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REMEDIAL PROJECT MANAGERS' MEETING

NASA/JET PROPULSION LABORATORY

7 January 1999

ATTENDEES:

Charles L. Buril, JPL
Alex Carlos, RWQCB-LA
Mark Cutler, Foster Wheeler
Craig Christman, DTSC
Richard Gebert, DTSC
Kristen Johnson, Foster Wheeler
Yugal Luthra, DTSC
Mark Losi, Foster Wheeler
Judith A. Novelly, JPL
Mark Ripperda, USA EPA
Peter Robles, Jr., NASA
Dan Stralka, USA EPA (via telephone)

Reported by: Louise K. Mizota, CSR 2818

Pasadena, California

January 7, 1999

9:20 A.M.

BURIL: I'm just going to ask everybody to introduce themselves in a nice loud voice so Dan can hear who you are and what your voice sounds like so he has an idea of who is talking when he hears a voice.

Dan Stralka is the EPA toxicologist on the project.

Okay.

ROBLES: Peter Robles, NASA/JPL RPM for this site.

CUTLER: Mark Cutler with Foster Wheeler.

CARLOS: Alex Carlos, Regional Board.

CHRISTMAN: Craig Christman, DTSC.

GEBERT: Richard Gebert of DTSC.

RIPPERDA: Mark Ripperda, EPA.

LUTHRA: Yugal Luthra, DTSC.

LOSI: Mark Losi, Foster Wheeler.

JOHNSON: Kristen Johnson, Foster Wheeler.

NOVELLY: Judy Novelly, JPL.

BURIL: And Chuck Buril. Okay.

The purpose of the meeting today is to

1 discuss the comments that we have on the RI report
2 for Operable Units 1 and 3. It's both the RA and
3 the RI that we want to discuss. And recognizing
4 that Dan is here by phone and somewhat hampered by
5 the fact that he couldn't be here today, I thought
6 we'd take the RA comments first so that we can
7 release him from having a phone planted in his ear
8 and then we can go on with the others from there.
9 STRALKA: That would be appreciated.
10 BURIL: Well, let's go ahead and do that if we
11 could, then.
12 Let me go ahead and point out that the
13 Regional Board, if I can characterize what Arthur
14 Heath sent us from the Regional Board on the draft
15 risk assessment, is that basically they defer to the
16 DTSC for review and comment of this particular
17 document. And so their comments basically are that
18 they won't be providing specific comments, but that
19 they would like to have seen historical groundwater
20 quality data from on-site and off-site wells and
21 provide that completely within the report.
22 I'll mention this, because it's also
23 mentioned in a couple other places, that we are
24 planning to do that. We have as much data as we can
25 lay our hands on from production wells in the area.

1 That will be presented in the report graphically as
2 well as in tabular format, I believe. And --
3 CUTLER: Tabular.
4 BURIL: Oh, okay. Tabular format. For those
5 things that we can graph reasonably, we'll be
6 providing a graphical format as well. So we're
7 going to be addressing that comment because actually
8 that appeared to be a universal comment throughout
9 everybody's.
10 Taking that, then, I'll jump to EPA's
11 comments. This is from Dan's letter. First of all,
12 does everybody have a copy of the comments that I'm
13 going to be referring to? This is Dan Stralka's
14 letter of October 22, 1998. We have extras here, so
15 hold on just a minute.
16 GEBERT: No, I don't.
17 BURIL: All right. Let me go ahead and get that
18 together. Hold on.
19 GEBERT: Could I have a copy?
20 BURIL: Sure. Who doesn't have a copy? I'll
21 just go ahead and hand them out.
22 Let's see. Let me take this a step at a
23 time. I've got them all stuck together here. Okay.
24 Just go ahead and pass that around.
25 I'm also going to pass around the sign-in

sheet, if you folks would please take a moment and sign in.

Judy just made a suggestion to me that before we move much further, I have a big note here from my secretary that says "Please get approval on the 10/15/98 minutes" so we can call that done and we can get it out to the repositories. Were there any comments, questions, concerns regarding those particular meeting minutes? Are they suitable to send out to the repositories as they stand?

I see lots of nods, so I'll assume everything is fine the way it stands and we will go ahead and send those out. Great. Thank you. Okay.

Dan, here is a question I'd like to find out from you just as kind of an overall understanding of your level of knowledge thus far in the project specifically, and that is have you had opportunity to review the remedial investigation report itself as opposed to just the risk assessment?

STRALKA: Oh, yeah. I looked at the whole document.

BURIL: So you looked at the RI and the RA, the two separate documents?

STRALKA: Yeah.

