RESTORATION ADVISORY BOARD

FORT McCLELLAN, ALABAMA

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Taken before SAMANTHA E. NOBLE, a Court Reporter and Commissioner for Alabama at Large, at Building 215, Fort McClellan, Alabama, on the 15th day of July, 2002, commencing at approximately 6:30 p.m.

P.O. BOX 544
OHATCHEE, AL 36271
256-892-0591
FAX 256-892-3001

R E P O R T E R ' S I N D E X

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OHATCHEE, AL 36271
256-892-0591
FAX 256-892-3001

MR. CRAIG BRANCHFIELD: Let's go ahead and call the meeting to order, please. Thank you. We will start off by calling the roll. Mr. Branchfield is here. Mr. Ryan is here. Mr. Beckett? Mr. Buford? Mr. Clendenin?

MR. MONTY CLENDENIN: Here.

MR. CRAIG BRANCHFIELD: Mr. Conroy? Dr. Cox?

DR. BARRY COX: Here.

MR. CRAIG BRANCHFIELD: Mr. Cunningham? Mr. Elser?

MR. JERRY ELSER: Here.

MR. CRAIG BRANCHFIELD: Ms. Fathke?

MS. DONNA FATHKE: Here.

MR. CRAIG BRANCHFIELD: Mr. Franklin?

MR. CURTIS FRANKLIN: Here.

MR. CRAIG BRANCHFIELD: Mr. Freeman is excused. Dr. Harrington is excused. Mr. Hood? Mr. Hopper is excused. Mayor Kimbrough?

MAYOR WILLIAM KIMBROUGH: Here.

MR. CRAIG BRANCHFIELD: Mr. Stratton? And Mr. Thomassy has resigned.

Mr. Grant?

MR. RON GRANT: Here.

MR. CRAIG BRANCHFIELD: Mr. Levy?

MR. RON LEVY: Here.

MR. CRAIG BRANCHFIELD: Mr. Doyle -- how do I pronounce your last name, Doyle? I'm always confused.

MR. DOYLE BRITTAIN: Brittain.

MR. CRAIG BRANCHFIELD: Brittain, Mr. Brittain?

MR. DOYLE BRITTAIN: Here.

MR. CRAIG BRANCHFIELD: Mr. Stroud?

MR. PHILLIP STROUD: Here.

MR. CRAIG BRANCHFIELD: If we could go around the room briefly and have members of the audience just introduce yourselves and share with us your affiliation, we'd appreciate it. We can, I guess, start here and just go front row and weave our way around.

MR. JOE DOYLE: Joe Doyle, Transition Force, Legal Office.

MR. BEN REAVES: Ben Reaves, I'm --

THE COURT REPORTER: I'm sorry. I

need for y'all to speak up for me, please.

MR. BEN REAVES: I'm Ben Reaves, geologist working for the City of Weaver.

THE COURT REPORTER: Thank you.

MR. DWIGHT NICHOLS: Dwight Nichols, City of Weaver.

MS. JENNIFER HEATH: Jennifer Heath, toxicologist (inaudible) --

THE COURT REPORTER: I'm sorry. I still can't hear you.

MS. JENNIFER HEATH: Jennifer Heath --

THE COURT REPORTER: Hill --

MS. JENNIFER HEATH: -- toxicologist and risk assessor at Matrix Design, hired by JPA to review the EE/CA.

THE COURT REPORTER: Okay. Thank you.

BEN BENTKOWSKI: I'm Ben Bentkowski with Gannett-Fleming, EPA contractors.

THE COURT REPORTER: Thank you.

MR. TED SIMON: I'm Ted Simon. I'm a toxicologist with EPA.

MR. HUGH DICK: I'm Hugh Dick, Gannett-Fleming EPA contractor.

MS. BETTY DICK: I'm Betty Dick.

MR. PAUL GOETCHIUS: Paul Goetchius, Shaw Environmental, toxicology, risk assessment.

MR. ROBIN ZIMMER: Robin Zimmer, Shaw Environmental.

MR. STEPHEN MORAN: Stephen Moran, Shaw Environmental.

MR. JIM GRASSIANO: Jim Grassiano, ADEM.

MS. KAREN PINSON: Karen Pinson, Transition Force, Environmental.

MR. MARK HARRISON: Mark Harrison, ADEM.

MR. SPENCER NELSON: Spencer Nelson, URS Corporation contracted to ADEM.

MR. BILL SHANKS: Bill Shanks, Transition Force, Environmental Office.

MR. BILL GARLAND: Bill Garland, U. S. Fish and Wildlife Service.

MR. BILL WOODALL: Bill Woodall, Mobile District Corps of Engineers.

MR. LEE COKER: Lee Coker, Corps of Engineers.

MR. ELLIS POPE: Ellis Pope, Corps of Engineers, Mobile.

MR. CHIP PARROTT: Chip Parrott, Corps of Engineers, Mobile.

MR. ART HOLCOMB: Art Holcomb, Foster Wheeler Environmental.

MR. DAN COPELAND: Dan Copeland, Huntsville Corps of Engineers.

MR. PAUL JAMES: Paul James, Transition Force, Environmental Office.

MR. BOB DAFFRON: Bob Daffron, National Guard Training Center.

MR. JOSH JENKINS: Josh Jenkins, Shaw Environmental.

MS. LISA HOLSTEIN: Lisa Holstein, Transition Force, Environmental.

MS. BRENDA CUNNINGHAM: Brenda Cunningham, Transition Force, Environmental.

MR. CRAIG BRANCHFIELD: Is that it? Okay. Just for the record, Mr. Beckett walked in while we were doing the audience introductions.

Okay. I'm not sure we have enough people for a quorum to review and approve the minutes for May and June. How many do we need?

MR. RON LEVY: There are seventeen members. It takes a majority -- a quorum is the majority of the members, which would be nine --

MR. CRAIG BRANCHFIELD: One, two, three, four --

MR. RON LEVY: We're one short.

MR. CRAIG BRANCHFIELD: -- five, six, seven, eight. We're one short. Well, we won't be able to approve or disapprove the minutes. But has anyone who's had a chance to review them have any questions on them of those who are present for May or June?

MAYOR WILLIAM KIMBROUGH: We have nine, don't we?

MR. CRAIG BRANCHFIELD: We have eight. Mr. Grant's not a voting member. We have eight voting members; is that right?

MR. RON LEVY: You may get it before the end of the meeting.

MR. CRAIG BRANCHFIELD: Yeah, we may

get someone to wonder in. If somebody wonders in, we'll come back to this item. All right. Has everybody had a chance to review the minutes, and are there any questions on them before we move on? And like I said, if we do get one more person come in, we'll revisit this item before we adjourn and offer a motion to either approve or modify, if necessary, the minutes.

Can everybody hear me all right? Anyone not hear me? It's a big room.

Okay. Moving on to old business: Extension of the landfill EE/CA, I guess, Glynn or Ron, we've -- that public comment period has been extended to August -- is it 19th or 16th? I've seen both dates.

MR. GLYNN RYAN: 19th. At the request of the JPA and the City of Anniston, we extended the public comment period until the 19th of August. I think the letter was passed out. If not, we can get you a copy of that. But --

MR. CRAIG BRANCHFIELD: Okay. Just one brief -- brief point on that, before we move on. I guess -- and I apologize, I wasn't -- obviously, did

not attend the last meeting. But my understanding is there was some questions as to whether I passed along the feedback I had received from the RAB members to Mr. Grant for his review. I did pass on all the feedback I received via E-mail. I did not pass on any feedback that was given to me during the meeting, simply because I didn't have anything to -- I didn't write anything down or keep any notes and had anticipated that people would E-mail those concerns to me.

So, if there are any concerns that I did not get in my E-mail to Mr. Grant, to consider during his review of the EE/CA, either let me know after the meeting -- and I've got a pen. So, I'll write them down, and I'll pass them on -- or else feel free to E-mail me.

And also, I guess there were a couple of people who said they did not receive my E-mail. I'll go back and check my -- I'll take an action to check my E-mail list, because I did enter everybody's E-mail address into my computer that was on the list that Brenda has put together for us. But if I've incorrectly entered someone's E-mail or you

haven't been getting E-mails from me on a periodic basis, let me know so I can make sure I double check that and that you do get those E-mails.

So, I apologize for any confusion. But if you do have comments on the EE/CA or something you'd like Mr. Grant to address, let me know, and I'm sure we can get that accomplished before the 19th -- before the end of the public comment period.

MR. RON LEVY: And here's our ninth member.

MR. CRAIG BRANCHFIELD: And we have our ninth member. For the record, we'll show Mr. Buford as present. We'll give him a chance to sit down. We blamed you for everything that's gone wrong in the past. While Mr. Buford gets settled, I'll just run through a couple more items here and then we'll go back to the minutes.

My understanding is there was also an item from the last meeting to prepare a letter to Mr. Thomassy, offering our thanks for his service to the RAB over the last years. I have that letter. Glynn signed it, I've signed it. I guess it will go out in the mail tomorrow, if anybody would like to see

it, just come up after the meeting, and I'll show it to you. But it's a well-written letter, and I think it reflects the good -- not just good, but the excellent service that Mr. Thomassy's given to the RAB over the years. So, we certainly -- it is certainly appropriate to thank him for that time.

And we have one more person present. Now we're doing better than a quorum. Mr. Hood is present.

Next action item, I guess we have to have a vote as to whether to send a letter to -- boy, they're just coming in left and right. For the record, Mr. Conroy is present. Now, we can't blame Pete for anything.

Looking at the attendance list, Mr. Stratton has not attended a single RAB meeting this year. We did send a letter to him in March, asking if he was still interested in being a member of the RAB. We received no response. So, I take that to mean that Mr. Stratton is no longer interested in participating on the RAB.

