a number of occasions, there are no presumptions of service connection for any condition. Every case is decided on a case-by-case basis. If someone was probably at Camp Lejeune for no more than a couple of days, they're probably not going to get a favorable medical opinion even if they have leukemia.

MR. ENSMINGER: No, this person I'm talking about was there for years.

MR. FLOHR: Well, you know, I don't know. I'm not a scientist; I don't do the research. But it all depends on how long someone was (indiscernible), which we ask for up front when we develop a claim. And then what other potential exposures in their lifetime, their family history of medical diseases of leukemia, maybe, whatever it might be. All the results and an opinion of whether it’s at least as likely as not that the disability was due to exposure at Camp Lejeune. Some of those are granted, some of those, based on the personal and evidence of a particular claim, are denied.

MR. ENSMINGER: Well, we got our hands on this PowerPoint presentation that was given by a Dr. -- produced and presented by Dr. Walters in August of 2013. Now, I want to go through some of this stuff that's in this. Once again they're referencing the low *, which was heavily disputed by the former director of ATSDR, Dr. Portier, in an October 2010 letter. He -- this PowerPoint was supposed to be -- being given to clinicians who were going to be treating Camp Lejeune family members and veterans. They don't even have TCE listed as a known human carcinogen in here. That was reclassified in September of 2011.

Is there any difference in the prevalence of disease in the Camp Lejeune population as compared with a similar population? You know, the emerging studies that are being done by ATSDR are showing yes, there is. At what level and for how long were Camp Lejeune residents exposed to contaminated water? It says, answer: Pending further studies by ATSDR. ATSDR's water model was issued last March.

Then the next bullet point: Was benzene a significant contamination? Water modeling by ATSDR suggests that benzene was not a significant contaminant in the aquifer. This is being used to

train your clinicians, and they don't even have the information right on their bullet points? They're the trainers? I mean, this is --

MR. PARTAIN: Here's another point in here mentioned about the scientific evidence and everything. The epidemiological studies of solvent contaminated water supplies and adverse health effects are of a limited quality. I mean, that's right out of the NRC report. I mean, that -- where is the basis for that? There are scientific studies.

MR. ENSMINGER: I mean, it was good to reclassify it.

MR. PARTAIN: And I mean, the TCE -- first it says something about before this was written up. Now since this has been written up, there are ATSDR studies, but then again, when you're looking at this slide that's being used to train these people, they mention the National Research Council opines that this will not produce useful differential. I mean, you read through this here, and this, this playbook of basically how to deny a Camp Lejeune veteran's benefit claim. I mean, it's disturbing.

MR. ENSMINGER: It's a roadmap.

MR. FLOHR: That is not the intent.

MR. PARTAIN: Well, but the wording on here, I mean, how can a veteran fight something in here that says, the epidemiological studies of solvent contaminated water supplies and adverse health effects are of limited quality. There are tons of studies out there.

MR. FLOHR: Where is that from?

MR. PARTAIN: That's on page 6 of this slide: Review of epidemiological studies.

MR. ENSMINGER: And then they had one on here that says cohort studies of benzene exposed workers and those environmental -- and those environmentally exposed, which would be drinking water and air, show an increased risk of AML and other leukemias. But yet they didn't -- this one person was denied in his claim for leukemia.

MR. PARTAIN: They also go back in there and right after they -- or right before they say that, water modeling by ATSDR suggests that benzene was not a significant contaminant in the aquifer. Really?

MR. ENSMINGER: I mean, I think Morris's water model showed the highest levels of average -- monthly average was 30-some parts per billion of benzene. What does the VA consider significant?

What does Dr. Walters -- you know, I mean, what does she -- well, I mean, I know what the scientific community says and I know what the MCL is; it's five. So who's making these judgments?

MR. STALLARD: Can I interject here, please? So there is concern expressed by the CAP relative to that training material that they obtained and as it may impact benefits and coverage. And so Dr. Walters is not here to address that. Steve, you're with the VA public affairs; is that correct?

MR. STEVE WILKINS: I am.

MR. STALLARD: Okay. So I think the question for now for us is: Will there be an update or a response to the CAP concerns relative to that presentation?

MR. STEVE WILKINS: I can take that back and respond afterward.

MR. STALLARD: Okay.

DR. RAGIN-WILSON: Chris, Dr. Davey is actually on the line. She can hear the discussion. We just can't hear her so I'm asking her can she remain on for another hour or so, and then we can move on.

MR. STALLARD: If we can get her voice. Well, this is innovative. Can you hear us?

DR. DAVEY: I can hear you. Can you hear me?

MR. STALLARD: We can hear you. Welcome. Thank you for joining us. Okay, so you've been privy to some of the conversation that started at approximately 9:35, so would you like to pick up with what you had to address?

DR. DAVEY: I haven't been able to hear for about the last ten minutes, anything. I didn't hear Brad Flohr talking briefly but I heard only a five seconds of what he said. So let me propose that I start with what I had, and then you stop me if Mr. Flohr has already gone over it.

MR. STALLARD: Okay, that's fair.

DR. DAVEY: Okay? So I'm Vicky Davey. I'm chief officer for Public Health for VA. Dr. Terry Walters is the acting director of our post-deployment health group that has been in charge of implementing the Camp Lejeune law for VA. She is with Secretary Shinseki today staffing him on -- at another meeting, and apologizes for not being here. I apologize in advance for -- I may not know some of the nuances and details that she does but I will do my best.

I wanted to start with making sure that you know that we have some guiding principles that we are following with regard to implementing the Camp

Lejeune law, and there are five of those. They are to maximum the benefits to veterans and family members; to be transparent and especially, and probably most importantly to all of you on the community assistance panel; we also are trying to do this with a maximum amount of efficiency and accuracy that we can do; we are aiming to be as fair as possible at implementing the law and in line with its parameters, but recognizing that that fairness is something that we can achieve by aiming to do the best we can for each individual. We're also trying to minimize the complexity. I'm sure that you all know that implementing a healthcare and insurance coverage is a complex thing when it's a new program.

So with regard to where we are with the law implementation, we began providing veteran care immediately following passage of the law on August 6, 2012. We've been contacted by 10,721 veterans as of March 16. We have knowledge that 1,912 of those veterans report to us that (electronic interference) conditions. Eight hundred and seventeen veterans have so far been treated by VA for one of the 15 covered conditions, and that’s as of March 11. And we are continually working on assistance and administrative enhancements that are

needed to implement the law fully. So that's veterans' care.

So let me switch sides to family member care. So the family member claims payment, recalling that what we will do under this law is pay for unreimbursed family member healthcare costs. (Electronic interference) claims payment will begin once the family member regulation is published and effective. And that regulation is with the Office of Management and Budget right now for their final ruling.

We've been contacted by 1,012 family members as of March 16th, and we have reports that 164 of those family members report one of the 15 covered conditions.

We are also putting in the administrative and system enhancements to administer this family member program. That includes the mechanism for payment reimbursements as well as the clinical evaluation of family members' claims. We are -- have a -- in production of family member user guide. And we will be publishing policy if we're required to, so that we can be clear about what we're doing to all of the VA family. Family member regulation will reimburse medical costs back to the date of appropriation of

the fund to March 26, 2013, so just over a year ago.

So with that, let me move on to provider training and outreach. We began talking to healthcare providers and VA staff back in August. We did a comprehensive training of our environmental healthcare team, which are designated clinicians and other experts at each VA medical facility, to familiarize them with the Camp Lejeune law, with the implementation process and its status. Our goals for that training that took place in August and September was that we wanted providers to understand that Camp Lejeune is a real issue with real contamination concerns, and that this is an evolving program. Once we show that they understood that veterans are eligible for care, that they could answer questions about family member cost reimbursement and make sure that they knew that family member reimbursement is available. We also covered during the training other issues about potentially contaminated sites around the country, and let them know that Camp Lejeune is one of potentially other issues.

So we've got Brad, Mr. Wilkins, is there anything that you think I should add?

MR. STALLARD: Well, this is Christopher

Stallard, your facilitator. I just wanted to address briefly what the CAP brought up in those ten minutes that you were unable to hear us, 'cause it's relevant to the points that you just made about the training and the concerns expressed to the CAP about that August 12 -- that August training in 2013. And I think Steve Wilkins had some specific points of concern raised by the CAP members about the accuracy of the data shared in those training slides. And the CAP is looking to have some answers back from VA about any future training and the accuracy of that training data that's in those training slides. So that was a discussion that we had here that, I think, it need not get into deep discussion right now with the CAP members, as long as those concerns are raised and addressed.

MR. STEVE WILKINS: Actually I just wanted to --

DR. DAVEY: I would be very interested to hear the CAP's feedback about the training.

MR. STALLARD: Okay.

MR. STEVE WILKINS: I just want to make it clear that it was Mr. Ensminger who has some concerns about the training.

MR. STALLARD: Yeah.

MR. STEVE WILKINS: I'm so far silent on this.

MR. ENSMINGER: Well, my point is that you can't provide sufficient and valued training to your trainees whenever your training materials are incorrect. Okay? So I mean, this thing is full of omissions, obfuscations, half-truths. The thing looks like a roadmap on how to deny people their benefits rather than provide them. It addresses finding causations other than Camp Lejeune water so that they can deny these people their medical care. Now, I mean, really? But they've got this for action so we'll let that go with that.

MR. STALLARD: Yeah, thank you.

MR. PARTAIN: I do want to make one final point. It didn't come out clear in our earlier discussion but throughout the document the NRC report is referenced and cited as supports. There has been a significant development in the scientific body of knowledge since 2009, when the NRC's review of selected literature was accomplished. So I understand that this -- you know, this is not a study so it keeps getting referred to as a study but it is a review of literature. We need to be aware of that, and there's been several studies now, actual hard studies, that have been released. And

the training material needs to reflect that, for the benefit of the veterans.

MR. ENSMINGER: And by the way -- your --

DR. DAVEY: Thank you for that observation. We'll make a note of that.

MR. ENSMINGER: And by the way, the VA lists different locations for information on this training PowerPoint. They have the Marine Corps' website for Camp Lejeune drinking water listed as a resource. Really? You're not going to find anything factual on the Marine Corps' website but you don't have our website on there.

DR. DAVEY: Okay.

MR. STALLARD: So Dr. Davey, thank you very much for taking time to call in and -- to us today. There are some concerns raised by the CAP members, and Mr. Wilkins has heard those and will be able to convey them in perhaps greater detail. Or I might suggest if you feel necessarily -- necessary to follow up with some of the CAP members as well on these concerns expressed. So thank you very much.

DR. DAVEY: Thank you. We're happy to do that and thank you for giving me the time to speak, and to listen to those interesting conversations.

MR. STALLARD: It is that. Thank you. Okay.

We're moving on now to -- we have a limited window of opportunity and we're very pleased to be joined today by the CDC Division of Cancer Prevention and Control, who will make a presentation for us.

DIVISION OF CANCER PREVENTION AND CONTROL

DR. ESPEY: Well, thanks very much for the opportunity to be here and share an overview of the National Program of Cancer Registries with the CAP and others in the audience. I do have a presentation.

MR. STALLARD: You do have a presentation?

DR. ESPEY: Yes. So I'd like to cover, briefly, in the next few minutes, what the NPCR is and what the origins of it is. So NPCR stands for National Program of Cancer Registries. And I'll go a little bit into the NPCR but also a broader picture of cancer registration coverage for the U.S. population over time. And the issue of time is important here. And then I'd like to move into the scope of cancer surveillance and the data flow from the point of diagnosis to the flow of the data to -- either from the provider to the facility, and then onto the registry, and then onto the CDC, because I think those are issues that have come up in the

past. And then finally how CDC uses these data and how others use the data.

So what is NPCR? The origins of it are in the legislation called Cancer Registry Amendment Act of 1992, which authorized the CDC to establish a network of cancer registries and allocated funding to -- allocated funding for states and territories to enhance registries, if they already had a registry, and some states did have registries. They might have been incomplete for the entire state, if they did have registries, or if the state did not have a registry, to plan and implement registries in those states.

To do this, the states were required to have state legislation authorizing the collection of cases diagnosed within that state and residents in that state. And then also if they did have some registration activity, formal registry or the beginnings of a registry and were using funds, state funds, they were required to continue to use those funds, or if it was a new registry, to provide funds to -- funds or in-kind resources to support the development of a registry.

This is an overview of the current registry system in the United States. We're focusing on the

NPCR today but it's important to realize there are two registry systems. In the yellow is the system called the Surveillance Epidemiology and End Results program, which is supported by the National Cancer Institute, and in the green are the states that have registries supported by the CDC and the NPCR program. And the hatched states, the green and yellow hatched states, are the states that are states or metropolitan areas that receive resources in support from both the CDC and the National Cancer Institute. It's important to realize that the registry system developed slowly over time, and I'm going to show you a series of slides that show the temporal development of the registry system starting, and this regardless of whether it was National Cancer Institute or CDC supported. The first was back in 1970, happened to be the ones that were supported by the SEER program, which was the first registry system instituted in the United States in the four states of Utah, New Mexico, Connecticut and Hawaii. And in 1980 there were some 17 states that had registries. In 1990 there were some 33 states, territories and islands that had registries. In 2000, 49 states had registries, and then in 2010 all 50 states have central -- what we

refer to as central cancer registry. So cases diagnosed within the state were reported to the cancer registry and considered in most cases complete ascertainment of cancer cases in most states.

This is information that is collected routinely and in a standardized way by the state cancer registries. Demographic information, which is race, ethnicity, gender, age and other, obviously in some cases occupation; other types of information, the cancer type, the specific cancer type, stage, which typically is local, regional, distal, but staging it by complicated systems. Prognostic factors or biomarkers, limited treatment information, vital status, whether the person is alive or deceased, and then patient identifiers are also collected by the registry.

So this is a logistic overview of how the data flow from the point of diagnosis, which could be either a physician's assistant -- from either -- can you see the...? From either the providers' office or one of the facilities, which could be a hospital, an outpatient center, laboratories or cancer treatment centers. This information is sent to the central cancer registry with personal identifiable

information, which typically is the name, Social Security Number, date of birth, date of death, sometimes specific residential information. And at the state cancer registry, the data are cleaned, edited and analyzed, and any missing data that needs to be addressed, there's a feedback loop in communications with the reporting unit to try to clarify or fill in the missing information. This reporting can be electronic; it can be hard copy or a mix. Some states have more electronic than others. But this whole left side here does involve personally identifiable information.

After this is done and the data -- de-identified and standardized, they're sent to the CDC and NPCR program as de-identified information, not including any identifiable information that would allow anyone at CDC to identify an individual.

And I know there has been some questions about why CDC and others don't receive identifiable information, so I do have -- I do have some of the language from the authorization legislation that I shared with you in the beginning, and it states that each grantee, the grantee being the state's state registry, must provide, and I'm going down to the bullet that's relevant to this, for the protection

of the confidentiality of all cancer case data reported to the cancer registry including a prohibition on disclosure to any person of information reported to the statewide cancer registration that identifies or could lead to the identification of an individual cancer patient, except for disclosure to other state cancer registries and local and state health officers. And it continues: A means by which confidential case data may be in accordance with state law being disclosed to cancer researchers for the purposes of cancer prevention, control and research. Move on.

The scope of, again, we're focusing on the CDC registration system and NPCR. There are 48 blended programs, 45 states, the District of Columbia, Puerto Rico and Pacific Islands jurisdiction. NPCR U.S. population coverage, this is independent of any SEER or NCI coverage. It's about 96 percent of the U.S. population is covered. And then when you include the SEER programs, the population coverage is now a hundred percent.

NPCR surveillance system, again, 96 percent, collects about 1.2 million new and basic cancer cases per year, and again, electronically from the registries. The database includes -- a total

database includes approximately 7.4 million basic cancer cases from 1995 to 2007. And I'll again emphasize that this does not include reporting from all the states or registries for that entire period. Some registries came online later and don't have data for that full time period. And then neither CDC nor the National Cancer Institute receives identifiers, again, which is name, address, Social Security Number, date of birth, et cetera, that would allow the identification of a given individual.

So what do we use that for in general? We use it to guide planning, implementation and evaluation of cancer control programs at the local, state and national level; describe cancer patterns in the U.S. and try to identify areas that need to, to -- where we can intervene to try to decrease the cancer burden; identify and document disparities, which is an important goal here at CDC; and also provide data for prioritization of increasingly scarce health resources and to support research as needed. The data are distributed a number of ways, and there's a cancer registry system that is maintained in electronic form online, called the USCS, United States Cancer Statistics, which includes both the

CDC-collected and NCI for National Cancer Institute collected data. CDC WONDER is a system, an online system, that a user can query to get more specific information for their purposes. State cancer profiles is a program maintained and distributed by the National Cancer Institute, that profiles in detail the burden of cancer-specific states. And then CDC has a tool, a cancer atlas, which is a GIS information system tool that also provides some additional information about the distribution of cancer. And I have a couple of examples, some slides from the cancer atlas. So that was the end of my overview. And is there questions?

MR. ENSMINGER: Yeah, I got one. So what you're saying is your non-personal identified CDC registry is basically worthless for an issue like Camp Lejeune.

DR. ESPEY: It would not be useful for an issue like Camp Lejeune. Not identifiers.