1 BURIL: Okay. Good. Then one of the things I
2 wanted to find out is in your first paragraph, you
3 indicate that "If this report is to be a stand-alone
4 document, then a more complete description of the
5 site conceptual model including possible release
6 points," et cetera, et cetera, "needs to be
7 included." That was a comment that came across a
8 couple of times.
9 One of the things that we thought might be
10 of use to try to address this is to simply
11 incorporate the RA into the RI overall. And that
12 way the RI becomes both documents and all the
13 information that we would have available is in the
14 one document and it becomes stand alone.
15 Would that be suitable to address your
16 comment?
17 STRALKA: Yeah.
18 BURIL: Okay. That's good, then.
19 STRALKA: You may still need to -- I mean the
20 site conceptual model may still need to be beefed up
21 even with that inclusion; the description of the
22 site conceptual model for the RA, the risk
23 assessment portion.
24 ROBLES: In what way do you want that beefed up?
25 STRALKA: Well, I mean, some of the follow-on

comments that I have here about how -- the description of the aquifer and what's connected to what and all that sort of stuff. That, I think, could be more succinctly placed together just as -- in the site conceptual model, which it isn't now. I think in reading the whole RI you'll get a feel for that. But there's -- like the footnotes version needs to be in that conceptual model.

BURIL: Does that make sense to you, Kristen?

JOHNSON: Yeah.

BURIL: Okay.

JOHNSON: That's fine.

BURIL: Then the second paragraph, Dan, we were looking at your comment with regard to, looks like basically, on the evaluation of the untreated water. You established a concern regarding "the areal averaging over the entire site or plume is too large."

STRALKA: Right.

BURIL: Could you expand on that for us for just a moment, because that kind of confuses us a little bit.

STRALKA: I guess we had talked about this in the scoping meeting several years ago, about how to do the averaging or what was going to be averaged

1 over. And at that time we were talking about we
2 had, you know, the east and the west side of the
3 base, or the facility, and whether those wells were
4 in the same aquifer and whether they should be
5 averaged over. We were talking about the off-site
6 wells, which ones of those would be averaged over.
7 Remember that was at the point where we still had
8 the OU-1 and OU-3 separate.
9 BURIL: That's correct.
10 STRALKA: The hope was always that we would be
11 able to take all this information and, if you will,
12 in a three-dimensional picture or draw a
13 three-dimensional picture of where the contamination
14 is, what we know about it, where it's moving, where
15 it could be moving to. That's the type of thing
16 that you're trying to present in the RI.
17 Then when you get to the risk assessment,
18 what you want to do is over what area is the water
19 being used. And that gets rather confusing in this
20 case since it's covering such a large area. That
21 averaging over the site -- in averaging over the
22 off-site is rather arbitrary and it doesn't really
23 give the project team much of a handle of where the
24 contamination is and what needs to be addressed.
25 So what I was suggesting is to do, as I

had talked about earlier, I think, about doing risk isopleths where you look at each well, you calculate the risk at each well and then using a plotting program you can just connect dots over the plumes so that you can show where the risk is relative to the surface area.

ROBLES: Now, you're talking about the wells that are impacted by our plumes. Is that what you're saying?

STRALKA: Well, yeah. I mean, you're plotting all the data that you have.

ROBLES: Okay.

STRALKA: Your common denominator here is that you're using risk to give you all the contaminants in each well.

BURIL: I guess the question I would have to that, though, is that if we are agreed that the point of exposure is going to be through the aquifer being used at city supply wells and things of that nature, the isopleth idea, while it would certainly be illustrative, I don't think it would really give us much more useful information.

STRALKA: Actually, it does. It shows you where you need to focus and where you could easily focus your remediation to reduce the risk.

1 What you're saying is essentially, which I
2 don't think you did here, but essentially you're
3 saying average over and then modeling what would be
4 the concentration in the well over time at the
5 current production level.
6 Well, in order to do all that modeling we
7 have to know a lot about the aquifer and where
8 things are going. Instead of making those
9 assumptions, if we just say this is where we know it
10 is now based on our analytical results in these
11 aquifers, this is where it is, we can draw this
12 picture. This is where we think the release points
13 are, this is where the stuff is now, this is where
14 the highest concentrations are with risk. So in
15 other words, it's not just the highest
16 concentrations of TCE, it's not just the highest
17 concentrations of chromium.
18 We're taking into account how people would
19 be exposed to that, what would be the overall risk
20 to that and then combining those so it's a
21 cumulative risk and say this is where the risk is
22 the highest and this is where we need to address.
23 If we're going to do a remediation, this is where
24 you would go at it.
25 And then looking at that, then the

1 engineering portion can say, okay, these are the
2 chemicals of concern or these are the chemicals
3 which we're going to be treating in this water if
4 we're going after it here.
5 CUTLER: Well, I think if we're going to do
6 isopleths to focus remediation activities, that's
7 not really -- if we take even a step farther back, I
8 think we're going to have a lot of wellhead
9 treatment at this facility because that's the
10 exposure point. Your first sentence pretty much
11 agreed with that in this paragraph we're talking
12 about.
13 We might do some hot spot reduction. But
14 I don't think we're going to go to these particular
15 spots to do remediation based on risk isopleths. I
16 mean, we know where the contaminants are.
17 RIPPERDA: But a risk assessment is not a
18 remedial design. The risk assessment should
19 evaluate the risks throughout the aquifer. So I
20 agree with Dan that, you know, it gives you an idea
21 where the risk is high and it's something that
22 should be done, but don't, then, take it too far and
23 say that's how you --
24 CUTLER: Well, that's what Dan has said. You're
25 going to use it as a place to find --