So, with that, I'd like to offer a motion to send a letter to Mr. Stratton, informing him

that he's no longer a member of the RAB.

MS. DONNA FATHKE: I so move.

MR. JERRY ELSER: Second.

MR. CRAIG BRANCHFIELD: All those in favor? Any opposed? All right.

(Whereupon, there was discussion off the record.)

MR. CRAIG BRANCHFIELD: Then the motion has been carried. I don't know all the proper lingo, so you guys feel free to correct me as we move along here.

I'm a project manager. I'm not used to asking people if I can do something or not. I just tell them we're going to do this, and that makes my life easy. so, you guys keep me straight on the straight and narrow.

But for the record, that motion to send the letter to Mr. Stratton, informing him that he's been removed from the RAB, has been carried. And I will sign that letter and pass it on to the Army at the end of the meeting.

And finally, on old business, applications for new members, I have a note here that if anyone knows of anybody who is interested in

serving on the RAB, we can get an application to them. Those applications are due by August 12th. And that will give us some time to take a look at them, the members of the RAB to look at them. It will give us about a month.

And then on the September 16th RAB meeting, we'll vote to fill some of the vacancies that are in place. And I guess there will be at least two vacancies, because we've also been informed that Mr. Hopper will be submitting a letter of resignation before the next meeting. So, I guess that will leave us with at least two vacancies to fill.

Three vacancies, okay. That's right. Mr. Thomassy retired. So, that would be three vacancies. So, we need some applications.

Before we move into the program -- I'm sorry, I should also mention here that there is a note here that we haven't received any applications, yet. So, that's a call to action for all of us, to try and find some applicants.

MR. RON LEVY: Three on file.

MR. CRAIG BRANCHFIELD: But there are three on file, that's correct, from -- that have

been previously submitted.

Let's move back up to approval of the minutes for May and June, since we now have a quorum present. And once again, ask if anyone who has not had an opportunity to look at the minutes, let me know before I ask for a motion to approve the minutes for May and June. Has anyone not had a chance to look at the minutes or does anyone have any questions on the minutes? No.

Well, do I hear a motion to approve the minutes for May and June?

MAYOR WILLIAM KIMBROUGH: So moved.

MR. JAMES BUFORD: Second.

MR. CRAIG BRANCHFIELD: All in favor? Opposed? Let the record show that the motion has been carried to approve the minutes for May and June. I feel so smart when I say that.

Before we move into the program, is there any other old business that anyone would like to put on the table for discussion? With that, Ron or Glynn, I guess I'll turn it over to you.

MR. RON LEVY: Yeah. The program today calls for two presentations: One on human

health and one on ecological risks. And if time allows us, a video on environmental impacts of clearance for unexploded ordnance, which we thought was a very interesting video that had some scenes at Fort McClellan and our RAB previous go rounds.

I'm going to let Doyle introduce his folks. And maybe a little lead-in, because he's got the human health piece.

MR. DOYLE BRITTAIN: At this time I would like to introduce to you Ted Simon. Ted is a Ph.D. Toxicologist, works with the U. S. Environmental Protection Agency. He's on a number of different national committees working with risk assessment.

He's done a lot of research in this area, himself. And I did not ask him to write anything down for me to use to read because the last time he did that, it was too long. So, enough said.

And what he will be doing is talking with us about the human health part of risk assessment. We'll follow that up with another separate presentation on the ecological risk assessment. They are similar, but there are some very distinct differences.

I have asked Ted to make this presentation in non-technical terms. We are trying to get a basic understanding by everyone here, as far as to what risk assessment is all about. So, if Ted says anything you don't understand, write it down, and after his presentation is over, let him go back and explain it again, because when you leave, I'd like for you to have some general appreciation for what all goes into doing a human health risk assessment.

If Ted says anything, raises any questions in your mind, I would ask you to write those down. And again, hold your questions until after Ted's presentation is complete. And then feel free to ask him any questions that you might have.

I understand that we have some people here that may be highly technical and have a good working knowledge, be experts, also, in this field. I would ask those people to hold their questions and let's have a meeting to talk about that at another time, at another place.

But I don't want to get involved in those highly technical questions tonight. Tonight is for the general, average person that might be here.

So, with that, I'll turn it over to Ted.

MR. TED SIMON: Doyle, thank you. I guess my real job is to instill a sense of calm into you, so that in this nice, warm room when we turn out the lights for the video, you'll be properly prepared. So, this is an introduction to human health risk assessment. And here's our road map.

I'm going to spend a little bit of time on an introduction. And I'm going to lickity-split to the parts of a risk assessment so you understand them. And the last thing I'm going to talk about is probably the question that you most consider, why do we feel the EPA risk assessments are protective. So, three-part talk. So, here is the -- now, the biggest challenge tonight is going to be operating this remote mouse.

Here is -- starting my introduction: What is risk? Well, we're going to define it as the likelihood of injury, disease, or death, from a variety of possible circumstances.

What is environmental risk? That's the likelihood of injury, disease, or death, resulting from exposure to a potential environmental hazard.

Now, it's important to remember there's no such thing as zero risk. Who came in a car tonight? Right, okay, most of us. If you drive a car on the roads, you're assuming some risk.

Anyone eat peanut butter? Okay, peanut butter contains a chemical called an anthropox (phonetic), which in laboratory analysis, has been shown to cause cancer. So, if you eat peanut butter, there is a risk to eating peanut butter. So, there's nothing -- there's no free lunch here, nothing is risk free.

That said, we need to have regulatory guidance. We need to have some sort of level below which we say this is a risk below which we'll really not concerned so we can go ahead and make the sorts of decisions that we do for environmental cleanup.

Now, again, speaking of environmental risk. For a risk to occur, a hazard must exist. And the second thing is that people have to be exposed to that hazard.

We have some nasty chemicals buried sixty feet below ground. I can't think of too many

people or animals who are exposed sixty feet below the ground. I guess if you have -- you can argue with the cave spelunkers that they might be exposed, but it's really begging the question. So, without exposure, a hazard can't pose a risk.

Now, that said, different degrees of exposure produce different levels of risk. You have the person that comes in contact with some hazardous substance one time a year, they're going to be at a lower risk than someone who comes into contact with it a hundred times a year. Now, that said -- and because we have levels of risk that in a regulatory or -- in a regulatory sense, we say are below -- that's a level below which we're not concerned.

There are detectable levels of chemicals that can remain out in the environment and not produce a risk. Yes, they will produce some risk that we can determine, but it is below levels of concern. So, again, to follow that up, safe levels, these safe levels are determined using risk assessment.

So, what is risk assessment? It's a science based decision tool. It's a way to sort of

separate what we know and what we don't know and come up with some means of making decisions than we, as risk assessors, can provide the decision makers, and they can go ahead and make the decision. It's a method to evaluate these harmful effects of -- or potentially harmful effects of environmental contaminants, and it's a real structured method.

The way we do risk assessments is to divide and conquer. Here are the aspects we know. Let's sort of take little things that we know and see if we can stack them up together so we can know something about a larger picture.

Here are the four parts of the EPA risk assessment: There's hazard identification, exposure assessment, toxicity assessment, and risk characterization. But then this is not all there is to environmental decision making.

We're going to take this risk assessment, and we're going to use the results that we get from risk characterization and bring those into a regulatory decision. There is a separation between risk assessment and risk management, between the scientific part of it that I do and then the -- I turn

that information over to -- I stop right here -- (demonstrating) -- this large circle that says, "regulatory decision."

And then my results are used by the decision makers. And they're going to consider control options, such as technical feasibility. Can they actually clean it up? Can they put some sort of engineering control? Can they put some institutional control to control exposure to this hazard?

There are other things that they would think about, non-risk analysis, such as economic factors, sociopolitical and legal factors. And let me say, my job is easy, I stop right here. The decision makers have the hard job, because not only do they have to consider the results of the risk assessment that I handed them, but they have to consider all of these other factors in coming to this regulatory decision.

Now, risk characterization. We want to make sure that we give the decision makers something that, if they choose to use it, if they do use it, it will be protective of human health.

Now, it's important to remember that

risk assessment is a decision tool so that the uncertainties that we deal with in risk assessment don't permit us to determine what the actual risks of a situation are. Instead, what we get is a useful result that could be used in decision making.

EPA's risk assessments are biased towards over estimates of risk. They tend to be protective. And as such, we have a very high level of confidence that the risks are not understated. That, if anything, they're overstated.

Okay, that was my little introduction. Now, we're going to move along to the parts of the risk assessment. Hazardous substances in the environment. Well, these occur naturally. There is arsenic naturally occurring in New Hampshire, in Nevada.

There are widespread human activities that produce contamination. Anybody seen Atlanta on a hot day in the summer in the afternoon, and the brown stuff that hangs over the city? That is from automobiles.

Now, we are not as concerned in the program, in the Superfund program that I work in, with

these two -- first two bullets here, the natural occurrence and the widespread human activities. What we are concerned with, there are site-specific human activities that create a waste stream in the local environment.

You've got a metal plating shop. We're on a military base, so we have metal plating shops, we have fire training areas, there was -- we had a chem warfare school here. These are the sorts of activities that we would think about, as far as identifying hazardous substances in the Superfund Program.

Hazard identification. We got to come up with a list of chemicals, when we're thinking about the risk assessment. And we start with a hit list. These are all the chemicals that we detected at that site. And then we compare these to risk-based screening levels.

You'll have a -- you'll get a flavor of how these are calculated in a couple of minutes. And for example, the site-specific screening levels that have been developed for use at Fort McClellan are risk-based screening levels.

We do a comparison to background concentrations for pure organic chemicals, in other words, naturally occurring chemicals, and for these common chemicals produced by man's widespread activities. Automobile exhaust would be an example of that.

