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AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

convenes the

SEVENTH MEETING

CAMP LEJEUNE COMMUNITY ASSISTANCE

PANEL (CAP) MEETING

DECEMBER 6, 2007

The verbatim transcript of the Meeting of the Camp Lejeune Community Assistance Panel held at the ATSDR, 1825 Century Boulevard, Atlanta, Georgia, on December 6, 2007.

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

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

-- “^” represents inaudible or unintelligible speech or speaker failure, usually failure to use a microphone or multiple speakers speaking simultaneously.

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

(alphabetically)

BOVE, FRANK, ATSDR
BRIDGES, SANDRA, CAP, CLNC (VIA TELEPHONE)
BYRON, JEFF, COMMUNITY MEMBER
CLAPP, RICHARD, SCD, MPH, PROFESSOR
ENSMINGER, JERRY, COMMUNITY MEMBER
MCCALL, DENITA, COMMUNITY MEMBER
PARTAIN, MIKE, COMMUNITY MEMBER
RUCKART, PERRI, ATSDR
SIMMONS, MARY ANN, NAVY AND MARINE CORPS PUBLIC HEALTH CENTER
SINKS, TOM, NCEH
STALLARD, CHRISTOPHER, CDC, FACILITATOR
TOWNSEND, TOM (VIA TELEPHONE)

P R O C E E D I N G S

(9:00 a.m.)

WELCOME AND ANNOUNCEMENTS

MR. STALLARD: Good morning, everyone. We're going to get started, please. Welcome to our 12/6 meeting. The last meeting we had was the 8th, I think, of August, correct? So let me just go through a few preliminaries. We have a smaller group here this morning, and I'll go through that, why that is. But let's start so that for the court reporter's purposes we have a count of who is here at the table representing whom. So if we could just do introductions around the table, please. We'll start with Jerry.

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

DR. CLAPP: I'm Dick Clapp, epidemiologist, member of the CAP.

MR. BYRON: I'm Jeff Byron from Cincinnati, a member of the CAP.

MR. STALLARD: And let me -- Thank you. I need to point out in the admin section that follows this but you need to push the button

so that the red light comes on. We have brand new microphones this time, so push it until the red light comes on and push it to go off.

MS. RUCKART: Perri Ruckart, ATSDR.

DR. BOVE: Frank Bove, ATSDR.

MS. McCALL: Denita McCall, CAP.

MS. SIMMONS: Mary Ann Simmons, Navy and Marine Corps Public Health Center. We just changed our name. It was formerly Navy Environmental Health Center.

MS. RUCKART: Mary Ann, could you repeat the name of the center?

MS. SIMMONS: Yes, our new name is Navy and Marine Corps Public Health Center.

MR. STALLARD: I'd like to just briefly go over and reiterate once again what the purpose of the CAP has been from the out --

MS. RUCKART: I'm sorry, we have people on the phone.

MR. STALLARD: Oh, Tom.

MR. TOWNSEND (by Telephone): Yes, this is Tom Townsend with CAP.

MR. STALLARD: And?

MS. BRIDGES (by Telephone): Sandra Bridges with the CAP.

MR. STALLARD: Thank you. Sandra got stranded in Philadelphia, I think, and had to go back home so she's joining us by phone this time.

MR. STALLARD: The purpose of the CAP was to determine the feasibility of future scientific studies just so that we're all, once again if there are new members in the audience understand what the purpose of the CAP initially was.

I'd like to go over some basic ground rules that we established that govern our interactions and behavior during these sessions. One speaker at a time. Again, you're going to have to push the red button so that it's illuminated and to turn it off when you're done with your conveying your thoughts. No personal attacks, respect for the speaker.

The audience, the audience is here to listen. This is an open meeting. You may respond if there's an issue related to your area of expertise. The CAP members know that you're here representing whomever. They may call upon you. You may choose to respond. If you do, we'd like you to come up to this

speaker right here so that your response will be made a matter of record.

Any other ground rules that we need to address or add?

(no response)

MR. STALLARD: All right, admin, lunch orders should have been placed. I'm hopeful that you've done that. Vouchers are always an issue. Please make sure they're submitted in a timely fashion. CAP member transitions, as you can see, Dave Martin and Terry Dyer are not with us here. They have resigned. There is a potential new CAP member, Mike Gros, if his health permits as I understand it. I thought that we had hoped he would join us by phone, but thus far he has not checked in. There has been a nomination of Mike Partain as community member to the CAP as I understand it.

MR. ENSMINGER: This is Jerry Ensminger. Mike Partain will be here today at which time he can be introduced to everybody and then his official nomination will be made at that time.

MR. STALLARD: Thank you.

And we have the new NEHC rep, Mary Ann

Simmons who introduced herself.

Is that NEHC correct?

MS. SIMMONS: Well, it's formerly NEHC, formerly know as NEHC, but we've changed our Command's name. So we don't really have an acronym, so just Navy-Marine Corps Public Health Center. Nobody's figured out how to shorten that yet.

MR. STALLARD: Mary Ann, thanks.

And I am for the record, Christopher Stallard, your facilitator.

Now just to briefly go over from the last meeting, I thought it would be good to reflect on what it was that we wanted to achieve in the last meeting because I think it illuminates progress that has been made since the last meeting.

If you recall, we wanted to see the feasibility assessment implemented, find out something on the statistics on cancer incidence and death rate. We wanted to see forward movement on a lot of things and particularly in terms of which studies should go forward, priority setting. And then we talked about getting a replacement for Dr.

Fisher and a new DOD rep. So that brings us to today.

And so what I'd like to do is we have until approximately 9:30 that we would like to use our time if you have anything you'd like to speak for the record to break the ice, start the day and express. And then we're going to get into the agenda. You all have an agenda in front of you? Morris is coming on. I've been asked to be a little bit more stringent in terms of managing time according to the agenda. I will try to do that, but I can't without your support.

So any announcements, introductions, anything you'd like to bring up at this point?

DR. BOVE: I mean, there are new CAP members being proposed. Maybe we should take it up now.

MR. ENSMINGER: He already mentioned --

DR. BOVE: Can he tell us who he is?

MR. ENSMINGER: Yeah, he already said his name.

DR. BOVE: No, I meant tell us about him.

MR. ENSMINGER: Mike Partain who was a dependent who was conceived and born at Camp

Lejeune who recently found out about this after the Congressional hearings. This man, who is married and has several children, was diagnosed with male breast cancer. He has just completed his treatments. He's been tested. He does not have any of the genetic traits that would lend to someone being diagnosed with male breast cancer.

This is extremely rare, and he has also located another former Camp Lejeune dependent male, a minister, who also has male breast cancer. And this is an extremely rare type of cancer, and to have two of them, bang, is quite phenomenal. This young man is a, is well educated. His father was a Naval Academy graduate. He is a college graduate. He was a history major and a history teacher. And because of his cancer, he couldn't continue on teaching. So he is now, works for State Farm Insurance as an adjustor for them.

Mr. Partain will be here today. He's coming so that he can be introduced and so people can put a face to the name, but if anybody has any objections I'd like to hear them now, but I want to nominate this young

man to the CAP.

MR. BYRON: I'll second the nomination.

MS. BRIDGES (by Telephone): I'll third the nomination.

MR. STALLARD: Thank you, Sandy.

Any objections?

(no response)

MR. STALLARD: Okay. Then we will invite Mr. Partain to seat at the table when he arrives and introduce him as a new member of the CAP.

MR. ENSMINGER: Thank you.

MR. STALLARD: I neglected to say if you cell phones or any other electronic devices that would disrupt, please put them on silence or stun.

DR. BOVE: Are there any other issues? Because if not, we set aside a half hour for any issues CAP members might want to raise. If not, we can change the agenda around to move things up. I don't think Morris is going to be down until 9:30. We could --

MR. ENSMINGER: So do you want to start talking about your e-mail that you sent out to us about the concerns that were raised about

these rumors and stuff? Because --

DR. BOVE: Rumors?

MR. ENSMINGER: Rumors about what people used for weapons cleaning and --

DR. BOVE: Right, right, we were going to do that discussion after the genetics presentation and spend a lot of time on that actually because that's at the crux of this meeting.

MR. ENSMINGER: Well, and also the needs for the DMDC which are going to have to come from Headquarters Marine Corps on the historical units that were at Camp Lejeune in the exposed areas.

DR. BOVE: Well, we may want to move up in the genetics. Part of the thing is Perri wants to take a break at certain parts of the meeting so that some of the ^, and then we'll have more time to talk about these issues after that. So if there are no other --

MR. STALLARD: Tom has something he'd like to say.

DR. SINKS: Can the people on the phone hear me?

MS. BRIDGES (by Telephone): Yes.

DR. SINKS: My name is Tom Sinks. I'm the Deputy Director of the National Center for Environmental Health and ATSDR, and what I just wanted to say, well, hi, everybody. I do plan to spend a significant amount of today here. Particularly, I want to be here for the discussion on the exposure information, pieces which were really critical to doing a good job on the next series of studies. I have a couple of other obligations I have to do today. Actually, my ten o'clock call was cancelled so I'm okay there. But I do want to make sure I'm here when we're discussing that. So just wanted to put that on the table.

MR. STALLARD: Thank you.

MS. BRIDGES (by Telephone): Mr. Sinks, Sandra Bridges. I wondered if you knew anything about that link that's supposed to be on the site that we can connect and see and view the meeting.

MS. RUCKART: Sandra, this is Perri. I have checked with our computer support person, and he told me he was going to put that up there. I can ask that he check with me again 'cause they're working on it. I'm sorry it's not

available right now.

MS. BRIDGES (by Telephone): That's okay. I know you're working on it so I'm content.

MS. RUCKART: Okay, thank you. We'll have it checked on again.

MS. BRIDGES (by Telephone): Okay, thank you very much.

MR. STALLARD: All right, so if we have no issues, attached are two of the issues that are your expectations or what you'd like to achieve for today and that's clarity in terms of the information that was shared by Frank as part of the agenda, in terms of also the needs from DMDC, I believe that's also included in your presentation, correct?

DR. BOVE: I'd like to switch the agenda around. I know Perri's not happy about that notion, but I think since Tom is here, we could start the data needs issue now and leave 'til later the genetics presentation. And with the genetics presentation, you have it in front of you.

You may want to ask us instead of going through the whole thing, if you want us to go through the whole thing we can do that.

If you want us to just talk about parts of it, that's fine, too. It really was put together because you were talking about genetic testing last meeting.

But really the crux of this meeting is on what kinds of data needs we still need. What kind of data we still need in order to complete the feasibility assessment and move forward. And a couple weeks ago I sent out an e-mail to all of you which asked several questions.

And at the same time I also sent e-mails to the Marine Corps asking for specific data to try to start answering these needs. And the key thing here -- and Tom can speak more to this if he wants to -- is that we could make comparisons between Camp Lejeune and the general population.

But really the real question is this TCE or PCE exposure caused an excess risk in this population. That's the real question we want to answer, not does veterans at Camp Lejeune have a worse rate whether they're exposed or not, but whether the drinking water exposure increased their risk for a particular

disease.

And to do that well, you have to do what we call an internal analysis which means you have to break the people up at Camp Lejeune into those who were exposed to PCE, those who were exposed to TCE, I mean, exposed to Hadnot Point water -- maybe I should say it that way -- exposed to Tarawa Terrace water, and not exposed to either one.

So that's the, and to do that we need to go, we have family housing records, right? So for those people living in family housing we could match their names up with the family housing records and determine where they lived, and whether they were exposed to any of those water systems, right? And for those people who were not bachelors, who were married, and were likely to live in family housing, but we have no family housing records for, then we'll probably have to assume they lived off base.

Or I learned recently that there was at Camp Knox, or Knox Trailer Park, there's a private and a public part of the trailer park. And so the housing records may not be good for

the private part of that park. I learned that from looking at oral histories the last few days at the Marine Corps' website.

But for those who were bachelors, who would be assigned to the barracks, we have a unit code, RUC/MCC code, which gives us an idea of what their unit was. And the question is can we go from that unit to where they were stationed, which barracks, at least which general area on base, if not by a specific barracks, a general area on base so we can determine whether they were stationed in an area that got Hadnot Point water or got Tarawa Terrace water or got some other water.

And then the question was raised, and Tom actually raised this to me last night, what about officers. Would they be in the same general area as their unit? Would they be somewhere else? So these are the kinds of questions that I've asked the Marine Corps to help us with. I've asked Jerry to help me with, and any of the rest of the CAP members who want help me link these unit codes to particular areas on base.

Then there were additional questions

that Dr. Frumkin raised concerning other exposures, which you got that e-mail. Those include exposures in the field when you're drinking water in the field or possibly taking a shower in the field, and going through calisthenics and where do you take a shower then. You take your primary showers at home, so on and so forth, all those questions.

Where did they, there's water in the field or a water buffalo or a tanker, whatever they have in the field, where is that water coming from? The other questions -- again, I'm going to have to get the Marine Corps' help on this -- is those people who were assigned to do work, machinist-type work or cleaning the tanks or heavy equipment, can we identify those codes, MOSs and get some industrial hygiene information about those kinds of jobs so we get a sense of those kinds of exposures.

Then there was the issue of cleaning guns and done a little bit of work on that and heard feedback from you all that the guns were probably cleaned with bore cleaner, some of the guns that had, Tom Townsend mentioned that

some of the guns were stored in a heavy --

MR. ENSMINGER: ^.

DR. BOVE: Yes, and then degreased using some kind of solvent and that I heard might be Stoddard's solvent. But that's something we can check. And let's see what some of the other questions are if I can remember any in addition. Yeah, well, what happened in a typical day, well, that sort of is roughly the same question again. What did you do in the field? What did you do at home? What you did on any job you did at the base? So these are some of the key questions.

I asked the Marine Corps for frequency, as you can see at the top where the RUCs and MCCs -- how do you pronounce them -- and also the ^ and duty MOSs. There is difficulty with the data that was obtained from the DMDC. They apparently sent the Marine Corps data that is difficult to manipulate. It's text file apparently. It's not useful. There are some inconsistencies in the data, for example, we have a total of 300,000 social, you need social security numbers, but there are only supposed to be

210,000.

So there are some problems with the data, and we're going to have to, both the Marine Corps and myself, we're going to have to work with DMDC to try to get a usable dataset out of this because the one that the Marine Corps has appears not to be useful at this point. So that's another issue.

So these are the kinds of issues that we'd like to get resolved quickly. I'll need your help. I'll also probably need to go up to Lejeune to do a little reconnoitering there myself to get a sense of some of these issues. But any help I can get from CAP members including polling your own constituencies about some of these questions would be useful.

MS. McCALL: Dr. Bove, what about the question number seven, and -- I'm sorry, Denita McCall -- any additional information on kinds of exposures that Marines might have had on a ^ basis at the base. Is that above and beyond TCE and PCE?

DR. BOVE: ^ behind drinking water. For example, I mentioned someone who cleans a tank or cleans heavy equipment would work with a

solvent. I want to get information on what they're using. I know you're concerned about the radiation, right? That was one of your concerns.

MS. McCALL: Radiation and anything at the dump sites that wasn't secured. I've mentioned to you about theNEESA, the 1983 NEESA Report that shows photographs of asbestos just laying out in the open. And then there was a follow-up report in 1985, NEESA report, that summed up everything that was going on. You said you had a copy of that.

DR. BOVE: Morris seems to think we did. I haven't seen it.

MR. BYRON: I'd like a copy of that report if you do have it.

DR. BOVE: It would be on one of the ^.

MR. ENSMINGER: It would be on the DVD? Okay.

DR. BOVE: Yeah, there's a three DVD set of all the material we have, and if it's not in there, we don't have it.

MR. ENSMINGER: All right, this is Jerry Ensminger. Let's start knocking these things

in the head that have been brought up.

MR. STALLARD: Okay, Jerry, just a minute before you ^. Morris has showed up for his 9:30 appointment with you all, so in honor of his time, valuable time, we need to know if this preliminary discussion you're going to curtail it at 9:30. Or I don't know that we have the right to adjust --

DR. BOVE: May I make a suggestion? And that is that you know now what the issues are, and this is what we want to spend most of the meeting on. So why don't we, can we listen to Morris, deal with that, and then we can go back to this right after Morris' presentation. And shift the genetics thing until later if we want to do it. And if we do, then we'll do it later. Does that sound feasible --

MR. STALLARD: All right. Thank you.

UPDATE ON WATER MODELING

All right, Morris, I guess you're up then.

MS. BRIDGES (by Telephone): Tom, do you know what happened to us?

MR. TOWNSEND (by Telephone): I think they're waiting for Morris to get squared away

or something. I don't know. That's dead air.

MR. STALLARD: Sandy and Tom, that's correct. We're ready now, and we're going to transition into Morris' presentation.

MR. MASLIA: I'd like to give you two updates. The first is in reference to the reports for Tarawa Terrace. Obviously, all GIS simulation work and water modeling has been completed, and to date we have actually published, put on the web Chapters A, B, C and D. We have ready to go Chapter E and F, and then the other Chapters G, H and I will come out in 2008. And so that's the status on Tarawa Terrace.

With respect to Hadnot Point there are seven categories of information or data that we have to go through and analyze prior to starting any type of modeling, and I'm going to give you the status as to where we are on those. But those seven, to summarize, are well locations, geohydraulic framework, hydraulic characteristics, water levels, well constructions, water quality and well capacity for the pumpage. And these are the same types of data that we used, went through for Tarawa

Terrace.

And so to go through those, the well locations are 50 percent complete. The geohydraulogic framework, well, at the well locations obviously you have supply wells and monitor wells. So the supply wells are 100 percent complete. The monitor wells are 50 percent complete.

The geohydraulogic framework, the supply well logs are 80 percent complete, and then just arbitrary bore-hole logs are ten percent complete. Hydraulic characteristics, that's if you read Chapter C or whatever, you'll notice things like hydraulic conductivity, things that we need to, as model parameters. Those are 90 percent complete, the analyses on those.

MR. ENSMINGER: What did you say was ten percent complete?

MR. MASLIA: The bore holes, those are arbitrary holes that are drilled whether they're monitor wells or test holes or anything in the whole Hadnot Point area. Not supply wells in other words.

Let's see, water levels. Water levels

from supply wells are 95 percent complete from the analysis, and on the monitor wells they're 40 percent complete.

On analyzing the well construction data, and knowledge of how individual wells, the monitor wells are constructed, which is critical to understanding where contamination may either have come in or not come in. Supply wells are 100 percent complete. The monitor wells are 50 percent complete. And water quality analyses, that's analyzing the occurrence of various VOCs, PCE, TCE, BTEX compounds, are 35 percent complete. And finally, the well capacity and the pump ejects a supply of water knowing when the wells went on, turned on and turned off and things like that are five percent complete.

By the end of January 2008, we hope to have all of the monitor well data in the database completed and we'd be able to start with the actual construction of the groundwater flow model. And I'll be happy to answer any questions.

MR. ENSMINGER: You didn't mention vinyl chloride. Are you running vinyl chloride in

your model?

MR. MASLIA: We said -- no, what we said was -- and this was a couple meetings ago -- we decided on three groups of or three sites of -- if it occurs there, we'll catalog it -- but three contaminant-type sites for the Hadnot Point area.

That was a TCE site, which is from your industrial area for all intents and purposes. A PCE site, which primarily is the Building 25, the on-base dry cleaner, and any products for that, and BTEX compounds. To my knowledge I don't believe we've come across any vinyl chloride, but I can't be sure on that.

I have not gone through the actual data yet. When there was no vinyl chloride, for example, at Tarawa Terrace, no measured vinyl chloride. I need to distinguish, right now I'm talking about measured field data. I'm not talking about modeling at Hadnot Point at this point. But when we do the degradation modeling, of course, the degradation pathway goes through vinyl chloride.

MR. ENSMINGER: That's okay. There are

documented levels of vinyl chloride on individual well samples. Several of them.

DR. BOVE: Well, you have high levels of TCE, and you have high levels of the PCEs.

MR. ENSMINGER: Yeah, I know.

DR. BOVE: You're going to see ^, too.

MR. MASLIA: Any other questions?

MS. RUCKART: One thing I want to mention, I'm sure this is probably obvious to everyone, but we had, in hoping to have our final study report on the current study out by this time, but obviously we're affected by the water modeling because there's delay at Hadnot Point, the final study report is not ready. And now we're shooting for mid-2008. I just wanted to mention that here now.

MR. MASLIA: And let me just add to that just to again make you aware, for example, at Tarawa Terrace we had about a dozen monitor wells, I mean a dozen supply wells. You've got an order of magnitude higher than that, and it just takes, there's really no benefit to just starting to throw a model together without having to know what your boundaries are, and what your framework is. And so that

is really what we need to complete.

And as I said, we're shooting for the end of January. That does not mean we won't have anybody starting to decide what type of model we want to use and how we want to approach. We will not be using necessarily the exact same grid where you had 50 foot cells on each side for Tarawa Terrace. That is, everyone who's looked at it from the National Research Council to colleagues of mine at ^ when they want to use it since it's published, protesting all that, keep saying how large that model is and long it takes to run. That's at Tarawa Terrace.

So we can't use that same approach, and we will be looking at different approaches to try to speed up the modeling process. And that was one of the reasons also that we're picking three sites, three contamination sites to look at so we're not modeling everything, the entire universe.

MR. TOWNSEND (by Telephone): Are you looking at septic pipe contamination or are you looking at them as being contaminated or being this park that's contaminated?

MR. MASLIA: We're going to use the data that we're reviewing right now to, it's obvious historical contamination. And then look at which sites would most likely represent, say, a TCE force for contamination. Which site could be categorized as representative of a site that had PCE contamination, and which site would be most representative of a BTEX-type contamination.

That is some of the simplifications we have to make to use these kind of models because we've got to tell the model where the source is. And unlike Tarawa Terrace where we only had one source, the ABC Cleaners, and we knew where it was, we don't have a nice, clean-type of setting like that where we just have one source BTEX and one source so we're going to have to make some simplifications on that.

We'll be able to better define that once we actually construct the groundwater flow model. In other words that may tell us because we have to put in those supply wells, that will tell us where things have gone and are going. And that will also help us to

decide how to model the transport of the contaminants.

MR. TOWNSEND (by Telephone): It seems to me that some of the most contaminated wells were a hell of a long way from any of the sites that you have identified as being the source. The wells out at the Disposal Unit were a hell of a long way from any of the sites that you just mentioned.

MR. MASLIA: I can’t address that issue. Our approach is to use the model to tell us where the contamination went or has been, not to prejudge and say the contamination ended up here so this is the mechanism or this is the way the contamination went. That’s sort of biasing your approach to any modeling.