1 RIPPERDA: It's certainly a tool.
2 STRALKA: Right. It's going to give you a
3 picture of where everything is. Then you have to do
4 the remedial design phase, like where can you do it,
5 what can you do. You know, you have to ask all
6 those questions as well. I mean, what's practical,
7 what's -- you know.
8 BURIL: Let me ask a question, then, from a
9 practical standpoint, then.
10 We are in a position of having production
11 wells located along the Arroyo Seco impacted by one
12 or more constituents that we find here on the site.
13 As a result, we've already installed one treatment
14 system and are in negotiations with another water
15 company to install another one. We have work that's
16 ongoing to establish a means of treating an
17 additional constituent, perchlorate, that we may
18 very well augment the existing treatment systems to
19 assist in providing the ability to produce out of
20 these wells and then provide it to the water
21 companies and ultimately to their customers.
22 It seems to me that when we're talking
23 about this kind of a situation, we have kind of a
24 what I'll call a presumed design, almost, at this
25 particular time, and that is that we would be

1 utilizing these public wells potentially to go ahead
2 and treat what's out there. And again, this is at
3 the point of use or point of exposure that's been
4 identified and agreed to right now.
5 RIPPERDA: I think there's a little disconnect
6 on what a risk assessment -- the risk assessment
7 assesses the risk in the contaminated zone. If you
8 have contaminated soil, you put a fence around it so
9 nobody can get in there. Your risk assessment can't
10 say the risk is zero because you have a fence around
11 it. You still have to evaluate the risk of the
12 chemicals in the soil.
13 So it's the same way with groundwater.
14 You have to calculate the risk of the contaminants
15 in the groundwater. You can't say we have wellhead
16 treatment on it, therefore post-treatment risk is
17 zero. That's true post-treatment.
18 CUTLER: That's not what's being said here.
19 RIPPERDA: Wellhead treatment doesn't mean you
20 can blow off doing a --
21 BURIL: We have done it. We haven't blown it
22 off because we have risks and we've identified it.
23 RIPPERDA: But I guess the big point is you've
24 got a wide -- you can look at an average of a lot of
25 data and say this is the risk.

1 BURIL: That was one of the things that we were
2 confused by, is that back in, oh, gosh, what was it?
3 '96, Kristen?
4 JOHNSON: Uh-huh. July of '96.
5 BURIL: July of '96 when we had this
6 conversation the suggested methodology was to
7 average across all detects in the aquifer and negate
8 the nondetects, and in so doing we would have a very
9 conservative approach. And that was -- Dan, that
10 was your suggestion at the time, and basically
11 that's what we did.
12 STRALKA: What we were trying to do there is we
13 were looking at averaging over the plumes. Remember
14 we were talking about the plumes then.
15 BURIL: Right. And that's what we've done.
16 CUTLER: That's what we did.
17 STRALKA: And that's what -- the problem is that
18 now you've incorporated the areal assumptions into
19 the risk assessment. And those are diluting out
20 where the contamination is relative to the risk
21 number. So it's not giving a very clear picture of
22 where action would be warranted.
23 See, what we've got here is we've just got
24 a number on the on site and a number on the off
25 site. And it doesn't -- it doesn't benefit the

1 project team to say, okay, because of this risk
2 we're going to do an action here or we're going to
3 be doing action because of going after this or this.
4 It's not giving a clear picture. And I think it can
5 very easily give a much clearer picture by doing the
6 risk isopleth and actually showing where the thing
7 is.
8 Part of the problem is that because, as
9 we've talked over the years about the mixed plumes,
10 the sloshing of the aquifer back and forth and how
11 the plumes have spread, that we really can't average
12 over a plume.
13 LOSI: Wouldn't you want to do the -- where you
14 select the place for the action would be where the
15 compounds actually are, and those are shown in the
16 actual delineation of the chapter nature and extent.
17 STRALKA: That's the way it's done in the RCRA
18 program, but that's because they're making a
19 presumptive remedy of where the treatment is already
20 going to be.
21 LOSI: If you draw the risk isopleth as such,
22 won't that be suggesting that there's a risk where
23 there actually isn't?
24 STRALKA: That's true. We're suggesting that if
25 you were actually drinking the water from that

1 point, that would be the problem.
2 CUTLER: Which is not true.
3 STRALKA: Of course, in your document you're
4 saying where actual production wells are the
5 locations of where the water is coming up, that
6 therefore, this is where we're working at it.
7 However, for the remediation decision it's
8 not clear as to whether you could be more
9 efficiently pumping it from another point. Like
10 Chuck was just saying, maybe you want to be pumping
11 it at another point to more efficiently catch the
12 plume and in treating that water and then delivering
13 it to the water purveyor, at least for the
14 short-term remediation. I mean, I don't know.
15 Maybe that would be the option -- that would be one
16 of the remediation decisions you might make.
17 ROBLES: So basically you're saying we should do
18 this because instead of pushing the presumptive
19 remedy let's first do this and see if the
20 presumptive remedy matches where we think the
21 contamination is.
22 STRALKA: Right. Or you may end up tweaking the
23 presumptive remedy of where you actually institute
24 it.
25 CUTLER: I think with our concentration maps we