MR. ENSMINGER: We already have the identifiers. You know, I mean, this is exactly -- the Camp Lejeune issue is exactly why we need a national cancer registry, a viable, workable cancer registry where researchers that have a need to know, that are cleared to have the access to this

information, there can be a one-stop shop for researchers to do their research. And it'll be meaningful research because the way this is set up now, you have to go to 50-plus cancer registries, and about half of them won't even cooperate.

Now, I want to know something. Why are federal taxpayers' dollars going to cancer registries that will not participate in federal research? I mean, if we're going to defeat cancer, like all these politicians I hear, every time they get in front of a camera and they start talking about cancer, they want to defeat cancer within their lifetime. But then they don't give the researchers the tools to do it. Why?

DR. ESPEY: Well, I -- for the purposes of the -- the main use the CDC makes of these data, which is surveillance and trying to identify base disparities, it is useful. For the purposes of a specific research project like a linkage study, this particular data set would not work. We do not currently have the registry --

(Interference)

MS. RUCKART: It's the streaming. There's a delay so...

DR. ESPEY: So I can't disagree with that, I

think the tools that we currently have --

(More interference)

DR. ESPEY: Given the tools and the current set of circumstances that we have, the reality is to move forward with the study as I understand it, and I don't know all the details, but it does involve linkages with the cohort and registries, including identifiers, which would require state-by-state to process. There is not a national registry currently.

The potential for that in the future is, is -- you know, I think it would be a good thing but currently, currently, we don't have that tool available. The linkages can be -- they can be done. It is a very cumbersome thing to go state-by-state. It takes resources. It takes personnel time. It takes some technical knowledge and tedious review of linkages, but it can be done. And we do stand ready to help with that if the decision to move forward is made.

DR. CLAPP: That was my question. Can you support the states that are requested to do linkages when the time comes?

DR. ESPEY: Well, what we can do from the CDC Division of Cancer Prevention and Control is help

facilitate the contacts, the communication with the state registries. We do have some tools available to conduct linkages that are -- that have been made available for free to the states, to conduct their own linkages. The states do linkages with their own state registries -- excuse me, the vital statistics databases and other cancer-based registries like the breast and cervical cancer control program registries. So they do have that capacity, and we can provide technical assistance to that.

DR. CLAPP: Do you have financial leverage as well?

DR. ESPEY: We do not have the financial ability to do that or the staffing. I mean, our efforts would be in the realm of facilitating the linkages. Nor do we have the scientific -- I mean, these are very specialized -- it's very specialized circumstances where you have exposures that are intermittent from the cohort side, registries that are contributing information for different years. So that, I think, I would not say that we have the expertise for that. We can provide some technical assistance around the linkages and certainly help facilitate communication with the individual cancer registries.

Now again, I am speaking about the CDC-supported registries and it's important to remember that there is another set of registries that is critical to the overall national registry system that are supported by the NCI, so this would be a conversation that would be needed for the National Cancer Institute as well.

MR. PARTAIN: Question. What can be done congressionally to support something that we're trying to do here?

DR. ESPEY: That, I would -- I don't know. I would have to defer to ATSDR.

MR. STALLARD: Excuse me, just a minute. Do you have convening authority?

DR. ESPEY: I actually don't know. I'm the acting director, while we're recruiting for a permanent director and I don’t know the answer to that question.

MR. STALLARD: Well, that's good 'cause we're trying to find out how together we can move forward with this extremely complex situation. And we need everybody's expertise at the table.

MR. ENSMINGER: Absolutely.

MR. STALLARD: So, Dr. Cantor, do you have anything you want to contribute?

DR. CANTOR: No, I don't. One or two questions. On -- to what degree of resolution are the data available? In other words, if I wanted to calculate rates for particular counties or for particular states, in particular if I had 10 or 15 states and I wanted to get a rate for maybe individual age groups or males or females or race groups, am I able to do that with the data that CDC has?

DR. ESPEY: You can. Again, you would have to factor in the fact that the data are not being contributed from every state for an entire time period, so you would want to -- if you wanted -- if it was a specific county it -- likely if it's a smaller county the estimates would not be as reliable because if there are not as many cancer cases, it's not what we call a stable estimate. But if there are larger numbers we have more confidence in the estimates. But in general the data are available. How reliable they are, just based on the number of cases, it just depends on the specific county or a specific state or geographic region.

DR. CANTOR: And a second question. Do you have a validation system built into the data collection?

DR. ESPEY: There is extensive validation of the data in both systems, and standardization of the data, that has been in place for a number of years.

DR. CANTOR: So periodically you go back and --

DR. ESPEY: Every year. All the data are validated.

MR. STALLARD: We have time for one more question before break.

MR. PARTAIN: Just so I can understand this better. You know, what I'm hearing is a generic -- you know, what you're giving is generic data. Like I said, in our case, Jerry mentioned we have specific, you know, individual data from the DMDC which is the Department of Defense, where we have people. And what you were saying earlier on the flow chart the states have the individual breakdown of their data. What would happen if CDC or ATSDR, using your system here, was to go backwards and say, here's the people we have, can you tell us if they've had cancer or, you know, if they've had cancer in their lifetime, and then go back to the states, what would happen?

DR. ESPEY: If we had gone through all the necessary steps to access --

MR. PARTAIN: What are the necessary steps?

That's what I'm trying to conceptualize is, you know, we have the information. We have the specific parts. And we would want to go backwards to track this down. So how would that work?

DR. ESPEY: Right. I think whether it's a CDC effort or a community effort or some other agency, the steps at the state level would be the same. The states are the owners and -- of their state resident data. And all the states are different.

MR. PARTAIN: But you said there was a -- one of the provisions for that was for research. The CDC is conducting the research and they're saying, here, we've got this information, states, that would be a legitimate need. Why wouldn't the states provide that information?

DR. ESPEY: So that's a very good question. And I do have a couple of slides here just in case some issues came out around this. And it's again, this is all at the individual state level. Whoever was doing this would need to go through these steps, whether it was ATSDR, CAP, whoever. And this is typically for each state, the -- it would involve some version of these steps: A cancer registry data use application; a study protocol; a list of data items that are needed; and then data use and

confidentiality agreements. The issue of having to go back and contact individuals that were diagnosed would not be applicable in most instances.

MR. ENSMINGER: But that's what needs to be done.

DR. ESPEY: Right. So this is the difficult part of this. And this is the current set of circumstances to do this sort of exercise.

MR. ENSMINGER: Who controls the purse strings? Who doles out the money to these cancer registries from CDC? Who?

DR. ESPEY: The CDC, through this legislation and appropriation, sends about $37 million out to the states.

MR. ENSMINGER: Who does that?

DR. ESPEY: It comes through Congress.

MR. ENSMINGER: Yeah, but who doles the money out? Do you?

DR. ESPEY: I don't personally. The staff in the cancer division does that.

MR. ENSMINGER: Is that right? So if they won't cooperate with a study, why don't you just say, we're going to pull your funding?

DR. ESPEY: I don't know that you need to think that they wouldn't cooperate. I mean I think they

would have their own local state-level circumstances to meet with the needs of someone requesting identifier information but I don't think there's any reason to think they wouldn't cooperate.

MR. ENSMINGER: Well, there was only 28 that participated that cooperated with the VA when they did their Gulf War study. There was only 28 states participated. The other ones declined.

DR. ESPEY: I don't know the circumstances that lead up to that study. I will say that we are in a position to try to facilitate clear communication with the grantees, the NPCR, not the NCI. That's not our role. If this moves forward, we can play that role and I think try to maximize participation through that.

MR. ENSMINGER: I mean, those 28 states -- let me make this point. Those 28 states constituted 80-some percent of the American population, and so it was an effective study.

MR. STALLARD: Well, we're going to talk about this at 11:15 in greater detail. Thank you. I'm sure we'll be hopefully working with you again in the future.

All right, it's time for a break. Just a little announcement, Morris had said yes, the rest

rooms out the door to the left or the right. I will say you go out the door, turn right, and then turn left is where you'll find the rest room facilities if needed. And please enjoy the food that's been provided. Be back in 15 minutes

MR. ENSMINGER: Dr. Ikeda, would you like to sit down and have lunch with me today?

DR. IKEDA: I'd be delighted.

(Morning break, 10:29 till 10:45 a.m.)

PUBLIC HEALTH ASSESSMENT ACTIVITIES

MR. STALLARD: All right, folks. Please, we need to resume. Please take your seats. All right, we're going to begin the next session on the agenda with Dr. Tina Forrester to provide an update on the public health assessment activities.

DR. FORRESTER: We have distributed a handout for everyone. I think it's easier to follow the presentation, and then you'll have the list of references I'll be talking about. So we have a team of at least eight people in our division working on the revision of the public health assessment. And we agreed to go back and evaluate the past exposures to volatile organic compounds using the modeling results compiled -- or completed in March 2013. As

part of the drinking water re-evaluation, we felt we also have to go back and review the current base water modeling data to ensure that the actions that we requested to mitigate lead exposures identified in the 1997 health assessment are adequate and are protecting public health. So basically the revised public health assessment will contain two components: The evaluation of the drinking water pathway, based on the dose reconstruction data, and evaluation of the vapor intrusion pathway. And we're going to conduct that evaluation base-wide. So we're not just going to look at just one area but we are going to focus on Hadnot Point, but we are going to look base-wide for the impacts of vapor intrusion.

Progress to date. We have done a lot of work on the drinking water pathway because the data was readily available from Morris's water modeling data. We have evaluated the ingestion, inhalation and dermal contact pathways for all the VOC contaminants on the reconstructed data. And we use the reconstructed data from Hadnot Point, Holcomb Boulevard and Tarawa Terrace.

We have evaluated the exposures for these groups: military workers, both actively training

and working on base, pregnant women living on the base, children living on the base and long-term workers on the base. We have, based on the last CAP meeting, updated some of the exposure durations and drinking water intake assumptions based on you-all's input. There was concern raised that actively training military personnel may consume a lot more water than we originally thought. We got some guidance from the data source, RAIS, something like that, that told us -- okay, a reasonable quantity of water by the military personnel would consume by actively training --

MR. ENSMINGER: Who's RAIS?

DR. FORRESTER: I think I have -- maybe have the wrong acronym but it was --

MR. GILLIG: The military had guidelines for providing drinking water to troops, and that's the document we use.

MR. ENSMINGER: Okay, and, you know, when you're considering exposures, okay, every Marine Corps unit has organized physical training three times -- at least three times a week. So when you get up in the morning, you fall out in formation in PT gear; you go out and you do your calisthenics around the table, and then you do a run. When you

get back, you take a shower, get your uniform on, go to the chow hall, eat morning chow, and then you have morning formation prior to dismissal on going back to your working areas. Now, when the day is done, what's the first thing you do?

DR. FORRESTER: Go to sleep?

MR. ENSMINGER: No, you go take a shower.

DR. FORRESTER: Okay. I don't know.

MR. ENSMINGER: 'Cause you're slimed up from working all day. That's two showers a day.

DR. FORRESTER: We assumed that approximately three days a week they were in active training and probably drinking about six liters of water during those active periods.

MR. ENSMINGER: At least.

DR. FORRESTER: At least. We figured that was a reasonable average. And then on their off days, not training, they were probably drinking comparable to an average adult, which was about half that amount, three liters. So three days training a week, is that reasonable to assume?

MR. ENSMINGER: Well, that's three days of physical training. Now, you know, I mean, the entire work week is training all day long. It's either working in your military occupation specialty

or going to classes or going out and doing exercises there close to the barracks. Now, when units were in the field, they had bulk water sources like water buffaloes, which are trailers that are pulled by trucks, or they had M50 tanker trucks, which were specifically water tankers, and then they had tractor-trailer water delivery units.

They had a water point at Hadnot Point, the concrete slabs, where you pull your vehicles up, and they had overhead pipes that came up, and they had a piece of fire hose connected to the drop. And when you pulled your trailer up there or your tanker or whatever, you pulled the manhole up there, you opened it up, you put that end of that fire hose down in there and you went down and you opened the valve, or unchained the valve, and it delivered the water in the tanker. And then they took that out into the field for field units.

So water consumption, water usage, I mean, look at the mess halls. Your cooks and the people that were on mess duty, these people worked in a virtual gas chamber, because they had these huge, huge steam kettles to cook these large batches of food in the galleys. They had a dishwashing machine that was running 24/7 in the scullery, to clean knives, forks

spoons, trays. And then you'd have a pot check in the back of the galley, where they washed the big pots and pans and all that. Not to mention you had a steam table where they kept the food hot on the serving line. These guys were exposed to massive, massive levels. And that is the 3300 MOS.

Now, another area was the civilian employees that worked in the base laundry. And I have this from a reliable source, most of those civilians that worked in that base laundry, and this had nothing to do with dry cleaning; this was all washing, okay? They washed the coveralls, the shop rags, they washed the table cloths, all the sheets and pillowcases. All that stuff was pressed with these huge pressing machines. Those people worked in a gas chamber all day long. And I -- the reliable source that I have was Mr. Wooten, who was the environmental -- he was in charge of the base environmental department. A lot of those people lived in ^ that worked in that laundry. And they would drive to his house and they would take turns who would drive that week. They were pooling to go to work. Every one of those people that he knew, that used to ride with him to work and back to his house, are dead. They all died of cancer, every one

of them.

DR. FORRESTER: It sounds like to me that one of the productive things that we did do together is we're pretty much to a draft stage where we could look at what we've done and get feedback that would be meaningful to fine-tune both who's exposed and exposure duration and I guess feasible consumption or rates of exposure. And I understand that you all did participate in reviewing Chapter B and D prior to public comment, which is something I think that we should do.

MR. ENSMINGER: Absolutely. I mean, that's what I'm asking for. I mean, I'm asking to be involved. I mean, we were involved with Morris. And you know what? We didn't always agree with Morris. Sometimes we got into shouting matches but we always ended up as friends at the end. I mean, and when they -- when Morris gave us a reason for why they were doing what they were doing and he showed us the reason, we accepted it, I mean.

DR. FORRESTER: We would very much like that relationship in our division with the CAP.

MR. ENSMINGER: Well, good.

DR. FORRESTER: I know it's difficult to have these meetings over the phone because you can't see

what we're showing or visually look at data. Maybe we could, and this is just a suggestion, and of course that's up to the whole CAP, is maybe use a couple of hours of the CAP meeting as a working meeting and others at issue about wanting things transcribed, that we talked about, and this is some opportunity or we could do what we did before with the water modeling.

MR. ENSMINGER: Provide us your drafts and provide us the documents that you said you got, because I didn't know you had them.

DR. FORRESTER: Well, we'll talk about that in vapor intrusion. Right now I will still have to get permission from the military to share them and that would be something we'd have to work through.

MR. ENSMINGER: Why? They should be part of the administrative record.

MR. GILLIG: When they provided the documents they asked that we keep them close to the vest, that we not share them.

MR. ENSMINGER: What's that tell you? I know what it tells me.

DR. FORRESTER: Let us talk to you about how we're evaluating them and we will work with the military to see if we can get that issue taken care

of as well.

MR. ENSMINGER: I mean, they tried to do the same thing with Morris and his team, and it got overturned, and we were provided the documents. Without the documents, you know, we can't really help you as much as, you know, we could if we had them.

DR. FORRESTER: Okay. Well, we will put that as an action item and we'll ask Glenn to help us work on that issue. We want to fully disclose what we can -- are allowed to do. So I think that other action item is how we're going to do this informal working on the project. Right now the document is in our divisional clearance, so all the people that need to review it in the division, to make sure that we did our evaluation according to our practices, are looking at it. So it should be at least another month before we finish that. And then we'll get with you all to work out the strategy.

MR. ENSMINGER: And, you know, it's like I said before, if you don't have the historical documentation to go back to 19 -- well, let's say back to 1972, okay? That was when Well 651 came online, which was the worst contaminated well. But beyond that, you know, I don't know when these

massive fuel plumes -- I am -- I suspect that their fuel leaks began shortly after they opened the fuel farm, because the way it was constructed, the piping that interconnected all those tanks was put in trenches. They laid the tanks partially down in the ground. And you know what happens at a construction site when you disturb the earth, and then you put something in there and then you fill it with 10- or 20,000 gallons of fuel. And then they put the piping, the interconnecting piping, in a trench and covered it with dirt. Well, I would say, when it rained the first time -- and these pipes were rigid, they weren't flex hoses that connected the pipe line to the tanks. They were rigid pipes going into the tanks. The first time it rained the tanks settled, which put a stress on those pipes, and they cracked. And my estimation is that their fuel leaks began the first rain fall after they constructed this fuel farm in 1941 or -2. So you have the capabilities, your exposure dose reconstruction laboratory team. Use them. Let's get them to work. Let's get these models started now.

DR. FORRESTER: Well, I would like to address that in the vapor intrusion. We have been working with Morris's team, because again, we got a huge

data dump like Morris got on the water dose reconstruction, and we needed advice and guidance on how to wade through all that to get the actual data. The data did not come to us presorted in nice tables and charts; it came in PDFs, which, you know, you don't just run a key word search. We had to buy a particular program that would do word searches on PDFs to even get to the relevant data.

And let me just finish up a couple points on this and we'll talk about that issue. The other concern was the length of time that civilian workers worked on the base, and we increased that number to 15 years. And hopefully that's a reasonable assumption; we can talk about that as well. And then, you know, one of your overriding concerns was to make sure we're using the correct cancer slope factor for TCE, which we have done. And we can show you our cancer slope factors for all contaminants and comparison values also, so we are on the same page.