We also look at aspects such as frequency of detection. If we only detect the chemical once out of a hundred samples in the same environmental, media, soil, or water, you might say, gee, is it really there.

We also look at comparison to blanks. Example, you carry some blanks along. You have sample jars that are filled up with the sample medium and the medium in which you might be collecting samples, you carry them along. You never open them. You send them off to the lab. If the blanks are contaminated with this particular chemicals, what that indicates is that your behavior, or your behavior as a sampler, introduced contamination into that blank that could cause the other samples that get that same chemical to be suspect. And you want to have another look at that.

So, we think about that, too, in developing this list of chemicals and potential -- that, I just finished talking about hazard identification. Now, I'm moving along to exposure.

Exposure, we're going to define as contact of an organism with a chemical or physical agent. And its degree of this exposure is the amount of the chemical or agent that's available at the body's exchange boundaries. Exchange boundaries are -- those are big words -- your skin, the inside of your digestive tract, if you get it in your mouth and swallow it, or your lungs, if you happen to breathe it. There's only three.

Now, for the exposure assessment, we want to try to figure out or come up with an estimate of just how much contact there was with these chemicals by the three routes. In other words, inhalation, ingestion, and dermal contact.

Little example of some of these exposure pathways in action. Here is a hypothetical site with some hypothetical drums that have been hypothetically turned over and here's a hypothetical receptor that's coming into contact with it.

And now, this receptor over here is going to contact the soil, probably get some of the soil in his mouth, probably get some on his skin. If there's a little bit of dust, he might breathe that. Those are the ways that he comes in contact with it.

Then it rains and these chemicals are carried by rain water down to the groundwater, and this other receptor right here in a house -- it's kind of a small house, but there it is -- uses this groundwater for domestic uses. He drinks it and takes showers with it, etcetera. And so, this receptor here comes in contact with a chemical by means of water.

Here is another receptor, some distance away. And the wind comes up and carries this chemical away as dust. He breathes the dust. So, he comes in contact with it by inhalation, through the lungs.

So, again, this is not -- this is not the complete picture. There's also contamination of fish (inaudible) --

THE COURT REPORTER: I'm sorry. Contamination of fish --

MR. TED SIMON: Fish, people eating

the fish.

Anyway, land-use scenarios, this is key in thinking about these risk assessments. We have a residential scenario; this is the most protective, most restrictive scenario. We decide if there is -- the risk in a residential scenario, in the risk assessment, using a residential scenario. If that risk is acceptable, then all of the -- the risks in all of the other scenarios will also be acceptable.

If there's an industrial, commercial -- we're concerned about really two people there, the adult worker, and then for some specific chemicals -- and I'm thinking of lead -- the female worker of child-bearing age. Women of child-bearing age -- not necessarily pregnant women, but of child-bearing age -- if they contact enough lead, will store it in their bones, and then when they do become pregnant, it will be mobilized in their bones and possibly affect the fetus.

The trespasser -- now, that's generally a youth, seven to sixteen. And sometimes this scenario is blended with this recreational scenario.

Now, we also think about the recreational scenario, but it's important to say what this really means. Now, there are site-specific recreational activities. Are we going to take this land and build youth sports fields? Are we going to make it passive recreation, just leave it as woods, where we might get an occasional hiker or camper? Are we going to make it as a suburban-type park out of it, with a lot of activity there, people walking their dogs? All of these will involve different levels of contact of these receptors with any contamination in the media.

So, it's important to really decide what's going to happen at the site and to design, for any recreational scenario, to figure out what -- just how much exposure there is.

So, for -- one of the things in the risk assessment is the concentration of it. What concentration of chemical does this receptor come in contact with? We want to think that he contacts this contaminated medium at random and over the long term.

So, we want to think about the size of the area that a receptor comes in contact with. In

other words, a six-year-old child is probably not going to wonder over forty acres. So, we would think of a residential lot as the appropriate size.

Whereas a maintenance or a landscape worker at a large industrial facility might indeed wander over forty acres -- wonder is really the wrong term -- but work in the confines of the forty acres, the entire facility over a period of twenty or twenty-five years. So, that forty acres might be appropriate for that landscape worker, but not appropriate for a residential child.

We also want to think about the time scale of the toxic threat. Some chemicals act very quickly. For example, nitrate in drinking water, if you take water with high levels of nitrate in it, make infant formula with it, you can kill the child, because you interfere with the oxygen carrying capacity of the blood with nitrate. So, we would be very concerned about this. This is a very short-term effect.

That chemical is an exception. Most of the chemicals we think about in the Superfund Program have effects over the long term, chronic

effects. And over the time scale of this effect, we want to think about the average concentration encountered by the receptor. And we want to come up with some estimate of that average concentration that is a protective estimate. And EPA has spent many years out in statistical hyperspace trying to come up with an expression of this average concentration. But we're not going to go into those details tonight.

Okay. I'm moving -- I'm finished talking about exposure, and now I'm going to talk about toxicity. It's important to remember -- and this came about a long time ago, that this gentleman made that statement -- that all substances are poisonous, there is nothing that is not a poison, and it's the dose that determines whether something will be harmful or not.

Water, for example, if I got dropped into the middle of Lake Logan Martin and drowned, you could say that water was toxic. Now, I think most of us went and got a bottle of water over there, and we're enjoying drinking it now, and I'm going to need some after I finish talking, to water down my throat. So, in the right dose water is good for us, but too

much of it is not a good thing. That's the point.

Okay. Very, very brief look at the toxicity assessment. There are a couple of types of chemicals that we think about; carcinogens, chemicals that cause cancer; noncarcinogens, things that cause adverse health effects other than cancer.

Where do we get this information? We look at lab animal studies, and we look, when we have the information -- which is really most times a misfortune -- at human epidemiologic studies.

I finished talking about the toxicity assessment. Now, I'm moving along to risk characterization.

We end up with a quantitative risk characterization. I say, "quantitative," because we end up with numbers here for exposure and toxicity. I didn't deal with those numbers tonight, but this is an introduction.

And we combine these quantitative estimates of exposure and toxicity, along with thinking about the uncertainties, to a quantitative and qualitative expression of risk.

That is essentially the end of our

risk assessment. And that is the result that we hand to the decision makers. Now, it's possible to do this in sort of a prehop or predetermined way. We can develope these -- some site-specific screening levels. And if some of you have heard about the region three risk based concentration table or the region nine preliminary remediation goal table, these are in fact these risk-based screening levels.

And these can be done in your generic senses, as those tables that I just mentioned, or in a specific sense, like the site-specific screening levels that have been developed here at Fort McClellan.

And so, the risk comparison can easily be a comparison with chemical concentrations in environmental media with these site-specific screening levels or for that matter generic screening levels.

What are some of the uncertainties in risk assessment? On the toxicity side, we use lab animals for the studies. We've got to extrapolate those results to apply to humans. That's a big area of uncertainty.

We give the laboratory animals, when

we use them, a very high dose, because we want to see an effect. Then we have to extrapolate down to low doses in humans. The effect -- you know we -- we know that humans will probably be affected by high doses, but that's not the area or the part of the dose that we want to protect against. So, we've got to go down to low doses.

Now, if we use epidemiologic studies, we remove the uncertainty of going from animals to humans. But the difficulty with epidemiologic studies is that we don't know what the dose is; the studies are not controlled.

In terms of exposure, one of the huge uncertainties is future land use. Given that land use, will it change, and what are the future exposure scenarios?

Now, we assume that receptors have particular patterns of behavior. They move at random throughout the area in which they're exposed. Well, is that really true? That's a debate frankly, that's ongoing within EPA right. But I just mentioned it as another source of uncertainty.

How does EPA deal with these? We

use protective assumptions for all of these, for the toxicity assessment and for the exposure assessment to make sure that we overstate the risk. So, we bias the risk assessment towards -- in a protective manner.

So, I guess the short answer to this question -- why they're protective -- we use -- as far as exposure goes -- and I just sort of stole my thunder on this. We use this reasonable maximum exposure. We create a hypothetical individual who is exposed at a level that is within the range of possible exposures, but still high up within this range of possible exposures. And we use this hypothetical individual -- he's called the RME individual -- on which to base decisions, on which to base the outcome of our risk assessment.

Now, the toxicity values are determined based on the most sensitive individual. In fact, if we -- when we extrapolate from animals to humans, we try to attempt to deal with the uncertainty of going from animals to humans, and we say, well, this doesn't represent all humans. We've got to be more protective to account for the more sensitive humans. So -- and if we don't have a lot of data,

we're even more protective still in the toxicity assessment.

So, all of these uncertainties are considered by EPA with a bias towards those who are potentially exposed. So, our mandate in the Superfund program is to protect human health and the environment. And that's why we cant the risk assessment, we bias the risk assessment towards -- in a protective way.

And let me stop there. And is it appropriate to take questions now?

MR. DOYLE BRITTAIN: Any questions?

DR. BARRY COX: When you say, "the most sensitive individual," you mean an individual that may have some medical ailments or do you mean -- define, "most sensitive individual."

MR. TED SIMON: Well, you really asked the sixty-four dollar question. There is a lot of language about this. Oh, yeah, we're protecting sensitive sub-populations, the children and the elderly.

Well, are they really sensitive? A lot of people go ahead and say, yeah, children and the

elderly are more sensitive. I don't necessarily share that view. Children may indeed be more sensitive, and I don't dispute that, but to say so without much basis I don't think is really all that appropriate.

If you can find someone with a particular, say a medical condition -- I'm just going to pull something out of the air -- diabetes or what's the one --

MS. DONNA FATHKE: Asthma --

MR. TED SIMON: Guill-Barre's (phonetic) Disease where you can't glucuronidase substances and pass them out of your body. So, toxins stay in your body longer. That might be a sensitive sub-population that is truly defined as such. Does that make sense?