1 know where the hot spots are.
2 STRALKA: See, that's the problem with the
3 concentration maps. The concentration maps, we have
4 multiple chemicals and we have different toxicities
5 associated with those chemicals. So where the --
6 CUTLER: Right. They all originate from the
7 same spot on site.
8 STRALKA: Right. But they have different
9 mobilities. They have different concentrations and
10 different in the media. So what you want to do is
11 you want to overlap and say, well, where is it,
12 where is the risk the highest now and is our
13 presumptive remedy going to actually catch them or
14 catch the -- I mean, are we looking at mass
15 reduction? If we're going after mass reduction, is
16 our remedy going to actually go after that? Is it
17 going to achieve what we think it is?
18 I mean, those are the types of questions,
19 by doing the isopleths, it gives you an area. It
20 focuses you on a volume on an area in which you
21 would be concerned with as far as the risk. Then
22 looking at, well, what are the chemicals in that
23 plume in that area that I need to treat if I'm
24 treating them and where are they going to go and how
25 am I going to catch them. So then you start asking

all the remediation decisions.

CUTLER: I still believe we can make those same decisions based on the data we have.

STRALKA: I think we could. But the description of the risk isopleths is not much work compared to what you already have and it gives a much clearer picture to the reader of where the contamination is relative to the concentrations of concern.

ROBLES: Let me ask a question. With the data that we have now, in your mind, could we support a remediation, or do we need these isopleths?

STRALKA: It's difficult to do because of the multiple maps that you have to look at. It's just much easier to try to put it all together, using the risk as a common denominator to put it down on one map.

JOHNSON: Dan, this is Kristen. I think one of the reasons that this was done was that they definitely wanted to show risk at the point of exposure, which is off site. And they felt that it was an overestimate of risk to show point by point because there is no exposure on site, even though we are doing a hypothetical exposure.

STRALKA: Right.

JOHNSON: The other thing that goes along with

1 that is that on some of these chemicals there are so
2 few detections, and I think it will help once you
3 will see -- once you get a copy of the RAGS D format
4 tables, which give you the detection frequency, that
5 it would be more appropriate to do what was already
6 done and then possibly, if we are showing, you know,
7 risk for certain chemicals, then go back and find
8 those hot spots and delineate them but not do
9 everything up front, because I think it's a little
10 bit overkill and it tends to be misleading.
11 BURIL: I think one of the things I would have
12 concern with, Dan, and let me just throw this on the
13 table, is that for the uneducated individual who
14 goes to the library and reads this report and he
15 sees this graphical depiction of risk and just using
16 an assumption here that, you know, the risk is
17 highest on the Laboratory, which he could probably
18 live with from the perspective of, well, I'm not
19 allowed on the Laboratory anyway so that's not going
20 to impact me.
21 But then seeing levels of risk that are
22 identified going through the Arroyo Seco and then
23 under houses in Altadena and so forth, the level of
24 concern that this would generate I personally think
25 would be disproportionate to what actually the risk

1 is, because in point of fact, these folks don't have
2 any exposure to this risk. It's only if we happen
3 to drop a well at that particular location.
4 STRALKA: That's right.
5 BURIL: And that would be very difficult for us
6 to try to explain away if someone simply looks at
7 this and says, "Oh, my God, the water under my house
8 is a risk to me."
9 STRALKA: No, actually, that's not been very
10 difficult at all. We've done this on quite a few
11 sites. What has actually worked out, it's worked
12 out very well, especially when you have multiple
13 chemicals, that you can show where the contamination
14 is. I would expect, as you have in the document
15 now, continued to present that this water -- this is
16 a hypothetical if you were drinking the water at
17 this point we know that we have protection, the
18 wells are being monitored, the production wells are
19 running through a treatment train so that the water
20 that is being delivered is safe. So that's not a --
21 I think you need to reiterate that and you need to
22 make sure that that's understood that this is a
23 hypothetical. But that's --
24 BURIL: I guess that's one of the concerns I
25 have is that --

1 STRALKA: No, actually, we've done this --
2 BURIL: Are you still there, Dan?
3 STRALKA: We've done this in quite a few
4 different sites and we haven't had that kind of a
5 problem. When people looked at it they've actually
6 been able to see where the contamination is. They
7 understand better what any remedial action is
8 attempting to do.
9 And what it also allows you to do with --
10 over time as you do some action and treatment is
11 taking effect, you can watch how the risk shrinks.
12 So how all the different concentrations are changing
13 relative to the exposure levels of concerns.
14 CUTLER: That's also making an assumption that
15 the remediation will be risk driven. There's other
16 ARARs and things.
17 STRALKA: No matter what the risks -- no matter
18 what the remediation is, as concentrations change,
19 whether you either do nothing at all and just let it
20 just naturally attenuate, you can see how the
21 concentrations change -- how the risk changes
22 relative to this concentration and why you either
23 need to do something or don't need to do anything
24 and why it's changing.
25 So even if it's not risk driven, the risk