That’s the, we used the data from the database which is why we’re constructing it, but we don’t want to tell them, we don’t want to prejudge or subject, or be subjective in our approach. So we’re going to just look at the data, put in the supply wells, and that’s why it’s critical that we have the history, the capacity, when these wells were turned on, turned off on a monthly basis, and then allow

the model simulation to run and tell us where things ended up.

MR. ENSMINGER: I understand what Tom's getting at and -- this is Jerry Ensminger -- Well 651, which was on the back corner of Lot 201 and 203, was the highest contaminated well on the base. That well involved high levels of TCE, PCE and DCE. I don't believe there was any BTEX in that well. The BTEX mainly at Hadnot Point came from the Campbell Street fuel farm.

But it was my understanding that Building 25, which was the base dry cleaners, which I am a member of the Restoration Advisory Board at Camp Lejeune, did not impact any wells, water supply wells. So therefore, the PCE would have had to have come from Well 651 and the disposal yard where they were dumping it in the ground.

MR. MASLIA: I would like to ask that you allow us and the models to determine that.

MR. ENSMINGER: Okay, good. Good, as long as you're going to cover all that.

MR. MASLIA: Well, again, our approach, and that's what our approach was in Tarawa

Terrace. Look at the data, look at the model results, see if they are rational or make sense. And if not, we go back and look at our assumptions.

MR. ENSMINGER: Okay, I believe the way you made it sound when you first started was you're using Building 25, which is the old dry cleaners, as your source of PCE, and your source of TCE was the industrial area or Building 1601 or whatever. And that's how, but you're going to take this and the model is going to show from all of the actual analytical data where this stuff came from.

MR. MASLIA: What we're going to do is we may have, we can only go by the data that we have now. We may have hits at three dozen locations, and we can't run a source in a model at three different locations. And so we're going to have to simplify it, not to the point that we exclude major sources mainly because obviously if we do that we're not going to match results that we're measuring. We won't. That I can guarantee.

So what I'm trying to say is I was just giving as an example we will categorize

three types of contamination. And I can't really tell you at this point where it came from, where it originated or anything like that until we go through the information and then see if we run a model if that again corroborates that concept.

MR. TOWNSEND (by Telephone): Frank?

DR. BOVE: Yes?

MR. TOWNSEND (by Telephone): This is Tom. Can Morris discriminate between when Hadnot Point was the primary water source for everybody except Tarawa? And then Holcomb was built in 1973. Can you distinguish between what happened between that switch of primary water providers?

MR. MASLIA: Yes, the model can by turning on or off certain wells at certain given dates, and that will be shown in the model just as the same mechanism we used in the Tarawa Terrace model when certain wells were turned on or turned off.

DR. BOVE: You just have to take into account changes in demand.

MR. MASLIA: That's correct, and that's why it's critical again to, not, but it's critical

that we be able to have confidence in the well, supply well construction data and to the best of our ability when they were turned on, when any maintenance was done on the wells, or they were shut down. That type if information is, and that's why we're spending the time up front to do that. But we can, or the model will be able to distinguish that.

MR. TOWNSEND (by Telephone): Well, it seems to me that the demand wouldn't change perceptibly because Holcomb used to cover everybody minus Tarawa ^ it covered virtually the same amount again with the exception of the Hadnot Point area. So I'm just concerned that you have different water wells. You say you can discriminate that distinction between changing of water sources.

MR. MASLIA: Yes, we can.

MR. TOWNSEND (by Telephone): Okay.

MR. STALLARD: You asked if that was the hot seat, I'm not sure, but any other questions for Morris?

(no response)

MR. STALLARD: All right, thank you very much.

MR. TOWNSEND (by Telephone): Was Morris there?

MR. STALLARD: Yeah, Morris was here in person. He still is.

MR. TOWNSEND (by Telephone): He was probably behind the screen or something.

MR. STALLARD: No, no, he's not behind the screen either.

Are we ready to get back on the ^ or do you want to call Tom?

DR. BOVE: Let me just do that real quick.

MR. STALLARD: I'll tell you what, if you want a five-minute impromptu rest break, that would be fine at this moment in time.

(Whereupon, a break was taken from 9:45 a.m. to 9:50 a.m.)

MR. STALLARD: Two points, number one, we are going to take a break in one hour or I see 55 minutes. We'll get back at least on that schedule at 10:45, and we're going to start this dialogue right now with Mary Ann who wants to discuss some topic relevant to the topic.

MARY ANN SIMMONS' PRESENTATION

MS. SIMMONS: Thank you, and sorry if this

sort of gets us off the agenda, but I did think it was important to talk about the activities that the Marine Corps DOD has done since our last meeting. And the major thing was we're starting the notification process. We've set up, we began collecting data, and we've set up a registry that's available online. And we're encouraging people to register at www.USMC.mil\clsurvey. And we're actually hoping to use this form as an advertisement to get more people to register. So, please, if you could share this with --

DR. BOVE: That was C-L-S-U-R --

MS. RUCKART: Survey.

MS. SIMMONS: Yeah, Camp Lejeune Survey. This website is available on our website.

MS. RUCKART: I'm not sure if you can click on the link and it takes you there, but if you just lift it. So our Q&As if you go there, I think the last question addresses this, and we have the website listed, DOD website.

MS. SIMMONS: Great, thank you.

Let's see, what else? We've attained records from DMDC, Defense Manpower Data Center, and we mailed the first set of letters

to those who are currently registered. And that's been about 750 people. As I said, we're hoping to get more people so again, please share this information.

We'll be mailing out postcards, and here's some examples, postcards to people at unconfirmed addresses listed in the DMDC data. And so we're hoping to get those back with new information, more information so we can send those people the letter.

We also began posting posters at VA centers and some commissaries, and we'll be working to expand this effort. Here's an example of the poster, and you can pass this around.

MR. BYRON: I've got a question for you.

MS. SIMMONS: Sure.

MR. BYRON: You know, this Camp Lejeune registry, I'm looking at it and also looked at all the disclosures in the back of that. And I'm concerned that basically what you're asking these people to do is register and then sign away their rights.

MS. SIMMONS: No, that --

MR. BYRON: Well, let's cover those then

because one specifically says, “Disclosure to the Department of Justice for litigation routine use.”

MS. SIMMONS: Okay, I’m gonna get --

LT. COL. TENCATE: The lawyer.

MS. SIMMONS: The lawyer.

MR. STALLARD: ^.

UNIDENTIFIED SPEAKER: That’s a good question.

UNIDENTIFIED SPEAKER: That is a good question.

LT. COL. TENCATE: Will you say your question again?

MR. BYRON: My concern is that people are signing up on your register, but they’re signing away their rights or they’re signing away that information that you guys have held so dear as far as a disclosure of privacy. That now if they register on this website, it says here under number nine, disclosure on your registry, that they can disclose any information they want for litigation rights to the Department of Justice who would be the one who defends the Marine Corps on this issue.

MR. ENSMINGER: And that’s how it describes

it. It's right there.

LT. COL. TENCATE: Those disclosures are basically saying that that information can't be shared.

MR. BYRON: So they cannot share my information with the Department of Justice for litigation?

MR. ENSMINGER: It said multiple use.

MR. STALLARD: All right, folks, wait a minute. One speaker at a time. Please to identify yourself in the audience.

LT. COL. TENCATE: Lt. Col. Mike Tencate, Headquarters Marine Corps. And these are the routine uses that information is limited to just these uses. The Marine Corps can't share with anybody else. It's the standard disclosure for collecting any information from anybody. So the Marine Corps can't hand it out to anybody except for this very small group of people.

MR. BYRON: But it's not that small. There's 15 items here. They can disclose to the IRS. What do they need to disclose to the IRS concerning Jeff Byron?

LT. COL. TENCATE: We don't need to disclose

it.

MR. BYRON: But you can.

LT. COL. TENCATE: I think the disclosures are if we're asked for it and forced to, we may have to. But the bottom line is these are standard boilerplate disclosures. The idea is we don't share with anyone.

MR. BYRON: That's the idea, but the reality is as the victim and as an advocate for the victim is that if I go on my website, and I tell people to register with their Camp Lejeune Notification Registry, then it doesn't say -- I can't really ask them to do that because you've got all these --

MR. ENSMINGER: Well, especially number nine.

LT. COL. TENCATE: ^ on here. If you explain your concern about that to me, I mean, I will take it back and I will go address it, but these are, you know, in order for us to collect the information, this is what we have to put out there.

MR. BYRON: Well, maybe you should, you know, readjust this to include just the Camp Lejeune victims to what is reasonable.

LT. COL. TENCATE: Well, what I'm trying to say, Jeff, is that I don't think we have the freedom to adjust this list. This is not about they customized this list for the Marine Corps to provide this information.

MR. BYRON: I'm not saying that they did that. I'm just saying that I don't know that I want to tell my advocates, you know, the people that I hopefully am representing, to sign on to something where they could take their information and just hand it to damn near anybody they want in the government.

LT. COL. TENCATE: Well, I don't think the list is quote/unquote damn near everybody in the government. It's a very specific list. And the idea here is that in order for the Marine Corps to be able to collect any information, they have this small list that they have to say we're letting you know there is a slight possibility, we don't know the circumstances, but there could arise a scenario where one of this small list of other governmental agencies could potentially have access to this information. The list is very small, and the Marine Corps can't give it to

anybody else.

MR. BYRON: Maybe the use the list as personnel management, you know, for routine uses like getting some of these individuals that have been harmed, and they don't have a job, a job, I'm fine with that. But if it's used for litigation purposes against the individuals who are registering, I have a major grief with that.

LT. COL. TENCATE: That is not the case. The idea here, if we're going to be able to collect any information, we have to give this disclosure. But the idea is the Marine Corps does not disclose it to anyone except for, let me give you a scenario here.

The Marine Corps is using the list, the registry, to collect information to get solid mailing addresses like Mary Ann was explaining. We have lots of DMDC data. We have some Marine Corps historical data, archived records and things like that. They have addresses in them, but we don't know if those addresses are good addresses any more. So we'll send a postcard to those addresses. If the people are still there they can say,

yeah, go to the registry and say I'm still at this address or, no, I've moved with a different address. Somehow it gets forwarded to them. Now we've got a solid address.

The Marine Corps doesn't give that out to anybody. All we do is use it to update them once the ATSDR study is complete, once the National Academy of Sciences finishes their study. We may disclose it, that new ^ address to ATSDR when they send out their survey or if they say, hey, we're looking at a feasibility assessment for a new study. We want to reach out and contact these people.

We would make that address list available to them, but not just to anybody in the government, not to advertisers, not anybody else. The Marine Corps is held, hauled on the carpet to be protective of that information just for those very concerns that you have.

MR. BYRON: Well, the reason I bring it up is just so everybody's aware of it, and so if the public is listening, they're aware of it. Because to me it's a double-edged sword, yeah. We're asking to get notification out so you

provided what's probably the standard policy. I understand that. But like I said, it says they can hand it to Counterintelligence and everybody else.

I mean it starts looking like hold on here, you know. After I started my website, I was audited the next three years. I might never have been audited and who knows whether it has anything to do with these circumstances. But the point is there's been a lot gone over the falls, and it isn't all good. So I'm trying to protect people here. That's my only concern.

MR. STALLARD: Let's pay attention as I understand, boilerplate language; you'll explain why it is and probably freedom and ^ .

LT. COL. TENCATE: Privacy Act issues, those kinds of concerns.

MR. STALLARD: Correct. And there is the concern being expressed that we're going to ask Jack to try to more clearly articulate that we can have as part of the record.

So we're going to transition now.

Tom, you had something to say on this subject, please?

DR. SINKS: Yeah, just reading the postcard I'd just make a comment for the Marine Corps. I just have one concern. It's here in the sentence in the second paragraph. It says ATSDR da-da-da-da-da is conducting this study to determine whether any potential health risks are associated with exposure. And you're referring to the release in 2008.

The release in 2008 was not the release of any potential health effect. It was the release of the birth defects and childhood cancer studies that we're doing. So this is a little inaccurate in terms of what we're promising.

At the same time, you know, we're very, very supportive of your getting the information of who the people are who want the information we're releasing but not for just the 2008 study or for any follow-up study that we're going to do. So it's just a little misleading that that study will answer all of the questions for people because it clearly won't.

MR. STALLARD: Any ^?

So what I want to do is I want to get

somehow throughout the course of today before you leave some kind of maybe short paragraph on what your concerns are that we can incorporate and that you can make a matter of record, okay?

MS. SIMMONS: I guess there was a couple more things to add on. We are planning to do regional outreach through media outlets in various areas throughout the country. So that's in the plans now, and you should be seeing more. And also, the people who register on the website, they're receiving confirmation letters to ensure that their addresses and their information that they provided is correct. And that letter provides just some general information.

And actually, you can click on the website and the actual letter is there so people who register can see the letter before they actually get it in the mail. And I think that was it unless somebody had some questions. But we would appreciate advertising this, and it's for the good of everybody I think, so thank you.

DISCUSSION

DR. BOVE: Mary Ann, I have a couple additional questions not on the notification but on stuff that will complement the feasibility assessment. One question is I want to get a sense of, I completed a draft of the feasibility assessment. I gave a copy to Chris Rennix. This is a new version, and I wanted to start getting comments from DOD or whoever in your group that want to make comments. So I'd like to send it to you. So let me know who to send it to and when you're ready to do that. The report is ready to be commented on.

MS. SIMMONS: That would be great. If you want to send it to me, I'll disseminate because there'll probably be several people within DOD who would like to sort of review it.

DR. BOVE: How long do you think the review process, how long do you think it will take for you guys to give ^?

MS. SIMMONS: I would say 30 days; however, let me put an asterisk there because this is the holidays, and I'm not sure our senior epidemiologists, what their schedules are

right now, so 30 days with an asterisk.

DR. BOVE: Well, I'll send it to you --

MS. SIMMONS: I can feedback and ^.

DR. BOVE: I'll send that to you this afternoon.

Then the issue I raised earlier about the DMDC data itself that you have and trying to get frequencies of the RUCs and MCCs and the MOSs as well to get a handle on what the codes look like and just to get a sense of what kinds of occupations I can expect to have to deal with.

MS. SIMMONS: This is new information to me, and I, quite frankly, don't have the answers. I just got your request yesterday or the day before. So if we could hold that discussion until we talk about the data needs to square after lunch, we'd really appreciate that.

DR. BOVE: Okay, and then the last one is the key question I think. In order to do an internal analysis and that is linking the RUCs and MCCs to particular units and then going from there to where they were stationed on base and the additional question of whether officers stayed in the same area as their

units, I asked, awhile back I asked Jerry Ensminger to -- see if I can find my piece of paper here, yeah -- to go through the, I guess, two main divisions or two main units -- whatever the terminology is. There's a Second Marine Division, well, let me say these two first, and then you can have the third one. Second Marine Division and the Second Force Service Support Group which is now called, I think, the Marine Logistics Group. What's the third one?

MR. ENSMINGER: Historically, you have the Marine Corps Base Camp Lejeune, which had all of your ten commands. You had the Second Marine Division, and prior to being called -- what do they call it today, Scott? What's Second FSSG called now?

MR. WILLIAMS: MLG.

MR. ENSMINGER: MLG and prior to that it was FSSG, prior to that it was FSR, Force Service Regiment.

DR. BOVE: And when we discussed this a couple months ago, we looked through the Command chronology for the Second Marine Division, and I would just run down what you

wrote along the side and just to start this discussion. At some point I still want the Marine Corps to work with you to try to resolve this because this is key to doing the internal analysis, linking the units to where they were on base so we can assign drinking water exposures to them, residential drinking water exposures.

So the Second Marine Regiment, the Sixth Marine Regiment, the Tenth Marine Regiment, Headquarters Battalion, Second Combat Engineering Companion, and Second Tank Battalion all likely had received Hadnot Point water.

MR. ENSMINGER: And Second Radio Battalion.

DR. BOVE: And Second Radio -- that's out where the FS ^.

MR. ENSMINGER: No, not the Second Radio. The Second Radio's is part of division.

DR. BOVE: I'm not acquainted with Command Chronology, but that's fine. Command chronology has that under the Second Force Services Support Group.

Then the Eighth Marine Regiment it was at Camp Geiger. The Second Reconnaissance

Battalion at Onslow Beach. The Second Assault Amphibious Battalion at Courthouse Bay. So that's the Second Marine Division.

Now other than the Second Radio Battalion, which I find in the Command Chronology --

MR. ENSMINGER: It was either Second Radios or Second Comm, but the division had their own radio assets.

DR. BOVE: Well, there is --

MR. TOWNSEND (by Telephone): Had some ^ troops picked up in that, Jerry.

MR. ENSMINGER: Yeah, I know.

DR. BOVE: There's a whole list of them in 12 different subgroups of the Second Force Service, and so that I don't have information. We didn't go through that, those groups. But the Second Maintenance, the Engineer Support and the Motor Transport Battalions might likely have TCE exposure from occupational work, working with heavy machinery. So I sort of put that aside that they may have that. And maybe some of the, those working with ordinance and large tanks and what have you, Howitzers and stuff.

MR. ENSMINGER: Well, the Second Maintenance Battalion, which is part of Second FSR, Second FSSG and whatever the new name is now, the Second Maintenance Battalion is where all of your upper echelon work took place on Motor Transport equipment, Engineer equipment because you had Motor Transport Maintenance Company which was part of the Second Maintenance Battalion. You have Engineer Support Maintenance Company.

You had Ordinance Maintenance which was where all the tanks and all your upper echelon work on your big guns, artillery, and all your track equipment took place. Now, when you're talking about high exposures to volatile organic chemicals, those units would have had, and selected people in those units would have had higher than your average exposure due to the large vats of these chemicals that they used to degrease the component parts of these pieces of equipment.

As far as any other unit goes, I mean, all of your maintenance facilities and maintenance shops had your little degreasing tanks. They'd bring clean parts in them.

But, I mean, these things, I mean, we had safety inspections constantly in the shops where if the lid wasn't shut on that thing when it wasn't being used, it was a hit on an inspection. I mean, it would be, those shops would be like, any exposure in those shops would be like any of your auto repair facilities out here in the civilian world.

DR. BOVE: All right, I want to get into those kinds of exposures, but I want to get back to the first --

MR. ENSMINGER: Did you mention Eighth Marines?

DR. BOVE: The Eighth Marine Regiment was at Geiger.

MR. ENSMINGER: Geiger, yeah, they weren't at --

DR. BOVE: Again, this is what you've given me. And again, there's a whole list of units in this -- or whatever you call, battalions -- at this Marine Logistics Group or the Second Force Service Support Group.

Now the question I have to the Marine Corps is can we do the same exercise with you and see if we can't get some agreement between

what Jerry's given me, what you give me? So that we can nail this down as to where on base, if they were assigned to a unit, where, even general areas not particular barracks, so that we can assign water exposure.

DR. SINKS: One thing I'm confused about is whether Jerry's saying they worked there, or they lived there. I didn't pick up this distinction.

MR. STALLARD: Well, hold on. If you're speaking from the audience, please use the microphone.

I need to take a moment here to introduce a new member of the CAP who joined us and is looking quite bewildered at the agenda because we're nowhere near what's on the agenda. So for the purposes of inclusion and welcoming a new member, you should know we know you are Mr. Mike Partain from what I understand. And you have been nominated and this group has agreed and would support you being a member of this group. I guess we need to ask you as you're sitting at the table do you accept this nomination to serve on the CAP?

MR. PARTAIN: Yes, I do.

MR. STALLARD: Okay, thank you.

So we need to get a nameplate for Mr. Partain. Part of the ground rules here is to speak you have to push into that thing so the white thing turns on. And right now, we're going to catch up with you shortly.

I hope that all CAP members will take time to bring Mr. Partain up to speed with past meetings and what we're currently focused on and the progress we're making. Thus far this morning prior to your arrival, we heard from, we had a water modeling update. That part on the agenda was completed. We heard from the Navy-Marine Corps Public Health Center in terms of positive steps being demonstrated by the Marine Corps to engage and reach out to its members in terms of notification, survey, contact.

DATA NEEDS DISCUSSION

And the discussion right now is focused on additional information the data needs required in order to be considered in the studies that have been proposed and the additional data needs that will help confirm

units that were assigned there and their location which only the Marine Corps can provide in terms of unit identification codes and the general location on base that they might be fit into the overall water modeling to see what their level of exposure might have been.

That's the best I can tell you for where we are this morning. So if you'd like to say any words of why you're here and what your interest is, Mike, that would be great.

MR. PARTAIN: Well, first I'd like to thank everybody for having me on the panel here. And as you know, my name's Mike Partain. I'm the son of Warren Partain, Jr., and he was a lieutenant at the base at the time I was born. I was born in January of 1968 at Camp Lejeune. And during the time my parents were based there, my mother conceived me in April, and I was carried the entire time while they lived on base, born in January. And then my dad was deployed over to Viet Nam sometime around April-May of 1968, and we left base at that time.

And I became interested in the Camp

Lejeune story after being diagnosed with male breast cancer in April of this year. And I just was fortunate enough to complete my chemotherapy last month and yesterday was down in Gainesville visiting my oncologist and had a good report. So things are looking good there. But thanks again for having me, and I look forward to learning a lot of information.

MR. STALLARD: Thank you, Mike.

MR. ENSMINGER: Okay, Dr. Sinks, this is Jerry Ensminger.

MR. STALLARD: Wait a minute. I'm going to ask that the CAP members introduce themselves personally to Mike, and tell him what your role is on the CAP that we might get back into this dialogue right now. Thank you.

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

DR. CLAPP: I'm Dick Clapp. I work at Boston University School of Public Health, an epidemiologist and a CAP member.

MR. BYRON: I'm Jeff Bryon from Cincinnati, Ohio. I'm a site administrator for The Few The Proud The Forgotten and a CAP member.

MS. RUCKART: I'm Perri Ruckart, ATSDR.

I'll have to get in touch with you later to get some needed information so that we can travel you here.

DR. BOVE: Frank Bove from ATSDR.

MS. McCALL: Denita McCall, Middleton, Colorado, CAP member.

MS. SIMMONS: Mary Ann Simmons, Navy-Marine Corps Public Health Center.

MR. STALLARD: And Christopher Stallard, your facilitator.

And we missed you, Sandy. You're not here today, and Tom on the phone.

MR. TOWNSEND (by Telephone): Tom Townsend, I'm a CAP member. I live in Moscow, Idaho.

MS. BRIDGES (by Telephone): Sandra Bridges, a CAP member, and I live in Charlotte, North Carolina.

MR. STALLARD: Thank you, ma'am.

MR. ENSMINGER: To address the exposures and whether or not these people, where they lived. I know that historically, like Dr. Bove mentioned earlier, Second Marine Division units, Second Marine Comm, Second Amtrak Battalion and Eighth Marine Regiment were not historically located in the Hadnot Point

contaminated area. They were, they're battalions and their entire units were outside of that water service area. So any unit that was within, that was stationed at mainside, all of their bachelor troops would have lived and worked in the exposed area with the contaminated system.