DR. BARRY COX: Would you use those as your baseline or do you use something of a higher -- a lower standard?

MR. TED SIMON: It's more -- it's looser than what. What they do is they take these -- they take a value from an animal study that is without effect in the animals, they call it a NOAEL, no adverse -- no observed adverse effect level. In other

words, they haven't dosed -- they have a variety of doses they give to the animals, the one at which is no effect. The highest one there is no effect.

They divide that by ten to go to humans. Then they divide it by ten again to go to the so-called sensitive humans.

You see why that is scientifically very unpalatable? Does that answer your question? Anything else?

DR. BARRY COX: In one of the slides you used the term, "safe." How do you define, "safe"?

MR. TED SIMON: Another good question. And that's a regulatory answer to that. EPA has defined the risk range for cancer risks and acceptable risk from a probability -- cancer probabilities of one in a million to one in ten thousand.

And let me just compare that to the frequency -- that's a little bit different than the probability -- the frequency of cancer from all causes in the United States between one in three and one in four. So, we are -- in terms of that -- that overall cancer frequency in the United States, these Superfund

regulatory levels are extremely protective.

Now, for noncarcinogens, chemicals that don't cause cancer, the regulatory threshold is a hazard index of one, which means we're going to look and see -- we're going to come up with our estimate of the threshold, and if we have any dosage that we calculate in the risk assessment that exceed that threshold, we are going to consider those to be requiring a site cleanup, or at least a consideration of a site cleanup. Does that answer your question?

MS. DONNA FATHKE: There seems to be an awful lot of subjectivity in setting these levels. And due to the fact that we're scientifically not there, yet, you would have to do some amount of guessing, but it would seem to me that that amount of new -- you just mentioned dividing by ten and dividing by ten again, was that an example or was that a hard and fast rule?

MR. TED SIMON: Well, let me -- yeah, I can talk about it. Would you like me to talk about that some?

MS. DONNA FATHKE: I asked you, didn't I?

MR. TED SIMON: What we did a few years ago -- I mean, it's changing, it's changing. And people are trying to do better science.

MS. DONNA FATHKE: Uh-huh.

MR. TED SIMON: Okay. This is exactly what we would do: We'd go out and get a value in animals, in an animal study with the no observed adverse effect level, divide it by ten to go to humans, divide it by ten again to go to sensitive humans, divide it by ten again, because there were database insufficiencies, we didn't have a three generation study, and divide it by three just to be extra careful.

So, what is that? That's three thousand?

MS. DONNA FATHKE: Yeah.

MR. TED SIMON: So, we divided that by three thousand, and we assume that's the threshold in humans. Now, people are getting smarter about this. When there is data, they're using it.

Let me give you an example. There's methylmercury. You know what, Methylmercury, it's in fish. Okay. When we have a lot of -- there is a

global reservoir of mercury in the atmosphere, and it sort of passes in and out of bodies of water. It's methylated by bacteria. And methylmercury is picked up by other biological systems, like fish.

Now, there have been three -- if somebody wants to help me out with this, my memory is failing -- I think three large studies of the effect of mercury on neuro-developmental effects in children. One was in the Seychelles Island in the Indian Ocean, one was in the Faroes Island in the North Atlantic, and one was in New Zealand.

Now, the -- let's go where I know, rather than what I don't know. The Seychelles Island, it's a thousand miles from any industrial source. So, the only mercury they have is the stuff that comes out of this global reservoir in the atmosphere. Gets into the fish. People there eat fish twice a day, seven days a week. They eat a lot of fish.

When they did the -- I mean, they followed these kids for -- these children were born. Their mothers had eaten the mercury in the fish. Then they followed them up through age six, and they did batteries of neuro-developmental tests, which were

essentially negative.

And some smart guys at ICF Kieser (phonetic) went ahead and did a model, a physiological model of the passage of the methylmercury from the mother to developing fetus, and then possible effects on the fetus.

So, they came up with numbers and tried to get -- tried to get -- come up with a level that would be protective without using these very scientific unpalatable -- what they call uncertain factors, that's ten divided by ten -- let me just interrupt myself.

A few years ago at a meeting there was a fellow who got up and said, I'm Zorg from the planet Krypton, I think the uncertainty factor should be six. The point is that people are trying -- and that assessment, that toxicity assessment for methylmercury was criticized roundly by EPA, who then went ahead and did exactly the same thing with the study from New Zealand and came up with a number that is very similar to the referenced dosage used -- that was used previously that was done with the factors of ten.

So, you know, to some extent, is it a better system? Yes, because there's more scientific basis. But will it really make a difference? Well, no, not for that particular chemical.

But I'm sure you've seen the list of chemicals. It's as long as both of my arms. I mean, then somebody goes, when there's enough time and money to go through this for all of the chemicals, we'll have that answer, but for the moment, there's not the resources to do that assessment, we divide by ten.

Does that sort of begin to answer your question?

MS. DONNA FATHKE: Yeah, it does.

MR. TED SIMON: Anyone else?

MR. DOYLE BRITTAIN: Thank you, Ted.

MR. TED SIMON: I'm going to pass the mouse, which gave me no problems, by the way, on to Rob Zimmer.

MR. RON LEVY: I do want to mention, Rob, sitting next to Rob Zimmer over there is Paul Goetchius. He introduced himself. But he is Ted's counterpart for Shaw Environmental and Infrastructure. And he's been working with

Fort McClellan, I want to say -- five years?

MR. PAUL GOETCHIUS: I wrote the first work plan. Was that '96, '97, somewhere in there?

MR. RON LEVY: Yeah. Paul, besides Fort McClellan, talks directly with Ted all the time over the work that we're doing out here and the reviews that go on as a result of that. So, you know, there is a relationship. There's lots of discussion going on.

The next person up is Rob Zimmer. Rob's the senior ecological risk assessor -- did I get that right --

MR. ROB ZIMMER: Uh-huh.

MR. RON LEVY: -- for Shaw. And he's going to talk to you about the ecological risk process that is used. Rob has also been with us for about the same amount of time, he's been working the Fort McClellan site.

MR. ROB ZIMMER: Thanks, Ron. Let me see if I can get this right. Let me again --

MS. DONNA FATHKE: No, wait. Is that going to cause me brain cancer? You're pointing

it at my head.

MR. ROB ZIMMER: It may cause me brain cancer as it comes up through my head. Did I get the message?

MR. GLYNN RYAN: It's over.

MR. CRAIG BRANCHFIELD: That was quick.

MR. ROB ZIMMER: This is going to put me behind a little bit, but let me just echo a little bit of what Ted's talking about here, as far as defining risk assessment. And really, what we really want to reinforce this evening is the fact that risk assessment is evaluating the likelihood that an adverse effect can or will take place with some receptor.

Now, Paul and Ted and the human health side of things, they're focused on a single species, obviously, the human. Well, the eco side of the house, we're looking at many, many species, many different animals and plants. And we really look at -- and I want to reinforce this right here -- the fact this it's present and also potential future occurrences. What is the likelihood, if a constituent

is transported in from one type of system into another system or from one habitat into another habitat? So, it's not only present, but also future occurrences, as well.

Now, very simply, as far as complexities are concerned, yeah, Ted correctly and appropriately articulated that different life ages or stages could be -- one could be more sensitive than another. That's also true on the ecology side, that's also appropriate; the younger the year may be more sensitive than the older ones.

But really, we're dealing with just so many species at a given site. Now, you can say probably hundreds of species here, around this large area of Fort McClellan. And I would venture to say literally thousands, if you took the bug community and the microbial community into play.

So, we're dealing -- that's one of the contributions to the uncertainty, is the fact that there is so many animals and plants that we have to deal with and they all have different metabolic activities and rates and they all have -- do different things and perform differently.

We also have to address the fact that most of these critters can't read the no trespassing signs. And so, really, we're not bound within a given area. So, we really have to address exposure that -- Ted did a very nice job explaining to you what exposure is. There's no hazard, unless exposure takes place. Well, that's true on the eco side, as well.

However, we've got to look at exposure over vast areas for some receptors. Other ecological receptors, their area is very, very small. Others are very -- like the red tail hawk could be very large. So, we have to address all of that.

And finally, we refer to this, to the surface water sediment, this is our official soils, as the non-living abiotic part of an ecosystem. The whole living part, on the other hand, what is that interaction there? That is key.

A constituent present within surface soil, is it a real hazard or a concern? Maybe, maybe not. If it's not available for uptake by the biotic community, the living community, then we go right back to what Ted's talking about, we say it's really not a

hazard, not a high risk, at all, because it can't be taken up. If it's not taken up, then it's not a serious issue.

Is this the next slide? Okay. This is -- not to worry here. I know it's getting late in the evening. This is a classic, what we refer to as the eight-step EPA process for conducting ecological risk assessments. I'm not going to go into detail here, except we conduct these around the country.

And the point is, if you drew a line right here, across the board, these first two steps that we've highlighted make up the SLERA, screening level ecological risk assessment. You'll see that term over and over again, screening level ecological risk assessment.

Why would we just do a screening level up front? Well, we can't go out there and dig up all kinds of things and look for all kinds of critters and what's in them, what's that. We really want to focus this thing down in those areas where we have concern.

We have many sites around the country where the whole process ends right there at

the screening level. These points right here. This is a cut and paste right out of the EPA guidance document. This is why we wanted to show this to you.

We are risk assessors, Ted, myself, Paul, others in the room here are assessors. We don't make the decisions. There is a risk management team in this room and elsewhere that makes the decision.

We bring this information over here. That's SMDP, scientific management decision point. And a decision is made as to whether the risk has been properly characterized on this superficial screening level or not? Is it acceptable or not?