1 isopleths give you an indication, a demonstration
2 over time of how things have changed. It's a much
3 better and much easier depiction than having a
4 compilation of all the different concentration
5 isopleths for each chemical and for any one time
6 period or over any one time period and then trying
7 to kind of overlap those in your mind to try to
8 figure out how things have changed.
9 BURIL: Dan, do you have something that is
10 available from another site that would demonstrate
11 this to us?
12 STRALKA: Sure. I guess -- I thought I had
13 showed that to you before, but -- yeah.
14 BURIL: I don't recall.
15 STRALKA: I have some stuff on that.
16 BURIL: If you can send copies of that to me I'd
17 appreciate that very much.
18 STRALKA: I guess -- let's see. Unfortunately
19 the way we did it at -- actually, it was Sacramento
20 Army Depot. We did it there. We did color overlays
21 and I don't have the capability of reproducing color
22 graphics.
23 ROBLES: Could we send somebody to his office?
24 BURIL: We could do that. Let me ask you this,
25 Dan, do you happen to have that same kind of

presentation in an electronic format that was provided to you?

STRALKA: Unfortunately, no.

RIPPERDA: It's not that tough a concept, you know. You take the -- you've got the chemicals for each well.

CUTLER: It's not the concept. I think it's the misleading aspect of it. You're going to say over here you have a tremendous risk, when that's not really true. The risk, as everybody agrees, the only exposure path of contamination is through water production. So I think we're setting ourselves up for more heartache.

RIPPERDA: I disagree. The fenced-off soil thing is kind of appropriate. But the law, CERCLA requires that you look at the aquifer. And there is MCLs, there are ARARs and all of that. So you still need to look at the aquifer.

CUTLER: And we have.

RIPPERDA: And you have. But if you present the risk at each monitoring point or each production well -- like right now I might want to know what's the risk at one of the Arroyo wells or what's the risk at Lincoln Avenue well. And your report doesn't tell me what the risk is at Lincoln Avenue

1 and it might be that the treatment's not up, the
2 risk is 10 to the minus 7.
3 CUTLER: That's another issue. I think that's
4 in the next paragraph, or actually the third one
5 down, that we'd be interested to talk about. I
6 don't know if you want to get on to that now.
7 BURIL: I don't want to leave this particular
8 issue yet because it sounds like you folks are
9 fairly convinced that this is something that you'd
10 like to see.
11 I guess the thing that I'm coming to grips
12 with is in trying to establish this, it's somewhat
13 difficult only in terms of, one, the need for it.
14 I'll accept the idea that you folks believe that
15 it's useful and so forth. I personally have a few
16 doubts about how we would present this in a fashion
17 that would not alarm people.
18 And secondly, I guess I would question how
19 we would present this for multiple layers of an
20 aquifer system. We have a multi-layered system that
21 we've identified here and the risks change from
22 layer to layer. And trying to depict that on one
23 map I think that we may actually overstate a given
24 risk as being --
25 STRALKA: Right. I think the easiest way to do

1 that is just to separate out each aquifer. Just say
2 this aquifer and this aquifer -- although here you
3 really can't -- here it's just a really thick
4 aquifer, so --
5 BURIL: Well, we have layers here that appear to
6 have different hydraulic conductivities we do see
7 what appears to be preferential flow of contaminants
8 through those layers. So we would want to try to
9 present that information. The means to do that is
10 escaping me right now.
11 STRALKA: That's actually fairly easily done by
12 just -- by defining each aquifer layer and doing the
13 risk within each layer and going back to the data.
14 See, that's giving you -- that's building your
15 three-dimensional evaluation. Right? Because if
16 you do it for each layer, then you can either do it
17 as an overlay for each layer. You're projecting the
18 risk from that aquifer layer to the two-dimensional
19 plane of the surface.
20 BURIL: I think we understand you folks are very
21 desirous of seeing this. I think we need to step
22 back and see just what it is it would take for us to
23 try and do this. I personally, and my consultants
24 have indicated that it appeared to be something of
25 an overkill, that the information that we have and

1 the numbers that we have were sufficient to allow us
2 to go to remedial action.
3 I see some of the points that you're
4 making with regard to management of the remediation
5 from the standpoint of presenting a common
6 denominator of risk. That has some merit to it, and
7 I think that that's something I'd like to discuss
8 with my consultants before we make any hard
9 decisions on this.
10 So if we could table this one for at least
11 the time being, we can talk about it. I think that
12 would be best.
13 JOHNSON: Actually, Dan -- this is Kristen
14 again. I just wanted to make sure I understand you.
15 You're basically asking for a point-by-point
16 estimate of risk. Do you guys do this at all your
17 sites?
18 STRALKA: We've done it at most of the complex
19 sites where we have multiple chemicals.
20 JOHNSON: Okay. And then would it be poss -- or
21 would you consider an idea if we looked at distinct
22 layers and did a real averaging for that one -- for
23 each layer first before we did basically a hot spot
24 analysis? Would that maybe come closer to what you
25 want?