I think the only thing that will be a little difficult is how to assess some of these exposures, and this is probably something Morris can help us with. There are models to show how, like from steaming and ironing and how you measure the

inhalation exposure, how you quantitate that would be really difficult, sort of like a shower model, but we can get some feedback on that.

MR. ENSMINGER: Yeah, that was a continue -- I mean, people worked in the laundry, that was a -- and in the mess hall, that was a continuous exposure all day long. It's like -- it would be like taking a shower all day. So you'd be getting two to three times more, like you say, from a shower, only this is continuous, all day long, five days a week. Well, in the mess halls it would be six days a week, because they work one weekend and want one weekend off.

DR. FORRESTER: Were they civilian workers or were they military?

MR. ENSMINGER: No, these were military. I mean, that was before we had contracts for -- you know, the civilians run the mess halls now but prior to that it was all military. And, you know, the gophers, the people that cleaned and served on the lines and worked in the back washing dishes and pots and pans and all that, they weren't the cooks; they were mess duty people. You get 30 days mess duty every year.

DR. FORRESTER: So were they --

MR. ENSMINGER: It was great fun.

DR. FORRESTER: -- similar in cycle, like three-year periods of the deployment there?

MR. ENSMINGER: What's that?

DR. FORRESTER: How long were they there doing those jobs? Was it like the other military, three years --

MR. ENSMINGER: Well, your mess men were provided to the mess hall from the units that utilized that mess hall. And they had 30 days a year of mess duty. But your cooks were permanently assigned there, and bakers. And they served the -- a tour at a unit just like we did. You might be there two, three years on average, and then you've got orders to go overseas or go on a deployment. Where, you know, you cooked aboard ship and helped with the Navy people, when you had embark Marines onboard ship. And then when we were off ship, making landings and doing training with other countries or whatever, when we were on shore, they set up field messes.

DR. FORRESTER: All right, well, these are some things we need to clarify before the document goes to public comment, so we'll work out a procedure to get this interaction going.

MS. FRESHWATER: Can I ask a question? The swimming pools, a lot of people are curious about that, and I'm not sure how, you know, chlorine reacts when these chemicals were in the water. But I spent three or four summers in a swimming pool at the officers' club every day, in my nose, mouth and everything else along with all my friends, and it's something I've been very curious about as far as exposure in the, as I said, the chemicals in the pool and how that would react to the chemicals.

MR. ENSMINGER: And by the way, on Hadnot Point, they had indoor training pools, Olympic sized swimming pools inside. They still have them. Now, you want to talk about a massive body of water in an enclosed structure and people in there floundering around. They had towers there where, you know, you simulated the, you know, evacuating the ship. And then you had to go off in full uniform, boots and pack, and rifle and, we didn't use our real rifles, we used mock-ups. And you had to jump off the tower, feet first, like this, protecting your groin and your chin. So if you hit any debris when you entered the water, you would protect those areas. And then you had to swim and you had to swim so many laps around the deep end of the pool, and then get

out. So those indoor training pools were gas chambers as well.

MS. FRESHWATER: Yeah, and like I'm sure has happened to you all these years. I keep having these haunting memories, like oh, I used to go and play in the sprinklers in the golf course all the time. My friends and I would just go play in the sprinklers, and so I was in water, you know, all of the hot months, all the time. That's all we did.

MR. PARTAIN: And keep in mind, this is a coastal, almost tropical area, eastern North Carolina. It's hot -- sub-tropical. It's hot. You're exercising and working out there, and one of the rules of being out in the sun, in the heat, drink a lot of water.

MR. ENSMINGER: They used to give us salt tablets.

MR. PARTAIN: One thing I want to -- two things have been said today that just concern me here about the documentation. First bringing up the 40,000 documents, and the second, the military putting the hold on it. It boils down to communications and the lack thereof. Question: When did the military turn over these documents and then tell you you could not share this, keep them close to the hold, like you

said. When did that happen?

MR. GILLIG: We made a formal request, I believe it was last June, a written request, that -- I'd have to look and see exactly when that was, Mike. But we've been getting documents in -- as we started this process, we were receiving documents. Their requests that we not share them, I'd have to track that down. I don't know exactly when they made that statement. But again, this has been an ongoing process for a couple years, as far as us getting documents, and we still are getting additional documents from them.

MR. ENSMINGER: Well, let me make another point to you. A lot of the -- most of the buildings that were located above these big plumes, like building 903, which used to be engineer and ordinance maintenance; building 1601, which was mote and transport maintenance; the 1100 buildings, which used to house the sask (ph), which was supply, the computers, stuff like that, to track all the stuff that was being ordered, all those buildings have been vacated, many of them in the 80s, late 80s. 'Cause I was in maintenance battalion. Maintenance battalion had ordinance maintenance and engineer maintenance up in the building 901 and 903.

Building 1601 was motor transport maintenance. That's been vacated. That was vacated in the late 80s when they built a new complex over toward French Creek, and all these, all these air quality samplings that they took were after those buildings were no longer in use by, you know, full-time people; they've turned them into warehouses or whatnot. So, you know, they were a day late and a dollar short with their ambient air quality sampling.

So that's why it's important that we, if we have to, reconstruct, because, you know, there were -- good God, I mean, the shallow vapor readings around buildings, like the base motors building, what was it, like the 12, 1201, I think it was. What was it, 1202, base motors? They did the shallow vapor slow readings around that building and they were like 12,000-and-some parts per billion of VOCs coming up.

DR. FORRESTER: Well, we want to talk about a kind of strategy for going through identifying buildings that were areas of risk on the base, so we know which ones to look at when we track. And Morris's dose reconstruction helped some but also real data helps a lot.

MR. ENSMINGER: Oh, sure. I mean, but, you know, when they claim that they don't have it, then you have to go to the other alternative, which is --

DR. FORRESTER: But the good thing is, we have the documents and we are the ones that are searching them. They're not searching it for the information we need and we will find information they don't know they even have.

MR. ENSMINGER: Well, if you provide us with these documents, we'll find it if it's in there.

MR. PARTAIN: And going back -- I want to touch on what I was talking about here, 'cause this, this is really bothering me. This issue about the documents and the Marine Corps and the Navy coming back and saying you can't share them. It is -- we've hammered it over and over again. This is a CERCLA-designated site. Any documents that pertain to that are public records, supposed to be for the administrative record.

There was a data mining operation done about two years ago, and, you know, it just -- going back to what Dr. Ikeda said at the beginning of the meeting about a CAP reboot here, and this is a case in point. You know, you guys are operating with the public trust. We trust that you are doing -- being

diligent. In the past we have found that that was not the case, not you personally but this agency, whether it be by design or just by missing stuff or incompetence, I don't know.

Part of the reason we were effective and became effective as a CAP is because we have access to the documents. We went through them. We educated ourselves and we became involved constructively. We weren't just obstructing things and throwing willy-nilly things out there for people to talk about. We brought up everything and every concern with a document to back us. Now we're blind with this vapor intrusion issue other than what we've already found and brought to you guys' attention first, 'cause it was the CAP that really brought this issue to the forefront.

Now, you made a statement earlier, at the beginning of this meeting, that, you know, the relationship between the CAP and you was part of the reason why you didn't tell us about the 40,000 documents. You said something to the fact that the relationship really wasn't -- the communications wasn't there. You know, the -- in September of 2013, the last CAP meeting we had before this one, Dr. Ragin-Wilson said, Jerry Ensminger and Mike

Partain requested an index of the documents that are being used to assess the vapor intrusion; that was directed to you, Dr. Forrester. Your response was, we will discuss those in the soil vapor discussion today. We don't have the complete list yet. We have just received many of the documents which we're currently going through and identifying what we have. At no point did you tell us you had 40,000 documents.

DR. FORRESTER: I didn't know at that point, sir, I'm sorry. We've been receiving them since we have been engaging in the process.

MR. PARTAIN: Well, previously to that, I had requested in the CAP meeting beforehand, an index, something. And now that was September where Dr. Ragin followed up, that was on the CAP follow-up part. And, you know, we've gone now from September to now April, and we've heard nothing from you. I mean, today -- this was a shock, to me and Jerry, that you're sitting in possession of 40,000 documents. Are they part of the CERCLA documents, CLW documents, Navy UST, are they redacted? I mean, you know, I'd like to know what's there. And you know, if you really want the community's input and, you know, the expertise that we can bring to help

you guys do what you're doing, we need access to these documents. And this has been the theme since I have been on the CAP for about seven years, about getting information. And, you know -- and I'm sorry if you think that some of our questions are hard or harsh.

I'm a professional myself. I work in an environment where I deal with people who have had their houses burn down, lost all their family memories, all their possessions and in some cases lost their family members. I've had people scream and yell at me, crying at me, and you can name it, I've had it, had to go through it. And because I was a professional, I conducted myself in that manner and did what was best for them while maintaining my company's directions and the limits of the policy.

I understand that we get emotionally charged at times, because, you know, I'm a cancer survivor going on seven years this month and I've said many times before, I did not know that I was exposed. I had no idea. And we deal with people like Jerry Thompkins, who worked on Hadnot Point, on top of the vapor -- I mean, I'm sorry, this fuel plume, that breathed these vapors, and now is dead from multiple

myeloma. We deal with these families on a daily basis; we get these emails; we get people asking who have not found out.

On a flight to Washington in February, the guy sitting next to me was born at Camp Lejeune, and asked me why I was in a suit, and I told him what I was doing. And he turned white, and he goes, I was born there in 1980. He knew nothing about it. The lady two rows behind me overheard me talking to him and stopped me in the terminal and said my mother died of cancer; we were at Camp Lejeune. That's what Jerry and I go through on a daily basis.

Now, when we ask for participation, it's communication. You guys, when you get that objection from Marine Corps, which was in June, after my request for the index, why weren't we told? Why weren't we say, hey, we've got this problem. That was communicated to us when Morris and Frank ran into that problem, and we got Congress involved. That's part of the reason why the judiciary group -- committee subpoenaed all the stuff from the Marine Corps. If they want to play that game, we need to know. If we don't know and we find out nine months later, well, that's nine months down the road that we're having to react to something.

Now, you guys have been working on -- when did you begin work on the public health assessment redoing it? 'Cause it was redacted in 2009. Here we are 2014, five years later, and we're now finally, today, having a meaningful conversation about what you guys are doing, and we're finding out, oh, you've got 40,000 documents. I asked for an index last year. I think it was the last CAP meeting in May. I don't have an index. I don't even have an explanation or the courtesy of an answer of if you can't have one or not.

Now, if you guys want us to be involved, to be a participant, then treat us respectfully. You guys in the past have gone to the Marine Corps, gone to the Department of the Navy, gotten their input, sat on their base, interacted with those people. We're here -- we're here now. We have proven our worth time and time again, and at every opportunity we are discarded. I am tired of that.

MR. ENSMINGER: These documents that you got, I have some specific, pointed questions about these documents. Are any of them redacted? Is there anything redacted on any of them?

MR. GILLIG: Jerry, I'm not sure. I have not heard from the folks going through the documents,

that they are redacted, but I can't answer that question. I'd have to go back to the folks reviewing the documents.

MR. ENSMINGER: I would appreciate an answer on that after lunch, if you could get up with these people.

DR. FORRESTER: If you will look at the next line on the vapor intrusion, that lists the sources, these may be things that you have looked at before, and this is the data sources from which we got the data from.

MR. ENSMINGER: Where is that?

DR. FORRESTER: On the -- it's the last line.

MR. STALLARD: So Tina, I propose that we have a separate working meeting on this topic. I didn't hear any type of --

MR. ENSMINGER: Well, yeah, I mean, we could do that -- we could -- if we could come down here the day -- get here the day before.

MR. STALLARD: Yeah.

MR. ENSMINGER: Like we did that one time with the water model. That would -- I mean, and hey, a two- or three-hour afternoon meeting on the day before the regular CAP meeting, that'd work.

MR. STALLARD: Yeah. I think in order to

continue to advance our collective efforts on that, I've heard a few outstanding requests that we need to get back. You've asked for some specific things, and one was after lunch, if they are or not redacted. The other is the request from the military (indiscernible). And then looking at the feasibility of whether they're covered under the CERCLA law and under that authority, can be shared. So I think that let's bring this to a close right now and agree that we're going to meet.

MR. ENSMINGER: I have one more question.

MR. STALLARD: Okay.

MR. ENSMINGER: And it's one more action item for somebody, and Mike brought this up earlier. We have a data mining group that supposedly got all of the documents pertaining to the water and the contamination. Why weren't these documents included in that data mining set?

DR. FORRESTER: I think Morris can answer better. It's a different scope of request. We're looking for indoor air, ground water monitoring data, sub-slab data, some different things. Morris, do you want to address this?

MR. MASLIA: I was, along with some other people, a participant in the data mining group, and

we were asked as to what parameters, what data we needed. And at that point there was not an overall repository, one unified repository on base or otherwise that the Navy/Marine Corps could give us. So at that point we developed, and it's in the Chapter A report, one of the appendix is a long table, different types of data related specifically to ground water flow, contaminant fate and transport and water supply well pumping. And that was the purpose of that data mining effort.

If in fact there were documents in there that contained vapor intrusion information or whatever, at that point in time, it was not seen as pertinent to the childhood birth defects and cancer study. I'm not saying -- I don't want to be misinterpreted. I'm not saying the data would not be pertinent but for our objectives, as described in the protocol in the Office of Management budget, we filtered or requested data specifically pertinent to, and we provided both the Navy/Marine Corps and people on the data mining committee specific modeling parameters for water resources, ground water flow, fate and transport model that we needed to complete the historical reconstruction of water supply modeling and associated contamination.

So there may be, in that list -- and the type of documents, the type of data that we look at, I'll have to look, I believe it's table 1 or table 2 in the appendix of the summary of Chapter A for Hadnot Point. It's about a 10-page table. Lists the type of documents. There may be some vapor information there. Because it would also give the years, okay? 'Cause some of them go 40s and so on. I remember that specific discussion is -- we got into at one of the meetings, is the Marine Corps wanted to know the duration of the information that we needed. And that column is in that table, I can look at it at the break.

MR. STALLARD: So Morris, that table is something that the working group on the vapor intrusion may want to --

MR. MASLIA: It's available to anybody. It's public information now, obviously, but that was part of the effort and the Chapter A report. The point I'm making is we -- and I'll call it filtering, okay? We selected or filtered parameters and data based on the objectives of the childhood birth defects and cancers study --

DR. BOVE: And the mortality study.

MR. MASLIA: And the mortality study.

MR. ENSMINGER: Vapor intrusion would have been very pertinent in the mortality study.

DR. BOVE: We actually did get industrial hygiene documents, which I gave --

DR. FORRESTER: We have --

DR. BOVE: Yeah.

DR. FORRESTER: We have reviewed the industrial hygiene documents --

DR. BOVE: Right.

DR. FORRESTER: -- for the base.

DR. BOVE: Right.

DR. FORRESTER: Yes.

DR. BOVE: But we got some of this through the department.

DR. FORRESTER: I think we should also proffer what Morris used with what we're using too.

MR. STALLARD: So did that answer your question?

MR. ENSMINGER: Partially. And then Morris -- don't go away.

MR. MASLIA: Yes. I'm still here.

MR. STALLARD: He's gotta find out if it's table 1 or 2.

MR. MASLIA: No, I just want to see what table number it is so we're all on the same page.

MR. ENSMINGER: With your models -- you still got your models, I take it, your computer models?

MR. MASLIA: We have access to the ones that we developed. We do not have access to the ones that our university cooperative partner developed.

MR. ENSMINGER: But Professor Aral --

MR. MASLIA: That's correct.

MR. ENSMINGER: -- at Georgia Tech. I think that's right.

MR. MASLIA: That one we have neither the code nor the computational equipment to run it here. That would be appendix A-2 in the Hadnot Point, Holcomb Boulevard summary of findings report, Chapter A.

MR. STALLARD: Okay. Noted for the record.

MR. MASLIA: What?

MR. STALLARD: Noted. Noted for the record. So is there anything else on this subject?

MR. PARTAIN: I'll repeat my request earlier. I'd like to get a complete index of all documents and document archivet hat was part of the data mining group. I have on numerous calls I brought that up. You know, is this something -- are there any other archives out there? What exists? The purpose of the data mining group is to identify the

body of knowledge that's out there in the form of documentations. And I would like to get an index of the documents that were turned over to the -- by the Marine Corps to you guys, and see what's there. I mean, if need be we'll get Congress involved again.

MR. FLOHR: I have one question. All the elements on this last slide are written like in the past tense. They reviewed the documents, they searched the files, they did data extraction manually and in the spreadsheets and resulting analysis have been summarized. Is this all past tense? Has this all been done?

DR. FORRESTER: No, it's not all done. We pretty much to the point we had 4500 documents that we each have to go word search and manually hand search through to retrieve the data that's pertinent. Any one of those documents can have between 600 and 1400 pages that we have to look at based on our search for 40, up to 40 key word items related to vapor intrusion. So we are not done.

MR. FLOHR: Okay. I just wanted to clarify that.

DR. FORRESTER: And just to make clear, this whole vapor intrusion will take a considerable time to finish, because just like the water modeling,

getting the data set together is going to take us a while. And with the resources I've used in the division, we can't complete it quickly. We've put in another contract to get more people to pull the data. It's just a base job.

MR. ENSMINGER: Well, and you look at the job we had. There was three of us, Mike, Jim Fontella and myself, going through all the CERCLA files and all the CLW files. And we still found stuff that ATSDR hadn't discovered. It was pertinent, extremely pertinent. So this inventory you have, does it have a document number? Are they assigned numbers, these documents? Do they have the title?