If there are more questions, then it proceeds on into a more detailed baseline level where we may be collecting samples in the field, we may be collecting samples of a media such as surface soil or sediment water, taking it back to our laboratory and conducting laboratory-based tests.

If you get nothing more -- I believe we have hard copy handouts here -- if you get nothing more tonight, you want to put a star on this slide right here. These are the three basic questions that must be addressed in every ecological risk assessment,

regardless of the level of detail that the assessors go into.

Number one, very simple; are site-related contaminants present within the media? Okay. Are they detectable? Are they present or not? I'd say the answer is, yes, at the given site.

If it's yes, the next question: If they're present, are these concentrations sufficiently elevated to potentially impair survival? Ted mentioned chronic lethality. Now, we're talking lethality there. Then he mentioned chronic, sublethal, longer term potential effects on growth or reproduction. Is that serious to an ecological community? Yes, absolutely, because we could see a population decline over time if that gross measurement was missed, we weren't addressing that point.

Where would we get this information? At this level, screening level, we're going to get it from tables. It's a desk-top exercise.

The final question: If they're present and if -- are their receptors present? Now, we're characterizing the ecosystem, itself. Are potential receptors sufficiently exposed? They may be

present. They may be present in elevated levels.

The second question is: Are they tightly bound within the sediments of a stream or within soils or perhaps deep in the soil? We get questions all the time about groundwater, deep groundwater. And we say, well, that's not an exposure point for our ecological receptors. When that groundwater percolates out of the surface-water body, that's an exposure point and that's where we get to the point where we address it.

So, there are the three questions that really would be helpful to understand those.

Screening level eco risk assessment. We have to look at the environmental setting, which varies, even in a large area like this. It's going to differ every place you go. It could be that parking lot out there or could be a very diverse and highly productive forested or wetland area, whatever. So, that's very important to us.

The types of detected chemicals, extremely important as to how we're going to focus this risk assessment. Some compounds may tend to biomagnify up through the food chain. We've all read

about those types of chemicals.

Is that a concern? Absolutely. Now we're going to focus not only on these critters down here, but we're very concerned about the top carnivores, the hawks and species like that, if compounds tend to biomagnify.

Inorganic metals, for example, Ted mentioned methyl, which was an organic form of mercury. But inorganic metals tend not to biomagnify up the food chain. So, our focus is in a different area for that type of constituent.

Eco-toxicity, a fancy term for basically toxic responses of ecology or ecological receptors, animals, plants, that sort of thing. The exposure pathways are extremely important.

Now, I'm going to touch on risk estimation and identification of constituents of potential ecological concern. Your slides have COPC, constituents of potential concern. The only difference is this is constituents of potential ecological concern, COPEC.

At the screening level -- this is a very important concept to understand, it's a very,

very simple concept -- but Ted alluded to the fact that if you're going to error on the screening level, you better error on the safe side.

So, inherent in this process are very conservative numbers. And look at this denominator, ecological screening value. That is not species specific, at this point. It is a generic number that is media specific. There's one for surface water, one for sediment, one for soil. That number is extremely conservative. That is the denominator.

All we do is take the -- what our geologists, field people, and chemists are giving us as to what concentrations were found in the non-living media. We look at surface water, soil, and sediment.

And we generally take our highest concentration found. We may have a hundred samples. And ninety-nine of those samples are well below this value, but maybe one's higher. Well, you know what, that's going to result in a hazard quotient that is kind of elevated. So, we have a hazard quotient that is greater than one, which means that a risk management decision is going to be made, and we can go

forward with this process or not go forward with it.

If the decision right here by this team is made, and after the screening activities, the risk is unclear, then we move into BERA, baseline ecological risk assessment.

Now, you see a problem formulation here. You've seen it up here. What's the difference? The difference is the level of complexity that we get into.

Now, it's even more important to us that we look at lead or at copper or at some other compound and we write and characterize, based on literature reviews, what kind of characteristics those constituents have, because that's going to drive this entire process, including the development of assessment endpoints. The types of constituents that are of potential ecological concern will drive the rest of the process here.

Again, to reiterate, this is an eight-step process. Some sites you're going to stop right here because you're not seeing -- even at the conservative level, you're really not seeing real great risk potentials. There is no such thing as zero

risk, but it's negligible risk that the risk managers may be willing to accept.

It they're not, we move forward here. In a baseline ecological risk assessment, as opposed to the screening level, the problem formulation, as I said, is more detailed. We have more detailed toxicity profiles, a fancy term for saying, we want to know exactly the mode of toxicity of a specific metal or a specific organic.

Where does it accumulate? Is it lipophilic or does it accumulate rapidly in fatty tissues? That's an important issue for us. It probably then would magnify up through a food chain.

We look at fate and transport mechanisms, very important. Given the range of these organisms and the varying habitats that we're dealing with at all of these large sites.

What eco systems are at risk? And this key here, assessment end points, we can't reinforce this enough, because poor assessment end points, the whole process will fall apart. Assessment end points are basically, what is it in that ecosystem that is of value that we want to protect? We'll have

multiple assessment end points.

THE COURT REPORTER: I'm sorry. I didn't hear that last sentence. What is it that we want to protect?

MR. ROB ZIMMER: We have multiple assessment end points. They are measurable values to be protected within an ecosystem. We review many eco risk assessments around the country, and we find that a big flaw here is not measurable, then it's a useless assessment end point. And that's key, it must be measurable, because we may be in a laboratory setting, we may be in the field collecting samples, but we've got to be able to measure that assessment end point.

Exposure and effects modeling that I'm going to touch on very shortly here. I'll get to them very quickly. That, too, is something that is literature based. And basically what happens is: Remember, we've gone away from the generics, and now we look out there and we say, well, in a terrestrial, old field habitat, you know, what are the types of receptors that you'd expect to find? Maybe it's the white footed mouse? I say white-footed mouse because there is a wealth of information, thanks to EPA and

others, other researchers, on the white-footed mouse, its weight, its -- the way it feeds, how much water it takes in per day, how much soil -- incidental ingestion of soil, what kind of leaf litter and all that sort of -- and potentially even bugs that it indigests in a day.

We know those rates. And therefore, that is a good one that we might select as a surrogate receptor in this kind of effects modeling.

But do you understand the difference? Now, we're looking at specific, potential ecological surrogate receptors. We're getting away from the generics now.

I mentioned abiotic, the non-living soils and sediments. Somebody could say I've got five hundred parts per billion of something in a soil or a sediment, and we'd say, well, how bioavailable is that? Is it tightly bound? Is it forty feet under? How bioavailable is that constituent? And we have to assess that.

And again, these two here, we don't have time tonight to get into them. We could spend days discussing them. Direct field biomeasurements.

Perhaps it's a collection of earthworms in a terrestrial setting and analyzing the tissues of those earthworms to determine what kind of concentration of our constituents of potential concern are present. And maybe it's a laboratory based bioassays, such as the fat-head minnow freshwater test, where you're looking at a ninety-six hour or a seven-day chronic window, and you're looking at potential effects from that.

Don't black out on me here. Let me just mention that -- don't worry about this. All we wanted to explain to you is with this model -- will this back up if I hit the right side?

UNIDENTIFIED MALE: Yes, it will.

MR. ROB ZIMMER: This model right here is similar or akin to this. You have to understand, as Ted did a very nice job explaining dose. Dose, you need to look at, and body weight. We can take the minimum body weight -- and we generally do that first -- off all these little old receptor critters, including maybe it's a red-tailed hawk, maybe it's that white-footed mouse, maybe it's several other things, maybe it's the fox.

I picked these because they're generally used around the country. And if they have a potential to be present at your site, they're generally used. Why? Because we have a wealth of information on the mean and the maximum and the minimum body weights of those types of critters. We also know how much water they ingest each day and how much food they ingest and how much incidental soils they may ingest.

We plug all this into the model. And remember, we are also plugging in the concentration of that constituent of potential ecological concern. If there's five of them, we do this five times. And we may plug in for mercury or for lead or whatever it is, we'll plug it in, what's the maximum concentration we found in our soils at various places around. And we're basically driving this model.

Ted introduced a concept that we all use in this field. It's called NOAELs. No observable adverse effect levels. You may also see adverse effect concentrations, but levels is the appropriate one we generally use around these woods in this part

of country for certain things.

Now, the important thing is, we will have a no observable adverse effect level for that surrogate. It's in the literature, and we can just make the comparison from there.

Sorry about that slide. Let's just move it on before everybody is asleep in here.

MR. SCOTT BECKETT: (Inaudible).

MR. ROB ZIMMER: Did you? Thank you very much. I can go back to it, if you want.

MR. SCOTT BECKETT: That's all right.

MR. ROB ZIMMER: Here we are, continuing on here with the scientific management decision points. And we've got a study design.

We don't do this in a vacuum. We wouldn't dare do it in a vacuum. We've made that mistake in other sites, in other parts of the country years ago. Because your best study design, you want everyone including the risk managers to say, yeah, if you do it the way you've designed it there, and the data quality objectives are in place, we will get concrete information to make our risk management

decision at the end of this.

And for time sake, we highlighted all of these. We moved forward into verification, sampling design.

We want to be careful. This is not a trivial thing. It's expensive. There is a lot to be done. And we want to make sure that when we come up with our results, we can properly characterize risks, and that a final decision can be made.

This is the last slide. And it is a important slide, because we have basically three possibilities at the end of this process. The first one being: The risk has been characterized by the risk assessors. And we sit down at that table, and the risk -- the managers say the risk is acceptable, there's no further action.

Again, let me reiterate what Ted said. It's not zero risk here. You've driven to this meeting tonight. You were a risk manager in making that decision to come here. You decided to accept that risk to drive here.