STRALKA: I guess -- let me get this straight. You're saying areal average over each aquifer? I mean, how are you going to do the -- how are you going to incorporate the spatial context?

BURIL: I think, Dan, let me try to establish what I believe your request is here, that for each aquifer layer at each well --

STRALKA: Right.

BURIL: Let's go to the point of even calling it each well screen. One of the questions I would have is that if we have two well screens at a given well in one aquifer layer --

STRALKA: Uh-huh.

BURIL: -- do we average those two well screen values together to establish what that risk is at that particular layer at that particular point?

STRALKA: Yes.

BURIL: Then we would need to take a recognition of the individual well locations in terms of the spatial area, the areal area --

STRALKA: Right.

BURIL: -- and then also in terms of the layering that we have, determine the risk at each point and then for layers 1, 2, 3, and 4 and whatever else we can put in this, we would identify

what the risk value is at each individual well location. And in doing that, we would then run some form of a plotting program or mechanism, that we would --

STRALKA: Surfer.

BURIL: Yeah. Surfer is the one that came to my mind as well.

STRALKA: Right.

BURIL: And just allow it to tell us where the hot spots were and what the isopleth kind of looked like.

STRALKA: Right.

BURIL: I see your point. I see what you're getting at. I guess it's something that I'd like to talk to my consultants about and see just how well that would be applicable here and to what benefit it might be for all of us concerned. I'm torn on it now. Your explanation has been very good and I'm kind of on the fence right now in trying to decide. I would like to talk to my consultants before we make any decisions.

STRALKA: The thing that you always have to do -- well, whenever you're doing any kind of a plotting program as well is when you have Surfer connecting the dot, you have now, as far as Surfer

1 sees or if -- you know, that kind of a program, all
2 they're seeing is the numbers. So they're going to
3 draw interpolations between those numbers and what
4 you kind of have to do is look to see which plumes
5 are which. And so that you're not interpolating --
6 in other words, we have a fair number of wells out
7 there with nondetects and things in between.
8 BURIL: Right.
9 STRALKA: But if you don't have that, you can
10 give the false impression of connecting the dots
11 between -- between wells that have different --
12 drastically different chemical mixtures, if you
13 will, chemical composition. So you always have to
14 do that reality check when you do that
15 connect-the-dots program.
16 BURIL: Now, in doing this program, though, in
17 order to delineate the thing properly, I would
18 assume that we would be in a position of having to
19 take into account those wells that have nondetects.
20 STRALKA: That's right. You want to have the
21 nondetects in between because then your plotting
22 program doesn't --
23 BURIL: Doesn't make up its mind that it wants
24 to go all over the world.
25 STRALKA: Right. It doesn't blow out. Because

1 obviously, if you only give it numbers to 10 to the
2 minus 5th, it's going to connect 10 to the minus 5th
3 numbers all over the place, even if you have -- if
4 you're not giving it the nondetects that exist
5 between those wells, then it's going to connect the
6 dots between them.
7 BURIL: Right. Okay. Well, I think I
8 understand where you're coming from. Let me talk to
9 the folks at Foster Wheeler.
10 I have a suspicion that perhaps what he's
11 asking for may not be as difficult as we think.
12 It's just a question of whether it's going to be
13 useful to the degree that we hope that it is.
14 CUTLER: Can I ask you one more question, Dan?
15 STRALKA: Sure.
16 CUTLER: I guess in your third paragraph down,
17 at the bottom of it you do say that the risk
18 isopleth will help the project team best evaluate
19 remedial options to reduce overall risk.
20 Do you think that can't be done now, that
21 we need the risk isopleth?
22 STRALKA: That it can't be done now? I think it
23 could be done now, but it's a much more difficult
24 explanation of why and where. And it's not -- it's
25 not easily followed for even the project team, who

1 is immersed in all this.
2 CUTLER: This is more of an FS type of
3 discussion. So maybe that's why you didn't see it
4 in the RI.
5 STRALKA: I'm thinking that it's -- you're
6 right. It does add into the FS. But I think that
7 this depiction gets us along the way and it solves
8 some of the problems of depicting it in the FS and
9 gives us more of a basis, consistent basis for how
10 we're evaluating it, where we're going to go and why
11 we're going to do what we are going to do.
12 ROBLES: This is Peter Robles from NASA. So you
13 believe that without having the risk isopleths there
14 that the document could be faulted for not being
15 complete?
16 STRALKA: Yes. For not giving a clear
17 description.
18 ROBLES: One last question is, if we do the risk
19 isopleth and we get a wild graph and a sanity check
20 says, "Hum, it's not going to work," then what do we
21 do? See, because I don't want something in the
22 document that does not actually represent what we
23 know with the data that we have presently.
24 STRALKA: That's right. We will do the reality
25 check and if it doesn't work, as I -- and we've done