UNIDENTIFIED SPEAKER: At Hadnot Point.

MR. ENSMINGER: At Hadnot Point. Now, you raised the question about officers earlier. Officers were historically billeted at the BEQ or BOQ, sorry, bachelor officers' quarters which was at Paradise Point which is located by the officers' club. Those people would have been exposed up until the Holcomb Boulevard water system came online just like the officers' housing area would have been, Paradise Point officers' housing, and Berkley Manor and Midway Park. When Holcomb came online, those exposures ceased to those areas. The water was clean then. The Marine Corps holds the key to the records of whether or not these people were married and living in the barracks. That's going to be something that's going to have to be identified from their

records. If they were married, then you have to find out were they living in base housing and what housing unit they lived in.

DR. BOVE: They would not be living in the bachelors' quarters.

MR. ENSMINGER: Who?

DR. BOVE: Any married.

MR. ENSMINGER: Well, if you were a geographical bachelor, yes, you could have been living at the barracks.

DR. BOVE: So the DMDC has a variable for married or single. I think -- I had the figure in front of me, it's a high percentage were single, three-quarters seems to ring a bell in my head. But so it would be that last quarter where I would then try to, we would try to link with the housing records, family housing records.

And then if you couldn't link, then we'd have to make the decision did they live in the bachelors' quarters or did they live off base. I don't know how we'll be able to decide that given the data, the DMDC data.

MR. ENSMINGER: Well, the records will show whether these people were receiving BAQ, which

is what we used to call basic allowance for quarters. If they were receiving BAQ, they didn't live on base. They lived off base.

DR. BOVE: Yeah, I don't think that data's available until after this whole period.

MR. ENSMINGER: As far as other exposures go, yes. There were some MOSs just by virtue of the MOS, like the 3300 MOS, which was cooks, a military occupational specialty. Thirty-three hundred was food service. Anybody that worked in a mess hall for their regular job as a cook would have been exposed to extremely high levels of this stuff.

DR. BOVE: All right, before we get -- because I also want to ask you where they would have been working. But before we get to that again, back to the units --

MR. ENSMINGER: All right, now, for Marine Corps base, Marine Corps base organizations historically, Marine Corps base commands that were not at Hadnot Point would have been your rifle range detachment, your Marine Corps service support schools, which was at Montford Point or Camp Johnson, your Marine Corps engineer schools at Courthouse Bay, and your

school of infantry at Camp Geiger.

DR. SINKS: I apologize because I'm probably going to pepper you with questions. And this is extraordinarily important in terms of the quality of any follow-up study that we do. So I apologize if I'm nudging.

Jerry, what struck me when I saw this this spring was the fact that we gained new information about one of the water systems we hadn't known before because of the change. And I'm wondering if there's any potential that some unknown changes occurred over time in terms of the placement for these organizations on the base.

So while you're saying it was here, do we know anything over the period of time of any potential changes that, for example, 1978 may have been different than '77 because of something. Those kind of details are going to be valuable and worth knowing, and any way we can objectively get information that demonstrates what you're saying here would be extraordinarily useful.

MR. ENSMINGER: Well, and that's a good point, Dr. Sinks, because during that period

of time -- and Tom, you can chime in here whenever you want. You know as well as I do there were changes in the Command structures like Second FSR to Second FSSG. And there were units that were included in those Commands that were dropped out of it.

Tom, do you remember Second FAG?

MR. TOWNSEND (by Telephone): Yeah.

MR. ENSMINGER: Field Artillery Group.

MR. TOWNSEND (by Telephone): I remember them.

MR. ENSMINGER: And that was part of Forced Troops which was FSR or FSSG.

MR. TOWNSEND (by Telephone): FSR was a subunit. It was a Command element of the Fourth Troops.

MR. ENSMINGER: Yeah, I mean, and there are some of these historical quirks, and that's where the Command chronologies and stuff can really come in handy from the Marine Corps.

DR. SINKS: Just to follow up on that, it sounds like what we are going to need is to try to be able to sit down with a group of authoritative individuals like yourselves and people who may still be currently with the

Marines or have other people who have this knowledge and maybe try to reconstruct something. It's also critical that we know that the database that we're using has the information on these subunits and we can tie back to what this information is that we're constructing in terms of the exposure because if the database doesn't have that detail then we really have a problem. And Frank didn't mention this, but the issue here for us is going to be that there are going to be significant number of individuals we cannot contact because they're lost to follow up to us. They've died. We can't ask them where they were located, and we don't know what that percentage is, but just a guess, it's going to be 30 to 60 percent. It's going to be a very large percentage of people. And it's going to be important for us to have some objective way we can tie this in for those people who we won't be able to ask them directly. Even the ones you ask directly, you know, the recall of where I lived 30 years ago is going to be tough. So it's really important we connect these.

MR. ENSMINGER: I can guarantee you troops that were stationed at Camp Lejeune, they know where they lived. I mean, they could get blind drunk and crawl back to their rack. I mean, they know where they lived.

DR. BOVE: Let me just state one thing out that Tom just said. Right now we're just talking about, we're not talking about doing a survey or anything or sending questionnaires. We're trying to see what we can do with the available data at hand. And that's the DMDC data, the Command Chronologies and our own, the ex-Marines', former Marines' memory of where these units were stationed on base and any information the Marine Corps can get. Before we talked about sending anything out to ask questions.

MR. ENSMINGER: I agree that we need for any kind of study to have any validity, we've got to ensure that these people were living or working in the exposed area. That's key. I mean, for science to increase its knowledge of this, for the effects of this stuff, that is key. We've got to ensure that.

And as far as exposure rates go, we

know the one big thing, and we have documented evidence or documented levels that existed in the water system. And now we need to find the people that were exposed and was there any elevated levels of the effects.

MR. STALLARD: Mary Ann would like to speak.

MS. SIMMONS: Yeah, I just wanted to add on to one thing he just said, and that's exactly why we're encouraging people to register on the Camp Lejeune survey site. But also, I'd like to ask if Kelly Dreyer or Colonel Tencate has something to say about the records that you're talking about, the databases, just to further the discussion.

MS. DREYER: I'm Kelly Dreyer. I work at Headquarters Marine Corps, and I would like to give you a little update about the data that we received from the Defense Manpower Data Center. And I'll apologize right now. I'm not a manpower person. I'm not a former Marine, so I don't understand all of the data ^ that I have here. But I'd just like at least to let you know what we have, and what we're trying to do.

And I think if I understand it, ATSDR

is looking for documentable, objective data so that they can assign people at the base who worked or lived in certain regional or geographical areas so they can determine whether or not they were exposed, and how much they were exposed to. That's a big question, and it seems, based on the different fields of data that are kept in our main databases, for instance, at the Defense Manpower Data Center, DMDC, that the Reporting Unit Column and Marine Command Codes are the best way to tie into the geographical region. I'm not sure, but we're trying to conduct, maybe I'll call it a pilot study. Right now we've got 320,000, over 320,000 unique social security numbers in this data. That's suspect to me because DMDC told us they had approximately 210,000 social security numbers. So this data doesn't, it either wasn't sorted correctly, I'm not sure what happened with these test files. So we're sorting through that right now.

Kind of tied to notification, we're trying to use these records to find people. So the registry is a way to confirm people,

but to find people we're hoping to use field data to find out who's assigned where when. But let's just go back to the 210,000 records.

When we first queried these records we had a lot of duplicates. When they came up they only had 52,000 people who even had an address tied to their name. In some cases that address was about ten years old. So a lot of people move. I think some statistics said they move every three years.

I did do a query of the people who've actually registered and compared their name and address with the people in the DMDC database so that we didn't mail them a postcard and a letter. I think I only had 19 matches of people who lived in the same place and had the same name.

We also had some instances where people put their last name first and their first names -- there's some data quality issues that require a lot of follow up, and that's why we've got this campaign. But the reason I know there are only 52,000 people who have names and addresses was because of this initial query.

One hundred and twenty thousand of the records just have a name and social security number and no address. So in order to find these people, there's a project the IRS has called Project 573, it's some number, and you can send them the names and socials. They won't tell you who these people are, again, because of those Privacy Act issues, but they will mail the letter on your behalf.

So what we can do is we can provide these 120,000 names with socials, and these people will get a letter that says, hi, I'm from the IRS -- it's one of those comprehensive programs, you know -- and the Marine Corps has asked that I send you this letter -- and then there's the thing. As kind of Jeff mentioned, there's no good way to do this directly. It takes a whole bunch of different avenues so we're going to try to roll them out.

And getting back to the data --

LT. COL. TENCATE: Kelly, the letter we send asks them to then register. We do have the Marine Corps database.

MS. DREYER: Right, so the issue is 120,000

names. And we send that to IRS. IRS forwards a letter on our behalf. If those 120,000 people don't come back and register onto our website, we still don't know who they are because we're not being privileged with their address because of Privacy Act. So that's why it's so important to have this feedback.

But back to this data that I've got. I got a listing of this query, I got 320,000 social security numbers which I think is suspect, but of those, approximately 200,000 of those records do not have a Marine MCC, a Marine Corps Code.

MR. ENSMINGER: No, MCC stands for Monitored Command Code.

MS. DREYER: Thank you.

And there are some definitions I've looked up, but the MCCs, which I think are a subset of the Reporting Unit Code, are not available for quite a few of them. Now for the Reporting Unit Code only 1,200 are missing. So the majority of the Reporting Unit Codes are listed.

Now the timeframe of this data is '75 to '85, 1975 to 1985, and having discussions

with our Manpower Department, many of these, not many, but a lot of the RUCs have changed over time. So when I take the Marine Corps order that defines what the number, for instance, 12-0-0-3, there's 495 records in that category. That code may not exist in the current listing of codes because it was deleted or changed or the unit went away or something like that. So we need to determine through some kind of research what these codes were because they're not in the current orders, which I think we can do, but it's going to take some analysis once we figure out.

The other thing is is that back at this time these were not being entered into the database. This is a compilation of maybe three databases or several, and I'm not sure that the data entry is right. So maybe I'm not finding a RUC, but it's because the person who entered the data mistyped it. There might have been some sort of error. But I can't know what that is until we run through the query and see how many of them match. And there's a lot of data.

The other thing is I understand that the process for assigning RUCs changed over time as well. So we just need to research this and understand the data that we have. And then I don't think it's something objective or documentation. You'd have to tie it to maybe a facilities database. So if we have a record that says where the Second MLG was, which building that they occupied, then we can tie that to the region on the base.

But when we get to the training, I think that's maybe where these unit diaries or Command Chronologies might help with say a person's assigned to a unit, they've got a headquarters building. That doesn't mean he worked there. It depends on what their specialty was and where they went. That's a part that's a little more difficult to get documentation about.

I think interviews and, you know, it's hard to find that piece of paper to support the memory. We have the housing records, but the barracks records were not kept. People were assigned -- and, Jerry, you might remember this better. Or maybe, were you

married the whole time?

MR. ENSMINGER: ^.

MS. DREYER: When they got assigned to the barracks, I've been told by the Housing people, there was a white board, and they assigned people on the white board. And then when they got off to deployment or training, they erased the white board, put new people in there. They called it hot racking, I think. And there's no record of where any individual was ever assigned in the barracks.

You'd have to know whether they were married or single, whether they were in the barracks, and where the barracks building might have been if that record was kept in the Facilities database, which the standards have changed, and now they keep historical information, but in the past, they did not.

So it's really an analysis --

MR. ENSMINGER: Wait a minute. You're getting too deep here. If a unit, like Tenth Marines, okay, Tenth Marines Artillery, if that unit's headquarters was located at Hadnot Point on mainside -- that's the term we use -- their barracks were there. I mean, you aren't

going to have Tenth Marines Headquarters at Hadnot Point and have their batteries or battalions located at Camp Geiger or Stone Bay or Courthouse Bay. They're going to be at Hadnot Point.

MS. DREYER: Right, I don't disagree with that. I'm just saying that I'm not going to find a paper that supports that. We'll have to go with rational commonsense.

MR. ENSMINGER: We know that the entire water system was contaminated. So it doesn't matter what building they lived in. I mean, did they live at Hadnot Point? Yes, they did.

DR. SINKS: This is great. This is very helpful information. I think, Kelly, I think, is correct. We don't need to know where they are in the barracks. We just need to know which barracks.

And also, there's a couple of variables there that I, you know, I don't know the codes so let me just ask this question. One of the variables is telling us essentially where the headquarters for this unit was assigned. I don't know which one that was. But the other one may infer something about

the job that somebody had.

And from what you said, Jerry, there are some differences in locating people by job, so even if they were in the headquarters, if they were assigned to a unit if they were an officer, they were in the bachelors officers' quarters which was not necessarily located in one facility. So one is can we identify those people, like ^. That should be fairly easy.

But the other one is people like cooks, and I don't know if the mess or the headquarters at Hadnot Point gets served, I assume they get -- they get served their food close to the barracks. But that's the other thing. Are there specialty subunits that may not be located in the proximity of the rest of these people that there's a variable ^.

MR. ENSMINGER: And that, Dr. Sinks, would be a very, very small percentage of these major commands that would have been in a subunit that was located outside the geographical area where their battalion was at.

The RUCs, you discussed about RUCs had

been changed over the years or deleted, done away with, we have Command Chronologies, and the Command Chronologies listed the RUC and MCC of each unit. And those are going to have to be the historic, official record to find all of these RUCs and MCCs which then can be matched to the DMDC.

MS. DREYER: And maybe you can tell me. The Command Chronologies are a monthly document or --

MR. ENSMINGER: Every six months. Six months.

MS. DREYER: Every six months, and at what level are they --

MR. ENSMINGER: Battalion.

MS. DREYER: Battalion level.

MR. ENSMINGER: But you had a Command Chronology for each battalion and then a condensed one by the regiment, and then the division or the major command combined all of them, and then they went to Headquarters Marine Corps for historical purposes.

MS. DREYER: Right, and part of the reason I'm talking right now is to kind of let you know that there's a lot of sources of data

that need to be compiled and compared. And some are reliable and some are voluminous. This is I guess, is one chronology. So this two for every unit at Camp Lejeune is for ten years. That's a lot of material. And it's something that you can just find where the pages --

DR. BOVE: I think that's the Second Marine --

MS. DREYER: This is 1983, July to December, oh, this is a whole bunch. This is ten.

DR. BOVE: Yeah, yeah. There's one for the Marine Logistic Group which was called FSSG, and there's one for the Second Division. I don't have the other thing that you mentioned, the Marine Corps Base Command.

MR. ENSMINGER: No. Marine Corps Base, Camp Lejeune, North Carolina. Marine Corps Base, Camp Lejeune which was the -- Marine Corps Base units were the supporting units for the entire base. Like Headquarters Battalion, Marine Corps Base, they had the MPs. They had, you know --

DR. BOVE: Wouldn't they be part of the FSSG?

MR. ENSMINGER: No, no, no, no, no. Separate.

MR. TOWNSEND (by Telephone): Jerry, ^ --

MR. ENSMINGER: Yeah, the Fleet Marine Force units, FMF. And they were tenant commands. They were hosted by the Commanding General, Marine Corps Base, Camp Lejeune.

MS. DREYER: I think what would be important is to take a Command Chronology, to take the RUC that was assigned to that unit at that time and to maybe compare whatever other records we can and see if we can map the data to the region. And I'd like to try to do that.

And that's what, there's some people back at the office right now trying to take some examples, maybe one where the RUC exists today and maybe one where the RUC does not exist anymore, and see whether or not you can map this information, or any other information, to get to associating individuals with a region on the base.

MR. ENSMINGER: Well, I'll give you a good example of that. Look up the Second Field Artillery Group, which --

MS. DREYER: Do you have a number?

MR. ENSMINGER: I don't have a number. All I know is the Command name. It was Second Field Artillery Group, which came under FSR and FSSG. I don't remember when they switched that over, but that unit disappeared.

MS. DREYER: Let me get that where I can try to find -- that's good because that'll give us a chance to try to map that to a number and then see if we can associate that with a region.

MR. ENSMINGER: Now, you know, somebody was discussing the, with the change in facilities units were relocated. Now, I know that historically the Second Recon Battalion was at Onslow Beach, and they have since constructed new facilities, and they are now at Mainside at Hadnot Point. But that didn't take place until after '85. We're not concerned with anything that happened after '85.

MS. DREYER: And that's fine, I --

MR. ENSMINGER: The big construction boom at Camp Lejeune didn't take place until after '85.

MS. DREYER: Right, and sometimes people

move to new buildings and other times they --

MR. ENSMINGER: I know, but it doesn't matter. When we went on deployments, when we came back, we never went back to our same barracks. We didn't even go back to our same battalion headquarters, but it was at Hadnot Point. It didn't matter.

MS. DREYER: Right. And we're just looking for, it would be nice to know where the barracks were, but I think if we know where the units are, then we can assign --

MR. ENSMINGER: Well, we really don't need to know where the barracks were. All we have to know is were they at Hadnot Point. Were they being served Hadnot Point water. It doesn't matter, I mean, it didn't matter if you were in French Creek or if you were at over in the central area.

MS. DREYER: I agree. I think that's what ATSDR is looking for is regional locations so chances are what I would envision, if it's possible, we can run a little pilot and see how things map together, is you have regions out on the base, maybe the drinking water or regions associated with the eight drinking

water plants at that time. And then you'd split whenever Holcomb Boulevard came online, you'd have maybe a second set of maps. But trying to map to those regions that had the water, specific water systems.

But I just wanted to take a few minutes to let you know that we have been working with the data. We started trying to query it probably soon after we got it back in September. It's just a lot of data, and I still have a lot of questions because it's not matching up with what we told you we received. So we've got to figure out where these extra numbers are coming from. And it could be the social security numbers are, in fact, phone numbers. I don't know what the mistake was. You know, I don't know if the ^ was.

MR. ENSMINGER: Well, and then you had service numbers and then social security numbers. Because I was at Paris Island, and we went from service numbers -- I was a drill instructor -- and --

MS. DREYER: Hopefully, that was before '75, but what I'm very interested in is having data integrity. I want to make sure that ATSDR has

the best reliable data, and that we don't do this again. That's why we're putting a lot of time into making sure that it's accurate.

MR. ENSMINGER: Well, I know that even though prior to '75, '76, '76 is when we had the complete switch over, these people still paid in social security taxes. It was deducted from their pay so there is still a way of identifying these people.

MR. STALLARD: Okay, folks, we're going to break here shortly. Denita would like to speak, and then we're going to take a 15-minute break. If, in fact, Dr. Sinks and Kelly are going to be such active -- this is actually dialogue that we haven't had before, and I'd like to suggest that if they'd like to sit at the table in order to better communicate with you all, that they're certainly invited to do so if you agree. Is that all right?

MR. ENSMINGER: Yep.

MR. BYRON: Yes.

MR. STALLARD: Denita, please.

MS. McCALL: I don't know if this is going to help, but I just had an idea. When an

employee of the VA had their laptop stolen, the VA sent out letters to vets telling them about the compromise to their social security numbers. And I don't know what agency they used to contact the vets, whether it was the Social Security Administration, the IRS or, in fact, the VA System. But I got two letters. I got one with my maiden name and one with my married, hyphenated name. Also, when I applied for VA benefits, when I got my rejection letter for VA benefits, they did verify that I was at Camp Lejeune. They verified it through their own source that I was stationed because I used the Camp Lejeune situation as a basis for my claim. And I got a letter back and they said we have verified that you were at Camp Lejeune. So I'm not sure if the VA System and the method that they use to contact people. Like I said, I received two letters. They didn't have, I've been out of the Marine Corps 25 years.

MS. DREYER: Right, I got a letter, too. And I think I might have received four letters. And, actually, when I received the letter, I went back to work, and I tried to

find who in the VA actually sent that letter. So I am trying to network them. They're as big as we are, and it's hard to find that individual. I think they kind of questioned why I wanted to know, but I think, yes, that's a good idea because the IRS takes a long time, and it's very, it's a black box.

MR. ENSMINGER: And just like Dr. Sink said, if somebody gets a letter from the IRS, it'll terrorize them.

MR. BYRON: This is Jeff Byron. I'm concerned, we're talking about unit codes and so forth, but what I am worried about is my fellow Marines that I served with at New River Air Station, and I've got documents here that have the highest trihalomethane readings were at New River Air Station. Are they included, the enlisted that were single there? Will they be?

DR. BOVE: When we get back, there's two issues. One, I'll bring the Command Chronology for the FSSG that I have back in my office after lunch. And the second thing is there was a question about where women were billeted at the base, whether they were

billeted at Camp Johnson and when did that occur and were they before that billeted at the barracks at Hadnot Point. So that's an issue. We can talk about that after the break. Just be thinking about that.

MR. STALLARD: Listen, what I'd like to suggest is if you're available and Kelly, if you sit at the table when you come back after this break. We're entering a new phase of the relationship here. This is some very serious dialogue in terms of data that really is bringing all sides together. And so we want to engage this dialogue, and I'd like to know from the group how are we going to structure then action items for this so that when we leave here, we all have a common understanding today about how the Marine Corps working together with ATSDR and the CAP are going to pursue what we come up with today in terms of data needs? Is that all right with everyone?

MR. ENSMINGER: We need some deadlines.

MR. STALLARD: Fifteen minutes, I'm going to set my clock here, 15 minutes.

(Whereupon, a break was taken from 10:50 a.m. to 11:10 a.m.)

MR. STALLARD: There's a momentum going in terms of the active dialogue on data needs, so we'd like to continue that up until lunch which now is 50 minutes away.

Go ahead, Frank.

DR. BOVE: I was talking with Tom, my Division Chief, and also with Scott Williams, trying to get a sense of how we might start to resolve some of these issues quickly. And one method would be to have a small group of CAP members and Marine Corps people go up to Lejeune, meet with the barracks people and hash out the issue of linking the units to areas on the base. And then in addition, this was, we didn't talk about it, was how this would work or whether it makes sense.

The second thing I would ^ part of that and I would go up as well to work with the IH, the Industrial Hygiene people, to get a sense of what kinds of chemicals were being used irregardless of whether the standards were being met or not, what they focused on. But what I would want them to focus on is just what chemicals were people using so I get a sense of what possible exposures were.

Whether they were above the ^ or below the ^. And he agreed. That's not what we're interested in. It's more of just what they work with.

So why don't, if you don't mind, why don't we talk about strategies for answering these questions quickly. In other words we want to do this sometime in January, ^. And so if you don't mind, why don't we discuss that unless you want to have other points you want to make about the --

MR. ENSMINGER: Well, no, no, I have some questions about how this is going to be done, and the Marine Corps is going to have to answer these questions. If we're going to have this meeting, then what format do you have Command Chronologies in? Are they, do you have an electronic format?