We do the same thing for these bugs and bunnies on the eco side. A decision is made to

accept it. It's a negligible risk, present and also in the future, if the constituent changes form or is moved, transported from one area to another, it's acceptable.

Here is the other possibility. It is unacceptable, the risk is too high. The risk managers say, we will not accept that risk. And we've developed this program in such a way where we're already ready for remedial or cleanup goals.

Big difference between the world that Paul and Ted and the human health guys are in and we're in, because you'll hear remedial or cleanup goals on the human health side, we're talking ecological remediation and cleanup goals on the eco side. So, there may be a difference those numbers. That's a second possibility.

This is the third one here that always concerns us. But if the risk is still unclear, then it's possible that supplemental data or information may be needed. Maybe it's from the literature, maybe it's from supplemental sampling, whatever it is. But our objective is to get to either point here. It doesn't make much of a difference to

us assessors. It's either acceptable or unacceptable. But we have characterized it for you risk managers. You make the decision and go from there.

Guys, I appreciate your attention and be glad to entertain whatever questions you may have.

MR. SCOTT BECKETT: I'm a little unclear on the assessment end points. What would be the difference between a measurable and nonmeasureable assessment end point?

MR. ROB ZIMMER: Okay. Great question. Let me repeat it for everybody to make sure you hear it. The difference between an assessment end point and a measurement end point -- in these reports, you'll see a table frequently which lists the assessment end points and the measurement end points. And let me give you an example of an assessment end point. It could be protection of omnivorous avian or bird life in a terrestrial environment.

That's an assessment end point. Is it measurable? Well, we're not going to go out and shoot, say American robins or capture them or anything and look at that. But we may look at the measurement

end point, maybe the tissue concentrations in their food, maybe the earthworm. Okay?

And looking at modeling the uptake of that -- when I say concentrations of the constituents of potential concern. And we look at that ingestion. And then we look, with the tables that we have, for these NOAELs, and we look to see whether there's an adverse effect.

Now, that's an over-simplified -- the difference is: We want to protect that resource because we've identified it invaluable, and secondly, we can measure it by using alternative type species or its food or that sort of thing.

And in an aquatic environment, maybe it's actually protection of benthic invertebrates, the bottom bugs and those types of things. And that's our assessment end point. Perhaps it's the protection of benthic invertebrates.

How do we measure that? We may go out and do a stream survey to see how healthy that -- the benthic community is. That's the measurement end point.

With threatened, endangered species,

we would not be out there collecting threatened and endangered species. We would use surrogates for those.

And that's our measurement end point. It could be -- an assessment end point, could be protection of such and such threatened species. That's a good assessment end point. Our measurement end point is not collection of that. It's a collection of some surrogate, which is a suitable representative of it, so we wouldn't be hurting it.

And that's a very good question. Yes, sir.

MAYOR WILLIAM KIMBROUGH: When there's a conflict between acceptable and unacceptable, what process is there? Where it's statistical data, research or something where there's a conflict.

MR. ROB ZIMMER: The question is: What happens when there is a conflict between acceptable and unacceptable. And I will be honest, that's a risk management call. Or unless the risk managers say, you all have to better clarify that, because we're having a conflict here. We say, okay,

we can collect more of this, we may collect more of that or whatever.

But if there is a conflict and disagreement here, okay, because the characterization was made, the presentation was made, if there's a disagreement there, that is -- a risk manager is going to have to answer that or make that call. Unless it's clouded, and we haven't made it clear. And then we'll have to go out and do supplemental work. Yes, sir.

MR. SCOTT BECKETT: I got a question. And this -- I guess this may be for Ted and you. We've got two separate handouts, one for human risk and one for environmental risk. And the implication is that those are separate?

MR. ROB ZIMMER: Let me first take a stab. My -- the heading on mine, environmental risk assessment, first of all, an environmental risk assessment -- I think you had this in one of your slides, Ted -- correctly is human health and eco. My title slide should probably read ecological risk assessment. Now, if that's confusing you -- is that the way you see it?

MR. TED SIMON: I think that's what

I said.

MR. ROB ZIMMER: Environmental Risk Assessment, I see it all the time. I see environmental risk as two halves, the human health side and the eco side.

MR. TED SIMON: The Superfund regulation, the national contingency plan for (inaudible) all hazardous substances has a phrase that's echoed throughout it, protection of human health and the environment. And the way that has been interpreted is that we determine whether or not active measures are needed to protect human health, using the human health risk assessment. And we determine whether active measures are needed to protect the environment using the ecological risk assessment. And the split between the two really started out with that phrase from the national contingency plan.

MR. SCOTT BECKETT: Well, I guess where I'm coming from is: We looked at the landfill information, and there were two or three sites on there where it came up that there was no human risk, but there was an ecological risk. Indicating to me that there is somehow a separation between -- somehow

that the environment doesn't affect the humans or in some way, I am unclear of why, there is not an overlapping there.

MR. ROB ZIMMER: Well -- and you can help me out here, Ted, if you'd like to. But these are two different processes that you're seeing here. That's why there is two separate groups working on it. And I'm going to defer to my college Paul Goetchius here in a second.

But basically, a human health risk assessment is done, because that's the potential risk you're dealing with. And we conduct, as I've just explained there, that process for an ecological assessment.

And people say, what about humans eating fish. Well, we don't concern ourselves with human ingestion of fish, because we're on the other side of the fence. Paul, go ahead. Do you have a comment?

MR. PAUL GOETCHIUS: Basically, the difference -- you may have a site that does not pass say (inaudible) being specific about what that means, the ecological risk assessment, but passes the human

health risk assessment. For one thing, the human health risk assessment is dealing only with the human as a receptor. And there are some ecological receptors that are far more sensitive than humans.

The other thing, of course is the exposure side. Humans may not be as intensely exposed to say surface soil as earthworms are. So, they're more likely to catch it. Does this help, at all?

MR. ROB ZIMMER: That's a great point, Paul, The fact that many times we're seeing now that the ecological receptors are more sensitive to certain constituents than the human health side, and exposure scenarios are different.

MR. SCOTT BECKETT: Okay. What -- I just want to give an example of what I'm thinking about. Suppose you've got an ecological stressor that kills the (inaudible) --

THE COURT REPORTER: I'm sorry, Scott. That kills what?

MR. SCOTT BECKETT: Suppose you have something that kills the little fungus that live on the tree roots that allows them to uptake water and minerals -- and this is an extreme case, but what

about if all the trees died? That's not a human risk, in the fact that unless a tree falls on a person, it doesn't kill a human, but certainly it affects the environment that people would be living in, moving into it. It affects real estate values, if affects temperature. It then affects all the health of all the other species that live there. It affects the soil, effects the water infiltration, all of those things.

And I'm saying that in some sense it's an artificial distinction to pull apart human health and ecological health. It may be important scientifically to look at them separately to structure the analysis. But somehow where do they get put back together and they say, these things really overlap?

MR. PAUL GOETCHIUS: Well, the manager is the one that puts them back together.

MR. SCOTT BECKETT: Okay. That's what I'm curious about.

MR. TED SIMON: Yeah, they do. Now, there Is a -- you've got to remember, the agency, EPA, it connects with the wheel of Congress. Congress has written its regulations and we're -- our job is to

implement the regulations.

And frankly, if we kill all the trees, that may well be an adverse effect to the humans, but that is not in the regulation. And, you know, to be perfectly honest, we don't look at that in risk assessments, in --

MR. SCOTT BECKETT: Well, I --

MR. TED SIMON: -- (inaudible) practice.

MR. SCOTT BECKETT: Okay. I'm just saying, I think that we as the Board need to be aware that the analysis we're looking at may not cover all the values that we need to be aware of. These are very well structured and they cover lots of stuff, but there may be other things going on that these studies don't address.

MS. MIKI SCHNEIDER: Who is the risk manager in our case?

MR. TED SIMON: Ron, go ahead and answer that.

MR. RON LEVY: The team is the risk management in our case, the BCT. We're making the risk management decisions.

MR. PAUL Goetchius: Ron, can address this gentleman's question? You've raised a really good point. One of the principles that underlies both the human health and the ecological risk assessment is that if you protect for the most sensitive receptor or the most highly exposed receptor, you also protect for all other receptors. Ted mentioned that when he mentioned the residential receptors compared with, I think, site workers or something like that. So, if for example (inaudible) you have some chemical that's interfering with --

THE COURT REPORTER: I'm sorry. I'm sorry.

MR. PAUL Goetchius: -- you have some chemical that's interfering with the life of the trees say, that's going to be the most sensitive driver, risk driver on that particular site. And risk management decisions made to deal with that would also be protective of less sensitive receptors, be they human or whatever. So, in effect, you're covered, even though you haven't seen a formal pre-synthesis of what was taken apart for the purpose of the analysis.

MR. ROB ZIMMER: There is one other

point, Paul, that I think really does explain it, because I think it is covered and I don't think that there is a major gap here. And that is: Do you remember I emphasized the all important assessment end points?

When we sit down around a table, if long-leaf pines and, you know, certain pines or certain types of trees are a valued ecological resource, because the humans say that that's a valuable ecological resource, well, our ecological risk assessment will be focused in to make -- the ensure the protection of those species of trees. Do you understand what I'm saying?

So, again, that's why we stop, and that's why these things aren't done overnight. We'll stop and make sure that everybody is in agreement with what we're valuing as assessment end points.

And that's where I think you do get some overlap in that you can say, well, I think that tree is valuable. If we lost all of those trees due to problems with the root system, boy, that's hurt our environment and our recreational resources, etcetera. Well, that's a valuable resource that we're going to

look at.

MR. TED SIMON: Let me just mention one other thing in the national contingency plan.

MR. DOYLE BRITTAIN: Speak up, Ted.