MR. GILLIG: What we have received is a -- we have memos, we have letters, we have documents. It's -- there's a variety of --

MR. ENSMINGER: But are they assigned a number? Have they assigned them a number? Do they have a CERCLA number on them?

MR. GILLIG: I'm sure that some of them do but I couldn't tell --

MR. ENSMINGER: Does your inventory have a title of what that document is?

MR. GILLIG: We are taking -- we're inventorying as we go through documents, we're

writing down the titles, we're indicating which documents have pertinent data. So all of that is being put into spreadsheets.

MR. ENSMINGER: Did they provide this to you electronically?

MR. GILLIG: We have some that was provided electronically, some that we got hard copy. So it's a mix.

MR. STALLARD: So, we have an issue about how we're going to move forward with this and be able to collectively engage in the process, as we were able to with the water modeling study.

MR. PARTAIN: Just add a little sunshine; keep it all going.

MR. STALLARD: If you recall, we did have as our operating guideline, early on, transparency. And Morris, thank you for clarifying access to that additional information.

So do we have time to -- we're about 15 minutes behind schedule, and right now we have the cancer incidence update. I think we can get to that before lunch?

MR. PARTAIN: Can I ask something on the public health assessment? Tina, are you guys, if I heard you right, you're looking at the public health

assessment's going to address past exposures, current possible exposures and future? 'Cause I know that part of the public health assessment to discuss what's going to happen in the future.

DR. FORRESTER: We're going to do -- we routine look at past, current and future. On the vapor intrusion, past might be difficult if we don't have the data to make the analysis, so we need to have a discussion about how most effectively to do that. But the bottom line is, vapor intrusion did not become a pathway characterization to anybody, and if you look back at EPA's beginning of investigating vapor intrusion sites was around 1999 to 2001. So data that really characterized the pathway was not routinely collected by anyone.

MR. PARTAIN: Well, the same problem exists with the water quality, because the data begins sporadically in 1980, and even then, when we get to 1985, it's sporadic. But the, you know, we have available to you the water model. And of course, you know, the same problems exist with the water quality. But again, you know, we've established that contamination goes back to 1953.

DR. FORRESTER: And that goes along with the strategy of how to develop the areas of concern when

they were of concern by looking at some maps and skill logs and all these other things. But we can't assume every building on the whole base was affected at the same time or the same degree, and we already know that, and that's part of the strategy, to figure out where to go and where to look and when to look. And I did have a conversation with Morris and the team did about modeling modeled results, and there's a lot of variability and uncertainty. We hope to find scraps of real data that you can use with model data to make it more certain. But again, modeling modeling results is not always the most effective way to get an answer, and that might be what it turns out to be. But we're willing to look through it and figure the path forward.

MR. PARTAIN: One of the reasons I'm asking about the current exposure is because recently Jerry and I were contacted by a family that it appears that their -- storage tank for the house?

MR. ENSMINGER: Yeah.

MR. PARTAIN: There may be vapor intrusion issues in the family housing areas that could be ongoing today from leaking tanks in the past.

DR. FORRESTER: Well, our first concern is to make sure that the ones that were identified have

been mitigated, and we're also looking at the mitigation data to make sure what they did was effective. And second of all, to make sure there are no ongoing or current exposures that need to be mitigated. And then of course the past is important too but those two issues, the ones where people still could be exposed, need to be addressed first.

MR. ENSMINGER: This guy's a retired warrant officer, and he was a supply type, logistics. He retired out of the Marine Corps up in Virginia and got a job with a defense logistics agency.

He had to go down to Camp Lejeune for a meeting. So while he was down there, he had some spare time so he was taking a little trip back memory lane and went over to the housing area where he and his family lived when he was first selected as a warrant officer, drove down the street, and his house was gone. There was an orange fence around a big hole in the ground where their home had been. And it had signs on the orange fence: Contamination site. Keep out. And they had two sons that were born while they lived there, and both of them have -- one of them had -- I think he's had somewhere close to ten surgeries for his heart.

MR. PARTAIN: So I mean, that's the concern, if

these exposures are continuing, 'cause we know they went into the early 2000s, to make sure that the Marines and the families that are there now aren't having to fight our fight 10, 15, 20 years down the road.

DR. FORRESTER: And we agree with you, and that's part of our strategy.

MR. STALLARD: All right. So we will have the working group.

MS. FRESHWATER: Can I ask one quick question? It's very --

MR. STALLARD: Actually not, because we're not --

MS. FRESHWATER: Two sentences.

MR. STALLARD: Two sentences? I mean, I would love to hear your voice but if it’s going to lead us down another path.

MS. FRESHWATER: I don't think it will or I wouldn't ask it.

MR. STALLARD: Okay.

MS. FRESHWATER: The Marine Corps -- when the Marine Corps said keep it close to their vest, did they cite security? What did they cite for a reason to keep those documents close to the vest?

MR. GILLIG: I don't have the details on that

and I'm not sure it was conveyed to us.

MR. STALLARD: Well, we'll find out. Okay, so, none. Come on.

MR. ENSMINGER: It was security. It was their security.

MR. STALLARD: Okay. Thank you. That was very helpful and informative. Let's move on to Frank and Robin's --

MR. PARTAIN: Well, one thing, the slides that we have been shown today from the cancer study and things like that and the VA, can we get copies of those presentations, please?

MR. STALLARD: I'm sure.

CANCER INCIDENCE STUDY UPDATE

DR. IKEDA: So as I mentioned earlier, we're committed to moving forward on the cancer incidence study. And our first step is to convene an expert panel to help us answer those questions that still remain exactly how we can do the study. Yes, the -- you know, and people keep asking, well, what questions are still out there? I think there's still some questions about what's the best design for a cancer incidence study, what outcomes are of interest, meaning what cancers do we choose. Is it

all cancers or is there a subgroup that would be most important? We had some discussion earlier with Dr. Espey about, you know, what states could be included. And then of course most importantly, perhaps we would be able to answer the questions that we really think are important and of interest.

Given -- and Frank, I don't know if you want to jump in with other questions that still remain, but given the discussion that we just had about communication, one of the things in terms of convening a panel is identifying the members. And we've been talking internally that we are assuming that Dr. Cantor and Dr. Clapp would serve as the CAP's representatives on any expert panels, but we're open to discussion on that. Also we would like to hear your perspective about how you would like to keep informed about the processes moving forward, again, whether that's through a technical monitor or some other process. We'd be happy to hear any -- your thoughts and comments about that.

MR. ENSMINGER: Well, I would also like to propose, when this does move forward, that we use this opportunity under this study to revisit the mortality statistics, because I mean, those -- the cutoff for the mortality study was 2008. It's now

2014. By the time we start -- actually started with the cancer incidence -- I mean, they just updated the National Death Index. It was just completely updated, I think, the last month.

DR. IKEDA: So you're talking about the follow-up.

MR. ENSMINGER: Yeah, revisit it, you know.

DR. BOVE: We've been talking about possible approaches, and in most of the approaches we talked about, in fact all of them, we do want to find out the vital status of people as of -- when we started with it. So if you're finding out the vital status, it's very easy to then send that information to NDI, cause of death. So yeah, it's very possible to continue to follow them. But again, this would be a topic for the expert panel to discuss along with the best approach to working with the cancer registries, whether we go for all 50 states, whether we go for a large percentage of the population, such as the VA, with 86 percent. Whatever -- there are a couple of different ideas about how to approach cancer registries that are willing to supply the personal identifiers or those that, by state law or some other reason, do not, and we may have to use a multiple strategy approach. I've been discussing

this with Ken and Dick, and these are issues that an expert panel would address.

We do have -- the mortality study we identified cancers we called the primary interest based on the literature. So that for example, kidney cancer, non-Hodgkin's lymphoma and liver cancer we could identify (unintelligible). There were bladder cancer and esophageal cancer, for PCE for example, leukemias, because of benzene for sure, (unintelligible) multiple myeloma and so on. So we had a list of primary cancers of interest. And then we had a secondary list where there was some information in the literature, any information, indicating there was an association of at least one study for example. And there was a whole longer list. But there were cancers that weren't included because there are cancers that either there is no information on solvents or the information is negative, whatever. So we do have an idea, but again, I would want an expert panel, again, to weigh in on that. The EPA just published last week a -- their meta-analysis, which is part of their (unintelligible) a review of cancers. They have more or less evidence with PCE. So that would be the most useful (unintelligible). So you know,

that's what I would want an expert panel for.

MR. ENSMINGER: Well, I mean, when you look at the mortality study results, 48 percent of the mortalities were caused by trauma.

DR. BOVE: Just to be specific, 12 percent were suicide, 8 percent were homicide violence category, some of which were probably due to the --

MR. ENSMINGER: Well, that was only a couple hundred people.

DR. BOVE: It was about 200 and something.

MR. ENSMINGER: Yeah.

DR. BOVE: And then a large -- another large percentage, I think it was close to 20, whatever I said to you, was motor vehicle transportation --

MR. ENSMINGER: Transportation related.

DR. BOVE: So we have a large number of these deaths. Now, remember only 5.8 percent of the cohort had died by 2008. So and a large percentage of them aren’t due to these kinds of causes. One of the reasons we're interested in cancer incidence is because, you know, if you died -- if you got hit by a truck, that's what you died of but you may have had kidney cancer, you may have had leukemia or whatever, but (unintelligible). And that's the limitation of the mortality study.

MR. ENSMINGER: Well, and also the people -- also the people that were diagnosed with a cancer, because of the improvements in treatment protocol, these people aren't dying. So they're not going to show up in a mortality study. So that's the importance of the cancer incidence study. And Mike and I, and everybody on this CAP, we deal with these people on a daily basis. I mean, not a week goes by that I don't get an email from somebody that's diagnosed with kidney cancer, bladder cancer, liver cancer, non-Hodgkin's lymphoma, leukemias, and all I can tell them is that, you know, science is not fast. I mean, science takes time, especially if it's meaningful science, and you gotta be patient. And so but I mean, that's a hard thing to sell to somebody that's suffering from cancer.

DR. BOVE: Jerry, let me say one other thing. For the health survey, we're confirming cancers (unintelligible) according to the health survey. And through that process, we work with 13 registries. But for the survey, we had to have, and this is just general information, we had to have each person sign a HIPAA form saying that it was okay for me to approach their doctor or the cancer registry.

What we want to do -- the cancer incidence study we're talking about doing now, there would be no contact with the people, okay? It would be similar to the mortality study where we had personal identifying information, Social Security Number, date of birth, name, so on. And in the mortality study we were able to send that to the national repository that CDC runs called the National Death Index. Okay? And get cause of death. There is no such thing, as we were told earlier this morning, this is no such thing for a cancer incidence. There's no central place. You have to go to 50 states.

The issue when dealing with these cancer registries will be we're not going to ask -- we're not going to have contact with the individual, so we're not going to be requesting HIPAA consent, which would be impossible to do with this study. We want to do a data linkage, so that's where the personal identifying issue comes up and confidentiality issues and whether each state has a different rule and so on. So these are the kinds of things that an expert panel will have to grapple with, okay?

MS. RUCKART: Well, just for the mortality

study, these rules of privacy and protecting personal information don't apply when you're deceased, that's why it's very easy just to go to the NDI and get the information when you have no contact. That's not the case with living.

MR. ENSMINGER: Yeah, I mean, the health survey was, what'd they have, a 27 or 28 percent participation rate? I mean, it's not useless but I mean, it's really lacking.

MR. STALLARD: Dr. Ikeda, did you have a comment before we go to lunch?

DR. IKEDA: No. Just that, you know, we look forward to working with all of you as we move forward. Thank you.

MR. PARTAIN: Dr. Ikeda, this panel that you're talking about, is it to -- I mean, is there a commitment on ATSDR's part (unintelligible)?

MR. STALLARD: (Unintelligible).

MR. PARTAIN: Thank you. Trying to see is whether it was a feasibility study or --

MR. ENSMINGER: No.

MR. PARTAIN: Okay.

MR. STALLARD: Good. That's a perfect segue for Dr. Cantor --

DR. CANTOR: Yeah, a few comments. First of

all, I find this very encouraging and I look forward to working with any expert panel that's set up, and obviously it's going to be a lot more broader based than just the two of us.

One thing, though, Frank, I think for some maybe specific cancers, and this again is very premature and would bear a lot of discussion in that expert panel, that it might be very, very helpful to be able to go back to cases to get personal information, and specifically for genetic information, for particular cancers, because we know, for kidney cancer specifically and for TCE specifically, there are polymorphisms that is -- that we all share, 30 or 40 percent of us have certain genetic differences that metabolize TCE differently, that put certain groups at higher risk than other groups, and it would be very, very important information to have. So this would be maybe a subset of or a sub-study within the general incidence study. But these ideas would, I think, would be fleshed out in more detailed deliberations.

MR. STALLARD: Yes?

DR. CLAPP: Just wanted to add my comments to what Dr. Cantor gives. I think it's a very encouraging development. I commend the ATSDR for

making it clear that they want to move forward on this cancer incidence study, and I look forward to helping in the process.

MR. ENSMINGER: And I know that when you form this expert panel and they meet, I know you guys look at me like I'm a layperson or a dummy, but I would like to attend the meeting.

DR. IKEDA: And I think we can certainly consider that. Sorry, certainly consider that.

MR. STALLARD: All right, then. That brings us to a close of the morning session. Thank you very much for such a productive use of time. We have one hour, and Perri has something to say.

MS. RUCKART: As you know, the cafeteria is in 106, so we need to have escorts. We need to escort all the visitors over there to that building. And maybe the escorts could raise their hands, so you'll know. You have to go with them into 106 and they have to come with you back to 107. So if you just talk -- how about like a meeting place, when we're going to meet in 106 to walk back over here to 107.

(Lunch break 11:50 a.m. till 1:00 p.m.)

PRESENTATION AND DISCUSSION OF PUBLISHED HEALTH STUDIES

BIRTH DEFECTS AND CHILDHOOD CANCERS

MR. STALLARD: Please have a seat. This is the time after lunch when digestion starts to set in and we close the blinds for your comfort. And we have some exciting presentations for this afternoon. I'm ready. Are you ready?

MS. RUCKART: Ready as ever. Well, welcome back from lunch. Thank you for returning. While you were out I passed out the published journal articles that Frank and I will be discussing, so you can just have that for your reference.

So I'm going to talk about the birth defects study. It was published in December. And I just want to say while we have this presentation, please feel free to stop me along the way if you have questions. That's fine with me.

So this slide just shows the formal publication title, and we just really refer to this as the case control study or the birth defects and childhood cancer study. This provides some background on the site. I'm sure most of you are very familiar and aware of this, but the base began operations in 1941. There were ten base family housing areas and three water distribution systems serving most of the base housing. That would be Hadnot Point, which I

may refer to as HP, Tarawa Terrace, as TT, and Holcomb Boulevard as HB. And during routine water sampling in the 1980s, VOCs, volatile organic compounds, were detected in some wells in the HP and TT systems.

So about the HP system, it began operations in 1943 and was primarily contaminated with TCE. And the sources were leaking underground storage tanks, industrial area spills and waste disposal practices. Vinyl chloride and PCE were also in the drinking water, and that's because of degradation of TCE. And PCE and benzene were present as well. The maximum amount of TCE detected in the system was 1400 parts per billion in May 1982. HP served the mainside barracks and the Hospital Point family housing. And prior to June 1972 it also served family housing at Midway Park, Paradise Point and Berkeley Manor.

And the TT system began operations in 1952. It was primarily contaminated with PCE, and this was from the solvent waste disposal practices of an off-site dry cleaner whose major supply well is about -- and the major supply well for TT was about 900 feet from their septic tank. And the maximum amount of PCE detected in the system was 215 parts

per billion in February of 1985. And TCE, DCE and vinyl chloride were also present at TT due to a degradation of PCE. TT served the Tarawa Terrace family housing area and it partially served the Knox trailer park.

And this slide describes the contamination at HP and the TT drinking water supplies. Water from both contaminated and uncontaminated wells were mixed at the treatment plants before being delivered to the residences. And there were more wells than necessary so wells were rotated on and off, so the contamination levels in the drinking water systems vary depending on the wells being used at a particular time. And most of the contaminated wells in these two systems were shut down by February 1985.

So there was a third system I mentioned, an HB system, and it began operations in June 1972. And it served the family housing at Midway Park, Paradise Point and Berkeley Manor beginning in 1972, June 1972, and Watkins Village, when it was constructed in the late 1970s, and Tarawa Terrace family housing after March 1987. As I mentioned before, prior to June 1972, Midway Park, Paradise Point and Berkeley Manor were served by HP.

So the HB system was generally not contaminated. There were some situations when it received water that was supplemented from HP. This was during the dry spring and summer months. And there's also a ten-day period in early 1985 when the HB system was shut down for repairs. No organic solvent contamination was detected in drinking water from the other on-base treatment plants.

So a little bit about the health effects of these chemicals. TCE, benzene and vinyl chloride are classified as human carcinogens. PCE is classified as a likely human carcinogen. And has not -- DCE has not been classified in terms of carcinogenicity.