I mean, are you going to have a tractor-trailer load of documents that you're going to show up with? I mean, there's got to be a way of -- and what timeframe are we going to go for Hadnot Point? We don't have a date certain beginning time, so where do we start? We know where we're ending, February, February

’85. Now where do we start?

MS. DREYER: And, Frank, I have a question. Since we’ve been collecting the electronic records from the Defense Manpower Data Center from ’75 to ’85, that’s ten years. You might want to narrow it a little more, but just start with those ten years. I don’t think you’d want to go back any further than that. I don’t know when Hadnot Point started.

DR. BOVE: We can’t with DMDC data. We can’t go back. They don’t have RUCs.

MR. ENSMINGER: I forgot about that driving issue, the point was that the DMDC goes back to what, ’75 or ’72?

DR. BOVE: The DMDC goes back to ’72, but the RUCs aren’t there until June of ’75. So that’s why they couldn’t identify people at the base before June of ’75.

MR. ENSMINGER: Okay, good.

DR. BOVE: Civilians goes back, well, civilians we haven’t talked about yet, and I don’t want to talk about that right this minute, but civilians we can get. We have information from December ’72. So that’s going to be another issue where there might

have been working on base, not living, so that's another issue.

MR. ENSMINGER: So we're looking '75 to '85.

MR. STALLARD: Go ahead, Tom, push your mike.

DR. SINKS: Yeah, this is Tom Sinks. I think it's practical to put your range around where the data sources are in terms of ^, but I would also caution you not to just look at those dates. If what you want to do is use this data and the utility of this data in the future and other data may become available, you don't want to have to reinvent this process to go further back.

So that if -- I know you're shaking your head at me, Frank -- but I'm just saying if it isn't going to be that much harder for you to construct the years '70 to '75 in terms of this process of where were the units, as long as you know the units that were there. If you have no idea of what those unit codes are, you won't know. But if you know what the units were that served on base from '70 to '75, this is an issue of identifying what units hit where at what time.

And if it's no harder to look at '72 than it is to '75, you know, I would suggest you put in more of this information for this exposure matrix rather than less. Because if some, the civilians, you want to pop in the civilians, there's a decision to do that, you'll have that information back to '72. It's really an issue of efficiency and cost in terms of how difficult it is to do this matrix, where were the units and when and not as much as framing it to what the data are.

But the practical issue is if the only people we're going to end up looking at come from this database, the '70 to '75 won't make any difference because we'll only end up looking '75 on.

DR. BOVE: Actually, if we use DMDC data, that's all we're going to be able to do, '75 on, but there are people in the Cancer Incidence study we were thinking of using those who participate in the survey. So it might be useful to go backwards for that reason, although we do have information from them, it's sketchy, about where they were on base, unfortunately. But I do think we should

focus our first intention, our priority attention, on that period from ’75 to ’85. Let’s nail that down, and then we can go back.

MS. McCALL: Frank -- go ahead, Tom.

MR. TOWNSEND (by Telephone): Tom Townsend here. I just checked back out, and you were going to lunch or you went some place. Why could not this time span go back further to cover people that lived there in prehistoric times?

DR. BOVE: Tom the DMDC data that has RUCs in it starts, for the Marine Corps at least, in June of ’75. That’s why.

MR. TOWNSEND (by Telephone): Well, I was retired in 1975. I was living there in the ‘50s and ‘60s.

DR. BOVE: I know, and a lot of people were living there prior to this. You don’t have to study everybody to be able to make a statement about whether the exposure caused a particular disease or not or at least provide evidence for that. So I realize that would mean we wouldn’t necessarily capture your information, but that’s the limits of this data.

Now, as I said, those who participate

in the survey, and we're not considering them for the mortality studies, but we are possibly considering them for the cancer incidence study if we decide to go ahead. And that cancer incidence study is very difficult, and that's something I want to talk about later.

But again, I think if we can nail down from '75 to '85 what is going on at the base, we can move forward on the mortality study because then we'll have addressed the key issue that would permit us, that's preventing us at this point from saying we can do an internal analysis. So that's why I'd like to focus our attention on that period, and then we can explore other periods as we go along if data miraculously becomes available another time.

MR. TOWNSEND (by Telephone): Well, the difference in the ramifications of taking in ^ period because prior to 1973 after Holcomb went back online, that sort of provided, that provided good water to a vast part of the base prior to that Hadnot Point. It seems to me the earlier period might be more tragic than the latter period.

DR. BOVE: Well actually, the exposures probably were higher as time went on. But, Tom, the problem is the availability of data. Without the data we cannot identify these people, so that's been the problem all along here.

MR. TOWNSEND (by Telephone): I don't want to beat this to death, but I think you can identify the people from the older period or the earlier period than you can from the more fast-moving generations that came after 1970.

DR. SINKS: Tom, this is Tom Sinks. The other piece that we need to do in these databases isn't just the unit codes. Probably the most important thing we need to know is the names of the individuals, the social security numbers, dates of birth, those types of things so we can go into the National Death Index which actually comes online in, much later, '79, to be able to include.

So I think, I believe that Frank and Perri have done, and with the Marines' help, have done a yeoman's job in scrubbing the various databases that are available. But I don't think we want to close the book. If

there are some other datasets that would be available to us in these earlier years when we know exposure occurred because we have Morris' great work, I think we'd be open to it, and I don't think we want to slam the door shut on it.

And that's one of the reasons I suggested earlier we do not limit the next step we do on the exposure assessment just to the years that we have the DMDC data because it may be that we can use it back. But the real problems with these databases are do they exist, and do they contain the essential variables we need to track people over time? Because if we don't have that, we get into this situation where we're asking people to self identify themselves, and then it just the ^ study that is weakened by that.

MR. ENSMINGER: This is Jerry Ensminger. For this brainstorming session that you're proposing we have to have those Command Chronologies. I mean, we've got to have this documented proof so we can go through this stuff and see what RUCs, MCCs we can pull out of that and all the other pertinent

information out of those Command Chronologies.

I mean, that's the only thing that's going to tell us when people were there and when they weren't. Your Command Chronologies covered any major deployments that their units were on. How many people were on those deployments, and you can cross that against their RUCs and MCCs and the records of the DMDC. But we've got to have those official documents there when we do this brainstorming session or we're just, it's a shot in the dark.

MR. STALLARD: All right, so the question is how do we pull this together --

MR. ENSMINGER: How are we going to facilitate this?

MR. STALLARD: Right.

MS. DREYER: Well, I think the meeting's a good idea, but I think it's a little premature because as Jerry mentioned we don't have our hands on the Command Chronologies just yet. The data from DMDC needs some more scrubbing. I think it might work out better if we get a hold of all these documents. I don't know that we need to go to Lejeune. I don't know

what they have.

The Command Chronologies I think are at the Marine Corps Museum actually. I think all those historic documents might be there which is at Quantico which is in Virginia. The RUCs and MCCs are electronic. We have frequencies which, as I mentioned, I don't trust right now, but I think if you want to determine our type of RUCs or the numeric data we have to actual descriptive units and then try to tie it to a map, that's kind of a desktop activity.

And if you could spread the load, let's say the Command Chronologies, and distribute those to different people, that might be a more productive and quicker way to go through all these documents and compare and contrast them and identify things. I mean, you'd have to come up with a standard process, but that would be a first step. I don't know what, ^ Lejeune other than getting people together.

MR. ENSMINGER: It doesn't matter where it happens.

MS. DREYER: Right.

DR. BOVE: It doesn't matter where it happens. It might be useful to have it at Lejeune so we have, so those people at Lejeune could participate easier. But let me move back to the first issue, and that is I do think that the data you received from DMDC is problematic as you pointed out. I think that we're going to have to talk with the DMDC people and probably get a different dataset, and this time a dataset that you can actually use.

I think we have to talk with the data people and explain exactly what we want and clear that they do not analyze data. They just give data to whoever asks for it. They're a storehouse. And when you're in that situation, I've seen it with the health departments with birth certificate data. When you don't use the data, the data's a mess. I had to clean up New Jersey's birth certificate data, the six of us, that had to fix that data system so we could use it for studies because it had never been analyzed before. And this is the problem probably with DMDC, too.

So what we need to do is go back to

them. I think that if we ask them specifically for frequencies for the RUCs and MCCs from ’75 to ’85, they could do that if you asked them to give a particular instead of you doing it, ask them to do it. But then we need to ask them to give us a dataset that meets these specs, a flat file, whatever file, not text file, not wrap around, not any of this, you know, lined up properly, the whole nine yards. And we need to talk with them probably there or certainly over a conference call and hash this out. And it will help you in your efforts because I don’t think you can really work with the dataset you have at this point.

MS. DREYER: I agree. I think there’s some necessary steps before going to Camp Lejeune in understanding what we have, and what we’re going to do. And a conference call between you as the ultimate user of the data and DMDC and us trying to resolve what we’ve got so that we can add the descriptors and the other information to it is important. I agree.

DR. SINKS: This is Tom, just a couple of points. One is, I think we go and do this

when we're ready to do it so we don't do it twice or we don't do it three times and we find that we have mistakes. And I think we probably have to look more closely at the data, maybe think through this process a little more carefully, probably get some consensus around the table, if you will, that this is the process that's going to help us validate, come up with the exposure matrix we want and that's fine.

And while it may not make too much difference where it is, there is a symbolic reason to do it in Camp Lejeune, and there's also a practical reason which is many of you around this table have much more familiarity with Camp Lejeune than any of our epidemiologists who are going to be doing this data analysis. And there's real value to having people who are working this data understanding more than just a map of where these things are occurring.

And Jerry did a very nice job of kind of portraying some of the jobs people had, but until you actually go there and see this is what it means to have been in the tank

business, and this is where that was, that's relevant. And one of the things that my boss and Frank's boss' boss had requested was he was very concerned about confounding exposures beyond this drinking water source.

So being able to sit down with some industrial hygienists who actually had industrial hygiene data who were collecting information, occupational exposures, and it may be while they probably aren't at Lejeune now, that bringing them into one area, it just seems to me it would be useful.

MS. DREYER: I think this is all a lot of legwork, too, because we haven't fully determined what the exposure is. And until Morris finishes the Hadnot Point model, we can do a lot of legwork so we're ready to take further action once that's done. But we still are missing the final exposures and the levels for Hadnot Point and how far back it goes.

MR. ENSMINGER: Kelly, I didn't mean to cut you off there, but -- this is Jerry Ensminger. The highest contaminated well on Hadnot Point was constructed in 1972, well 651. And there's very little doubt that that well was

contaminated immediately upon its construction. So I don't think it's unreasonable to go from '75 to '85 right now to get this started.

You're right. We don't have the actual water modeling in writing, but if we continue to stall and delay, we're never going to get anywhere, I mean, and we've got to get started. I mean, this has been put off for 30 years, I mean, and now we're going back and trying to reconstruct historical stuff. And that's, you know, it's waited long enough.

MS. DREYER: Right, so as I was saying, we should start this legwork now even though the water model's not done. If it goes back further, then, as Mr. Sinks mentioned, we may have to add to the data. So we're in complete agreement that we shouldn't wait. But I just wanted to make sure that we're doing this legwork so that we can take prompt action. I think everybody would like that. But we also need to understand that we still don't know what the exposures were, and that plays heavily to any future study.

DR. BOVE: Yeah, well, we'll work that out.

But first things first, and that is the first order of business is we need those, the frequency at least, of the RUCs and MCCs from ’75 to ’85. And DMDC should be able to do that if we ask them because they were able to give me frequencies for pay grade, for age, for all other variables practically in that dataset. I didn’t ask at the time for RUCs. That was my mistake, I guess, but for the frequencies for RUCs and MCCs, but they probably can do that, too. Because, as I said, they gave me the data on marriage, as I said, on all these other, education. They hit all the other variables. They didn’t give me that one, that’s all. But they even gave me occupation for the civilians. They gave me all the occupation codes. So we need to get those codes. We also need to get a description of those codes from DMDC. That would be helpful, too. We may use that description. We may not use that description, but I’d like to get a description of, at least their description of their own codes that they’re using.

MS. DREYER: If they have it.

DR. BOVE: If they have it. If they don't, then we'll work from the Command Chronologies. I just, but that's what I'd like to ask DMDC, in fact, did ask DMDC for. It was the frequencies for these. I'd also like to see the frequencies of the MOSs. That's a separate issue around occupational, but for the RUCs and MCCs. Let's see if we can't get that and quickly so then we can plan this meeting some time in January if it's possible to try to start resolving these issues.

DR. SINKS: This is Tom again. I just want to put something on the table. It may not be totally clear to everybody. I want to make it clear, and some of you may not be happy with what I say, but there's a reason to do this in a timely way, which is, one, we, as an agency have to make a decision as to whether we're going to proceed or not with additional studies.

That decision has not been made. You may feel it has been made. You may feel that we know if we're going to do it. But we are going to do it if we can do a quality study and do it well because we are not going to

rush ahead and spend millions of dollars and people's time if a study that we propose is not quality and will be equivocal or provide inadequate information. This information about exposure is extraordinarily important.

Frank has done a great job determining we can identify people, placing people and where they are, whether they're exposed. As Jerry had said, extremely important. And it is a fundamental question as to whether we should or should not proceed.

And we would very much like to be in a position where there is a consensus among the CAP, among the Marines, among ourselves that we have adequate data to be able to use these sets to determine where people are and whether they were exposed. And one of the time reasons here is I expect all of you want to put pressure on us to make a commitment to do the study, and I understand that, and we would love to do the study.

But I'm also saying to you as much pressure as you want to put on this, as a public servant, I'm not going to say to you I will do the study just to do the study. We

will do the study if it's going to be a good study, and it's going to provide useful information. And being able to have consensus on this type of information is really important, and I want to engage your support as members of the CAP to understand that we're all in this together in terms of doing a quality study. We won't help anybody just by doing an inadequate piece of work.

And there is a significant amount of pressure on us to go ahead and do the study. And I appreciate that and recognize it, but we also want to make sure that we have this nailed down and we all concur that we know what we're getting into, and it will be done well. And I'm hoping to get your buy-in to that concept, and I think -- no, I don't ^ buy-in -- but I think that moving forward with this and nailing down these exposure things and understanding this is really critical, but I'd like to do it sooner rather than later.

MS. McCALL: I understand -- Denita McCall -- I understand what you're saying about doing the very good, reliable study and the only reason you wouldn't do the study is because

you didn't have adequate information. I don't believe that's good enough. I think that you need to find a way to do the study no matter what.

I mean, I'm not saying use faulty or bad information, and I'm not saying that. I'm just saying there is a population that deserves and needs to be studied. And to ignore them and to leave them out of this process because you're not getting an exemplary study, it just doesn't make any sense to me, and I don't buy into that. And I'm asking you to please find a way to do the study.

DR. SINKS: And we're working really hard to do that. I just want to point out to you that we are part of the way this fairly crude science of epidemiology works is that if we mischaracterize people in terms of exposure, we're actually going to provide you the wrong information rather than the right information.

And the way it works is that if we, something called non-differential misclassification, big word, but if we have a 50-50 percent chance of determining correctly

whether somebody was exposed, we're going to drive the results of this study to be negative. We're going to increase our likelihood of giving you a result that there was no difference when there very well may have been a difference. And so we really want to make sure we have that nailed down.

I understand you --

MS. McCALL: Please, by all means do a fantastic study, one that helps a lot of people, okay? Please do that. That's what I want. That's what everybody wants. We don't want a faulty study. We don't want the quick and dirty or whatever you guys calls them. But what I'm saying is you're saying that you're not going to do a study unless you have all of the information? That's what I'm understanding.

MR. STALLARD: I need to interject here. I think what the next step is, is to get this information in order to determine its impact on the study proposal that has been put forward and its integration in use. There have been concerns raised that these data needs up until this point haven't been clearly

identified and articulated.

And so now we have the Marine Corps together working with ATSDR and the CAP to go back to DMDC with specific data needs so there's no misinterpretation that they can proceed. I hear what transpired is that the CAP does believe that, based on the recommendations of the scientific panel and all the work that has been done in the past few years, supports the fact that a feasibility study should be conducted, and we're marching down that path.

Tom is saying there's still a little bit more data elements that needs to be clarified before the proposal that includes the universe of what's going to be done and is reviewed by a peer review panel and subject matter experts before they can give their stamp of approval. So we're still working toward filling in the details of this study proposal requirements, have we considered everything.

And folks, we're only talking right now as I understand it about the mortality study. Is that correct?

DR. BOVE: Well, whatever we come up with here will affect any study we do. So that's the good, and we're committed to do everything we can possibly do to get this nailed down so we can continue on our path here. So just keep that in mind. That's why I'm asking that we do this quickly and try to get this done quickly because if there are, we see some gaps, then we can get to them quickly as well. So we just move along.

So that's what I'm asking. Let's get those RUC codes frequencies and try to set up a meeting where we have the Command Chronologies at our disposal. I have two or three of them myself, hard copy, one on a PDF file, but I don't have all ten years for sure. So we need to have that. I mean, unless people disagree with this approach, let's try to get this nailed down.

MS. SIMMONS: Mary Ann Simmons. Just so I can be clear, and I'm not an epidemiologist, what you need to determine if you have enough good information to move forward. Is the frequencies for the RUCs and the MCCs from DMDC, description of the codes from DMDC and

was that it or --

DR. BOVE: Well, the goal here, the goal --

MS. SIMMONS: We want to make sure we meet your needs.

DR. BOVE: The goal, let's start with the goal. The goal is to be able to link the units to a specific area on base where they were billeted by barrack, whatever word you want to use.

MR. ENSMINGER: Headquarters.

DR. BOVE: Headquarters, thank you. That's the goal. In order to get to that goal we have to first see what kind of RFCC, RUC, MCC codes there are, link them with the Command Chronologies so that we have a sense of what those codes mean. Whatever DMDC can give us, that's fine, in terms of descriptors, but we'll need the Command Chronologies to do that.

And then based on that, once we're convinced we know what the codes mean, they correspond to particular units, then we need to link those units to particular areas on base. The area served by Hadnot Point. The area, obviously, from Tarawa Terrace you won't

have to worry about it as far as I can see. Paradise Point for the officers and then the other areas on base such as Geiger and Johnson and ^.

MS. DREYER: I have a basic question. For the feasibility studies you have a draft they ^ completed. So this --

DR. BOVE: I actually gave it to Dick. I was going to give it to you. I have the executive summary that you all have now.

MS. DREYER: Right, and I did want to get it with everybody else. My question is the data that you're asking for now, is that a part of the feasibility study or is that the next step --

DR. BOVE: Yes, yes, yes.

MS. DREYER: So I guess I'm confused if the feasibility study is done --

DR. BOVE: A draft is done from your comments. The point, in the feasibility assessment report we talked about linking the RUCs to the units to the places on base and doing an internal analysis. So we want to do that. And now we're talking about how we're going to do that and what are the obstacles to

doing that. But the feasibility assessment says I think we can do that so that's why it's in there. The goal is to do that and to be able to do an internal analysis.

If we find for some strange reason that it's impossible to do that, then I'll have to re-write the feasibility assessment. I don't think that's going to be necessary. I think we're going to be able to do it. The question's just how well we do it and how quickly we do it.

So I think you can read the report I wrote and be able to comment on it without having, these are details, important details, even crucial details, but the feasibility assessment says that given that we can do this. I mean, I'm assuming we can do this. And I haven't read anything today that says we can't do it. So the feasibility assessment, the report is fine. I want comments from you.

MS. RUCKART: We're still just asking about frequencies, just general information. We're not down at the level we want the personal information. That will come later. So is that what you were asking about? We still

don’t need that --

MS. DREYER: No, my thing is about a feasibility assessment, I mean, I think you need to know who the people are that might have been exposed. I think you need to know how much they were exposed, the duration, the dosage. I also think you need to know on the onset, kind of what Dr. Sinks was talking about, what’s the outcome projected? Is it going to be something that’s used for, what’s your power, what’s your confidence that your data is going to provide something useful?

So a feasibility study, I think you can study anything, but the big question for the Marine Corps, and I’m sure for other people as well, is you can study things a lot, but if they don’t give you a useful answer for your population or your people, then is there something else to do? I’m just looking for that kind of information in a feasibility study, and maybe I don’t understand --

DR. BOVE: Right, read the report. Read the report. The report, now, the exact exposure levels per TCE for the Hadnot Point system, aren’t there yet. But we know that they were

exposed. We know they were exposed to quite extraordinary levels of contamination. Exactly how high will come out when we do the modeling. But we know enough to know that there were exposures at Hadnot Point, and so that part of your question is answered. There are power calculations. In fact, if you look at what was handed out --

Did we hand out Appendix 2?

Yeah, the appendix will show you, but I also went over this last time and all my numbers were wrong. The numbers are right this time. What kinds of, what levels of SMRs we can detect if we use the 210,000, just the active duty not the civilians. And it's all there in the feasibility assessment.

So that's why I want you to look at the report. Get people in your group to comment on it as soon as you can so we can make more revisions. The questions that have been raised by Dr. Frumkin and Dr. Sinks came from their review of at least the executive summary of the report. And so that'll get also when we deal with this issue, when we've done with this issue, we can put that into the

feasibility assessment as to this is, you know, dealt with.

But the assessment as it stands now, I mean as it is, this is our best thought about how that study would be done, and it needs to get commented on now. So it's very important.

MR. STALLARD: Hold on. Tom, please.

DR. SINKS: Just to respond to Kelly as well as what Frank is saying. Frank's done a great job of identifying the question about which cohorts could be studied, which ones probably can't be studied and calculating power and looking at health outcomes that he's proposing to do.

And that was really well done, and he'll bring up later some outstanding questions, probably not on the mortality study but the cancer incidence study and those, again, have to do with the complexity of tracking people down and identifying cases.

What we challenged him with, and I can tell you it was myself and Holly who have challenged him, with is to get us more detail on this internal comparison that essentially uses what Morris has done, that links what

Morris has done to the cohorts specifically. And that's what we need, this more information.

And I think as long as we can arrive at consensus that we can do this. And we've got pretty good information. And I've heard nothing that tells me we won't, but we can go ahead with that kind of analysis. But that's really what we're all about here. But much of the feasibility work has been done, but we'd like to go a little further with this internal exposure stuff. And being an environmental epidemiologist I can tell you that the hardest thing to do in environmental epi is the exposure side.

MR. BYRON: This is Jeff Byron. Just from a CAP member's standpoint we want to see these studies go further, too. And we want them to be credible because right now Camp Lejeune, the situation there with the toxic water, is pretty well the leading edge of, from what I can tell, of studies that are going on of contaminated drinking water.

Every article I pick up that talks about contaminated drinking water mentions

Camp Lejeune. So people are looking at this. But my real concern is, is that you don't receive political pressure to end these studies where they're at. Because that's happened for, since like 1915 you guys have studied these contaminants, but nobody comes out with anything definitive. So this needs to go on from not only the adults, but after you get done with the adults, we need to look at the children, and then maybe the third generation because you have an opportunity here from taxpayers to give them the answers.