MR. TED SIMON: Let me address one other thing in the national contingency plan. There are nine criteria by which these site decisions, site remedial decisions are made. If I miss some, Doyle, you'll help me out?

MR. DOYLE BRITTAIN: Sure.

MR. TED SIMON: The first one is protection of human health and the environment. The second one, I recall, is cost. The third one is reduction of toxicity mobility and persistence. And I think there's a short term and a long term that that relates to. Those are four criteria. There is state acceptance, there is community acceptance. All of these are factored into this decision. So, it's not just risk.

So, if you come to a situation where there is a problem at a site that is not dealt with under either of these risk assessments, that is not covered by the law, many times a decision will be made

to deal with the problem.

I'm thinking of another base I worked at. There was a rubble pile. It was construction rubble. They went out and sampled. There was nothing there. And it was nasty. So, they were digging up something else. They brought a bulldozer in and dug it up, graded a spot, and took it away.

There was no basis for EPA telling them to do anything. But this was a decision -- it was the right decision -- this was the decision that was made on the basis of these other criteria.

And so, the fact whether you get an acceptable or unacceptable risk does not determine the decision. It is a tool, it is a piece of information that's used by the decision makers, but it doesn't determine totally what the decision is. Does that help?

MR. SCOTT BECKETT: Uh-huh, thanks.

MAYOR WILLIAM KIMBROUGH: In the process that we've gone through here, you've explained that there have been two different processes. And I'm referring mainly to my little pit as landfill three.

Okay. We came up - you said there's -- human health is one issue and then the groundwater was another issue. Are those separate EE/CAs that are being done? And then can you have a recommendation for remediation for one that is maybe in conflict with not the other? Because we've got a recommendation of capping, right? And that was based on the EE/CA that was done for what, Ron?

MR. RON LEVY: Let me make sure I understand you. There is essentially two different -- there is essentially two different investigations going on. Okay? It's really not human health and groundwater, it's the landfill and the fill area and then the groundwater. And we've split them up into two separate investigations in part of those processes.

And we're addressing the fill and what's in the landfill in the EE/CA. And we're doing an RI for the groundwater. And that's seen in the groundwater monitoring wells that we've been installing within the highway and across the road.

So, there will be two essential -- essentially, at the end of each one -- and you saw it

in the EE/CA -- there will be a recommended alternative, and there will be the same thing at the end of the RI for the groundwater, there will be a recommended alternative with the intent to be protective, either for the groundwater or for the landfill, each one of those is --

MAYOR WILLIAM KIMBROUGH: Okay, how can you -- how can you separate the two? How can you come up with a recommendation that capping when the problem of the groundwater is coming from the landfill? How can you separate those two issues? I mean, we've already got a recommendation, which -- on the landfill of capping. We haven't gotten the total analysis from the groundwater. So, how can we not consider that in the recommendation that was made for capping the landfill?

MR. RON LEVY: The decision to split the two was -- and I will tell you that this was a BCT decision, you know, even though we are the lead agency, we all agreed that we were going to do this and pursue the groundwater separately.

And there's -- I know there is some conflict in terms of the -- in terms of what we're

doing for the landfill. But, in the landfill, we are addressing the fill area for purposes of the fill area, what's in the fill.

What's already in the groundwater is already in the groundwater. It doesn't go away, no matter what you do. So, it has to be addressed. And it's being addressed separately, because it does not matter what you do up there for the fill area. The groundwater is always going to be contaminated. So, we're looking at a separate remedy for the groundwater, from what we got in the fill area.

Now, we can argue whether or not the remedy we defined at this point for the fill area is adequate or not. We won't go there, at this point, but --

MAYOR WILLIAM KIMBROUGH: Well, I just -- you know, when we were talking about the two, and you had said you were doing two different studies, the groundwater and the landfill, and so I assume they're going through the same process for each one of them. You've completed it for the landfill and now the groundwater, you'll be going through basically this same process.

MR. RON LEVY: Yeah. And I will tell you that, Steve -- this is not -- where is Steve?

MR. JOSH JENKINS: He's gone.

MR. RON LEVY: I would argue that this is not a unique situation. It's done at other locations, as well.

MS. DONNA FATHKE: Ron, I've got a question. What happens if when you finish the EE/CA on the groundwater if you end up with --

MR. RON LEVY: It's an RI.

MS. DONNA FATHKE: I'm sorry?

MR. RON LEVY: It's a remedial investigation that we're doing of the groundwater. It's a characterization, as well, but it's called -- it's an RI.

Go ahead. Finish your question.

MS. DONNA FATHKE: What does that mean, with respect to the EE/CA? Are you saying it's not going to go through the same process?

MR. RON LEVY: An EE/CA is a streamlined process where you're looking at -- where you're essentially looking at -- make sure -- where you're -- let me stop myself for just a second. An

EE/CA is essentially the same process as an RI, but it's a streamlined process, you know where you're -- you essentially know where you're going with it. Whereas an RI --

MS. DONNA FATHKE: You're clueless?

MR. RON LEVY: No. Somebody --

MS. DONNA FATHKE: You're not sure where you're going with it?

MR. RON LEVY: No, that's not the point.

MS. DONNA FATHKE: Is it more data gathering?

MR. RON LEVY: No, that's not the point.

MR. JOE DOYLE: In the case of the EE/CA you've got the presumptive remedies.

MR. RON LEVY: We can talk -- yeah -- I want to make sure I put this in the right terms so it's easy to understand. We're characterizing in both senses. Okay? One is a streamlined process and one is a process that's -- it's just a full process, as opposed to a streamlined approach to it.

DR. BARRY COX: And how do you make a decision on which one you're going to use?

MR. RON LEVY: Well, in the case -- and we did this long before Doyle and Philip were there, when Bart and Chris were with me. EPA has got a presumptive remedy for landfills, military landfills, particularly. There is a directive. And in that presumptive remedy it says cap, essentially, or cover.

And we were assuming that that's where we were going with this, at the time, because it was a presumptive remedy. And EE/CAs are generally, they're focused. When you have a presumptive remedy, you can focus on that presumptive remedy and really move in a streamlined approach.

We thought we were going to move fairly quickly on this. Of course, that's not happened. I mean, we've had to go back several times and discuss and argue about, you know, what we needed for additional data.

But we thought we were going in that direction. We were using that approach. That's why we used an EE/CA.

And if you look at some of EPA's directives, you can see where they talk about a focus (phonetic) feasibility study or an EE/CA. And that's, in fact, that's what we did, knowing that we were looking at a presumptive remedy for military landfills, because military landfills tend to be more unique than regular -- than just a conventional or a municipal landfill, because you really don't know a lot of times what went in those.

And the presumptive remedy is such that you really don't want to -- they talk about cover or cap, because you really don't want to remove that stuff, you don't know what you're getting into sometimes.

So, that's why we decided to use an EE/CA. And those decisions were made, I want to say, three or four years ago. And that's why we've been using the EE/CA for this particular site.

The RI on the groundwater, we don't have a presumptive remedy. We're not actually sure where we're going to end up in terms of what's out there. So, we're doing a full blown RI. And, you know, depending on what comes out of that, you know,

we'll pick a remedy. I can't tell you what that's going to be, at this point.

MS. DONNA FATHKE: So, what if that remedy is in conflict with the remedy that's come out of the EE/CA for the landfill?

MR. RON LEVY: They're two different -- I mean, they're two different things. It wouldn't be in conflict. They're just two different things.

MS. DONNA FATHKE: Well, what if it shows that the increase of hazardous material in the groundwater is increasing because groundwater is washing the landfill, even though it's been capped?

MR. RON LEVY: Well, we can argue that that's -- that the remedy we're talking about for the landfill is not an appropriate remedy to affect -- to keep contamination of the groundwater from happening. You can argue that.

But the contamination of the groundwater is always there. So, you need to figure out what it is you're going to do to address the groundwater issues.

MR. SCOTT BECKETT: So, is it possible that in addressing the groundwater issues, if

we find out that material is continuing to leach from the capped landfill into the groundwater, so then you're not just concerned about what's existing in the groundwater, but what's continuing to enter the groundwater, would a determination from an RI on the groundwater then prompt a re-evaluation of the capping decision on the landfill?

MR. RON LEVY: It may -- it could in fact do something different to associate it with that fill area, maybe -- I don't know, slurry wall. Guys, BCT, give me some examples here.

MR. PHILIP STROUD: That is an example, slurry wall.

MR. RON LEVY: To address it. But if you decided that you were going to remove that fill material because you think the source is still in there and it's leaking in there, removing that doesn't take care of your groundwater issue. It's still there.

MR. SCOTT BECKETT: I understand that.

MS. DONNA FATHKE: I understood that. Yeah, you still have to come up with a remedy

for that.

MR. RON LEVY: Right.

MS. MIKI SCHNEIDER: I'm curious about the comment about the groundwater is always there, the contamination is always there. Can't it move and go somewhere else?

MR. RON LEVY: Certainly.

MS. MIKI SCHNEIDER: Can't you take it out?

MR. RON LEVY: That could be the remedy. For the groundwater, itself, you could do some sort of pump and treat.

MAYOR WILLIAM KIMBROUGH: As long as we don't pump it out of our wells, we'll be all right.

MR. RON LEVY: At this point, we really don't know -- we've not determined -- we've not -- in a RI, we have not determined the nature and extent, yet. Certainly, we don't know the extent of that.

We're going to brief you next month about what's coming out of the additional wells that we've put in. But we've still not hammered down or gotten to the point where we can say we actually know

where it's at.

MR. CRAIG BRANCHFIELD: Are there any other questions on the risk assessment presentations before we move on? Okay.