Now, most of the studies on solvents and birth defects and childhood cancers were done on female workers. And most of these studies based the exposures on job title and didn't evaluate specific solvents; it just looked at category of solvent exposure. And the results of these studies are inconsistent. There are a limited number of studies on the association between birth defects and childhood cancers and maternal exposure to drinking water, so residential exposure to drinking water contaminated with these solvents. Studies in

northern New Jersey and Woburn, Massachusetts found excess NTDs and clefts and leukemias.

So the purpose of our study was to determine if maternal exposures to the contaminants in the drinking water at Camp Lejeune increased the risk of neural tube defects, NTDs, oral clefts and childhood hematopoietic cancer. Now, we also looked at whether exposures of children during their first year of life to these contaminants had increased the risk of childhood cancers.

So moving on to the methods. So birth certificates, computerized birth certificates in North Carolina did not become available until 1968, and the contaminated wells on base were shut down in 1985, so we included live births occurring between 1968 to 1985 to mothers who resided on base at any time during their pregnancy. And based on the scientific literature, we initially focused on NTDs consisting of spina bifida and anencephaly, oral clefts, consisting of cleft lip and cleft palate, conotruncal heart defects, choanal atresia and childhood hematopoietic cancers consisting of leukemia and non-Hodgkin's lymphoma, known as NHL.

And because there were no birth defects or cancer registries covering this time period, we used

a multistep process to identify the cases. We used birth certificate data to identify 12,493 children born during 1968 to 1985 to mothers who lived at Camp Lejeune at the time of delivery. So we know we have some information that there's been estimated about 4,000 births that would have occurred to mothers who were on Lejeune during their pregnancy but delivered elsewhere. So the way we got information on those was through a media campaign and referral process. And the media campaign was run by the USMC, and the referral process consisted of getting potential names of people who were on base from previously identified people who were on base, and then we cross-referenced that information with military records to verify that those people qualified.

Then we interviewed the parents of the cases, that would be children with the birth defects and childhood cancers, and parents of the controls, that would be parents of children who did not have those conditions. And I'm going to talk about each of these steps in more detail now.

So from September 1999 through January 2002, we conducted a telephone survey to identify the birth defects and childhood cancers, and this was because,

as I mentioned, there were no birth defects or cancer registries covering that time period, so we had to have a way to identify these people. We interviewed the parents of 12,598 children. And of these, 10,044 came through the birth certificate data and 2,554 births were identified through the media campaign referral process. I'm just going to call that the referral process. But we did not obtain the birth certificates. So the participation rate for the telephone survey was about 76 percent, and that's using 16,500 as our estimation of the number of births during this period.

So during the telephone survey, parents were asked if their children had a birth defect or developed a childhood cancer. And because we wanted to make sure that we captured all the cases of birth defects and childhood cancers, we were pretty liberal in what we considered a birth defect that we were going to follow up on. So no cases of choanal atresia were reported, and the survey participants reported less than one-third of the expected number of conotruncal heart defects. So because of the small number of those heart defects, we focused the study on the NTDs, oral clefts and childhood hematopoietic cancers that were diagnosed before age

20. So of those conditions I just mentioned, a total of 106 cases were reported. That breaks down as 35 NTDs, 42 oral clefts and 29 cancers.

And we really undertook extensive efforts to confirm the self-reported cases, and we tried to obtain birth, and in some cases, death certificates and medical records. Now, keep in mind the parents were interviewed in the late 90s and early 2000s about conditions that happened from '68 to '85, so it wasn't always possible to get medical records. So for cases where we didn't have confirmation through birth certificate or death certificate, and there was spina bifida or oral cleft cases, we offered to pay for a medical visit to a current provider to see if they could confirm that condition. So I'm just trying to explain to you that we really went to great efforts to try to confirm the cases using many different methods there.

So we were able to confirm 15 neural tube defects, 24 clefts and 13 cancers. We just were unable to obtain any medical confirmation for six reported cases. Seven cases turned out -- of the reported cases turned out to be ineligible, eight refused to provide medical records and 33 were

confirmed not to have the reported condition, for example they had another facial deformity instead of cleft lip, and that relates to what I said where we cast this wide net. We really wanted to be inclusive, get all the birth defects there were, so if somebody said something that sounded like it could fit the outcomes we were interested in, we did follow up, and then sometimes it led to the point where it was something different and we could say they didn't have this or were classified with something else.

So our primary analyses focused on the 52 confirmed cases. And we were able to interview the parents of 51 cases and 526 controls. And the control children were randomly selected from survey participants who did not have a birth defect or childhood cancer. And we wanted to -- we attempted to enroll ten times as many cases as controls, and we wanted to use one control group for all of the cases. So what I mean by that is we compared all of our cases of NTDs to all 526 controls. We compared all the oral clefts to all 526 controls. And we wanted to interview both the mother and father, if they were available, and we asked information about how much mothers -- how much water the mothers drank

and used, where they lived on base, that's of course key, the pregnancy history such as did the mother use prenatal vitamins or did they have a fever or other illness during pregnancy, and parental risk factors such as family history of diseases and smoking and alcohol use. And if the mother was unavailable, we administered a shortened version of this questionnaire to the fathers that focused mainly on the residential history and the paternal risk factors.

So as you know -- as many of you know, there were few drinking water samples available from the 1980s and they weren't enough to reliably estimate the past levels of the drinking water contaminants. So to do this we undertook a very extensive water modeling process to reconstruct exposures, and Morris's team did that up through 1987. And the water modeling provided the monthly average estimates of the levels in the drinking water contamination at the residences.

So to assign the exposure to the mothers, we used the residential information collected from the interview, we cross-referenced it with the base family housing records, to identify where and when the mother lived on base, that's key, and then we

linked that to the information in the water modeling results. And each month of the mother's pregnancy and each month of the first year of a child's life was linked to an estimated level of contamination or it was assigned as unexposed.

So how did we analyze the data? We analyzed the NTDs, oral clefts and childhood cancers separately so we looked at three separate outcomes, and we analyzed each VOC separately, using categorical exposure variables, and I'm going to get into that in a little bit more detail in a minute.

So for the NTDs and the oral clefts, we evaluated the estimated average first trimester exposures, and this is because the relevant windows for the NTDs is the fourth week of gestation, and it is during the sixth to ninth gestational week for oral clefts, so this would correspond roughly to the first trimester. And for childhood cancers, we looked at each trimester separately, the entire pregnancy as a whole and the first year of life, because it's less clear when that relevant exposure window may be.

And we also evaluated potential confounders. Each risk factor, such as mother's age, race and education level was evaluated to see if it was

associated with the outcomes in this study. So just to give you an example, a risk factor would be mothers younger than 20 years of age. And they have a higher risk for NTDs so that was considered as a risk factor. And then once we selected the risk factors, we determined whether adding the risk factor to the model changed the result for a particular exposure and outcome, and if it did change the result, compared to the model that didn't have that risk factor in it, the risk factor was considered a confounder and we kept it in the model. But confounding only occurs when the potential risk factor is associated with both the outcome and the exposure.

So this slide describes what I mean by categorical exposure variables, and we looked at three different ways of categorizing the exposures, and I'm using TCE as an example. So in all three of these ways the unexposed group did not have residential exposure to the contamination -- to the contaminant under evaluation. So here a mother who had no exposure to TCE would be placed in the unexposed group; however, she could have had exposure to PCE. And in one categorization, the first one, we divided the exposed group into two

levels using the 50th percentile level among the controls, meaning 50 percent of the controls had exposures of 2 parts per billion in this example, and 50 percent had exposure below this level. So greater than zero, they had some exposure but less than that 50th percentile.

And the second way that we divided the categorization was above and below the EPA maximum contaminant level, the MCL, which for TCE is five parts per billion. And it's also five parts per billion for PCE and benzene. The MCL for vinyl chloride is two parts per billion and it's a hundred parts per billion for DCE. And finally we just compared exposed with unexposed.

I just want to let you know that we were not able to look at all three of these ways for all the chemicals, because if there were less than two exposed cases in a particular grouping, we couldn't look at that. Jerry, you look like you might have a question?

MR. ENSMINGER: What did you say about how many parts...

MR. MASLIA: Trans.

MS. RUCKART: Okay. Everyone good? So this is our primary analyses. We calculated odds ratios and

95 percent confidence intervals. And an odds ratio compares the risk or odds of disease among the exposed with the risk among the unexposed. So an odds ratio of greater than one indicates a higher risk of disease among those exposed than among the unexposed. And we calculated a 95 percent confidence interval, just to give us a sense of how uncertain we are about the actual risk. And a wide confidence interval indicates a lot of uncertainty and that the estimate's not very precise. We chose a 95 percent confidence interval to just be in line with what's typically done. You can choose any level you want.

We used two criteria to assess the associations, being the magnitude of the odds ratio, how large it is, how much larger than one it is, and the exposure response relationship. And by that, I mean increasing risk with increasing levels of exposure to the chemicals. So those at the highest exposure category have the highest risk; those in the middle exposure category have less risk than the higher but still greater than one. So it's going up in a linear fashion. We gave more weight to results that had a monotonic trend, which is what I just described. And if we couldn't evaluate exposure

response because of too few cases in a particular category, then we highlighted situations where the odds ratio was greater than or equal to 1.5.

We compared models that included potential confounders, and those were the adjusted models, to models that didn't have any risk factors in it, and those were called unadjusted. And we would present the adjusted results if they differed from the unadjusted results by more than 20 percent.

So we also conducted some additional analyses to supplement the primary analyses which I just described to you, and this included using an unexposed group that had no residential exposure to any VOCs, so keep in mind in the main analyses you just didn't have exposure to the contaminant we were looking at; you could have had exposure to any of the others. But in the supplemental analysis, we had what I'll call a clean unexposed group; they had no exposure, residentially, based on the water modeling to any of these contaminants.

We also looked at how much water the mothers reported drinking. We got this information from the survey, the interviews. And we categorized this as mothers who reported drinking five or less glasses of water per day compared with those who reported

more than five glasses per day during the first trimester. We couldn't evaluate this for all of the chemicals, because some of the exposure groupings, again, had less than two exposed cases.

In the secondary analysis, we also looked at the estimated maximum monthly exposure; in the main analysis we looked at average. So by average, what I'm talking about, the first trimester we would have looked at for example months 1, 2 and 3, what level did they have, add them all up, divide by three; that's your average. For the maximum, we would have looked at those three months, whatever was the highest, that's what we would have used.

We also, as part of the secondary analyses, conducted separate analyses for cleft lip with or without cleft palates, as one group, and cleft palate, and also one for childhood leukemia, keeping in mind that in the main analyses we combined both types of oral clefts and we looked at both types of cancers together. We couldn't look at NHL separately because of -- there were only two cases.

We also conducted a sensitivity analyses and this was to assess possible bias. So in this analysis we included the six unverified cases. We said we're just going to assume that they had the

condition and we added that into our 52 cases, so we had 58. And we recalculated the odds ratios to see if this changed the results.

We also wanted to look at births that were identified through the referral process to see if that constituted a biased sample. So to see if the births identified through that process were biased, we restricted the analyses to just those people for whom we had a birth certificate, and then we saw if, just using those people, did that change the results. We also evaluated whether we're finding the exposure window using gestational age information changed the results for the NTDs and oral clefts. And as I was mentioning to you before, the window of susceptibility for neural tube defects is the fourth week and for oral clefts it's the sixth to ninth week. We didn't have birth certificate data for everybody. We didn't have gestational age. We had to make some assumptions. We assumed in the main analyses that everybody was a term birth born at 39 weeks, and we know that's not true but we had to use that as our basis to calculate when their first trimester would be. But since we knew -- but since we did have birth certificate data for some people, we looked at if we

were able to really calculate the first trimester and hone in on that, did the analysis just on that group differ from the analysis using the larger group where we made these assumptions.

And additionally to detect for a potential uncontrolled confounding or some other source of bias, we evaluated third trimester exposures to NTDs and oral clefts. Now, this is a non-relevant exposure window, so we wanted to see do we see something when you wouldn't expect to see something. And we couldn't do this for the cancers because it wasn't really clear when the non-relevant exposure period was.

So this table presents the results for NTDs. The full table is in the manuscript I handed out to you. It says confounding was negligible for just presenting unadjusted results. So the odds ratio for TCE over the MCL, greater than five parts per billion, was 2.4. And the risk increased with increasing levels of exposure. So as you can see, that above the MCL is 2.4, and below the MCL is 1.1, so it is increasing; 1.1 is still elevated above 1. The odd ratio for any benzene exposure in NTDs was 4.1. But we couldn't assess the exposure-response relationship because there were less than two

exposed cases. And we did see associations between NTDs and the other VOCs.

Now I was going to explain to you how we -- how you can calculate an odds ratio. So in the benzene example, you would take -- you would take 453 times 6, that's 2,718. And then you would take 73 times 9, and that's 657. So you do 2,718 divided by 657, that's 4.1. So the results for childhood cancers and adverse first trimester exposure, the OR for any PCE exposure was 1.6, for any vinyl chloride exposure it was also 1.6, and for any DCE exposure it was 1.5. But for childhood cancers, we didn't observe the risk increasing with increasing levels of exposure. And we didn’t see associations between childhood cancer, first trimester exposure to the other VOCs we evaluated.

And as I mentioned for childhood cancers, we also looked at exposures during the second and third trimester, the entire pregnancy as a whole and the first year of life, and we didn't see associations with these time periods. I just want to point out to you that exposure to all the contaminants in the drinking water did not increase the risk for oral clefts. All the odds ratios were at or below 1.

DR. CANTOR: So these were all childhood

cancers, ALL, brain cancer?

MS. RUCKART: No, it's the hematopoietic cancers, I have just been shortening it to say childhood cancers but earlier on... So it was to add NHL and leukemia. Diagnosed before age 20.

So the result of our secondary and sensitivity analyses, when we considered how much water the mothers reported drinking, mothers who reported drinking five or less glasses of water per day compared to those drinking more than five, the odds ratio for NTDs in TCE was 2.1, so that's not very different than not including the water, and that odds ratio was 2.4. So very similar.

This was the only outcome exposure pair we could evaluate using the water usage data because the other categorizations had less than two exposed cases. And the reason you can't do that is because if there's less than two cases, then you have very small cell sizes and so the results can be unstable.

So although selection bias is possible because some participants came from the referral process, our sensitivity analysis indicated that this would likely be minimal. And we can say that because when we restricted the analyses to those for whom we had birth certificates and were able to look at the more

refined exposure window based on their first trimester, we attained similar results as when we used all cases and controls and made the assumptions that everybody was a term birth. And we did not see associations between third trimester exposures to the contaminants and NTDs and oral clefts, which is -- you wouldn't expect to see that. So that supports our assumption of no potential uncontrolled confounding or selection bias.

So all studies have limitations and the limitations of this study include small numbers of cases which result in low precision of the odds ratios, by that we saw wide confidence intervals. Despite our extensive efforts that I mentioned to you we were unable to confirm six reported cases. Cases were identified through a survey, which is not an ideal method of obtaining them. And even though the survey achieved a high participation rate of almost 80 percent of the estimated number of pregnancies, the rates of these birth defects and childhood cancers among those who didn't participate is unknown. The interviews were conducted 20 to 37 years after the births. That's likely to contribute to errors in recall about certain risk factors and water consumption ^. And because some of the

contaminants were correlated such as TCE and DCE and benzene, and we had small numbers of cases, it was really hard to distinguish the effects of one chemical independent of the other, and we couldn't evaluate more than one chemical at a time in the model because of the small number of cases, it would have led to unstable results. As I mentioned a few times here, we didn't have data on gestational age of birth for all participants. And we also didn't have information on water usage at locations other than where the mother lived. And although we had a comprehensive exposure assessment, it's probable that exposure misclassification occurred, and this would likely bias the results toward the null, meaning no association, when there's comparisons of two levels and it could distort the exposure-response relationship in comparisons involving more than two levels, and by that I mean the lower exposure group could have had a higher risk than the high exposure group. That's not what you'd expect.

So to summarize, the odds ratios suggested associations between first trimester exposure to TCE and benzene and NTDs. And during the first trimester of pregnancy, the risk of NTDs increased

with increasing levels of exposure, where I showed you it was 1.1 and then 2.4. And this finding is consistent with the previous study in New Jersey, which found a similar risk of NTDs when they're exposed to TCE during the first trimester. We could not evaluate whether benzene -- whether exposure to benzene levels increased with increasing levels of exposure to the too few cases.

The odds ratio suggested associations between first trimester exposure to PCE and vinyl chloride and TCE and the childhood cancers, but these were weaker than what we saw for NTDs because we were unable -- we could not and we did not observe the exposure-response relationship of increasing risk with increasing levels of exposure. And the ORs in the study were imprecise having wide CIs. We didn't find evidence suggesting associations between the other outcomes and exposures; as I mentioned we didn't see anything with oral clefts.

So this study used extensive water modeling to reconstruct the past exposures, and that helped us to more thoroughly evaluate these associations. Most previous studies have just looked at the broad water system level versus looking at the residents. We have the model levels.

And results of this study add to the scientific literature on the health effects of these chemicals in drinking water. The results of this study may be used in conjunction with results from other studies to guide future policy decisions such as those regarding regulating levels of contamination in drinking water. And because the research in this area is limited, additional studies may be warranted in other populations to further assess relationship when there are registries to identify the cases and the exposure information can also be well characterized. And I just want to acknowledge other team members who helped with the various aspects of the study.

DR. CLAPP: Are we allowed to applaud?