I mean, you have a million people contaminated out in California right now I understand. In San Gabriel? I mean, you know, they're looking at Camp Lejeune as what to do next. So it's extremely critical that we get this right. So we're all in favor I believe.

MR. ENSMINGER: Kelly, you mentioned dose exposures. That shouldn't even come into play in the feasibility stuff. All we want to know is were the people exposed, were there this many, were the effects elevated, these physical effects. That's all we're looking at

here. It's not, this is not a damning study. I mean, if this identifies there's a problem, that's where you get into your dose exposure, levels of dosage and all that. I mean, this is just --

DR. BOVE: That's called internal analysis, not internal exposure, but internal analysis. We will want to use Morris' estimates to assign dose, if you will. I mean, dose is a funny word because dose sometimes means what's at the target tissue or what's exactly taken in. We're only talking exposure.

MR. ENSMINGER: Just to identify the mortality and the number of cancer cases?

DR. BOVE: Well, see, we want to ask a different, we want to ask -- it depends on your question. If your question is simply does Camp Lejeune have a higher mortality rate or a lower mortality rate than the general population, then we don't have to do any of this. That's not the question. The question is did the drinking water exposure and even levels of exposure, because we can get down to that with Morris' data. That's what the whole point of his work is.

Levels of PCE exposures. There are TCE exposures. There are vinyl chloride, whatever, associated with excess mortality. Let's talk about morality studies. That's the question. And then that internal analysis is really the way to answer that. And that's ^ assessment. That's a key thing. I have no problem with doing the first thing of just doing the general comparison. That's fine. But we really wanted to move directly to the internal analysis because that answers the question.

The problem with the general approach of just comparing Lejeune to the general population, there are these other biases that we can do some work around. And Dr. Clapp mentioned, for example, a way of dealing with the healthy veterans' effect, and we can do an analysis that tries to get a handle on that. But it really doesn't answer the question of whether you were exposed to drinking water actually increased your risk.

The only way to get at that is the internal analysis, and that's why we want to do this. So dose is important that exposure

level -- I would rather use that terminology -- exposure level is important, but we'll do that. But that's not the problem here. The problem is once we know where they lived, we can assign an exposure level.

DR. SINKS: Just to reiterate, Jerry, we're even asking for less than what you've said. All we're really asking the question right now is can we place people on the base and where they were and at what time, and can we then take that information and apply it to the database that we have that tells us the individuals so we can do this.

We've already constructed enough information to do a dose response which is the critical information because of the work Morris is doing. That's done. It's being able to take the information we have on people that Frank has now identified through this large database and say, well, if they were in this unit, we know with 95 percent confidence they had to be here on the base in that year, or they weren't here. And that's all we really need to know right now.

But we're not quite there. I mean, I

know you are because you said if you were in this unit, you were here, but I think it really behooves us to make sure we're all in agreement with this and we know what level of confidence we can assign those values.

MR. STALLARD: So in terms of the consensus that you mentioned, that we mentioned we'd like to see from the CAP, what specifically, how can you phrase that? I mean, is there something that we can do a pulse check in terms of consensus here now in the approach or are we waiting to get the data?

DR. SINKS: Well, I think where we are is that I think that our folks in ATSDR and probably maybe with Dick's help need to frame questions specifically to the Marines in terms of what kind of matrix we would like to see. But that then sets us up to have this consortium meeting, if you will, with a variety of people who sit down there and say, well, here's this. What were the records you said the unit --

MR. ENSMINGER: Command Chronology.

DR. SINKS: Command Chronologies which, I presume, say this Command was in this place at

this time. I assume.

DR. BOVE: Unfortunately, it doesn't tell you exactly where they were --

MR. ENSMINGER: It doesn't tell you exactly where they were billeted, but I --

DR. SINKS: And then whatever that information is, and then with whatever the unit codes are, the codes that are in the file, and you can cross-connect them for every year. And you can then have a group of people who say, well, I know, and here's why I know that this unit was assigned to this area. But that's really what we need to do. And I think we need a little background to make sure we have those matrices set up so that whoever this group of people are that sit down together know what their charge is and be able to give us the answers.

MR. STALLARD: Does that sound reasonable to the CAP as presented?

MR. BYRON: Yes. You're saying that you want to map it out. I mean, specifically where each unit was at basically like you did the plumes in the water model.

DR. SINKS: Yeah, exactly, and overlay it on

the plume.

MS. DREYER: Right, and my recommendation is to take a few to make sure that this is going to work because I haven't personally seen the Command Chronologies. I want to see how they fit into these codes and if we can truly tie them to a region. I want to do it practically for several sites and then proceed with the rest. If we had a template to work from, what exactly was the useful information for your study, that would be helpful.

MR. ENSMINGER: Well, there is another thing. While I was sitting here looking at this, these Command chronologies from '82, you have a Table of Organization which listed all of your RUCs for each major command. So there's all kinds of checks and balances here. We just need the historical documents.

MS. DREYER: My question is I think that is in there, and I think we can go through that. I don't know how much time that would take. I don't know how many people and how long and that kind of thing. That's kind of irrelevant. The big question is can you take those RUCs and MCCs and descriptions and tie

them to a piece of land. That's my big question because our records --

UNIDENTIFIED SPEAKER: ^ confidence.

MS. DREYER: Yeah, with confidence, and what do you need in order to do that? And I just want to make sure that we map it out. It's kind of like your template. I know what you need because you're going to tell me, and then I can give you the process for a few. And you can tell me if that's enough local certainty for you to proceed. That's all I'm saying. I just want to make sure we can do it. And I know you'll figure out how long it takes and all those kinds of things.

DR. BOVE: The Command chronology will not tell you where they were billeted. Let's set that straight. It will give you the RUCs for each of the units. So that's important because that's what we're talking about them changing over time. So we'll have that. But what we need to do, and that's why we need to have a consortium, a group, a task force, whatever you want to call it, meeting, probably up there at the base, is to work out -- sometimes it's called a Delphi Method.

Sometimes it’s called some kind of consensus discussion where you, the people who have some –- can form this, people who know something about the base and know something about the units, like Jerry does, for example, can sit down and hash this out and then reach consensus so that they’re all pretty confident that this unit is here, and that unit is there. And that’s how it’s going to have to be because we don’t have data to tell us that unless you guys can come up with something.

MS. DREYER: Well, yeah, that’s what I’m saying is we may have -- this is Kelly Dreyer. I’m sorry, I keep forgetting. We may have some data is what I’m saying once we identify these codes. We do have facilities databases. We do have that information. I just don’t know if they go back or if they tracked when something was demolished. They may not. They may have removed it from the database. I don’t know if that information exists, but if it does, it’ll be helpful.

But the key issue I see is that we’re going to have codes that have units, and we’re going to have unit diaries, but the facilities

database I'm going to have to go back and ask whoever manages that database, I don't think this facilities database can cross-reference back to the RUCs and MCCs. I don't know what the descriptors are so that might be a hurdle.

DR. BOVE: Again, if we don't, we can't do that. That would be ideal if we could do that, but we can't do that. That is why I'm saying we bring together people with that knowledge of the past. And that's not the best way to do it. The best way to do it is to link up with your facilities database.

But the second best method when you can't do that is to sit down with people who have that knowledge. We talk about local knowledge. We talk about working in communities. We say the people in the community know about the situation in their community. This is sort of similar to that. I think the people who lived on the base in the past will have a good recollection of where the units were. And we can get a group of those people together. I'm sure we can identify them. There are some in this room, and the base people may know some of those

people, too, and we can pull them together.

MR. TOWNSEND (by Telephone): Frank.

MR. STALLARD: Go ahead, Tom.

MR. TOWNSEND (by Telephone): Tom Townsend. We dance around the RUCs and the MCCs. You know, historical branches of the G-3 Division of Headquarters Marine Corps has all this stuff. I'm not a devotee of the computer systems. All their stuff is ^ RUCs and MCCs. But I'm looking at a Marine Corps, I'm reading histories of World War II, and it goes on to companies, who were the commanders, the platoon commanders, the bloody battery commanders, everybody is listed. And they have every organization.

And surely you can look up in the Headquarters Marine Corps to find out what commands made up the Second Marine Division. What commands made up the Fourth Troops Atlantic and all that other stuff. I mean, I was there at Headquarters. I was stationed at ^ Island. I was still in Headquarters of Fourth Troop. I mean, you could find everybody. I think the information is all at Headquarters Marine Corps. You just look in

different places. And some of that, unfortunately, is written in books and not on a goddamn computer screen.

DR. BOVE: We know that, and, Tom, that's exactly what we're going to try to do. We're going to try to use the Command Chronologies for that purpose.

MR. TOWNSEND (by Telephone): Well, that will get you there.

DR. BOVE: Yeah, but if there are other sources of information, we'll try to seek that out, too.

MR. TOWNSEND (by Telephone): There are.

MR. ENSMINGER: But the question, Tom, right now is we're trying to figure out the billeting and not identifying the units per se, but the areas where they were at. And let's just get this done and put this stuff on a map. And then if anybody has any heartburn with what is on the map, then we can debate it and say, okay, what do you have to show me that Tenth Marines was not billeted at Hadnot Point. Let's, I mean, let's --

MR. TOWNSEND (by Telephone): I understand. I think it was pretty straightforward. I

don’t know why it’s such a puzzle.

MR. ENSMINGER: I have a question about Second Recon Battalion. When did they move off of Onslow Beach? When did they move into Mainside? I’m sure it was after ’85, but --

MR. TOWNSEND (by Telephone): ^

MR. ENSMINGER: Well, and the women then that was brought up. I remember the day when all the women were housed in one big H barracks in the central area. They had their own club which was restricted. And if you were a guy, the only way you got up the stairs into that club was if one of the girls signed you in. So and every morning those ladies were bused from the central area to wherever they worked on the base, and every evening they were brought back. I mean, they were sacred.

MR. STALLARD: And they still are sacred, protecting our mothers and daughters.

We’re going to break for lunch. What I’d like to do when we get back from lunch, I want to document some very specific action items that we know clearly, by X date in January, for instance, we’re going to convene

a small party of interested people, a consortium, a work group, whatever you want to call it, and then whatever we decided that the Marine Corps is going to be able to facilitate with DMDC in getting specific information as well. Can we do that? And then we can move on to moving talking about we have the genetic ^.

DR. BOVE: I also wanted to briefly go over the executive summary.

MR. STALLARD: Okay, and the executive summary. So thank you. Be back in one hour from now.

Yes, Tom.

MR. TOWNSEND (by Telephone): It's four minutes after 12?

MR. STALLARD: Yes.

MR. TOWNSEND (by Telephone): And you'll be back at four minutes after one then.

MR. STALLARD: Well, we'll start at five minutes after one, okay?

MR. TOWNSEND (by Telephone): Okay.

(Whereupon, a lunch break was taken from 12:04 p.m. until 1:05 p.m.)

MR. STALLARD: We left off with some robust dialogue. Welcome back, folks. Tom's on the phone. I'm not sure if Sandra's connected back yet. So I think that what we're going to do is continue with the dialogue. We wanted some specific action steps identified. I think we talked quite a bit about what we want to do or need to do. But I got from the group that they would like to have something more definite in terms of next step process. Is that a fair statement?

MR. ENSMINGER: Yep. By dates.

MR. STALLARD: By what?

MR. BYRON: By dates.

MR. STALLARD: By date.

All right, so as I take it, we were looking for clearly identified data elements we needed from DMDC. And I'm not sure, are you the point person on that? Or who's going to be the point person on that?

Frank, welcome back.

MS. DREYER: Well actually, it worked out on mine, but I think the first step is to schedule a conference call between ATSDR,

DMDC, the Marine Corps, and I don't know who else may have known about these codings or this electronic database because we need to resolve the differences between the data they provided and our analysis of the records and clarify how many records we have and whether the data is accurate.

MR. ENSMINGER: Can I add something here?

MR. STALLARD: You may.

MR. ENSMINGER: This is Jerry Ensminger. Frank, didn't you say that Chris Rennix had done a lot of legwork and that is on his database?

DR. BOVE: Well, he did some studies for his dissertation, actually, but not with this data, no. He, we went out there to DMDC a year and a half ago, Dick, Chris, myself and someone from the Marine Corps. I can't remember. And we met with them, and we met with the CHAMPS database people and told them what we wanted. And we did get eventually what we wanted which was to identify this group of Marines, and I got frequencies --

MR. ENSMINGER: I wasn't talking about CHAMPS. I was talking about --

DR. BOVE: No, I mean the DMDC data. So we got the frequencies on the DMDC data, the data that we requested, and I think they can do it again. The only variable probably they didn't give, there are several they didn't give. One they didn't give me was the frequencies for the different RUCs and MCCs. If they could give me the frequencies for age and everything else, I don't see how they couldn't, why they couldn't give that.

So I think we just need to ask them for it and the MOSs, too. I just didn't think to ask them. In fact, when I ^ demographic information to get a sense of the make-up of this group so to do those power calculations, I wasn't thinking about, ahead. I should have, and we could have all this already.

MR. STALLARD: But you didn't.

DR. BOVE: But when we map, you have to sit down with, because they don't know what you want. They don't know what to give you. I'm sure I'm going to have to ask again for another version of this dataset that can be manipulated as opposed to what they are prepared to give you.

And that needs to, I think we can work it out and get that. But you have to be real clear with them as we found when we went how difficult it is to get across to them what we want because they're not used to doing this.

MR. STALLARD: So what Kelly is proposing then in terms of, we're trying to identify next action steps. So we're talking here about scheduling a conference call between the DMDC, ATSDR and USMC. Would there be a pre-step to that which would be let's identify what our data elements are prior to that conference call?

DR. BOVE: I still think -- I wrote an e-mail message to Cathy Gates, DMDC, requesting those frequencies. I think we should, we need to reiterate that request and get those frequencies. If we can sit down and talk to them in a conference call, and I think that conference call needs to be can we get another version of this dataset that we can manipulate as opposed to what was sent.

MS. BRIDGES (by Telephone): ^.

MR. STALLARD: Thank you, Sandra.

DR. BOVE: I do think they can give us those

frequencies. It may be we just need to ask them again. They can generate. They have the data there. They gave me these frequencies for everything else. I don't understand what the problem is there. Why ask you to do it when they have the data and they know how to manipulate it? It doesn't make sense. But you need, and we need eventually a full dataset in a manner that can be manipulated. So we need to talk to them.

MR. STALLARD: Did you ask them that for that already?

DR. BOVE: No, because we're not ready yet. We're not ready for the identifiers and all that until we're ready to do the study. And I'll talk about that later. We have several hoops to go through. Even if we all get the green light to go forward, we have protocol and all that alphabet soup to deal with. But that's another issue.

So all we need right now from the DMDC are these frequencies for the RUCs, MCCs. I'd like them for the MOSs, too, and any data descriptors they have. Then I think just with that we could then work together to get this

meeting up at Lejeune where we bring in some old timers or young timers and who know, remember, good informants about the, good, knowledgeable people about what went on on base.

MR. ENSMINGER: Well, their facilities people could be --

DR. BOVE: Yes. And anybody else who could help us work this out. It would be nice to bring some old timers in because they, you know, like Jerry. No offense. And I think we can do that once we have those codes, and we need the Command Chronologies. But I do think it would be important for the Marine Corps and ourselves to sit down with the DMDC, maybe out there, and get the data we're all going to need. You're going to need sooner maybe then I will need it, but we need a manipulate-able database.

MR. STALLARD: Do you have a single point of contact at DMDC that you deal with, either of you?

DR. BOVE: Cathy Gates, yeah.

MR. STALLARD: Okay, so that's your entry point.

So I'm trying to still discern what the next step is because, Frank, I hear you say I've already requested this information. I just need to follow up, or jointly we need to follow up.

MS. DREYER: Well, he did request the data because he copied me on his request, and DMDC said go ask the Marine Corps because we gave them the data. So we ran the numbers on the data they gave us, and that's where we have these discrepancies. So the reason that I'd like to have a conference call with the three of us is because we do have the data, but the data is three files that we've merged together.

So we need to understand the three files that they gave us, where it came from, and understand maybe the numbers that they identify the 210 were from one file that didn't incorporate the other two files, maybe they're civilians. We don't know what the data is that they gave us other than here's your records. So we need to understand more. Is this from DEERS? Is this from, what are the sources so that we can reconcile what does

our data mean.

Because we have taken the text files, the wrap around, is actually like a big spreadsheet with just a lot of data. And our data people have put it into a database because we need to get addresses out of it and names and socials so that we can find people to notify them of exposure. It doesn't give us much information, like we want to understand the data more anyway. So we do have a database that we've put together, and what we're trying to do is figure out the integrity of the data and make the numbers match and know what we're looking at. And then we can generate reports.

So like one of the reports could be frequency of RUCs. And I do, I have that, but like I said, it looks like garbage. It doesn't look like real numbers. But we can generate reports for whatever information has been given to us. Because I think we could also run it, Frank, for gender and whatever the other headers are on the columns.

DR. BOVE: Well, I just said, I got that from them.

MS. DREYER: But maybe what I can do is if you'll tell me what that is, then I can compare that with our database. And if those are also inconsistent, then that might be, you know, we can resolve all that data.

DR. BOVE: Well, I'll send you the frequencies they sent me.

MS. DREYER: Yeah, because we put a lot of time and money into trying to get the database usable, and if we can understand it rather than start over, I think it'll save time.

MR. STALLARD: So if DMDC responded to you that they need to get the go ahead from the Marine Corps? Is that right, more or less?

MS. DREYER: No.

MR. STALLARD: Who's going to be the lead on setting this up right here, this conference call? That's what I'm trying to get at.

MS. DREYER: I'll be happy to schedule it if you agree that you'd like to do that. I think they're just talking about an approach right now, getting consistence on that, right? But I'll be happy to do that, take the lead on that.

DR. BOVE: Kelly, can you also reiterate to

DMDC that they should do the frequencies for the RUCs at this point so we can get that resolved quickly?

MS. DREYER: Right, I can have, I mean, I'll have to call in because, yeah.

MR. STALLARD: All right, good.

MR. ENSMINGER: And when's this going to happen?

MR. STALLARD: That was Jerry Ensminger asking when is this going to happen.

MS. DREYER: I will make contact and schedule the call next week. I mean I'll call them and schedule it for as soon as possible and everybody's available, but I'll be making the call next week.

MR. ENSMINGER: For a phone conference to take place at their convenience?

MS. DREYER: At everybody's mutual first availability. I don't think it'll be a big deal. I'm going to ask them two things. I'm going to ask them to provide us a frequency of RUCs and MCCs, and then give us that. And then we want to have a call ^ our datas (sic) aren't consistent.

DR. BOVE: Make sure you mention MOS.

MR. STALLARD: Yes, Tom.

MR. TOWNSEND (by Telephone): Just a quick question. What's the function of frequency? What do they mean by the term frequency?

DR. BOVE: I just want to know what codes appear, what RUC codes appear for this code work and how often. That's all.

MR. TOWNSEND (by Telephone): Thank you.

MR. STALLARD: So it seems to me there's a bit of urgency to this in terms of momentum and moving it forward. Kelly will make a contact next week to set up when that conference call could pull all three parties together. And so then dependent on that is, could we expect to set up a Camp Lejeune onsite visit then after some period of time, perhaps in the new year I would imagine? Does that seem reasonable?

MS. DREYER: Well, I think the next step is to access the Command Chronologies and to query the facilities database. Because looking at what I have right now, it appears there are about 250-to-300 RUCs listed, some frequency. And some of these I suspect are current and some of them have been changed.

And I think I would prefer to, for the information that we already know where the unit is or has been, I don't think we need to discuss that at Camp Lejeune. So I think we can minimize the amount of coding that we need to clarify based on what we know. So we could kind of screen it so we aren't looking at determining ten types of RUCs or MCCs.

The other thing I would say is when Frank talked about contacting people, these codes are tied to individuals, their social security numbers or something like that. So for the RUCs and MCCs if we can tie it to a person and an address, probably a good source of finding out where that unit was would be that individual. And I don't know how easy that would be to contact them. You know, we can try to find people who are knowledgeable, but if we aren't sure, the person tied to the code should know because they worked there, right?

DR. BOVE: Well, eventually, you're sending out notification letters to all these people. Is that right? And then we talked about this maybe on the phone the other night about we

would like to put a questionnaire into that mailing. The only issue would be would we get OMB clearance on that questionnaire in time.

What are the times ^ because OMB can take up to a year to sit on stuff, nine months, probably more than that because sometimes they take longer. Six months is the ideal, but that's, I don't know how likely it is. So from the time we give it to them and the protocol to them, and the time they turn it around would allow us to do it. But you may not be ready to mail it to all these people in that database either until then, so it may dovetail. But if it doesn't, we'll have to figure something out.

But, yes, if you're going to do a mailing to notify those 210,000, it would be nice to have a short questionnaire asking about health issues, but also asking about how were their residential histories up until the present and where they were on base. That's what I'd like to do in a relatively short questionnaire. And the reason I want residential history I'll explain later, but the when you ask them where they were on base,

where they were stationed, we could do it as part of that.

But I'd like to see what we can do with the -- suppose we don't do that. Suppose for some reason we're not going to send a questionnaire out. I want to be able to do ^ acknowledge what memories are. I'd rather do that. Sending the questionnaire out, I have that in the feasibility assessment, you know, but I have to convince my people about that and all that. But we're all on board with trying to work with what's available now to identify what units were where without doing a questionnaire at this point.

MS. DREYER: Yeah, I can confirm. Any time you send out a survey it has to go to the Office of Management and Budget for approval. And just for our notification I'll let you all know that we said to submit paperwork back in July that had to get approved. It had to go through the public comment period, and then we got approval to put the registry in.

If you look at, if you go there, it's very basic. It's just name, address, phone number, e-mail. And we wanted social security

numbers, but we didn’t want social security numbers because we didn’t want to be responsible for those if something happened. And to get social security numbers is a whole ‘nother process.

But originally we had envisioned having a survey on the bottom of our registry that said when we were at Camp Lejeune, and just some basic, were you an active duty, dependent, worker, visitor, maybe three questions. And we had to take it off because that was another process. Because any time you put a survey that burdens the public at all, more than nine people, you have to go through a process.

So we’re going through that process right now simply to ask the three questions we want to ask to try to get some more specificity, if you can say that, of who these people are that are registering. But it’s a very long process, and there’s a lot of checks and balances. And I understand it’s all there to protect people’s privacy and information and burden.

DR. BOVE: Well, actually, it was the

Paperwork Reduction Act passed during the Reagan administration.