1 this at several different -- several sites already,
2 and it has. But if it doesn't work for some reason,
3 at that point we'll figure out what we're going to
4 do then. In other words, we wouldn't -- we're not
5 going to require -- if this doesn't work, we're not
6 going to require that it be included in the risk
7 assessment.
8 BURIL: Okay. Well, that's fine. I see what
9 you're going after.
10 STRALKA: What we're trying to do here is we're
11 trying to distill all the information that we have
12 in such a way as to depict where the stuff is, the
13 three-dimensional information, of where it is, where
14 it might be going and then allowing that to feed
15 into the project team with the other decisions about
16 where -- what you could do about it, feasibility
17 study and all those sort of things.
18 BURIL: I understand where you're coming from,
19 Dan. I think what I'd like to do at this particular
20 juncture is to say, okay, let's table this. I don't
21 know how much work we're talking about here to do
22 this. I don't know what kind of time frames would
23 be required to generate these diagrams and data to
24 support the diagrams and so forth.
25 STRALKA: I can tell you that -- well, let's

1 see. For the Sacramento Army Depot, which was a
2 couple hundred acres, they had wells off site as
3 well. I'm trying to guess. Maybe a couple hundred
4 wells. It took them -- it took a week. We were --
5 at this point it took a week to do all the isopleths
6 and the color plots. We actually did three
7 iterations before we got something that we liked
8 that we were looking at. And that incorporated air
9 and soil as well. So it wasn't just water.
10 CUTLER: Dan, I have one more question. If we
11 do this, and as your second paragraph states, EPA
12 agrees that the only exposure pathway is through the
13 water production wells, can we then, if we break out
14 the risk by location like this, then report the risk
15 as whatever it is at those wells since that is the
16 only exposure point?
17 Because right now we are extremely
18 conservative and I think our hazard index is 10.2 in
19 one case and our cancer risk is unacceptable. I
20 think if we did this and based on what you agree our
21 only exposure point is at the wells, the risk at the
22 wells is going to be -- may not be very risky at
23 all.
24 STRALKA: I agree that you do want to be
25 explicit and show what the risks at the production

1 wells are currently. Because the production wells
2 aren't going to fit into the nice box that we're
3 trying to do these graphs. Because the production
4 wells are screened over your multiple layers.
5 CUTLER: Right.
6 STRALKA: Right. So that is -- that's part of
7 the reality check that we're going to have to say,
8 okay, we know that we're not pulling from just one
9 layer.
10 BURIL: I know where Mark is coming from.
11 CUTLER: So in effect, this is going to look
12 better to the public is what you're getting at.
13 STRALKA: Right.
14 BURIL: Potentially, yes.
15 CUTLER: Because we can report a much, much
16 lower risk to the public.
17 RIPPERDA: I've gone through two of these things
18 at two other sites, large aquifers, large
19 contaminant plumes, and we've done the risk
20 assessment, proposed plan, public meetings, but
21 exactly what Dan wants where you say to the public
22 the water you're drinking is being treated, your
23 risk is zero. The water throughout the aquifer --
24 this is the risk at every point within the aquifer.
25 And the public is not that stupid. That's easier

1 for them to understand than saying that carbon tet
2 concentration at this point is such and such, PCE
3 concentration is such and such. Over here they're
4 different. Over here they're different. You know,
5 it's very easy to differentiate between risks that
6 you're exposed to at the well and calculated risks
7 throughout the aquifer.
8 CUTLER: I would agree. Our point is it sounded
9 like so the project team can review remedial options
10 and things. If that's the purpose of this, I would
11 disagree. I think we can come up with a great FS, a
12 great ROD based on knowing what the contaminants
13 are. So to me the intent of doing this, I don't
14 think we would need to do this for this purpose
15 that's stated here.
16 BURIL: I think it may be placing things, as
17 I've heard it, and let me paraphrase this, that it
18 places things at more of a common denominator. And
19 in doing so, it becomes more easily assimilated by
20 folks who aren't, you know, like the folks in this
21 room who understand what's going on because we're
22 immersed in it and deal with it every day. And it
23 also may give us what we could term almost a
24 management tool, that as the concentrations change
25 within these places we may find that the risk is

1 slowly receding and we can use that as an indication
2 of progress potentially.
3 I see some of that. I don't know enough
4 about the nuances of establishing this kind of an
5 approach to be able to say that this is something
6 that is going to be useful at this site. Certainly
7 in concept it sounds like something we should be
8 considering.
9 I'd like to step back and talk with you
10 folks at Foster Wheeler to hear exactly what your
11 feelings are about it based on everything that Dan
12 has told us. And we can try to come up with an
13 approach, then, that will be presented in the final
14 or the draft-final document.
15 STRALKA: I guess if you want to see an example,
16 how can we do that if you really -- I guess after
17 you talk about it, if you want to see an example we
18 can set up something or you can come up here or I
19 can come down there and I can show you what we did
20 at a couple other sites and just see how it worked
21 out.
22 BURIL: Okay. I think that would be something
23 that we might want to do. But let's talk amongst us
24 kids at JPL/Foster Wheeler first.
25 STRALKA: Okay.