(Applause)

MR. PARTAIN: Perri, with these studies here, you mentioned a -- there was another -- I forgot the New Jersey correlation. Are there other studies that correlate that your -- your studies are correlating with as far as these exposures? I understand science works with a body of knowledge and evidence. So you have one study, look at others that have similar findings. Besides the New Jersey study are there other ones out there?

MS. RUCKART: Right, so the New Jersey study is for the neural tube defects and the Woburn is for the leukemia. It is rather limited.

MR. PARTAIN: But how does it -- I guess what my question is --

MS. RUCKART: The levels?

MR. PARTAIN: -- how does this finding fit in with the body of knowledge that's out there with the chemicals?

MS. RUCKART: Right. Well, it is limited. So it adds to it.

MR. PARTAIN: Is it in agreement --

MS. RUCKART: Yeah, --

MR. PARTAIN: Is it in agreement with that --

MS. RUCKART: -- it is in agreement with the study in New Jersey. I think that was 1.6, and we saw 2.4 for the neural tube defects. And for the cancer -- I think it says it right in the paper --

MR. PARTAIN: Yeah, 'cause as we know, there's very few laws in science, and you try to get the body of knowledge, and you look at what's out there and see how it fits together to get a bigger picture. That's what I'm trying to ask here.

MR. STEVE WILKINS: I think you're asking are there other studies that she's aware of that agree

with what she found.

MR. PARTAIN: That's it.

MR. STEVE WILKINS: Besides New Jersey.

MS. RUCKART: No.

DR. BOVE: Well, that's because there's very few studies done. There's a Cape Cod study, if I recall, they did see some association with NTD but I'm trying to remember.

DR. CLAPP: Well, the Woburn study found some association, what they called environmental birth... The Woburn logicos-styled studies showed an association of water from these contaminated wells with trichloroethylene, and what they called environmental defects, which included NTDs, there was also oral clefts and spina bifida.

DR. BOVE: Yeah, and then they did another study at Woburn where it was never published. And there are too few cases to really look at anything (unintelligible). There was a little bit of an indication of an effect with neural tube defects and clefts. Two cases of observed/exposed, one case not exposed. That's a ratio of two. You know, so that's -- what we're dealing with here are situations where you have small populations with rare outcomes. And there are very few studies.

MS. RUCKART: I will add, though, we were not highlighting oral clefts because we saw observations (indiscernible) association that also is in line with what other studies have found.

MR. PARTAIN: So your findings are not a scientific (unintelligible). They're not (unintelligible)? Okay.

DR. BOVE: Well, there's not a whole lot out there.

MR. PARTAIN: Well, that's the point. And the other question is, you know, as with academia and, you know, the more I get into my master's program, the more understanding I'm getting of this, what are you guys doing to get the information out there into -- I know it's in the environmental health science journals but what about other journals, conferences? Are you presenting it anywhere? Have you been invited to go anywhere? You know, we've got this one article out. Has anyone contacted you all to speak or do anything about it? 'Cause that's part of sharing the knowledge with -- you know, scientific knowledge through academia to get out there.

There was no real hoopla from ATSDR when both these studies were announced. But, you know, I know

that they were published in one journal. And as part of supporting y'all's work and everything, I know there's conferences that happen all the time with environmental health and things like that. Are you guys planning to attend? Are you talking about it? Has anyone come back to ATSDR and said we want to know more about this? We want Frank or Perri to come speak? I mean, that's the academic discourse that happens.

DR. IKEDA: I can speak to when the paper was published in the journal. So the journal does, you know, maintain the control about the media related to press release, et cetera, getting, getting the word out. So they did not request a press release for this particular article. But I can't speak to whether we've had subsequent requests since then, but certainly you're right, getting the word out there, whether it be through conferences or, you know, abstract publications or the like, I don’t think we have had those requests or not, speaking engagements...

MR. PARTAIN: Have you guys been contacted already?

DR. RAGIN-WILSON: We've contacted to speak at one conference that's coming up in, I think it's in

September.

MR. PARTAIN: What conference is that?

DR. BOVE: Oh, the ISC -- what's it called, Morris?

MR. MASLIA: Oh, International Society for Exposure Science?

DR. BOVE: Yeah.

MR. PARTAIN: And are you guys attending or?

DR. BOVE: We have an abstract in the clearance process.

MR. PARTAIN: Okay.

MR. ENSMINGER: Say that again?

DR. BOVE: We have an abstract in the clearance process for that conference. It's in October.

MR. PARTAIN: Where is that being held and is that open?

DR. BOVE: Actually Morris knows more about this than I do.

MR. STALLARD: We have the question, yes.

MR. MASLIA: It's the -- It's the International Society for Exposure Science Annual Conference. It's in Cincinnati, Ohio. It's, I think, October 6th through 10th or some -- 6th through 10th, like that. There's a variety of topics specifically focused on exposures as opposed to say American public health,

which is a much broader type of conference.

MR. STALLARD: So the study that was just shared with you results in the components of the water modeling are part of that abstract? Do you follow the question?

MR. MASLIA: I'm going to defer to somebody in agency leadership or otherwise to answer that question.

MR. STALLARD: Okay. What was the question? The presentation to advance the knowledge base on science that's been done would include everything that went into this from the water modeling study, is the question.

DR. IKEDA: I don't know the answer to the question.

DR. RAGIN-WILSON: I don't know if it includes the water modeling but it does include some of this epidemiology studies that we completed for mortality and adverse pregnancy outcome as well as the birth defects and childhood cancers.

MR. ENSMINGER: You can't do those studies without the water model.

MR. STALLARD: I was just trying to understand for myself.

MR. PARTAIN: I know I'm on the academic

journals, you know, looking around and poking around as part of my work I'm doing and I know it's soon for it to start showing up but you guys have been working on it for a long time.

MR. FLOHR: Well, these articles were published in the UK; is that right? Periodical?

DR. BOVE: No, it was just published in the journal of environmental --

MS. RUCKART: It's an online journal. It's an international journal. They have different offices and, you know, like the Philippines for different things and whatever, but one of the editors is an American --

MR. FLOHR: So it's been widely known as about the journal.

MS. RUCKART: Well, if you look at our articles, it'll have a little flag that says they're highly accessed.

MR. STEVE WILKINS: Okay. I guess I'll just make a little point that while they may not have -- the Marine Corps did do press releases on each one of these and provided links in the press release as well as online.

MR. STALLARD: Say that again, I'm sorry? They did print (unintelligible)?

MR. ENSMINGER: Yeah, they sent letters out.

MR. STEVE WILKINS: But that's not academic.

MR. PARTAIN: Part of the reason I'm, you know, bringing the point up, too, is I know that there was a reporter trying to write about it, the release of the mortality study, and he said every time he called up to ATSDR to talk about it, they took an extraordinary long time to get a response and the response was no, we're not going to let you to speak to anybody. At one point he spoke to Vik, and then when he tried to get more information and actually asked to speak to some of the scientists who wrote and worked on the report, he was denied access to them. So and he was just trying to write a story about the release of the mortality study. And we heard that from him and I think one other.

MR. ENSMINGER: Let me get this. Is ATSDR ashamed of the work that they did for Camp Lejeune? Then why?

DR. IKEDA: No, not at all.

MR. ENSMINGER: Well, why not get out and, you know, hey, I mean, you're doing your job. You should be shouting this to the rooftops, I mean. Let's get out there and spread the word.

DR. IKEDA: You know, the decision by the

journal in terms of the immediate press surrounding the immediate release of the article that's in their purview, and in terms of doing things now, I think we are invited; we're certainly willing to consider those opportunities. I thought that some press had been done by the center but there wasn't. Is that right?

DR. RAGIN-WILSON: As far as I know (inaudible).

MR. STALLARD: Okay, so the question that's out there is, what if any press has been done in release of this study from the ATSDR? If not, why not?

MR. ENSMINGER: I mean, in these conventions and stuff I mean, is there a professional related -- they should be going to these things and talking about the work that they did at Camp Lejeune. That's furthering the knowledge that you gain by doing this stuff and sharing it with other people so that they can take it and move it forward.

DR. IKEDA: I think, if there are suggestions on how we can get the word out and spread the word, share the information, we're open to those suggestions. But we might be able to utilize all of you, too, to help us extend our reach so to speak.

MR. PARTAIN: I mean, a suggestion would be to

coordinate, since we both have to have both studies done and the water model done, that ATSDR leadership put together some type of press announcement to the mass media and communicate that, you know, to what you have found and what it means. 'Cause, like I said, Jerry and I, we get calls from the media all the time wanting comment wanting information about what's going on with Camp Lejeune, and like I mentioned before, when the mortality study was released, we had several reporters calling us, scratching their heads wondering like why isn't ATSDR talking about this? Why won't they talk to me? And, you know, one agency just flat out wouldn't even report on it because they couldn't get a straight answer out of anybody. So they just glossed over the story. And this is huge. I mean, we've been waiting for these reports for a long time. And more importantly, you know, what we were doing with the VA earlier, you know, that using the NRC report from 2009. And we now have science that is taking the conjecture out of this and said -- science is saying that we are finding correlations between exposure in the water and adverse health effects. That knowledge needs to be disseminated to the Camp Lejeune registry and to everybody who's out

there because it's important and it does affect people. It affects these veterans trying to get benefits, you know, for their families in case they passed away from their cancers. It affects people who need to protect their health and the people who are treated. So I would like to see ATSDR formally do something and contact the news medias. I mean, the only thing we saw on the mortality was in print. There was nothing on the mortality study and the in utero study. There was nothing released out to the major news networks, video, nothing.

MS. FRESHWATER: I was talking with Angela earlier, and I was a communications manager for a congressional campaign. I kind of come from that background and I offered my help in any way doing social media and anything like that. It's the work I do on my own and I certainly would be willing to help in anything like that.

MR. STALLARD: Thank you.

DR. BOVE: Can we move on?

MR. STALLARD: We can move on, and that would be appropriate.

DR. BOVE: I'll try to do this a little quicker so we can get through...

MORTALITY STUDY

DR. BOVE: So this is the mortality study. It's called a retrospective cohort study, and what that means is that we defined a cohort in the past, and then we follow them up to, in this case, 2008. So it's retrospective cohort, okay? The purpose of the cohort study was to look at residential exposure to these contaminants and see if it increased the risk for certain causes of death, certain cancers and also other non-cancer chronic diseases that were of interest, okay?

So it's a data linkage study, which means we don't contact anybody. We use the information we have on people from the personnel records that are held by Defense Manpower Data Center, you can see on the slide. And we used that information both to help us assign exposures and also to find out whether the people lived or died, and if they died, what they died of. Okay? We first identified the Camp Lejeune cohort, the DMDC data does not have unit codes before April of 1975. Without unit codes, we don't know where they served. So we had to limit the study to people who began service sometime between April '75 and December '85 for both cohorts. And then for the Camp Lejeune cohort, they

had to be at the base sometime between those dates, April '75 and December '85. And we had 154,932 Marines who fit -- and Navy personnel, who fit that definition.

For Pendleton, same thing, they had to begin the active duty service between, any time between April '75 and '85. They had to be stationed at Pendleton sometime during that period but they were never stationed at Camp Lejeune during that period. And there were 154,969 of those.

This is what is in the DMDC database. Key things are, that we can use, is Social Security Number, and that's essential, full name is important, date of birth is very important, and as I said before, unit code, because unit code tells us where they were. And there are other items in the DMDC data that are useful either for the exposure assessment or for adjusting for risk factor such as occupation, rank and so on.

So for the exposure assessment, we needed information on family housing records, which we had. We needed to have information on where units were barracked, on base. For that we had to ask two retired Marines, one of them is sitting in this room, Jerry, and for -- we also needed the dates

they were stationed at Camp Lejeune, that was from the DMDC data. And then we had Morris's team's monthly estimates.

For the vital status databases, we used, we used Social Security's master file, another Social Security database called presumed living search file and a commercial tracing service like Lexis-Nexis, for example. This will tell us whether the person was alive, and that was key, because if they were dead, then we would go to this database called the National Death Index. Earlier we talked about the fact that there's no national cancer registry for cancer incidence but there is a National Death Index and it makes these studies much more feasible to do in a short -- much shorter period of time than you would have for the cancer incidence study. So there are limitations to a mortality study but this is one of the advantages, that we have this National Death Index. It covers the entire country plus Puerto Rico and the Virgin Islands.

Now, the data collection started in January of '79, and so that's when our follow-up starts with this cohort. We couldn't do it beforehand because, to do that we'd have to actually go to each state and get their death certificates. Instead we

started in January '79, when the NDI started collecting data, and they had complete data up to 2008. So they have underlying and contributing causes of death. We focused on underlying, although we did look at contributing and it didn't change the results.

Okay, so next slide. So from those Social Security databases we determine whether the person's alive or dead. And then for those people -- or we're not sure, okay? And so for the people who we know are dead and for those who we were not sure, we then send those names -- those Social Security Numbers, really, and names to the National Death Index and get cause of death for them. And so that's how that's done.

Now, we decided to focus on -- we decided to split the diseases that we're interested in into two groups, one group where there was a lot more information, a lot more evidence, let's say causality, in particular kidney cancer in TCE, which is -- there's pretty much convincing evidence. But some of these other cancers, there is pretty good evidence, it's not necessarily definitive, but pretty strong evidence that there's a relation between the TCE, PCE or solvents in general, benzene

and these diseases. So those were a primary interest.

Then we had a longer list of diseases of secondary interest where there's some indication, maybe one study, maybe two, where there's an association but it's still kind of murky, and also some of these studies just looked at solvents in general, without defining what they were. So it's a longer list but we wanted to look at as many diseases as we could, and so this is just a group of secondary diseases.

For the exposure assessment, we did something similar to the previous study. We linked the water team's modeling monthly averages to where we thought the person was living. And we calculated -- basically we focused on cumulative exposure, which is simply the amount of time you're at the residence getting your drinking water, and then the level of that drinking water, which gives you then the cumulative exposure, okay? You can stop me if we have any questions, we can go through it but I wanted to get through this as quickly as possible, 'cause it's getting late.

But one of the things you can see in Tarawa Terrace is that there's a big difference in the

contamination over time. In the beginning of the study, it's pretty high, 68 parts per billion or micrograms per liter, but in the later part of the study period, it went up considerably, in our estimates anyway. And after January '85 in this case then the contamination is mostly gone.

For Hadnot Point, similar. In the early part of the study, I mean, this is a whopping amount of TCE but take a look at the amount of TCE from January '80 to '85. It went up considerably. So again, there are differences in time periods here in the study where the exposure would be a little bit different.

Now, to assign exposure, we didn't have contact with these people so we had to make some assumptions, some of which are problematic. We decided that, if you weren't married you lived in the barracks or you were an officer and lived in bachelor officers' quarters; that's what BOQ stands for. For females, we were under the impression that before 6/77 all the females, all of them were barracked at main side, which is served by Hadnot Point water, and then after that, they were barracked at Camp Johnson. We later find out that some were barracked at Camp Johnson but others were

barracked with their unit. That was a mistake. It's not going to have much, if any, impact because of the small number of women in the study. But we're learning now that some of the assumptions we made were problematic and we actually learned this through the health survey.

Married, we also had to assume something for married, and we assumed that either they lived in family housing or they lived off base. We're finding out now that many probably lived on base in the barracks. But from the DMDC data there's no information to determine that. So again, another source of error in the exposure assessment and that is a problem with these studies. But these are the married family housing unit, areas. The New River and Courthouse Bay are not getting contaminated drinking water. Knox trailer park is getting some; we don't know how much. But they're getting some from Tarawa Terrace and some from ^. Okay, so that's the exposure assessment in a nutshell.

And similarly to the previous study, we're looking at the size of the effect. In this case they're called hazard ratios or rate ratios, whatever you want to call them. That's the size of the effect. We're looking to see if the exposure,

as the exposure increases, does the risk increase? And we're looking to see if the findings are consistent both within the study we find similar findings in different comparisons we're making and also how consistent they are with our other previous research. So we have a couple of ways of looking at the information in order to interpret it. We also of course calculate confidence intervals to give us some idea of how uncertain the estimates are.

So the demographics -- let me step back one second. We did three different types of comparisons. The first one was to compare both Lejeune and Pendleton's cohorts to the U.S. population rates, okay? So that's one, and I'll talk about that in a minute. The second comparison was a straight comparison between Lejeune and Pendleton. And the third comparison was within Camp Lejeune. We looked at cumulative exposure within Camp Lejeune. So those were the three key comparisons that were made in this study, and then there were some variations too.

The demographics between Camp Lejeune and Camp Pendleton, they're very similar. There are a few things that are different. The African-American population is higher at Camp Lejeune. The other

ratio, which was a grab bag, was a little bit higher at Camp Pendleton. There are some differences in high school graduation and college graduation, but there are really not major differences between these two groups.

We have a lot of follow-up time. Person-years -- oops, hit the wrong button. Person-years of follow-up. If a person is followed for ten years, that person contributes ten person-years. If there are two people followed for ten years, that's 20 person-years. So you get the idea. You multiply the number of people times the number of years that are followed, that's where you get person-years from. It's basically the denominator of any rate. And here we have a lot of person-years of follow-up. It's a large cohort. But one thing to keep in mind, and I know (unintelligible) the previous slide, was the age of this cohort, and this is very important. The age at the end of follow-up was -- and the median age was under 50. So this is an extremely young cohort, even at the end of this study. And very few, as you see at the bottom line there, very few are over 55 at the end of the study, okay? So it's a young cohort. And that has implications on what you see later in the slides.