MS. DREYER: So what Frank's saying -- and that was just for three simple questions. It's going to take us about four-to-six months in order to get those three simple questions on the internet. For a health survey I would imagine that's going to take a long time of review and process. So all sorts of different people would --

DR. BOVE: That would be still the thing that takes the longest time. Yeah, we have to do an IRB and all of that, but we could get all that done, and we'll still be waiting for OMB. So OMB's still the problem no matter whether it's three questions or 150 questions. It's the same problem. OMB is the stumbling block, the thing that takes the time, not the other entities usually.

MR. STALLARD: So we have three action items that each support in a sequence that lead up to the third which may be the Camp Lejeune onsite visit. So it appears that we're going to be moving forward with number one in the immediate future, next week. And then we'll

see, and we'll keep everyone informed in terms of how that evolves. And number two, when do you expect this ^ Command Chronology to link with facilities data? What's the barrier there? Is it from DMDC also?

MS. DREYER: We have a facilities database. It's just a matter of coordinating with, I don't know. I'll have to identify who is the host for that site. Command Chronologies, I think somebody mentioned they were down at the Gray Center at the Marine Corps Museum. So it would be a matter of identifying the point of contact and getting those. I'm pretty sure they're paper copies. I don't think they're electronic, some may be. But again, if we screened out some of these once we know what the Reporting Unit Codes are, if we can screen them down to the ones only that we don't know where they are, then that would lessen the work greatly.

MR. STALLARD: Seem like a reasonable approach, folks?

(no audible response)

MR. STALLARD: All right. On the agenda for this morning we had to talk about the genetic,

and then you wanted to talk about the distinction of the two studies, cancer versus mortality.

DR. BOVE: I think we have a plan of action to deal with the placing the units onto the base and all that.

The other issues in the data needs, I just want to bring it up again. We could use some help from CAP members to poll their constituencies about their activities on base, where they drank water, give us a feel for that. I've gotten responses back from some of you already, and if you'd encourage others to answer some of those questions, I think it might be helpful to dealing with some of the questions that Howie has raised.

And then I have to go up there and work with ^ to help talk to the IH, the industrial hygiene people up there to try to get a sense of what kind of chemicals people might have been working with back then. So those are the other areas to try to deal with these outstanding issues.

So I don't know if we need to discuss that any more than we have unless people

wanted to.

MR. STALLARD: Jerry, you got something?

MR. BYRON: This is Jeff. On my website then you would like me to ask active duty personnel to write down what they're active duties or active daily activities was and where they got their water. Pretty much the same things that you've asked us, right?

DR. BOVE: Yeah.

MR. BYRON: All right. I'll just put this on the website then.

MS. RUCKART: ^ for getting responses.

MS. DREYER: By the end of the year, about three weeks from now. Is that reasonable?

MR. STALLARD: Yes, Tom.

MR. TOWNSEND (by Telephone): Tom Townsend. You can put it on the Retired Marines Newsletter if you both come up before that, too. But everybody that's retired and ^ and respond to it if they want to.

DR. BOVE: Who can put that in?

MR. TOWNSEND (by Telephone): Somebody at Headquarters Marine Corps.

MS. DREYER: I'm sorry. Wasn't your daughter, Andrea, going to be a writer for

some veterans' magazine? Can she put that in there?

MR. BYRON: I'll check with her, but I'm sure that she needs the CAP members' help for other articles for each week. She just volunteered.

MS. DREYER: What's the name of that publication?

MR. ENSMINGER: Retired Marine Newsletter.

MS. DREYER: I think we can probably write an article and put it in there. I just --

MR. ENSMINGER: It's called Semper Fidelis.

MS. DREYER: We may need help with -- yeah, well, we've got access to all of the list serve. So if we write an article, I just need someone to provide me what the information that you're seeking. It has to be like an article and not a survey because that would be circumventing this other process we just talked about.

MR. TOWNSEND (by Telephone): We'll write an article for you. The ^ letter. We'll write an article for you. The name of the thing is "Semper Fidelis, a Memorandum for Retired Marines", and it's published out of Quantico.

MS. DREYER: Yeah, we have access to all of those, “Leatherneck”, all of those different types of newsletters and magazines. I think our Public Affairs Office has access, and we can just e-mail an article out to everybody. It’s just a matter of providing her that information.

MR. TOWNSEND (by Telephone): You have a mailing list for all retired Marines still alive. It would be sort of nice to tell them.

MS. DREYER: I can check with Public Affairs on that list, and we can see about doing that through whatever organization it is.

MR. TOWNSEND (by Telephone): ^, Quantico, ^ Marine Corps, ^, Retired Activity Section, Separation and Retirement Branch. And those that are still alive, read it.

MR. ENSMINGER: Did you want to discuss these -- this is Jerry Ensminger. Do you want to discuss these questions now?

DR. BOVE: We could. We could. Or you can send the material to us. That’s up to the CAP members right now.

MR. ENSMINGER: I mean, I can give you an idea about the canteens and stuff like that,

and the water buffalos --

DR. BOVE: You did, actually, on the phone, but can you write it down and send it to me?

MR. ENSMINGER: Yeah, gee whiz.

MS. RUCKART: We only have an hour and a half left. I think we need to talk about what we need to accomplish in that next hour and a half, and where we best want to use that time. So the items that we have not yet discussed would be the genetics presentation, really getting into the specifics to these data needs questions, and then talking briefly about the feasibility assessment and some of our next steps. So what are you all most interested in hearing about, and then we'll let that direct the rest of our time here together today.

MR. BYRON: I'd like to make a motion since I'm the one who brought up the genetics to make that the last on the agenda today.

MR. ENSMINGER: I would like to -- this is Jerry Ensminger again. There's one thing I would like to clarify in these questions that were brought up by Dr. Frumkin. And that is specifically on cleaning of individual weapons.

The Marine Corps had a very specific Marine Corps order on what was authorized to use to clean individual weapons. Anybody that varied from that was violating the order. And for anybody to say, well, I heard that this unit used TCE, big half barrels of TCE to clean their rifles with, that's hearsay. That's rumor. We've got to go by what the Marine Corps order stated. And the Marine Corps, the only authorized cleaning agents were bore cleaner, and they authorized lubricating agents for those weapons. I mean, they even went to the detail of telling you whether you could use pipe cleaners or Q Tips. What kind of brushes you could use on the weapon. So this stuff about all this other stuff, and I know Jeff Byron mentioned that over at the air wing they used --

MR. BYRON: That rumor came from me because they had a 55-gallon drum cut in half with the solvent in it. Every time I took my hands out it was freezing.

MR. ENSMINGER: -- well, and as everybody knows, there's the Marine Corps and then there's the air wing.

DR. BOVE: I actually came across it said there's a plastic bottle of cleaner-lubricant and preservative, CLP. And they had all the --

MR. ENSMINGER: CLP, CLP came out after the duration or the period of time that we're discussing. CLP was not in existence then.

DR. BOVE: Okay, that's well taken. I think we can actually find those regs maybe, but I think to put that to rest I think we can all agree that bore cleaner was used for individual rifles. There is the issue of rifles that were stored and then had to be degreased in that -- what's that called?

MR. ENSMINGER: Cosmoline?

DR. BOVE: Yeah, cosmoline. They may have used a solvent for that. That's what I've heard, but we can check that. We can check that. But these are kinds of questions we can also raise when we get out there and in talking to people if necessary. I think it's, this is what I would suggest. I think it's important to go over some of the things in the feasibility assessment and the next steps so people know what they are before we do the

genetics thing.

We've talked a lot about data needs. We have a strategy in place that I think will work. So what do you all think? Do you think we can move quickly? I'll just quickly go through the executive summary since you have it. And then if there's time, we can do whatever we want on genetics. You have our presentation for the genetics in front of you. We can be flexible with that if necessary or we can do the whole thing. Does that sound reasonable to everyone?

(no audible response)

FEASIBILITY ASSESSMENT

DR. BOVE: You all have the executive summary, but before we go there, you have these tables that hopefully were handed out, too. The first table says description of cohorts for future studies. Is everyone with me on this? I had slides, but I think it's easier to work from this anyway so let's try this approach.

So the first table goes through the different cohorts or groups or populations, whatever you want to call them, that we've

identified. Of course, we've been talking a lot about the first one, the 210,222 Marine and Navy enlisted personnel from June '75 to '85 who were stationed at the base at any time during the period. And I was right; it's 70 percent are single. I thought it was three-quarters. It was 70 percent.

And then you can see the data elements we have for them including the unit code. Partial last name, that gets back to what Kelly was talking about. For the first two years they don't have the full last name even for these people, but they do have social security numbers during this period is my understanding. And that cohort would be, the group could be used in any of the studies we're talking about, mortality, cancer incidence, are the two studies we've been talking about so far.

The next group is the civilian group, a much smaller group, 8,085, but almost half are women so that's good. And they're an older population so that there will be more events, more deaths, in that group. But it is a small group. If we analyze them separately

which we ^ will have to do because their experience is very different from the people who live there, we'll have less statistical power.

MR. ENSMINGER: On your DMDC identified active duty cohort there is no MOS there.

DR. BOVE: Right, and we can get MOS, too.

MS. DREYER: Yeah, we have that.

DR. BOVE: That's, I'm sorry, yeah --

MR. ENSMINGER: It's not on here.

DR. BOVE: Yeah, it should come in. Thanks for pointing that out. It should be on there.

DR. SINKS: How about the RUC?

DR. BOVE: That's what we mean by unit code. That's a, we missed it, sorry.

The civilian group -- any other questions about the first group by the way?

(no response)

DR. BOVE: Okay, civilian group, we can see the data elements there. That's not all the data elements. We just gave you a list of some of the more important ones.

DR. SINKS: Frank, one question I had on the DMDC thing that I was thinking about earlier, the unit code, is that identified by year? Is

there a single unit code? Can a person change unit code? I mean, if somebody came into the Marines, and they were reassigned to a different unit, I presume their unit code would change. And does this actually identify the various unit codes or does it give like the last unit code? What do we know?

DR. BOVE: The database is updated quarterly, I think, starting this time ^ every six months. And so eventually -- and this will be negotiated with DMDC about this -- you could get a history for each person. That's how the CHAMPS database is done, but they started in 1980. But that's what they did. And it's possible, I would think it would be possible -- it may cost quite a bit -- but to do the same thing from '75 to '80 for this.

DR. SINKS: But that's something we'll need to know because you're going to want to know over the career of somebody at Camp Lejeune what units they were in the entire period so you can map them by year and by location.

DR. BOVE: Yeah, and I think that that's where this other group we're talking about may be useful. We're talking, Tom and I and Dick,

were talking about another group of people who are epidemiologists and also have some experience working with these kinds of data. Maybe Dick wasn't there, but Dick was mentioned because he has experience, that's why, working with Gulf War and Agent Orange, to meet as well. And that would probably require someone from CHAMPS. I forget the names offhand, but to tell us how they did it. So there are a number of steps here to do that. But I think it's possible.

The civilian group as you see, and then the last group on the next pages is, now, some of the people in this survey would be already captured by the DMDC data. In fact, most of them would be captured. I think there's 4,100 I think it was we estimated that would be unique to the survey included in terms of the active duty people.

And then there'd be their spouses who, of course, would not be in the DMDC data. So the survey we thought would be useful but would be only useful for the cancer incidence study and for now. So that's that. And certainly we talked about this last week, last

meeting.

The next table is self explanatory. You all know the water systems and so on. Under data sources we are mentioning ways that we could link where they lived to a water source. And so we've been through that discussion today. We may change some things in those columns given the discussion today. I'll have to look over these columns.

The next table, exposure information, again, we've talked a lot about this already today so I'll move on to the last page, the last two pages with the table entitled "Endpoint Information". What makes the mortality study very straightforward is that there is a National Death Index. There is no national cancer registry unfortunately, but there is a National Death Index.

And there's also databases that the Social Security Administration hold. And between the two of them, you can pretty much identify whether the person died or whether they're still alive, except for some who have either strange or incorrect social security numbers or for some reason they were data

entered wrong in one or both of those databases. So that's what makes the mortality study a straightforward thing. And that's what makes the cancer incidence study extremely difficult in this country.

DR. SINKS: Just to specify, it makes it straightforward for doing a comparison of these individuals overall in terms of their mortality experience compared to a standard mortality experience in the United States. But it doesn't make it directly interpretable in terms of doing an internal comparison of exposed or unexposed Marines at Camp Lejeune.

DR. BOVE: I beg to differ because it does identify the deaths for you. Whereas, the cancer incidence, we have to go through several different kinds of motions, databases, efforts to get, to ascertain the cancer incidences where we don't have to do those hoops for mortality. That's all I'm saying. So, yes, it does facilitate those comparisons you mentioned, but it also facilitates, the whole thing is easier.

To get at the cancer incidence, well, we can at least say this. I don't think it's

ever been attempted at this scale. I've never seen it in any study. I know there's an effort being done. There's no data yet, but they're still in the planning stage as far as I heard looking at cancer incidence among Gulf War veterans. And they, the last I heard it was somewhere between seven or nine cancer registries that they were planning to use, not 50. And they weren't planning on using a questionnaire either in that.

I've looked around various strategies for how to do a cancer incidence study when you have a somewhat similar situation as we have here where people are scattered all over, where after they leave active duty you don't have information on them. And piecing together strategies I saw from various different approaches, I've come up with the one that you see in the executive summary. Let me get to that.

Since I'm not operating from the same thing you are, let me see if I can dovetail this. Yeah, it's on page three, yeah, yeah, cancer incidence study on page three. I'm not going to talk too much about mortality since I

talked a lot about that last time. And I just want to impress on you how difficult this part of the study would be.

And that doesn't mean we don't want to do it or anything, it just means that they're, just to give you an idea of how difficult it is because there's no national cancer registry like there are in other countries or some other countries and that is ^.

We can identify cancer deaths, obviously, because we're going to do that for the mortality study. So that's not a problem. If they died of cancer or at least it was a contributing cause, we pick that up when they died from the National Death Index. The only other way to ascertain cancers in this group in a somewhat easy fashion -- and I use that term, it's not that easy -- is to send a questionnaire.

We were talking about that as part of the notification, right? Send a questionnaire asking them did you have a cancer. If you did, what was the cancer? Where was it diagnosed? When was it diagnosed? Any information we can get about that cancer so

that we can then go to a cancer registry or some other data, if it's VA or DOD's cancer registry if they have data on this person, or the physician themselves and getting that medical record so we can confirm that case.

But if someone responds to the questionnaire and says, no, they didn't have a cancer, it's not clear that I can take that answer at face value. For some reason people may say they didn't have it when they did. It's possible. I'd like to assume that isn't the case, but I've talked to an epidemiologist who used to work with the National Cancer Institute who said, no, you can't make that assumption.

If I can't make that assumption, then what I'm going to ask in the questionnaire anyway is their residential history. From their residential history from the time they left the base up to the present, I could then go to those states' cancer registries with that person's social security number, name and date of birth and see if they're in that cancer registry.

The limiting factor here would be the

cancer registry, how far back in time it goes in that particular state. Some states' cancer registries started in '79, like Massachusetts, New Jersey, some earlier than that, some not 'til 1990 or later. So we have variability all across the country. And that's going to be important for what I say next.

So for those people who don't respond to the questionnaire, and also those people who died but cancer's not mentioned on their death certificate because they died, they may have had cancer, but they died in a car accident, right, possible. For those people there's a much more difficult process to figure out, to follow and figure out whether they died of cancer or not.

And the way some people have done it in particular occupational studies in a much smaller fashion than what I'm going to be suggesting here, is to try to reconstruct their residential history using a locator firm, an information LexisNexis, some of these other locator firms who can do that who have access to the databases such as voting records, motor vehicles or credit reports, and

reconstruct that person's residential history just like if he responded to the questionnaire they would have given me their residential history.

So now the people who don't respond I'm going to have to reconstruct, we're going to have to reconstruct their residential history. And then with that reconstructed residential history, if you follow me, then the states they lived in over the time period, we'll have to go to those cancer registries, see if they, the cancer registry has data going back to when they were there, and then check to see if they had a cancer. That's how difficult it is.

If, for example, here they leave the base, they leave active duty in '85, let's say. And we can reconstruct their, we'd go to all these locator, use the locator firm information. We can reconstruct their, we know where they lived after that all the way up to the present.

But there's a period of time in here where they lived in a state where the cancer registry did not have any data. Then we have

to stop that person right then and there because we don't know if during that period they got cancer. So that's, so some of these people have to be excluded because the state they lived in does not have a cancer registry that has data going back to that period.

So this is how some people have done this. Again, we're in sort of new territory here. It hasn't been done that often, and as I said, I've seen in one occupational study where they've actually grappled with this like this.

Another occupational study done by someone at Emory, ^ used the questionnaire and didn't verify cancers using the questionnaire which is what you don't want to do that. But did use the questionnaire to ascertain at least reported cancers, and that's how they approached this issue.

I'm trying to do sort of a hybrid of the two where we verify the cases. We try to keep as many people in the study who don't respond to the questionnaire or who died from causes other than cancer. So that, but I think you've got a sense of how difficult this

is. And I think I'll be talking a little bit with Tom about this and with Perri about this, and we'll, I think we'll probably need to bring some experts in to help us guide us in this part of the study, too.

Not only the databases and people with experience working with Agent Orange and the Gulf War, but some expertise on this approach itself. And Elizabeth Delzell in Birmingham is the one who in her group wrote up this paper on this. It may be worthwhile to get maybe someone from that group involved.

So that's just the situation with the feasibility assessment. Those are the studies and approaches that are mentioned in there. It's open for comment. You have the executive summary. If you have some questions we can deal with that now, and I just wanted to tell you how the steps are in terms of -- Perri, you chime in here because ^ got to see this before I did it, but the steps we have to take as we progress after we get the feasibility assessment, we get the green light from everybody.

MR. ENSMINGER: I have a question on this

cancer. On this cancer incidence, the feasibility thing, because this is such a unique situation, people are scattered out all over the place, what states have the best cancer registries? And as far as length of time that they've had them? How many states is it? Ten?

DR. BOVE: In the full report which I can send to all the CAP members, in terms of --

MS. McCALL: I just got a letter from the Colorado Cancer Registry asking me if I was still alive or if I was still alive, what my health status was. So I thought that was --

DR. BOVE: We have in the back of this report which again I'll e-mail to all of you now. I have it all pulled together. It's all one document. At one time it was three different documents. Obviously, I couldn't word process it properly, but California has the highest percentage of retirees, government retirees. And their cancer registry data is available from 1988 on. North Carolina is the second highest, and their data availability is 1990 on. Virginia is the third, 1990; Florida, 1981. That's better, Texas, 1992;

Georgia, ’95. Actually, I think that’s an, I don’t know how, there’s really the whole state completely as of ’95. We think it might have been.

DR. SINKS: Just to comment, there’s a whole history of how these cancer registries were established and the National Cancer Institute created the gold standards which are called the SEER Registries. There are, I believe, four state-wide SEER Registries: Iowa, I think Massachusetts, Connecticut, Rhode Island and Hawaii. And there are a number of population-based ones: Los Angeles, metropolitan areas, but they’re not state wide. In the early or late 1980s, CDC was given money to establish state-wide registries. And those have come online as Frank is describing. So California has some areas where populations have been monitored for cancer probably before ’88 through SEER, but the California-wide documentation, if it’s ’88, it’s --

DR. BOVE: The population-based state wide is ’88.

DR. SINKS: -- and fundamentally all these

states are a little different. The quality of them are a little different. And one thing Frank is somewhat suggesting is we can look for all 50 or we can target the most likely ones, you know, the highest percentage.

But essentially, it's going to be a difficult process to identify these people from a wide variety of sources in terms of where they lived, and where they could have developed cancer and then been registered.

And there's also another quirk in these cancer registries. If you were living in North Carolina, but it was convenient for you to go to a hospital in a bordering state, they are supposed to inform the cancer registry back in the other state, but they may or may not. And it depended on the agreement they had at the time. So this is hard stuff.

MR. ENSMINGER: Looking at ATSDR's information, your Public Health Assessment one from 1997, we're talking about adult cancers here now, right? Which would be adult exposures. Your own literature says that the latency period for this stuff would be 15-to-20 years. So 1990 would be good enough.

DR. BOVE: Yeah, I'm not saying it's not, I'm just giving you an idea. That's all. I wouldn't have proposed -- we wouldn't propose --

MR. ENSMINGER: You're going to miss some.

DR. BOVE: -- in this thing if it wasn't possible. It may be extremely difficult. And in the report it mentions using all kinds of approaches, VA database, DOD, CHAMPS, anything that's electronic and beyond, and then the questionnaire. And so there are various strategies to capture, to try to do a complete capture of cancer incidence. And there are some comparability issues whether, and we'll have to iron out because some people we're going to get information from one source and not another. And some people will tell us their residential history, and others we'll have to reconstruct.

And, you know, I don't know if these are big deal issue. I don't think they are, but we'll have to address all of these as we go along. But it is a difficult study, and as I said, I think it would be helpful to the ATSDR to bring in some expert advisors to make

sure they think what we're doing is handling this properly.

DR. SINKS: And, Frank, I apologize for surprising you in this, but there are other approaches to doing cancer studies. And we're following essentially what the Scientific Advisory Committee had suggested was to evaluate the feasibility of a cancer incidence study which Frank is doing. And I think we should go ahead and do that and bring some people in and look at that advice.

But we could also do this as a case-controlled study without incidence and gather as many of the cancers as we could find, particularly the a priori ones and be probably quicker and more efficient although not as complete in terms of the universe of cancers that occurred among these people. So there are other alternatives to being able to look at cancer. And they're very legitimate, and they may not be quite as difficult to accomplish as this.

DR. BOVE: The problem, Tom, is this. Originally, I was thinking of that approach. You pick eight or nine states. An example is

the Agent Orange Birth Defects Study. The best data on birth defects that would cover this population was in Georgia, was in metropolitan Atlanta.

So they did the study in metropolitan Atlanta. They looked at all the birth defects in metropolitan Atlanta during a period and asked the question how many people who had these birth defects and controls, what is the proportion of the ones with defects and the ones who didn't have them. What was the proportion that served in Viet Nam?

If we do that for this, we pick the top eight, nine states, there's a tiny percent of people in those states who were in Camp Lejeune during any of this period. So you still have to, and so that's one approach.

MR. ENSMINGER: Yeah, but if they all end up with Non-Hodgkin's lymphoma, you've got causation.

DR. BOVE: Yeah, but it's not, but the case-control sample is supposed to be more efficient. In this case it really wouldn't be that efficient at all.

The other approach is to do a nested-

case control study of this cohort group. If you do that, you still have to get all the cancer cases the way I'm suggesting or at least most of them. And so no matter what you do, you still have this problem. But we can talk about this more at length.