Unexploded ordnance video. The video is about twenty minutes long, and we still have to go through new business and audience comments. Glynn has whispered over to me that if the RAB would like, we can put the video off to the next RAB meeting, if we'd like to move on into the new business, since we're running a little long tonight. Is anyone -- I'm getting the thumbs up from this end of the table. Is anyone opposed to that idea? I'm getting an -- okay, never mind. We will postpone the video until the next RAB meeting.

And with that, we'll move on to new business and the agency reports. And I guess we'll start with Philip.

MR. PHILLIP STROUD: Okay, as usual, I'm going to hand out some of the reports that are in review. A lot of ones we've completed since the last time. Again, I'm going to say it again, the reports we're reviewing now are very, very difficult. And

they take an enormous amount of time to review. We're getting into the remedial investigations and unexploded ordnance. And I wanted to also, while I'm saying unexploded ordnance, Spencer Nelson of URS Group is here. He'll be going on a site tour with us tomorrow. Glad to have him on board.

All right. And here's the list of them. I'm going the pass them around. And I'm going to save y'all some time, and y'all can read it. If we need more, we'll get some copies.

(Whereupon, a discussion was held off the record.)

MR. PHILIP STROUD: I don't have anything else to add.

MR. CRAIG BRANCHFIELD: Is that it? Okay. Doyle.

MR. DOYLE BRITTAIN: Basically, for the last month, the majority of my time has been spent reviewing the landfill documents. And I don't know if you all have seen those or not. The EE/CA, for the landfill -- I forget if it's two or three volumes that are about four inches thick -- and then there is a site-definition report that's four volumes. Each of those are about four inches thick. That's some pretty

heavy reading. But anyhow, the majority of our time has been spent reviewing those and then a few other small documents, such as the screening ecological risk assessment for the small arms ranges over there at Iron Mountain Road.

So, we've been busy trying to get caught up on our review of documents. And right now, I think we are caught up. That's all I have.

MR. CRAIG BRANCHFIELD: Doyle, do you have any comments on the review so far as the landfill EE/CA?

MR. DOYLE BRITTAIN: We've submitted those to Ron. He has our comments.

MR. CRAIG BRANCHFIELD: Can you give us a sense for what was in those comments?

MR. DOYLE BRITTAIN: Well, as far as the EE/CA, don't have any real problems with it. I think we need some more data to determine the nature and extent of contamination and basically what risk may be posed by those. This is something that we'll be working with the Army on that, something we'll be talking about later this week, what additional data may be needed for that.

But as far as what the Army has done, the quality of the data is good. I have no problems with anything on that. The only question is is that there's just what we feel like are some data gaps that need to be filled.

MR. CRAIG BRANCHFIELD: Is that primarily on the human health or the ecological side?

MR. DOYLE BRITTAIN: I would like to say on both right now.

MR. CRAIG BRANCHFIELD: Okay. Is that more or less -- I know we saw in the paper that ADEM had comments, also. Philip --

MR. PHILIP STROUD: Yes.

MR. CRAIG BRANCHFIELD: -- is that more or less on the same lime as what Doyle is saying?

MR. PHILIP STROUD: We're on the same line.

MR. CRAIG BRANCHFIELD: Okay. I know the answer to this question, because I asked Glynn before the meeting, but, Glynn, or, Ron, could -- my question that some of you may have was: Are EPA and ADEM's comments required to be addressed, you know, as part of the public comment period or is it a

separate process?

And basically the answer to that question -- you guys can jump in any time -- is that comments from ADEM and EPA are considered in parallel, I mean, right along with any public comments they receive. So, those comments, I guess, officially wouldn't be addressed until the end of the public comment period; is that correct?

MR. GLYNN RYAN: That's correct. We will take a look at all the comments. And we will -- when it closes on the 19th of August, the Army will sit down with the risk assessors that -- with Shaw and go through all of the comments. We'll address those.

Sometime after that we'll present, you know, all of the comments back to respond to, whether it's yours, JPA's comments, or EPA, or ADEM's, or community members.

MR. CRAIG BRANCHFIELD: Is there like an administrative record or something on that, Glynn, where you guys list each comment and what the Army's response is to it that becomes public at some point in time?

MR. GLYNN RYAN: Yes.

MR. CRAIG BRANCHFIELD: Okay. Anything for Doyle or Philip before we move on to Miki? Miki.

MS. MIKI SCHNEIDER: Thank you. As we said earlier tonight, we have Jennifer Heath, our risk assessor here tonight. She'll be working with us tomorrow. And then next week our engineer from Matrix Engineering is coming in and has requested a list of documents from the Army and will be here reviewing some documents so that we can continue to develop our comments to give to the Army by the August deadline.

We start pulling our first of nine underground storage tanks this Wednesday at McClellan. Looking forward to that experience.

And I guess the biggest news that you probably read about in the paper was the introduction of a possible national preparedness university that would be affiliated with the training for Homeland Security. We're continuing to work through that and talk through that with people from the federal level and the state level.

The housing sales are continuing

quite nicely. Most of the properties that we have that were available for rental have been rented and all the houses but seven on Buckner Circle are sold. So, we're excited about that.

We're continuing the conversations with the -- talking about doing a convention center up in the Buckner Circle area. And that's something that we feel is in need in the community, and we're pursuing that.

MR. CRAIG BRANCHFIELD: Any questions for Miki?

Action summary sheet. Ron, anything specific you want to talk about there?

MR. RON LEVY: I won't read this thing verbatim. We've sent it out to you.

Just the first part talk about the off-site groundwater monitoring. Essentially, we're -- we're still getting data in. We do -- or I should say we expect to present the data to the BCT tomorrow for review. And then next month, for those additional monitoring wells, we'll come back to the RAB and give you that data -- what's coming out of those wells. I haven't seen it, myself, yet. We're going to get it

this week.

There is some discussion on the status of the ongoing work in the Alpha, Bravo, Charlie area EE/CAs. There's still a lot of internal review going on. It talks about that in the Alpha area EE/CA. And we're in the process of producing the report on the Bravo area EE/CA. Charlie, they're in the field working as we speak. And M101 area, they're also in the field, Field work continues.

Eastern bypass is just as well, they're in the field doing -- on the removal actions. Discussion there about CWM investigation. You've heard that. You've gotten briefed on that. The details are in the minutes or in the action summary sheet.

Landfill EE/CA, at this point, we're still -- Glynn said, we are still accepting comments through the 19th of August. There was a little discussion about the present FOSTs that we've got in and contractors that are on the installation, which the numbers are in there about that.

Anybody got any specific questions about actions or work that's ongoing on

Fort McClellan? I'm glad to entertain that.

MR. CRAIG BRANCHFIELD: Any questions? Anything else, Ron?

MR. RON LEVY: No.

MR. CRAIG BRANCHFIELD: No, okay. Technical review committee report. I have nothing to report. Barry, anything?

DR. BARRY COX: (Shakes head.)

MR. CRAIG BRANCHFIELD: Update of TAPP contract hours. I can read what's here in front of me, Ron, or --

MR. RON LEVY: The RAB had asked about Mr. Grant's status on his billing. Based on the contract, there was about five hundred hours in the contract. He's billing at fifty dollars an hour. And to this point, he's billed for about twenty-five point five hours, twenty-five and a half hours, at fifty dollars an hour. That leaves us with about four hundred and seventy-four and a half hours left in his contract. This was what people were interested in, to make sure we didn't put too much work on him and still have the ability to push work his way.

I think Ron's right now in kind of a

mode, receptive mode to be told by the RAB if there is specific things that they want to be --

MR. RON GRANT: I haven't billed for any hours for the last month.

MR. CRAIG BRANCHFIELD: Okay. If you wouldn't mind, Ron, hanging out for just a couple of minutes afterwards, I know Barry and I wanted to sit down and talk to you about a couple of things, Ron, if you have a minute. Appreciate that.

But if anyone on the RAB, as you're reading through Philip's summary of documents that the agency is reviewing or as you're looking at the action summary sheet or anything else, if there's anything that you have questions on that you'd like to propose Ron take a look at, please, let me know, E-mail, call me, whatever, and I will make the request to Ron. As you see, you we've got plenty of hours here to use for him.

So, this is our chance to have somebody do some legwork for us and educate us. And we should certainly take advantage of it to the extent that it's practical and appropriate. Please, let me know if there's anything specific you'd like for me to

take a look at.

Okay. Anything else before we move on to audience comments? No. Are there any questions or comments from the audience this evening? Big crowd, big crowd.

Okay, well, all right. Well, with that said, it's a quarter after 8:00, so do I hear a motion to adjourn for the evening?

MS. DONNA FATHKE: Yes, you do.

MR. JERRY ELSER: Second.

MR. CRAIG BRANCHFIELD: Anyone opposed? Then we will carry the motion to adjourn for the evening. Thank you.

(Whereupon, the meeting was adjourned.)

C E R T I F I C A T E

STATE OF ALABAMA)

CALHOUN COUNTY)

I, SAMANTHA E. NOBLE, a Court Reporter and Notary Public in and for The State of Alabama at Large, duly commissioned and qualified, HEREBY CERTIFY that this proceeding was taken before me, then was by me reduced to shorthand, afterwards transcribed upon a computer, and that the foregoing is a true and correct transcript of the proceeding to the best of my ability.

I FURTHER CERTIFY this proceeding was taken at the time and place and was concluded without adjournment.

P.O. BOX 544
OHATCHEE, AL 36271
256-892-0591
FAX 256-892-3001

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal at Anniston, Alabama, on this the 23rd of July, 2002.

SAMANTHA E. NOBLE
Notary Public in and for
Alabama at Large

MY COMMISSION EXPIRES: 11-19-2005.

P.O. BOX 544
OHATCHEE, AL 36271
256-892-0591
FAX 256-892-3001