Okay, so the follow-up was from January '79 to December 2008. Okay, and the first thing we did, as I said, we compared the mortality rates in Camp Lejeune and Camp Pendleton to what was -- what are the U.S. mortality rates, okay? And what was calculated is called an SMR, a standardized mortality ratio. It's similar to a relative risk. You interpret it the same way, okay? And when you see it in the paper, you're seeing an observed number of deaths in a particular cohort. Then you see something called the expected number of deaths. And let me run through this real quick. How do you get the expected number of deaths, okay? So here's -- let's say this is Camp Lejeune here in the first column. The first column, and the second column is the amount of person-time in that cohort for each of those age groups, as you see there. To get the expected, what you do is you apply that third column, which is the U.S. mortality rate for that particular age group. In this case it's the first row; it's 141.2 cancer deaths per million person-years. You multiply that times the number of person-years in the Camp Lejeune cohort, that's column 2; that gives you your expected. So basically what you're doing with an SMR is you're

basically saying, here's the rate in this cohort, the mortality rate for each of these cancers, and here's the rate in the U.S. And you adjust for age and sex and so on; you factor those in. But it's really a comparison of two rates. It's basically saying how different is Camp Lejeune's rate from the U.S. rate. Okay? And so this is what it looked like in the paper. This is the diseases of primary interest: kidney cancer, bladder and so on. And one thing that will strike you almost immediately is that most of the SMRs, most of the relative risks here are less than one, which means that the rate of the particular disease in either of these cohorts is lower than the U.S.

Now, why is that? The reason is because this is a healthy cohort. In order to become a Marine, you have to be in top physical shape. The rest of us in the general population unfortunately are nothing like that. And so Marines are going to be healthy -- this is expected in other words. You would expect all these SMRs to be less than 1. The fact that you see some that are above 1, in particular kidney cancer in Camp Lejeune, is pretty amazing because all of these should be less than one.

As this cohort ages over time, eventually those rates will get closer to 1 and maybe even go past 1 for a lot of these diseases. But they're a still young cohort. They're still physically fit compared to the U.S. population. And so that's why you see all the -- most of the SMRs less than 1.

That's true also of this other chart. These are the diseases of secondary interest, okay? Now, I want to -- and the same thing, same phenomenon. If you see any of them that are in excess, that is interesting right off the bat, because they shouldn't be in excess.

In particular one thing we've found in other military cohorts, Lou Gehrig's disease, ALS, that is in excess both in Pendleton and at Lejeune, a little bit higher at Pendleton but I think there's pretty much about the same. We're seeing this in military cohorts, in other military cohorts, we're not sure why. It's an interesting finding.

MR. STEVE WILKINS: Excuse me.

DR. BOVE: Yeah.

MR. STEVE WILKINS: Question. When you see differences between the two cohorts, like for pancreatic cancer for Pendleton is .73 and Camp Lejeune is .98, and there were a couple on the other

slide with liver cancer, esophageal cancer, kidney cancer. How significant is that?

DR. BOVE: Well, I'm going to show you that. We do a direct comparison between the two. You can't just divide these two together, because there are differences in the age breakdown and so on, but we're going to get to that in a second.

But I just want to say one other thing, though, in the last three rows, we have three diseases there that we included just because they're smoking-related but they're not, as far as we know, have any relationship to solvent exposure. Stomach cancer's not that strongly related to smoking but it is -- but certainly cardiovascular disease and COPD are. And so looking at this, you're not getting a sense of there's much going on in terms of smoking in either of these groups. Again, though, it's a young cohort.

MR. FLOHR: Frank --

DR. BOVE: Yeah.

MR. FLOHR: -- of interest about ALS, several years ago, about three or four years ago, the Institute of Medicine issued a very small report on ALS which found that there was a greater incidence of ALS in veterans as compared to the general

population. And based on that actually VA took the steps to make that presumptive. Any veteran who gets ALS is presumed that it was caused through their service.

DR. BOVE: Yeah, yeah. Thank you. Okay. So we did that comparison 'cause we were -- there was a question of how both bases would rank compared to the U.S. population, so we did that. But really we were focused on comparing Lejeune and Pendleton together. So and this we calculated what's called a hazard ratio. I'm not going to go into the statistics of this but anything, a hazard ratio above one means that Camp Lejeune had a higher mortality rate than Camp Pendleton. If it's less than one, it's the reverse, okay? And we take into account age, race, sex and education level, and the education level at the time, not -- they may have gotten higher education after the study period but we don't have information on that, but at the time of the study we looked at their education level and the rank.

And then we lag exposures by ten years. And we do this because there's a latency period between the time of exposure and the onset of a cancer or some of these chronic diseases. So we take into account

the fact that if you get exposed today you're not going to get the cancer tomorrow but you normally would get it several years from that. We lag exposure for that reason, take that into account, okay?

So this is the comparison between Lejeune and Pendleton. And one of the key ones, I think, again, is kidney cancer, since there's some literature -- I mean, there's definitive literature on TCE and kidney cancer, and it is elevated here, but there are other ones that are as well like liver cancer, esophageal and Hodgkin's and multiple myeloma and some of the leukemias and so on. Cervical cancer is elevated based on five cases.

By the way in terms of confidence interval, just an educational point, when you have a lot of deaths from a particular disease, in this case all cancers, you have a very narrow confidence interval, 1 to 1.2. That's pretty narrow. Look at cervical cancer now, with very few cases, you have enormous confidence interval, and that's basically why confidence intervals are narrow or wide. They're that way because there -- for narrow confidence intervals, you have a lot of deaths that you're looking at for that specific cause. For wide

confidence intervals, that's due to the fact that there are much fewer deaths, okay?

There are also several cancers here in the secondary group that were elevated when we compared the two cohorts: pancreatic cancer, rectal cancer, soft tissue, lung is a little bit elevated and so on.

So this was the -- then we decided, okay, this is interesting but we want to know in this comparison between Lejeune and Pendleton, we have this other information about cumulative exposure for the Lejeune cohort. Is the excess mostly in the people who are higher exposed at Lejeune or much lower exposed? This was sort of a secondary thing we did to see if we could tease out what's going on here, whether these excesses are, you know, more clearly related to the cumulative exposure or not.

Oh, I'm sorry, before I did that I wanted to say one other thing about the smoking-related cancers. They were all a little bit higher in Camp Lejeune than Camp Pendleton, and the highest was stomach cancer at 1.15; however, for a lot of the other smoking-related cancers, for example laryngeal cancer, which is a very strong smoking-related cancer, it's less than 1; it's much less than 1. So

it's a mixed picture here. It's not clear that smoking has anything to do with anything here. But I decided that, okay, we'll look at stomach cancer and say, suppose that is really indicative that there's more smoking at Lejeune than at Pendleton, what would be the impact of that, and it really only changed these risk estimates by about 13 percent. So it would be a very minor change, and that's the most it could be. But most likely it has no effect whatsoever on these rates, okay.

So as I said, we did an additional analysis here. We divided the Camp Lejeune people into two groups. One group is very low cumulative exposure, and that makes up about 40 percent of the cohort. And then you have the rest of the 60 percent we lumped into this group, low to high, just to give us a sense. And then Camp Pendleton again is the reference group here. And what we saw was that, for the diseases of primary interest, the ones you see there, cervical, Hodgkin's, kidney, leukemia and multiple myeloma, the excess was primarily in the higher cumulative exposure groups. So that's good -- that's where we see some consistency here, that the excesses could be related to these exposures because we see it in the higher cumulative

exposure group. For liver cancer it was sort of even. There was -- the excess was in both the very low and the high group. And for lung cancer that was the -- it was also primarily in the higher exposure group. But some of the other excesses that you saw on the previous pages, like pancreatic cancer for example, it was mostly in the very low group so that's not consistent, okay. So we sort of emphasized these findings because they sort of -- not only does Lejeune have a higher mortality rate for these than Pendleton, but also there's some evidence that they're also among the more exposed, okay?

Okay, then we did the internal, what we call an internal analysis. We looked at the Camp Lejeune cohort only, okay? So Camp Pendleton's out of the picture now. And we're saying okay, we're going to split Camp Lejeune into four categories. The very low exposure group was the same as the previous slide, and we looked at that, but they had very low exposure. Then there's -- and that's about 40 percent of the cohort. So the rest of the cohort, the rest of the 60 percent, we split into three parts, about 20 percent each, low, medium and high. And these are arbitrary cut points just to

get at cumulative exposure. We also looked at cumulative exposure as a continuous variable, and you know whatever your number was, we put that into a regression analysis too, so we've looked at that and those charts are in the paper and in the appendices so I'm not going to go through that. But I'll show you the categorical -- and then we did one other thing. When you break down the categories into these very low, low, medium, high, and these are arbitrary. Someone else could make different cut points, okay? So that's the problem with what we call categorical analysis.

But a continuous variable, the problem there is you are assuming a shape to the exposure response curve. You're assuming it's sort of like this if you're doing the linear regression or something like this if you're doing a different kind of regression. You're basically saying we're going to assume this is going to be the shape. There's another approach which says we're not going to make these assumptions. We're not going to make the assumptions here of making arbitrary cut points; we're not going to say that the line's going to look like -- we're going to let the data more define that curve for us. So the curve can go like this, it can

go any which way given the dates. So there are some assumptions in that, too. There's nothing you can do without assumptions. But it has fewer assumptions and gives you a better picture of that. And I'll show you a few of those pictures later, okay? And they're called splines. It's an exotic term but don't let that snow you.

Okay, so we looked at all the diseases of primary and secondary, and we didn't really see much except for these that I'll show you. And kidney cancer again showed some increase with increasing exposure. So here we have -- there was elevated when Lejeune was compared to the U.S. It was elevated when Camp Lejeune was compared to Pendleton and there was this what you might call an exposure response. So kidney cancer, it's pretty consistent throughout this study, and I think it's the strongest finding on the study, in my opinion. Hodgkin's lymphoma, similarly as kidney cancer, and I'm not sure why this is the case 'cause there's not a lot of literature on this, and it could be that that there's issues with the death certificate and how it's ascertained; I don't know. But we did see pretty consistent for Hodgkin lymphoma throughout this study, okay? For the leukemias, we didn't -- I

don't see an exposure response relationship here. See look, if you look at the chart here, the low exposure group has pretty high relative risk or risk ratios. For example for TCE the low exposure is a number 2, see? And but the medium exposure drops down to 1.54 and the high exposure is 1.81. So what's going on here? I don't know. But that -- it could be partly due to the way that we did the cut points, how we define low, medium, high. It could be due to errors in how we assign the exposure. It could be a number of things. We don't know. But we did see, though, that it was in excess throughout, that all the exposure groupings had a higher than 1 relative risk compared to the very low exposed group. So there you go. It's hard to know how to interpret it.

ALS was very interesting. Instead of showing you that, let me show you the ALS curve. Here's the ALS curve. This is what we call the spline, I was telling you about, where you let the data pretty much tell you what's going on. So it starts off at the very lowest -- if I can get this thing to work. All right, you see that dotted line, that means there's no association. So actually at the beginning of that curve, the rate of ALS is lower in

the low exposure group than the very low. But as you get to the high exposure group, it all of a sudden shoots up and gets up to as high as 3 to 3 and a half. So that's interesting. Again, I'm not sure what to make of this other than it's a pretty interesting relationship, okay? It is increasing as -- but only in the high exposure group do we see the sharp increase, okay?

But this, this is the Hodgkin's one. It goes up and then reaches a peak, and then starts to tail off. Again, that could be due to -- the tailing off could be due to errors in the exposure assessment. Also, you know, there are people who smoke a lot, right, and never get lung cancer. So there are people who are insensitive, let's say, to the exposures; that could be driving the line down. There can be all kinds of reasons; these are just two possibilities.

The previous one, again, you're going to get a funny shape but it's going up as you go from low to medium exposure. And then to high exposure, then it starts coming back down but it still stays above 1 throughout. This was with kidney cancer. So it's not a clean curve that you'd like to see but it does indicate that there's something going on.

Okay, I think I've touched on a lot of the problems with the study already, and the key one is errors in exposure assessment, okay? And that can lead to, as Perri said in the previous study, to you can underestimate the risk if you're just comparing exposed versus unexposed or Camp Pendleton versus Lejeune, or it would distort -- you have these funny kind of looking curves when you're looking at more than one exposure but we're looking at low, medium and high, for example, okay?

The disease misclassifications, some of the similar problems. I think it's less of a problem than the exposure misclassification but it's not trivial. The death certificates are problematic. Not only -- they may have the wrong cancer on the death certificate but as I said before, a lot of people die of other things and they don't die of that particular disease that you're interested in. They die -- getting run over by a truck or something. There was very little evidence that smoking or any other risk factors were confounding these findings so I'm not worried about that issue. In the literature you don't see much confounding anyway, and I didn't see much here.

What we do see, though, is that we see wide

confidence intervals, and again, that's caused by the small numbers of deaths and the specific causes and why is that? For a couple of reasons, one, I already talked about the healthy, what's called the healthy veteran effect. Veterans are just in better shape and healthier than the general population. And they don't die. Very few of them were dead in this study. Less than 6 percent of the cohort, 5.8 percent to be exact, at Camp Lejeune. And most of the people were younger than 55 at the end of the study. So and then -- and so to summarize, these are the cancers I thought were of interest and seemed to be in some consistency in the findings, liver cancer less so, but -- and ALS I have a question mark because, as I said, Pendleton had a higher rate, or at least slightly higher, but we saw a dose response at the same time. So I don't know what to make of ALS. That's something that we need to follow up as we go along. There is some evidence of solvent exposure in ALS, not strong at all, very -- but there is some and it would be important to follow that up.

The other thing is that these sort of studies are hard to do. You have, as I said, exposure errors and when you look at the worker studies, you

see some of the same sizes of risks that we're seeing in this study. For kidney cancer, for example, when we compare Lejeune to Pendleton, we found the risk of 1.35. And when they did the meta-analysis, looking at all these worker studies and coming up with a composite relative risk over all these studies, they're coming up with a relative risk of actually a little less than that, about 1.27, 1.28 for kidney cancer. So the findings here are in the ball park of what we're seeing in the meta-analysis but that also means when you're having -- when you're trying to look at risks this low, I mean, they're not, they're not low in the sense of they have impact but they're low in the sense of when you have errors in the study you might miss these things. They may get buried in the noise, so to speak. That's why these studies are difficult. We're looking now at risks that are more difficult to pick up, especially in studies where there are these kinds of issues of who's exposed and how much, okay?

So in conclusion, well, we already know the literature is limited; that's why we do these studies in the first place. And we think it played in the -- made an important contribution. But

again, less than 6 percent of the cohort had died in the study so this cohort needs to be followed up. And so that's, that's all I have to say. Here's the list of people who were involved and were very helpful. Particularly I want to single out Dana Flanders and Kyle Stevens from Emory who met with us on an ongoing basis throughout and gave helpful input on the analysis.

MR. STALLARD: And so as with the previous presentation, would applause be appropriate?

(Applause)

MR. STALLARD: Can we let Eddie do his and then we can come back and then we'll be... So let's have Eddie come up and do his, and then we'll have any additional questions.

DR. RAGIN-WILSON: I just want to go back to Mike's question about the press release. I'm sorry at the time we didn't have anyone in the audience from our office of communications, but I did reach out to them via email, and we did do a national targeted outreach to national and local media who was interested in the topic, and also Dr. Vik Kapil did do some media interviews as well.

MR. STALLARD: Good, so ready?

UPDATES ON HEALTH STUDIES

MR. SHANLEY: My name is Eddie Shanley and I work with Perri and Frank. I'm working on the male breast cancer study. We are currently in the process of doing the data entry for the study that involves looking at all the military personnel records, which we've obtained from the National Personnel Record Center, which I'll refer to as NPRC for this -- you here. Those records are going to contain the information regarding when the person -- when that serviceman was stationed at Camp Lejeune, their unit codes. We're also calling up information on their occupational specialty, other information involves their marital status and family status and the residential location of those families.

So we're trying to go through each one of those records, page by page, and extract all that information and then entering that in the database. We are hoping -- or we will have that completed here in the next couple of weeks and begin the data analysis process. So by the next CAP meeting we will have a descriptive analysis of those -- of the records.

Right now what I can tell you is that we have 435 study participants in the study, 71 of those are

individuals that have been diagnosed with male breast cancer and -- leaving 364 controls, which gives us enough in cases to controls to meet our requirement of (unintelligible) study methodology of one case to every four controls.

We are currently on track as far as the study timeline is proceeding. And we plan on having the study manuscript completed and in the internal review process by the end of the calendar year. That's all I have in my update. Questions?

MR. PARTAIN: Yeah, on the number of cases identified, you said 71?

MR. SHANLEY: That is what -- originally there were -- so from the cases being pulled, we pulled from the VA's cancer registry, we pulled initially 78 male breast cancer cases from the registry. Of those 78, seven of those records we -- were not able to be located through the National Personnel Record Center or Quantico, so we -- there's a process they go -- the National Personnel Records Center is part of the National Archives. There's a process that they go through in order to try to obtain these records. They don't just go up to the single file and look and see if it's there or not and go into that --

MR. PARTAIN: Well, I mean, they -- understand that they can't find the records (unintelligible). Does the VA have any other records or personal information that y'all could get to, you know, identify them for the purpose of the study?

MR. SHANLEY: Unfortunately the VA doesn't have the residential locations that we would need for them to basically identify if they were stationed at Camp Lejeune and the dates they were there. So unfortunately we don’t have that.