But if you decide to just get the cancers we can get then do a case-control sample that way, people will always ask you do you have a bias sample of cases. So this is getting a little more technical than I wanted to. And this is again where you can chime in, too, but we ought to have this discussion maybe amongst a larger group of epidemiologists to hash this out.

MR. ENSMINGER: What I want to see first and foremost is, are there enough cancers out of this population that was exposed to give you justification to go into a full-blown epi study?

DR. BOVE: Did we hand this out, too? Yeah, go to a handout, Appendix 1. What you'll notice when you compare Appendix 1 to Appendix 2, is you do a whole lot better for most cancers when you look at incidence if you can

capture all of the cases that is because a lot of cancers do not result in mortality.

In particular, you do a whole lot better with some of the cancers that are very important to TCE and that would be kidney cancer and liver you do better as well. You do a whole lot better on several others, too. I had them all lined up, but I don't have it in front of me now.

But the other thing was that when you look at cancer incidence, and see it now makes sense to look at breast cancer, possibly some of the other female cancers because again, although women do die from these cancers, most do not, and you will not pick them up in a mortality study for that reason.

But in either case, whether we're looking at, for most of the cancers for mortality or incidence, and including a ten-year lag where we just forget about the first ten years, we're following them and just focus on the time after that, and we do pretty well. From my calculations, and I'm hoping this time I get it right as opposed to the last time. So actually, I'm pretty sure it is because it

dovetails with what I see in other sites, and I'm more convinced there.

MS. RUCKART: One thing I just want to mention for everyone is that the lower the SMR the better it is for us to do a study for that particular cancer. So when Frank is talking about these two tables, when you have the mortality, because as Frank said, the more people survive, which is a good thing, you have a lower rate when you look at the second table. So the lower the number the better.

So, for example, he was saying with kidney if you're talking about mortality, you can detect a rate of 1.5. When you go to the second table, it goes down to 1.23. That's better. So that's what he's saying. We're looking at these numbers and the lower is better.

DR. BOVE: Yeah, even bladder's a whole lot better, 1.85 in the mortality study, 1.27 in the incidence. So these are, and with the leukemias and Non-Hodgkin's lymphoma you do at least slightly better. But you do better with a lot more work. So there are trade-offs here. You could look at most cancers in the

mortality study and do pretty good. In fact, better than most occupational studies I would say.

MR. STALLARD: I want to give other people a chance to speak here, just a moment, Frank. They've been waiting as well with questions.

MS. SIMMONS: Thank you, Mary Ann Simmons. I had a couple questions, and maybe it's because I'm not an epidemiologist. But it looks to me like in Appendix 1's table you've listed a lot of cancers. Doesn't there need to be some sort of connection between exposure to some chemical, the TCE and PCE in these cancers? But I have no idea. Like ovarian cancer, has there been some study to show that exposure to these chemicals can result in ovarian cancer? And I don't know.

And then my second question is, while I get a chance, in the mortality study, if you can have the information to go forward, are you planning to do the mortality study? And if there's no difference or no significant difference, then realize or figure that it won't do any good to go any further? So is this maybe a planned tier approach? Thank

you.

MR. BYRON: Number one -- this is Jeff Byron. Just because it may not affect adults doesn't mean that it didn't affect children that were growing up. So I think either way it should go on the children.

MS. SIMMONS: There needs to be --

DR. SINKS: Let me try and answer the question, and Frank can add something.

When we're looking at a study, and we're doing what's called a cohort study because we're identifying this group of individuals and following them over time and determining what disease they get. Then we have the opportunity to look at any disease we wish where we have data that provides the disease information.

So for mortality we have a cohort, a group, of 100,000 people, whatever. We can follow them over time, and for those who died, we know the cause of death. And it gives us the opportunity to look at any specific cancer in a standardized way. And when Frank was putting this table out, it's not necessarily based on the a priori hypothesis that a

certain -- not necessarily based -- on an a priori hypothesis that a certain cancer was developed from that exposure.

At the same time there's every reason in the world to go ahead and look. And, in fact, when you do that kind of analysis, you also want to look at something, at the types of death that you would not expect to be caused by the exposure. Because you can then tell if there's a systematic bias in your data, for example, because if every cause of death was elevated twofold, it would make you suggest there's something going on here that is not related to the exposure.

For example, motor vehicle accident deaths which would show up are twofold higher and everything else is twofold higher, it's telling you there's a systematic error. Now, at the same time there probably are a priori hypotheses that we're interested in, and those are the ones that are most relevant to look for.

So if you do the study, and let's say your a priori hypothesis is kidney and bladder and Non-Hodgkin's lymphoma. And those are the

only three cancers that are elevated, and none of the others are elevated. And those are elevated in a dose-response way. It's giving you a lot of information about cause and effect that you want to take into consideration.

Now there's another way to do these studies which is called a case-control study. And in those studies you don't start with a universe of people all of whom have an equal opportunity to develop any disease. You actually start with a finite number of individuals with select diseases, and then you go back to try to determine what those people were or were not exposed to.

And in that case you really do have to have an a priori and above which diseases you're going to start with. And cancer is not a single disease. So you would need to start with I'm interested in all the people who identified bladder cancer or kidney cancer or Non-Hodgkin's lymphoma.

And I'm going to come up with an equal number of people who I know didn't develop those, and I'm going to go back through every

record I can to determine whether they were or were not exposed to, in this case, volatile organics at Camp Lejeune, all of them being on Camp Lejeune and having an equal opportunity to be exposed.

Now, we're proposing your cohort studies which gives us the opportunity to look at all those diseases. But the problem that Frank has with the incidence study -- that means people who aren't necessarily dead, but they developed the cancer -- is there will be a significant number of individuals who are lost to follow up who we weren't able to track. And that's where this issue of can we actually determine the overall risk of disease because we won't be able to track them. And that's kind of where the discussion Frank and I were having before about this is.

MS. SIMMONS: And then one more thing, sorry. Aren't there lots of confounding factors? I've been around Dr. ^ too much, but wouldn't there be a lot of confounding factors? You would also have to take into consideration like lifestyle, smoking, et cetera, et cetera in addition to exposure to

TCE?

DR. SINKS: Yeah, it's a great question and there are a lot of confounding factors, but --

DR. BOVE: Actually, let me take it from here. Confounding is oftentimes overblown, but let me answer each one separately.

The first one is that there has been event analysis of TCE, even a couple actually. There has not been one recently done for perchloroethylene, although Dan Wartenberg said he has heard that there's one being done, and he's working on one. But since there isn't one, we did our own thing and pulled together what we know from the occupational data. And, yes, ovarian cancer has been found in occupational studies with TCE. I can go over a list of --

MS. SIMMONS: No, I'll just use this.

DR. BOVE: So and then an example of what Tom just talked about, and Perri can talk about this since she's the PI, is the case-control study of Birth Defects and Childhood Cancers. We picked them a priori based on somewhat weak literature because there's not, they haven't really been studied that much,

hardly at all in fact. But we picked those and did a case-control sample. And that's an example of that.

So if in the mortality study or even in the cancer incidence study certain cancers seem very interesting to us, they're actually elevated; they're biologically plausible, but we're concerned about some confounding, we can then do a case-control sample. We can take those cases of, say, it's kidney cancer, and actually, it might be interesting to do this for another reason, but that gets into our genetics discussion.

But we can take all the cases of kidney cancer that we've identified, either the deaths or the cancer incidence study, the actual cases, take a random sample of the rest of the cohort and ask some of these questions. Did they smoke? Did they, I don't know, do anything that might have confounded, any risk factor that we can think of that might confound that relationship. It may not be ^, we could even look and see when the kidney cancer cases, if that they have that mutation in the VHL, Von Hippel-Lindau tumor suppressor

gene.

So there are a lot of things you can do in a case-control sample because you're dealing with a whole lot smaller group instead of dealing with 210,000. Now you're dealing with a handful of kidney cancers and a handful of randomly sampled controls, and you can exploit that and ask them all kinds of questions. You could do all kinds of, whatever testing that makes sense. That's the beauty of a case-control sample.

MS. RUCKART: But for the cancer incidence study when we send a questionnaire, wouldn't we be able to get some of this through that questionnaire?

DR. BOVE: Yeah, we can get at some, depending on how it works out with OMB, you know. The primary questions in that questionnaire I'd still want to be on, yeah, right, I understand the cancer ^ and the residential history, but, yes, we could ask even, we could send out that questionnaire and get information on smoking if that makes sense, and deal with some of these confounders that way. I think there are various

approaches that deal with confounding and getting that information.

MR. ENSMINGER: Well, why does the Navy Environmental Health Center always want to get wrapped around the axle about confounders? Because what's the big difference between military lifestyle and your normal civilian communities?

MS. SIMMONS: I'm not an epidemiologist, but I believe the military they're actually healthier because they get better health care. They keep in shape. They have, well, allegedly, better diets. I'm hearing differently from people in ships. So the active duty military are actually healthier. So there's that factor.

And it's not just us who are into confounding things, like I'm sure Frank or Perri or anybody can tell you. What we're interested in is a good study and a good science. And so if there's a study -- and this is hypothetical -- a study done, and those things aren't looked at or aren't evaluated or aren't addressed, then this will shade, this could negate the conclusions of

the study.

DR. BOVE: Right, let me --

MS. SIMMONS: Did I say that sort of ^, Frank?

DR. BOVE: Yes, you did, and there's two different issues. One is what we call the healthy veteran effect, I think I even talked to you about that. It's why we want to do the internal analysis. The other issue is confounding, and for a confounder to actually have an effect in a study, the risk factor, there has to be a risk factor for one thing. It has to actually cause the disease you're interested in.

But it also has to be associated with the exposure you're interested in, in this case drinking water exposure. It's not that likely, although possible, if drinking water exposures relate to some SES-type, socioeconomic status-type, variable such as pay grade or something of that sort. So they can't rule it out.

In the drinking water studies that I've done, confounding is hardly an issue at all. I've never seen it really change adding

risk factors for socioeconomic status or prenatal care or a mother's age or those things don't seem to change. And I've seen that in many other studies. If you look, and someone actually at NCI has looked at across-the-board occupational studies and has shown that confounding is really not an important issue in almost all of them.

But you can't, but people will raise it, and it's a legitimate thing to raise. But again, for it to have an effect on your study, that risk factor would have to be associated with the drinking water. And I think we can capture that issue in the kind of study we're talking about so that it's a credible study.

DR. SINKS: Thank, Jerry.

Just add about two sentences on confounders. Essentially, if there's a very strong connection between the exposure we're interested in and the disease, it would take an extraordinarily strong confounding thing to explain it. In other words if you were looking at lung cancer, which we know smoking is there, and we didn't control for smoking, obviously, everybody in the world would

criticize us, well, what about smoking.

And it would take a fairly strong association with something else to see independent effects of smoking, and, for example, dioxin, which is a good example because it's related to, they both are related to lung cancer, or asbestos. Actually, asbestos is synergistic in the smoking. But for these volatile organics and these particular other things there's probably not a real strong confounder that's out there we know that explains 60 percent of those cases.

And all I'm saying is if there's a strong connection here between volatile organics, and we do a good job in the exposure assessment, and we have a significant number of cases, it would be very difficult for a confounder to explain that away. Now, at the same time we will be criticized by not including the important confounders if there are those out there. And people will always be able to hang that out there and say, well, you didn't control for X so I don't believe your study.

So there are reasons to connect it,

but I don't think we should get too hung up on making the study five times more expensive or take five times as long to do the best job we can on many of these confounders.

MR. STALLARD: I'd like to give Dr. Clapp a moment, because he had been invited to provide some feedback earlier.

DR. CLAPP: I've basically endorsed this feasibility study. I think it's an excellent job, and I think we're well down the road now. And the only question I have is about this latest approach to doing a case-control study where it's done first by a questionnaire. I would like to see some place where the ^ this example and see how that worked. Because I always thought the best way to go, you pick the top five states, California, North Carolina, and even if the North Carolina data only began in 1990, as Jerry said, that's not bad if we're talking a ten or 15 point year latency period.

So that's the only question I have actually at this point. And I think it's possible to do a very credible, scientific job with the feasibility study that we have and

that with the additional information that we're going to get about residential history and so forth.

MR. STALLARD: Excellent, thank you.

Anything else on this topic?

MR. ENSMINGER: Yeah, I've got one thing. And the reason I brought this up about confounders was that there was a person running around the Navy Environmental Health Center when we were talking about the childhood cancer study, and she kept running her mouth about how we were a bunch of gypsies, and we were exposed to all kinds of viruses, and that was a confounder.

And she was full of crap, Andrea Lunsford. Okay? And, you know, I just don't, I'm extremely leery when people start throwing stuff out like that because she was nothing but a blocking agent, okay? So that's my concern.

MR. STALLARD: Thank you, Jerry.

DR. CLAPP: Let me just add two cents more on confounders. I think the more studies you've done and where you control the confounding, the less impressed you get that's

how important that is. So it's a textbook thing. It definitely is in all the textbooks, but once you get some experience and actually Tom was saying, Tom Sinks was saying, it would have to be a really strong confounder to explain some of the associations that we're expecting here.

MR. STALLARD: Thank you. I think that to the lay person it seems as though it detracts from other things. It's like having a pre-existing condition. You can't get health insurance. You know, that kind of thing.

MS. McCALL: Thank you, Chris.

MR. STALLARD: You've explained it from the science perspective that it's addressed and rigorously considered.

MR. ENSMINGER: And we already have one example. You know, I mean, we look at these proposed numbers of what we would expect to see, and we've already had a proposal in the past which showed seven cases of leukemia. Well, we know it's double. So let's, that in itself is an indicator that there's something wrong here.

DR. BOVE: Just to explain, the expected

come from national figures. So we look at the amount of time that we would be following these people, the number of years each person would be expected to be followed, and we apply these rates to, that's where the expected comes. So it's not a statement about how many I actually expect to see --

MR. ENSMINGER: Well, I mean, that was what they did with what they expected in the childhood cancer.

DR. BOVE: That's what we do to get a sense of what the statistical power might be in the study. That's all we're doing.

MR. STALLARD: Are we ready for the genetics?

MS. RUCKART: Before we get to that, just to kind of go a little bit further with our next steps, what Christopher put on that flipchart is our immediate next steps. What we're going to accomplish in the very near future, but to kind of take it further and outline what will have to happen before we can start on actually beginning a mortality or a cancer study, I just want to remind and refresh everybody about the next steps and some of the processes

involved here.

So we will have to address any comments that we get on the feasibility assessment. And we're hoping that that will be rather quickly because we're going to be presenting it to you in the next few days here for the official review and comment on your part. And then we can probably do that by the end of January.

And then we will take our revised feasibility assessment and present it to our agency for agency approval. And if it's approved, then we would go on and develop protocols for the specific studies that we're talking about here. Because the assessment is just like a preliminary step to even then get the go ahead to develop very specific protocols about what we're going to accomplish in each study under certain items that are necessary and protocols to talk about background and our methods for actually conducting the study. We haven't gone that far at this point.

So once our protocol is written, it needs to undergo peer review. We talked about

that here at a previous meeting. It's a requirement that we have here at the agency. It needs to go out to at least three peer reviewers and solicit their feedback. And then we respond to their comments. And that process also has to then be approved by our agency that they're satisfied that we've addressed the peer reviewers' comments. And then once that happens, the protocol has to be approved by the agency.

And then after that we talked about that we have to get Institutional Review Board approval. That's to make sure that we're ethically treating all of the human participants in our studies. And at the same time that we submit it for our IRB approval, we have to get the OMB approval, the Office of Management and Budget.

And as we've heard, that that will be a lengthy process. Kelly was saying they submitted something in July, something just very simple, and it took 'til the end of the year even to just ask three more questions required a lot more time. So that's going to be mainly where the hold up is, in getting

this OMB approval.

All of these other things we have more control over because they're done here at the agency level. But once it gets to OMB it really is somewhat out of our hands. And that's because we are going to be interviewing more than nine people. We're going to be sending out the questionnaire to more than nine people. If we were not going to do a cancer incidence study or if we were just only going to use data available to us, we would not have to get OMB approval because you only need to go to them when you're contacting more than nine people.

So to do the mortality study, we can actually do that without OMB approval, but if we want to do anything beyond that, we'll have to go to OMB. And that's where we're going to run into some time snafus.

DR. SINKS: Just to mention that if we add anything to, if the Marines put out a dissemination to the entire cohort and we want to add some questions into that, that's something we probably will need to be dealing with pretty quickly with OMB. And that's

another issue where timing is important. And Frank and I discussed that yesterday about maybe there's ways we can speed that up.

DR. BOVE: I think earlier this morning we also said this. That it may dovetail. It may take you just as much time to get the data ready to send to 210,000 as it would be for us to get it through OMB with the questionnaire. So that may all work out. If it doesn't, we'll have to try to speed some process along so we can dovetail with, because I think that makes the best sense.

MR. STALLARD: We're going to conclude at three o'clock, and so are there any other questions?

MS. BRIDGES (by Telephone): I have one, Sandy Bridges.

MR. STALLARD: Thank you, Sandy.

MS. BRIDGES (by Telephone): When Chris Rennix, the last time he was with us, he gave us a lot of information as far as how to get records and so on and so forth. He said at that time that the inpatient records at the hospital for children and adults, the inpatient now, were ready. We could get a

hold of those. Outpatient wasn't going to be as easy if we could even get them.

But the inpatient records were stored there. You've got children, and you've got adults that were in the hospital that were, did have the effects of the water. We know that. We know they were in the hospital, and we know they had fevers and colds, and they all worked for the same thing. Why can't we get those inpatient records?

At the time when he was telling us about it, we were going to already get it it seemed like to me, but then nothing else was said about them. If we can get a hold of those records, why couldn't we review those records and then look at them ten, 15, 20 years later and see? We know they had the effects when they were younger, when they were children, or when they were young women. And let's see what they're like now. See if they have cancer. Doesn't that seem a lot easier?

MS. RUCKART: Well, Sandra, one thing is that when those children and even the adults were being seen in the hospital, they would not likely have the cancers because there's a

lag. So the things that would be recorded on those records would be more acute illnesses. And we're talking about mortality. Obviously, they were not dead if they were being seen in the hospital. And they were not going to have the cancers. So --

MS. BRIDGES (by Telephone): But you'd have ^. They were seen then. They were admitted. They stayed a few days, however long, and then they were discharged.

MS. RUCKART: Right, but I think they're probably seen for more short-term types of illnesses. Something that --

MS. BRIDGES (by Telephone): Fevers.

MS. RUCKART: Right.

MS. BRIDGES (by Telephone): Throats, the same typical symptoms that all the children felt that lived there and drank the water, played in it. They still had the same symptoms. They all were sick and all had fevers.

DR. BOVE: My understanding from what Chris Rennix said was that they're not stored there. The medical records aren't stored there. They're stored elsewhere.

MS. BRIDGES (by Telephone): The outpatient records aren't. The inpatient --

DR. BOVE: The inpatient records are not stored there.

MS. BRIDGES (by Telephone): We could get it. We can get access to those.

DR. BOVE: They're not stored there. The inpatient records are not stored there.

MS. BRIDGES (by Telephone): Okay, where are they?

DR. BOVE: We can try to figure out where they are, but I don't think it would be very easy to access them because they're hard copy in people's records. To do that, we're not proposing doing that at present because of the immense effort it probably would take to do that.

We already have two studies on our plate that we're proposing that already require an immense amount of work and are extremely difficult. Trying to get information on these diseases you're talking about in the population you're talking about is even an order of magnitude or more difficult.

It's just the problem is that we're dealing with the past when data is not electronic and the difficulty of doing work in that situation.

MS. BRIDGES (by Telephone): Start with the year they have the social security numbers. And then we could find out if it went three generations or not. I know. I know.

MR. STALLARD: Sandy, thank you for bringing that again to the table. I think it was discussed early on that focusing on these two does not close the door to other follow-on studies.

MS. BRIDGES (by Telephone): Yeah.

MR. STALLARD: But that's an interesting comment, look at generational, and maybe that should lead into the genetic discussion right now that we're about to have.

MS. BRIDGES (by Telephone): If the illnesses that they were in the hospital for, if we can connect them to the cancers now, that they have now or have had.

MR. STALLARD: Okay, message received, thank you.

MS. BRIDGES (by Telephone): Thank you.

MR. STALLARD: Perri.

GENETICS PRESENTATION

MS. RUCKART: Well, in the interest of time I'm wondering if we should just have a more informal discussion about the genetics instead of spending the time trying to get it up there on the screen. And we can just maybe go quicker through some things that are not as of much interest to you and so we have more time to spend on the part that is really what you want to talk about. Is that okay?

(no audible response)

MS. RUCKART: Does everybody have the presentation in front of them? Then we'll just kind of go through it and if there's something that you want to hear less about, just let me know, and we'll move beyond that.

So I just want to give some background, just talk about this because it came up during the last meeting. Some introductory material, biomarkers, that's been talked about a lot because we need to try to measure the chemicals in the body. And biomarkers measure chemicals in the body. You can do that by sampling tissues, such as cheek

swabs or hair or the bodily fluids, blood or urine. And it can be an indicator of these things listed: exposures, susceptibility, early effect, disease risk or the presence of the disease.

Now, the next slide show the various ways you can measure the effects from the chemicals. And when you test and where you test depends on the particular exposure we're talking about and the timing of the exposure. Now, if you were drinking the contaminated water today, we could measure your blood and see if you were showing that you were exposed to TCE.

But these exposures happened a long time ago so that that's not really practical in our situation. Most of the effects from TCE are seen soon after the exposure, and if you're heavily exposed, that effect may persist. So this slide just kind of is a visual description of the biomarker and the different types of biomarkers that we have.

So genetic testing, genetic testing is a biomarker that identifies the presence or absence or a change or a variation in a

chromosome or gene that causes a genetic disease, increased or decreased susceptibility to exposure and an increased or decreased risk of disease. There are two types of genetic tests. One type is clinical genetic testing, and specific types of that would include prenatal and newborn screening for diseases such as Down's Syndrome. A diagnostic test to confirm or rule out that you have a genetic disorder. That's done when a person has some signs or symptoms of a disease, and you want to figure out what's going on.

And you also test, clinical genetic testing would be for carrier testing. That's to identify people whose children may be at increased risk for the disease, but the parents themselves are asymptomatic. And the goal of the clinical genetic testing is to identify a genetic disorder or the risk of the disorder in a specific person or a family. And therefore, you would get the results of the test; it would help you making some decisions.

The other types of genetic tests would be for research. And that would be to find

some information about unknown genes and gene variations and to learn how the genes work and to see if biomarkers are useful. And so another purpose of genetic testing for research is to develop biomarkers, and that would be to help to be able to predict disease risk in a population.

And then this slide just again reiterates the different types of biomarkers that are available to us. And it's used in a clinical setting. And people are not usually given the results because first of all, it's done on a group level. It's not known what the results would mean for a specific person. And there's also some ethical issues involved there.

Did you want to add anything?

DR. BOVE: Yeah, you develop the biomarker for use in, when we study groups like an exposed group versus an unexposed group. So we're at the group level in that sense. And maybe you could refine this biomarker eventually so it would be useful in a clinical setting, but that's all. I just wanted to make that point. Most often it's not taken

that far.

MS. RUCKART: Just some basic genetic concepts. This diagram just shows how the different pieces are related and start with the cell. Inside the cell's the nucleus. Inside the nucleus are pairs of chromosomes, and then chromosomes are comprised of genes. And then the genes are comprised of the DNA.

And then the next slide again just depicts that, that you have chromosomes. Chromosomes contain many genes. The genes are made up of DNA, and DNA are made by the base pairs.

The next slide shows the four base pairs: A, T, C and G and they can combine in various ways. Although certain of these pairs combine almost always and certain times when they combine that's a mistake.

So the next slide just shows that we have different types of cells with different types of genes. But I want to point out that all the cells have the same genetic material, but, for example, in a bone cell, only the bone cell information is turned on and the other genetic material is turned off when

things are functioning.

As we said genes are made of DNA. They're part of the chromosome. They act as the instructions to make the molecules called proteins. And every person has two copies, one from each parent. So this is gonna kind of get into probably about what you're interested in about how we compare or get genetic conditions.

So humans have between 20 and 25,000 genes and 3.2 billion base pairs. And most genes are the same in all people. A small number, less than one percent, differs. And however, because we're talking about 3.2 billion pairs, even if a small percentage differs, that still gives you a lot of room for some variability.

And I just want to point out that just because there's differences, it doesn't necessarily mean there's a problem or that it's bad because these differences are what give people their unique characteristics, why I would have green eyes, and someone else would have brown eyes. It doesn't mean it's bad. It just accounts for the variability

between people.

Now, SNPs, single nucleotide polymorphisms, are a single base pair variation. There are 11 million known SNPs. And the next slides depict an example of a SNP. So this is what makes people different. And that said, it doesn't necessarily mean it's bad. It's just where we differ. So you can see between gene one and gene two, we're going along AT, AT. And then instead of CG in the first one, we have TA in the second one. So that's the difference.

DR. BOVE: It would look better on a slide maybe you could see. Some of these slides are better pictures seen on a large screen.

MS. RUCKART: So changes to the genetic code can mean a particular protein is not produced at all or is produced in the wrong amount, or it's not produced properly. A gene mutation is a permanent change to DNA, the sequence that makes up a gene, but it's important to note that only a small percentage of mutations cause genetic disorders. Most mutations have no impact on health or development. It's just a variation.

So the most common gene change involves a single base mismatch, a misspelling, placing the wrong base in the DNA, and that's what should appear when we have the two genes, and there's just two that are different.

And I'm going to show you on these next slides, but as Frank said, it's a little bit hard to see on the paper instead of the big screen, just some different types of variations that we can have when things are dropped or repeated or what have you.

So the next slide where we show four different pictures, just examples of gene mutation. The first one up here, upper left, that's when it doesn't fit. Maybe the two base pairs combined in the wrong way. It doesn't quite fit. Next to that you can see when something is missing. Below that on the bottom left something's repeated. That chromosome is lengthened. The one next to that, that chromosome has a deletion.

The next slide shows what happens when part of the genetic material's lost, lopped off the end, and then the rest of the gene,

the chromosome, divides and fuses into a circle. I just want to point out that chemicals can cause these different types of deletions. For example, the chemicals in cigarette smoke or benzene.

Just the next few slides just show again when material is deleted or sometimes some things are just placed in the wrong order. So if these were colored, you would see that one part of it is green, and one is pink. And then it combines in the wrong way so that instead of the green being on top, the pink's on top. It's just combining in a different way.

And just again how the different -- it's hard to see without them being colored.

MR. BYRON: Combined or mutating?

MS. RUCKART: Well, it depends.

MR. BYRON: Which is it?

MS. RUCKART: It depends because they call it gene mutation, but mutation doesn't necessarily mean --

DR. BOVE: Damage to the chromosome. And in any of these pictures, maybe we should just -- there are different ways a chromosome can be

damaged.

MR. BYRON: Yeah, several ways.

DR. BOVE: Right.

MS. RUCKART: So I think that's good. You can look at that and just see there are ^.

I'm going ahead to talking about the types of gene mutations. Three types, and I'll go into some detail: somatic, de novo and inherited.

Somatic, this occurs in every cell, and it may damage the cell. It may make the cell cancerous, or it may kill the cell. However, this is the important part. It's acquired during your lifetime. You're not born with this type of mutation.

It can be caused by environmental factors or a mistake when the DNA is copying itself, and it cannot be passed on to the next generation. So just to reiterate, you get it during your lifetime. You're not born with it, but once you have it, you can't pass it on.

And de novo, that occurs during fertilization. It's present in the parent's egg or sperm cell, and that is passed on to

the child. So a child has a mutation in every cell, and they become the first person in their family to have this genetic disorder. It's assumed to occur by chance, and that would explain why you have it when you're born. It's not like the somatic because you don't acquire it at some point during your lifetime, but there's no history of the disease. So you're born with it. You're the first person, but...

MR. BYRON: Can the de novo be passed on to the offspring in the same person?

MS. RUCKART: Yes.

Now, for the inherited type of mutation, it's present in your parent's egg or sperm cell, passed on to the child. It's present in all the child's cells including their sperm or egg cell. And when that child has children, he or she can pass it on to their offspring.

However, it's not always easy to say whether the condition was inherited. And that's because families have a lot of things in common. For example, different things they're exposed to because of where they live

or their lifestyle. And so it's a little bit tricky there.

Now this next slide, again, it's hard to see because we're not projecting it onto the big screen, but I just wanted to give you an example of how airborne particles could cause genetic changes in the sperm cell and then be passed on to your child. So for example, if the father is exposed to air pollution from cars or from smokestacks and inhaled the air pollutants, if the inhaled particles reach the bloodstream and then were transported to the father's liver, and then they were metabolized in the father's liver into reactive substances that could cause damage to the DNA, those reactive metabolites would have to then be transported to the father's testes and reach his sperm cells. And at that point the DNA damage within his sperm cells could be transmitted to the next generation. So that's just an example of how it could work.

MR. BYRON: One quick question while you're bringing that up. Now as these chemicals go through the father's body or so forth, would

there be an indication as far as any physical problems in the genital area? Is that possible? Has that been found?

DR. BOVE: Well, this example is an air pollution, so no.

MR. BYRON: I mean, you're showing a path here is why I'm asking.

DR. BOVE: Yeah, they're saying that you can get, when you're exposed to air pollutants -- when you've been exposed to air pollutants, of course, you can get lung cancer. You can have effects, but I don't think there are necessarily effects from the air pollution to, in terms of general disorder. But it could affect the sperm cell in the case of a male. The egg cell would be more difficult because the egg cell is not as vulnerable. The mother's fetus is, but the egg tends to be less vulnerable than the sperm cell. So to answer your question --

MR. BYRON: I have a reason for asking.

DR. BOVE: -- no, you wouldn't necessarily see any genetic genital disorders, diseases, at least from air pollution, from this model. As for TCE, PCE, benzene, TCE and PCE the

evidence that I've seen indicates, but it's sketchy, that don't affect the germ cells at all. So that's good news if that's true. Benzene, I think the verdict is out on benzene as far as I know. I'm not going to say anything definitive about benzene and germ cell involvement.

MS. RUCKART: So there's also two types of disorders, one, the single gene disorders, and the other is complex disorders. The single gene disorders are caused by a single gene. You just need that one gene, and if you inherit that one gene, you're almost always going to get that disease. An example would be sickle cell anemia or cystic fibrosis. So just the presence of that gene only is almost likely to mean that you'll have that disease. And there are some things that may also play in here such as your age and the severity of the disease, but it's pretty much one-to-one.

The other one is genetically complex. And this is what most disorders are. It involves a combination of a lot of factors. So simply having the high risk gene mutation doesn't mean you'll get the disease, but it

may increase your chances.

There are some other things that may be involved here such as other exposures either environmentally or at work or some different habits you have, your diet and other health conditions or even other gene mutations or variations that you have. And that's what most genetic disorders are, complex, and not one-to-one. You have this gene; therefore, you're very likely to get this disease. They would fall into this category.

DR. BOVE: Keep this in mind. Keep this in mind that most of these diseases we would be talking about, almost all the diseases we talk about, would fall in the category of genetically complex disorders. Actually, if someone would give me a handout it might be quicker. Because, again, my page numbering.

Page six, and just real quick because there's a lot of slides here and we don't have any time. I think the key thing here is that because the diseases we're interested in are complex, that is, it's not just one gene that causes it. It probably is a whole bunch of interacting mutations working together with

maybe your pre-condition, maybe you're more susceptible to that exposure than others. There's a whole complex.

And when you try to test for it in a biomarker test, you're not going to do well. You're certainly not going to do well at the individual level. You may not even do well at the group level. There are other issues as well. For example, you could do a biomarker test, say a liver function test or kidney function test for TCE. In fact, a kidney function test has been advocated for TCE because they know that one of the main things that TCE does is cause kidney damage.

But the kidney test that they're going to advocate to use is not specific to TCE. All kinds of things cause this including chemical and non-occupational exposures, diet exposures and so on. So another problem with trying to determine whether you were damaged by a particular exposure is that the biomarker isn't that specific. You can look at chromosome damage, and benzene causes chromosome damage, but up to now, because I know there's some preliminary data that seemed

to indicate there may be a specific type of chromosome damage that benzene might cause.

But that's still very preliminary. There is no specific damage that you can say, yes, that's benzene unless you knew the person was exposed to benzene anyway because the same damage could be caused by other exposures. So these are some of the problems when trying to test for these things and trying to say, yes, I was damaged.

The other thing is when we test for genetic damage, we study blood cells. And blood cells have a 120-day roughly turnaround. We test blood cells because they're readily available to you. I mean, we're not going to go to your liver and take a sample unless you have a disease.

So we're making a couple of assumptions here. The first assumption we're making is what happens in the blood cell is actually indicative of what is happening in the tissue site you're interested in whether it's lung, liver, kidney. That's the first assumption.

But the second problem is that the

blood cells turn over after 120 days. The damage you see in the blood cell is really indicative of exposures that occurred recently, not in the distant past. So this is the second problem. It doesn't mean that we don't learn stuff from these biomarker tests.

It just means that it's not going to give you what you want, that there's a test that says, yes, I was exposed to TCE, and, yes, here's the damage. And you can do a test and show the damage. That's not how it functions. We don't have the technology for that.

There is technology to rapidly screen many genes. And the slide for that, and maybe I'll point to that because we may not have more time to do anything else. It's the page eight, genetic marker research. They call it high through-put analysis. I'm not going to explain what all that is. They basically scan thousands and thousands and thousands of genes simultaneously. And they do this. For example, they're doing a lot of autism research, something I'm very much focused on in my spare time.

But the problem with the research that has been done for autism in this way and every other research that's been using this approach is that remember what Perri said about these SNPs, these small changes in genes. The effect of any one of those is probably very small.

And as I said before, most of the diseases are complex and multiple SNPs, if you will. That's what they're called. But they'd have to be operating together. And so what do you get when you do this, you cast this wide net over thousands of genes, is a lot of false positives. And this has been a problem through the research.

It's not that the approach is a bad approach. It's just that this is part of the complexity of that research and some of the limitations. So I'm not saying it's a bad approach. I'm just saying it's hard to get definitive results and the same results each time you do it because of a lot of these problems. And we've been struggling with this in autism research and in other diseases where there's a strong genetic component.

And just for an example I threw a, there's a recent study in Croatia which looked at three different groups, a group of radiation workers, a group of chemical workers, who were exposed to vinyl chloride, for example, as well as benzene, and those who work with, hospital workers. And of course they did see an increase in the chemical and radiation workers when it came to chromosome breaks and damage. They did see that, but they also saw that even within those occupation groups, wide ranges of differences in the findings.

So again, these tests are useful at the group level. As a group you're a higher risk of cancer if you have an increased number of chromosome aberrations in your group, but any individual in that group the test doesn't really tell you anything. And that's basically where we're at with that kind of biomarker test.

And then the last thing was, and it's very hard to see unfortunately, but the one marker that has been identified linked with TCE, has been the Von Hipple-Lindau mutation

in kidney cancer. Now this is from the NRC, this slide here, the NRC Table 3-13. They had an NRC report on TCE.

As you can see, if you're highly exposed to TCE, I mean really highly exposed, probably the highest exposures we've seen in occupational settings, out of 17 people with kidney cancer who were also highly exposed to TCE, 11 had more than two mutations and four had one.

So most of the, but not all, most but not all who had the kidney cancer also had this Von Hipple-Lindau mutation if they were highly exposed. But you get to the medium, and you start seeing that more of them don't have it. And then when you get to the low exposure, none had more than, none had it.

So again, even though we think it's a good marker for TCE effects, when it comes to kidney cancer, we only see it on the very highly exposed people. And even then you don't see it in all of them. And keep in mind very few people exposed to TCE get kidney cancer. It's an extremely rare disease. In the occupational studies I've seen say four

out of 1,000 workers might get it. I mean, it's really rare that even with that marker we're not capturing much with that marker.

It's not to say it's not an important marker. It's just, again, this is the problem with these tests is that we just don't have the tests that I think some of you think is out there that can actually link this exposure to particular damage. So that's the gist of the thing. We can talk more about this. We don't have time today.

MR. STALLARD: Let's find out. We can extend for 15 minutes or we can wrap up. I don't know what the implications of that means.

MS. RUCKART: I don't know what ^.

MR. STALLARD: Yeah, well, that was a crash course in genetics. So can we go for 15 more minutes? Is there any constraints about that?

MS. McCALL: No, because I can go for five or ten minutes over, but this last page, page ten in this handout, the Vital Status of Confirmed Cases. I want to hear some information about that because it looks like the alive and deceased numbers have changed

since the last time.

MR. STALLARD: Okay, we're going to go to quarter after.

DR. BOVE: The data's based on the survey. I don't know their situation since the survey, but some more may have died since the survey.

MS. McCALL: More have died since the survey.

DR. BOVE: No, this is based on the survey.

MR. STALLARD: Perri, thank you for your presentation, Frank.

No one has to run out the door right away, so we're going to go 15 more minutes just to, any questions you have.

Jeff, you had asked about this. Do you have any questions?

MR. BYRON: No, not right now as far as I might bring it up at the next meeting.

WRAP UP

MR. STALLARD: Okay.

MS. RUCKART: We could talk about --

MR. STALLARD: We should talk about the next meeting.

MS. RUCKART: Yes, the last time we met I had said that it was likely that the next time

we met we would be in our new building. That hasn't happened. We're always getting postponed on our move.

But the next time we meet, I'm pretty certain that we will be in our new building because now we're scheduled to move there in January, but we actually are having a function there tomorrow as the building is practically complete. So just keep that in mind, and we'll have to be in touch with you about some logistics about actually getting to the new location and possibly staying at a different hotel or just ^.

MS. McCALL: The next meeting will be?

MS. RUCKART: No, that's something we can talk about now, but I just wanted to let you know that this is our last time in this room in this location.

MR. ENSMINGER: Are we taking the new, fancy mikes along?

MS. RUCKART: These actually were not in this room. These are on loan to us from Clifton I was told. I don't know if the new building will have, hopefully, it should have state-of-the-art facilities. But again, I've

not even seen the new building.

MR. STALLARD: I'm not sure if it was an improvement, but it was certainly ^ the use of the lights and everything.

Dates, do we need to talk about dates at all or what's the plan?

DR. BOVE: ^ reasonable with the meeting after we've done this work. And so that's probably not 'til February or March when we probably should meet again and ^. Don't you think?

MS. RUCKART: I think April because you know if you say February or March, there's some time snafus, and it's hard to get people together and plan a meeting in the next two months. We have holidays and then we have to actually go out and have these meetings that we talked about as the next step. I think April, we usually have meetings every four months.

MR. BYRON: Three months.

MS. RUCKART: ^ very, very difficult. So I would propose early April, but I'm seeing people --

MR. ENSMINGER: That's too long.

MR. STALLARD: So that's too long.

MR. ENSMINGER: I mean, Kelly is supposed to be taking this initiative next week to get this stuff set up with DMDC between herself and Dr. Bove and DMDC. And then all you have after that is the, is to actually do that. I mean, we don't need to wait too long. I mean, that's not going to take --

MR. STALLARD: We'll know more by the beginning of the year.

DR. BOVE: Let's shoot for March.

MR. STALLARD: All right, we'll shoot for March and keep you posted on the progress.

MS. SIMMONS: The only thing I was just thinking about is the holidays. And there are lots of people, the feds who have use or lose. There'll be several people who aren't here 'til what, the middle of January? So I don't know if that's an issue or not, but something to keep in mind.

MS. DREYER: Yeah, I think go ahead and schedule the meeting, but I don't see why there can't be a conference call or some kind of feedback through e-mail once these calls happen and things like that. I think it's

always good to have a solid date with a proposed agenda for next time. But I don't see why you can't communicate in between because I will set up this conference call next week, and that will happen before the holidays. There'll be some feedback before the meeting.

MR. STALLARD: Anything else?

MS. SIMMONS: I just have one question. Are the handouts posted on the internet? Can you send them or something? Because I sort of passed mine out to other people who --

MS. McCALL: Most of these you can get at the ATSDR.

MS. SIMMONS: Is it like yours, the genetic one?

DR. BOVE: We'll just e-mail them to you.

MS. RUCKART: Yeah, we could e-mail them to you. We could see about ^ the genetic presentation.

MS. SIMMONS: The e-mail's fine.

MR. STALLARD: Go ahead, Frank.

DR. BOVE: Anyone who wants another copy or wants it e-mailed, we can do that.

MR. BYRON: I had a comment. You know, the

card that you're sending out for notification, and you had a real nice large one like that? So how many of those are you going to send to the VFW and the American Legions and every other Marine Corps organization in this country so that they get the notification without even having to be mailed to them? I mean, if they belong to the VFW, and they walk in the hall, and it's sitting on their cork board, it's pretty hard to miss.

MS. DREYER: Well, the posters can be posted wherever we can identify --

MR. BYRON: I want a commitment from you guys that you're going to send them to the VA with a letter, or not VA but the VFW, American Legion, Veterans --

MS. DREYER: I'll tell you what, Jeff --

MR. BYRON: -- and even the small postcard should be in all of the Marine Corps magazines that are out, "Semper Fi" --

MS. DREYER: I've been working with our Public Affairs officer. We've got a laundry list of organizations. Let me see if I can compile those lists, and if you see something that's missing because it's pretty

comprehensive, and you can let us know. Because the goal is to get it out as widely as possible so people are notified. The challenge is if we don't get any feedback, we don't know how successful we were, and it's hard to know who got the information. That's the only thing.

MR. BYRON: Okay, I'll be honest with you. I took one trip to Washington where I went and spoke to the American Legion, and I got feedback immediately. They wanted to take me to dinner, tell me about their grandkids who are sick.

MS. DREYER: That'll be wonderful --

MR. BYRON: So if you can do that --

MS. DREYER: -- but let me compile the list, and then you can take a look at it because we don't want to be missing people. And I've asked our Public Affairs to make sure to include our information to give to you guys to post on your website. Because of your concerns I noticed we didn't get a very big spike. But I understand their concerns. We'll see if we can answer those questions and post them to the website in frequently asked

questions. I'm sure we can't remove any of that information, but maybe we can explain it to help people have more comfort with it. But any information that we're not giving out to other people would be helpful. I'll also tell you that we are phasing our notification efforts so that we can figure out what's most helpful. So in other words if we just do a blitz in every newspaper or magazine, we don't know what was the best way to go. So we're kind of staging it so that we can get feedback and see what works better, and then we can do those things, more of whatever works better in addition to going with posters. That probably seems antiquated, but the population that we're talking to is all over the place so they're not internet savvy. So we're trying a lot of different things besides just electronic and the internet.

MS. McCALL: What about television?

MS. DREYER: And television, PSAs those kinds of things would be great, but again it depends on, you know. Let me get a list together and see if you guys have some more input that would be helpful.

MR. STALLARD: Okay, so we're going to identify some dates in March and be sending that out to you. And that will evolve the agenda based on the work that has to be done between now and then.

As an objective observer and your facilitator, I would like to commend you at this meeting. It was a very different meeting, the way you interacted and the progress and the respect that you showed each other in terms of coming together to identify what needs to be done. I just think you should be commended. It's very different, and I hope that we'll continue this momentum as we move forward.

MS. McCALL: I commented on that at lunch. I thought there was a different air.

MR. TOWNSEND (by Telephone): Is Perri there?

MR. STALLARD: Uh-huh, she is.

MS. RUCKART: Yes, Tom.

MR. TOWNSEND (by Telephone): Would you send me a copy or send it by e-mail all of your junk, all of your handouts?

MS. RUCKART: Tom, I sent it to you. Did

you not get it?

MR. TOWNSEND (by Telephone): An e-mail?

MS. RUCKART: Yes, I e-mailed it to you on Monday, all the information that was, everything except one or two things that Frank may have, no, no, I sent everything. I sent you everything on Monday. Can you check your e-mail again?

MR. TOWNSEND (by Telephone): I will.

MS. RUCKART: Okay, if you didn't get it let me know, but I hope that it's there.

MR. TOWNSEND (by Telephone): Okay, fine, thank you.

MS. RUCKART: You're welcome.

MR. STALLARD: Sandy, do you have something?

MS. RUCKART: I can forward it to you, Sandra, as well. Is that your question?

MS. BRIDGES (by Telephone): That'd be great, yeah. I thought we were disconnected. If you could fax it, that would probably be better.

MS. RUCKART: I think faxing it would --

MS. BRIDGES (by Telephone): Or e-mail, whichever is more convenient.

MS. RUCKART: I'd prefer to e-mail it to

you. If that doesn't work, let me know, but let's try that first.

MS. BRIDGES (by Telephone): Sounds great. Appreciate it.

MR. STALLARD: Thank you, Sandy and Tom for participating telephonically.

If there are no further questions, thank you for your service and have a safe journey home.

(Whereupon, the meeting was adjourned at 3:10 p.m.)

CERTIFICATE OF COURT REPORTER

STATE OF GEORGIA

COUNTY OF FULTON

I, Steven Ray Green, Certified Merit Court Reporter, do hereby certify that I reported the above and foregoing on the day of Dec. 6, 2007; and it is a true and accurate transcript of the testimony captioned herein.

I further certify that I am neither kin 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 9th day of Feb., 2008.

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STEVEN RAY GREEN, CCR, CVR-CM

CERTIFIED MERIT COURT REPORTER

CERTIFICATE NUMBER: A-2102