MR. PARTAIN: What about like family, contact somebody or? I mean, do they have any way of doing that?

MR. SHANLEY: I think that's something that could possibly be done. I think the fact that we have enough in cases and controls to proceed with that study methodology, we feel comfortable moving forward.

MS. RUCKART: Well, Eddie, when you say that would go against our protocol or methodology but that is a data linkage and we treat everybody who's in the study the same way. So I think at this point we cannot really entertain something like that.

MR. PARTAIN: Well, how would it be treating somebody differently? I mean, they're, they're

identified as part of the group. It's just a matter of finding out who they were.

MS. RUCKART: Because we're relying on records to identify the other people. That biases if you get certain information on some people but not on others.

MR. STALLARD: Okay, so let's briefly move into Perri. You have just two quick items to update us on?

MS. RUCKART: Yeah, three. So just to let everybody know where we are with our other three efforts: The adverse pregnancy outcome study manuscript is undergoing agency clearance and review, and we expect to submit the manuscript to a journal this summer.

Similar situation with the civilian mortality study. Frank was just presenting on the active duty members. And the health surveys, we're currently cleaning and updating the data that we have and we plan to begin the analysis here very shortly, within the next two weeks. We're going to be, you know, working on the male breast cancer and the health survey.

MR. PARTAIN: Follow up on two things. By the way, (interference), and it’s not getting enough

information.

I don't know who's talking there but --

(Interference)

MR. PARTAIN: Dick was mentioning earlier, when the reporter was trying to get specific information on the studies and everything, on the mortality study --

(Interference)

MR. PARTAIN: Anyways, if I'm understanding you correctly, both Perri and Frank, there's been some significant findings, and my question is to the leadership at the ATSDR, what is going to be done to package that information for the VA so that they can incorporate what you all found in what they're doing in assessing these veterans' claims for benefits, 'cause it's critical. I mean, the way the signs are showing that there's a correlation in the 2011 EPA classifies that TCE is a carcinogen to its effects on the human kidney cancer. We're hearing that in the mortality study, kidney cancer is a significant finding but yet we keep getting veterans emailing -- well, Jerry and myself, putting a claim in for kidney cancer, I was at Lejeune in the late 70s, early 80s, and my claim was denied.

DR. IKEDA: I think that's an excellent point

and certainly this meeting is one venue to get that information and share it with the VA but it probably merits other, you know, separate meetings, focus meetings where we can go through the details as well as written materials and other avenues of communication.

MR. ENSMINGER: What if somebody (unintelligible) liver cancer?

DR. IKEDA: What's the question?

MR. STALLARD: Something about liver cancer? Okay, well, we're moving on then.

MR. PARTAIN: One thing too, I mean, we cram two, two settings --

MS. BRIDGES: I have a couple questions, Chris, but I'm not -- my area is not -- doesn't coincide with the voices that you have. Is now a proper time to bring these questions up?

MR. STALLARD: Well, welcome -- first of all, welcome, Sandy; we didn't know that you had joined us. So what's your question?

MS. BRIDGES: Well, the questions that people -- members, members that are interested have that they wanted me to address to you all while you're there. One --

(Interference)

MS. BRIDGES: Are we okay?

MR. STALLARD: Well, we're hearing a lot of voices behind you. It's really hard to understand.

MS. BRIDGES: They want (unintelligible) a few questions by good members and they want answers. They want to know what can be done about studies, more studies done on the children other than -- well, the ones that are -- the living, the children that are living and the mental -- addressing the mental conditions of those children, with ADS and attention deficit disorder. It seems to run very rampant. I mean, it's more rampant with the children there than it is on the children on the outside -- you know, the outside here. And they want answers. They want to know why, why these kids have so much -- these problems in school in attention deficit disorder.

MR. STALLARD: Sandy, where are you? Sandy, where are you right now?

MS. BRIDGES: What can we do about that as far as doing a study on those children that made it through Lejeune? Those children that were carried, (unintelligible) and delivered there at Camp Lejeune. They're the ones that are really, really susceptible to everything that was around them.

MR. ENSMINGER: Sandy.

MS. BRIDGES: I mean --

MR. ENSMINGER: Sandy.

MS. BRIDGES: (unintelligible) water. Their boxes -- bottles were mixed with half and half --

MR. ENSMINGER: Sandy.

MS. BRIDGES: -- half water and half Similac. These kids grew up (unintelligible) but they grew up at Camp Lejeune and they all have all these problems.

MR. STALLARD: Okay.

MS. BRIDGES: How can we address that?

MR. STALLARD: Sandy, what I would invite you to do --

MS. BRIDGES: And I've got another one from (unintelligible) anything that we can do for these children, where the genes were handed down to their own children. Is there anything we can do, any schooling we can do that the government can offer those children that have been affected by the water? If they were born -- conceived and born, you know they were affected. So what can we do to help these kids? And it goes down three generations.

MR. STALLARD: Okay, Sandy, can you hear us?

MS. BRIDGES: What can we do?

MR. STALLARD: We can put it on the agenda for the next --

MS. BRIDGES: (Unintelligible).

MR. STALLARD: Sandy. Thank you. Sandy, I'm sorry, if you can hear us, we need to hear your input perhaps earlier on in the program, and convey it in writing so that we can consider it in the next agenda. So we need, our tech, would you please lower the interference that's coming through this --

MS. BRIDGES: I can hardly hear you on the phone. I'm not able to hear on the phone.

(Unintelligible)

MR. PARTAIN: ... we crammed a lot of information that should have been broken up in several (unintelligible). We crammed a lot of information today that we should (interference) in other CAP meetings but we were running out of time, and we still haven't finished everything that we need to address. We may need to come back to these two studies at the next CAP meeting as well. Like I said, this is way too fast, way too much information to get anything out of it. The question I asked about sharing with the VA, I think, is probably the most important thing that we need to get done now so the VA can get their training materials on the right

page, with the science that's out there so that they can take care of the veterans and get them, you know, the care they deserve.

MS. FRESHWATER: And I also just want to note that I am still hearing from a lot, a lot of veterans that they are showing up and the people that they're meeting with don't know anything about Camp Lejeune. And these are, these are people I know. They're not, you know, it's not going on anonymous internet comments or anything like that, so just to note it for you guys.

MR. STALLARD: Okay. There was definitely interference. We're going to have to try to sort that out. This is a new -- first time we've been in this facility, and so we've learned a few things.

CAP UPDATES AND CONCERNS

MR. STALLARD: We do have already the schedule in advance for the next CAP meetings in -- we have a time frame in June and a time frame in September. So those are currently -- we're going to coordinate when those -- the best times for those are.

MR. ENSMINGER: What -- I have one question about CAP meetings. We're supposed to have a CAP meeting every quarter. That's the way this was set

up. That means four CAP meetings a year. Three is not enough, and, you know, we're into some critical stuff here and, you know, we need to, we need to be -- we need to be together more than we are apart on this stuff. So.

MR. PARTAIN: And we were promised a CAP meeting in January, and we didn’t get to talk about this, our CAP's concerns and what have you, as much as we wanted to today, but we were promised a CAP meeting in January. It did not happen, and we couldn't get a straight answer from anybody here for almost two and a half months. And it almost took Jerry and I going to Congress to get something to actually happen (unintelligible). Four CAP meetings a year is the minimum. I mean, we mentioned earlier about doing additional meetings for the public health assessment. We're open to that. I take my personal vacation time to come here from work. The short time with my family but I think it's that important that I'm willing to do that but we need to have these meetings and not go through (unintelligible) like we had to last year.

DR. RAGIN-WILSON: In January, as you know, we had a leadership change, and a letter was sent out to the CAP as to why we did not have the meeting in

January. We wanted to give proper time to get up to speed on the Camp Lejeune issues. And I think an email was sent out to the CAP explaining --

MR. PARTAIN: With all due respect, Angela, that's just not -- that doesn't cut it. We've had leadership changes before. We had an interim director, I forget his name. We've had interim directors before. We had Robin before. That was not -- that was an excuse. That was not a reason. And I mean, the meeting should have happened. And you know like I said, as soon as we went to Congress, the walls came down. Oh, we had meetings scheduled and everything. So I hope that's not the future and I'd like to, you know, encourage -- I'm hearing we're talking about June and September dates. I'd like to go ahead and get those dates nailed down before we leave. Because at every CAP meeting, we ask for this, and at the last CAP meeting in September we had to pull teeth to get it in January and then all of a sudden that changed.

MR. ENSMINGER: And the CAP meetings are for the community, not for the leadership at ATSDR. I mean, really, I mean... I mean, I want to work with you. We all want to work with you. But we want you to work back with us.

DR. RAGIN-WILSON: And we do want that too. And we do have the next two meetings scheduled. If you have your calendars out, we can decide on the dates now. The dates that have been identified in June: June 12th, June 19th or June 24th. And keep in mind we're going to do the session the day before with Dr. Forrester.

MR. STALLARD: Friday the 13th.

MS. RUCKART: The 12th is a Thursday. The 12th is a Thursday, and so that could mean the 19th, I guess, is a Thursday, and the 24th is a Tuesday.

MR. PARTAIN: I'm open with any of those dates.

MR. STALLARD: (Unintelligible) on Wednesday.

MR. PARTAIN: I prefer it earlier in the month of June rather than later.

MR. STALLARD: Say that again, Mike?

MR. PARTAIN: I would prefer it earlier in the month of June because I -- when I have my children for the summer, after the 12th, so if we could do the 12th, that would be great. Nineteenth would be better. Twenty-fourth would be the least desirable.

MR. STALLARD: Okay, so the 12th or the 19th. Do we have any preferences either way from the...

MR. ENSMINGER: I can do it any time.

MS. RUCKART: I mean, you're asking people?

MR. STALLARD: Yeah, I am, for a conversation. We're in a conversation now.

DR. RAGIN-WILSON: Anyone else have an objection to June 19th?

MS. FRESHWATER: So that would be the day before the 19th?

DR. RAGIN-WILSON: Yes, and Dr. Forrester's session will be the night before.

MR. STALLARD: All right, so you're here during those time frames.

DR. FORRESTER: I'll be here whenever you want to come.

MR. STALLARD: Okay.

DR. FORRESTER: I think we can come in in the morning and we can work all afternoon, if that makes it more convenient --

MR. PARTAIN: Well, we're going to have to fly in or drive over so like after lunch would be the time.

DR. FORRESTER: Okay. And we can stay as late as you want.

MR. STALLARD: So I'm hearing that we might be swinging to the 12th.

DR. RAGIN-WILSON: Yes, June 12th. Any objections?

MR. ENSMINGER: None.

MR. STALLARD: So coming in on the 11th.

DR. RAGIN-WILSON: Come on the --

MR. STALLARD: Everybody in favor, remain seated.

DR. FORRESTER: Wait a minute. We thought you just said June 19th.

MR. STALLARD: We did but we changed our minds. We're demonstrating flexibility and (unintelligible). So are we all in agreement, the 12th for the CAP meeting and the 11th for the pre-meeting to talk in-depth working about the vapor intrusion. All right. So September.

DR. RAGIN-WILSON: The dates in September: September the 9th, September the 11th and September 18th.

MR. PARTAIN: Tuesday, Thursday and a Thursday.

DR. RAGIN-WILSON: Correct.

MR. FLOHR: Eighteenth would be (unintelligible).

MR. ENSMINGER: Why, you going to the beach?

MR. FLOHR: Going somewhere.

MR. ENSMINGER: Well, he -- when he plays golf he's at the beach; he's in the traps.

MR. STALLARD: How do you know that?

MR. FLOHR: Yeah.

MR. STALLARD: Okay, so I heard the 18th. Any objections to the 18th? I was amazed that Brad could bring that up so quick, so he's got September planned.

MR. FLOHR: No, my wife and I go on vacation (unintelligible).

DR. RAGIN-WILSON: September 18th is the date.

MR. STALLARD: And for my part, I don't know if I'm available or not but I feel that Matt is the -- who was introduced this morning, is fully capable and able to work as easily with you as I do, but I certainly plan to be here if I can.

DR. RAGIN-WILSON: So we are still doing a pre-meeting September 17th?

MR. STALLARD: Okay. So next, we took care of the calendar. Yes, sir?

DR. CANTOR: I have an issue I'd like to bring up that has not been discussed today.

MR. STALLARD: Please do.

DR. CANTOR: It's related to the scientific papers that are either in the works or have been published. My understanding is that clearance is not a rapid process, that clearance can take many, many, many months to get through, and I don't quite

understand this. At least in -- I mentioned earlier on that I'm working part-time at NCI. One of my responsibilities on a very base level to serve as a clearance person for -- and to work with the actual writers of these papers to for minor changes, sometimes for major changes, and I try to get things off my desk in two or three days. And my understanding is that, and my concern, is that it's just taking months and months and months to get papers through. What can be done to hasten this process?

DR. IKEDA: Okay, so we were talking during one of the breaks. There's a lot of government processes that are probably very unclear to folks around the table. So one thing that we could do is certainly share with you how the different processes work and what are the steps and what is involved. And then our ideas about ways that they can be improving.

DR. STEPHENS: Yeah, this is something we've had a number of discussions on, and I think we -- I think we have some ideas and ways we can speed it up. The problem is that, because it's a linear process, a serial process, and probably the best way to speed that up is to take a number of the steps

and collapse them so that you, you know -- one process that we found that works really well is kind of thing is just to get everybody together and -- so you can have discussions so you don't have multiple layers asking the same question over and over again that people have to answer, so I think there are some ways we can improve it. You're right. It shouldn't take that long.

DR. CANTOR: Do you have a central tracking system for knowing where any --

DR. STEPHENS: Yes, we do, yes.

DR. CANTOR: And I think that this is probably a protocol as well. I assume that these have also to go through some clearance but maybe not rigorous or complicated.

DR. IKEDA: Right. And the other thing with the scientific papers is not only to go through internal clearance here at the agency, and that's what Jimmy was talking about, the sequential process that sometimes takes more time than it really should. But then we also send the papers out for external peer review because we've been criticized in the past for not doing that. So even before it goes to the journal, sending it out to individual peer reviewers for their comments as well.

DR. STEPHENS: But I'm confident we can do it faster.

MR. ENSMINGER: We'll be watching. Well, I mean, you got to give people a deadline. I mean, you give something to somebody and it lays on their desk for a month or they went on vacation for two weeks, you know, when I got provided an after action report, after an exercise when I was in the military, the routing sheet had when I had to have that done, for my input, and it had to be passed to the next person on the routing sheet. And if I was the one holding it up, guess what?

DR. IKEDA: So, no, you're right. And there are deadlines. One of the things that has happened with some of the scientific papers is that somebody in the clearance review process has had fairly significant comments, and so it's gone back to the authors, you know, for significant revision, and then that -- it just takes time. But I'm not making excuses for the process. I do think that there are ways it can be improved.

MR. STALLARD: A high level of confidence.

MR. FLOHR: Steve and I and Mike have to leave to get to the airport. I think we've had a really good meeting today, and I hope that we all can move

forward as one group, working for one group of individuals from this point forward.

MR. ENSMINGER: Well --

MR. FLOHR: We can do that, right, Jerry?

MR. ENSMINGER: Well, I would just like to know when the dependents are going to start getting their healthcare through the VA.

MR. FLOHR: VHA has done the best they can to get an interim file, which does not have to go through nurse and comment rule making, which would take another year or so. That's at OMB right now. As soon as OMB signs off on it, it will be published and they will be ready to start making payments to those dependents.

MR. ENSMINGER: All right.

MS. FRESHWATER: Can I get a contact name and an email from someone? Because we're going to be -- Jerry asked us to kind of start leading in the veterans for the VA with the CAP people or the community, kind of be a liaison. So that would be great, thank you.

MR. FLOHR: I'll give you my card.

MR. STEVE WILKINS: And I'll give you mine as well.

MS. FRESHWATER: Thank you.

WRAP UP/ADJOURN

MR. STALLARD: So we have a few action items that came out --

MR. FLOHR: Well, by the way, if there's an item that comes up for Steve Rogers, just email me and I'll give you a response.

MR. STALLARD: Well, we'll coordinate with you for the next meeting on the agenda to clarify the questions raised relative to the training slides. That was one ask that's out there. I echo Brad's sentiments, thank you for your time, everyone, today. This was a very different reset and beginning in our engagement and our relationship moving forward. And Robin, thank you for starting us off this morning with that tone and that level of commitment. Are there any other administrative things I'm supposed to say, Perri, like submit your vouchers on time? I guess aside from that, drive safely and we look forward to seeing -- welcome to the new members. We're delighted to have you as part of our efforts here.

MR. ENSMINGER: Your vouchers were in that envelope.

MS. FRESHWATER: That was my next question was,

what is a voucher?

MR. STALLARD: Yeah, what's a voucher, right? And for those on the phone and out there in the universe, thank you for watching. Bye-bye.

(Whereupon, the meeting was adjourned, 2:48 p.m.)

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I, Steven Ray Green, Certified Merit Court Reporter, do hereby certify that I reported the above and foregoing on the day of April 4, 2014; and it is a true and accurate transcript of the proceedings captioned herein.

I further certify that I am neither relation nor counsel to any of the parties herein, nor have any interest in the cause named herein.

WITNESS my hand and official seal this the 28th day of April, 2014.

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STEVEN RAY GREEN, CCR, CVR-CM, PNSC

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