1 BURIL: I have some ideas of my own that may be
2 useful in this regard. I've got to see just how
3 difficult my ideas are to put on paper because
4 usually I have great ideas that are just nightmares
5 to deal with.
6 Okay. Let's take a step forward, then,
7 from that particular topic. I think we're actually
8 down to the very last thing on page 1 of your
9 comments here, Dan. That's the RAGS D format.
10 STRALKA: Right.
11 BURIL: That's fine. No problem with that
12 whatsoever. We're planning to do that.
13 CUTLER: One other quick question is more of a
14 detail about these isopleths. You talk about, Dan,
15 calculating risks at the production wells. It
16 sounded like earlier you were talking about you
17 can't use the data from that production well because
18 of volatilization and dilution. Is that correct?
19 BURIL: I think so.
20 CUTLER: So when you say calculate the risk at
21 the well, we would just look at our plume maps and
22 pick a concentration and calculate it?
23 STRALKA: No, no. I think you would want to
24 show what the -- you have the data for the pre- the
25 production well before the treatment train. Right?

1 CUTLER: Yes.
2 STRALKA: So what is it that you're -- what are
3 you trying to show here if you're going to do risk
4 at the production well?
5 CUTLER: Well, that's the --
6 BURIL: I think that's the question, is what
7 would you anticipate that we would use for this?
8 STRALKA: I guess at the production well, I
9 don't think the production well data fits your
10 discrimination of layers.
11 BURIL: No, it doesn't.
12 STRALKA: So it's like -- well, it's a different
13 type of information. It's similar, but it doesn't
14 fit our layering program.
15 BURIL: Okay.
16 STRALKA: Okay. So is it included in the
17 layering program? Not really, because it doesn't
18 help us there. But as far as are you trying to
19 depict what the production well is producing as far
20 as risk?
21 You can do that. You can take that data
22 from the production well and say this is the
23 concentrations coming out of the production well.
24 This would be the risk on the front end if we
25 weren't treating it. But we are treating it and

1 this is -- and we're -- this is the risk on the
2 other end of the treatment train. The water that's
3 being delivered is not a problem.
4 CUTLER: Okay.
5 BURIL: All right. I think I follow that.
6 STRALKA: But you've asked -- I mean that kind
7 of follows -- it goes along with but it's to the
8 side of, you know, volume/area determination.
9 BURIL: I think I see where you're coming from.
10 Okay.
11 Let me move on, then, to the second page,
12 then, under your Specific Comments Section 1, use
13 current Region IX PRG treatment tables. We don't
14 have a problem with that. We'll just plan on doing
15 that.
16 STRALKA: Okay.
17 BURIL: On Section 2 you identify that "Arsenic,
18 lead and chromium should not be dropped as
19 contaminants of potential concern. Even though they
20 are only found at a few wells and at low levels,
21 they should still be included in a quantitative
22 evaluation of total risk at those specific
23 locations."
24 That posed a little bit of a concern to us
25 only because of some of the information that we took

1 from meetings with you and tried to put into
2 operation. Let me just review that for you real
3 quickly.
4 As we recall, the idea of utilizing a
5 single point, for example, for arsenic, where we see
6 arsenic at only one location at very, very low
7 levels, and while it is there relatively
8 consistently, we find it no place else. And based
9 upon that, there is no plume of arsenic. And as a
10 result of that, we can say that, okay, it's not an
11 issue simply because our site is not dealing with an
12 arsenic plume, it is something that is apparently
13 screen specific at this particular well and it's
14 found at no other location.
15 STRALKA: Right.
16 BURIL: That was the methodology that we used to
17 discriminate against arsenic, and we used similar
18 type of logic to discriminate for lead.
19 And I guess my question to you, then, is
20 why is that now inappropriate?
21 STRALKA: It's not inappropriate. I think that
22 that same language and that same discussion needs to
23 be in the document. I wouldn't eliminate it from
24 the document. What I would say is that what you're
25 trying to do when you're doing the risk isopleths is

1 trying to get a feel for where everything is. If
2 you take it with all the warts, you just show
3 whatever you detected. So in other words, you're
4 coming clean. It's just straight up. It's like,
5 all right, this is what we detected. We don't know
6 actually where it came from. We're not making a
7 conclusion as to how it got there or what's there,
8 you know, where it came from or who put it there.
9 It's just here it is. This would be the risk at
10 this well with all the contaminants that are there.
11 Now, for those things that are -- you
12 know, like you're saying arsenic is only in one
13 well, those are going to fall away or those are
14 going to be easily described. But I guess I would
15 prefer to have those looked at and then described as
16 to, well, here it is a problem and this is why we're
17 not going to -- this is why it's not a problem as
18 far as remediation, why we don't need to carry it
19 through any more into the FS as opposed to
20 eliminating it up front from the risk evaluation.
21 And then it appears as if, and we've run into
22 problems with this at other sites, it appears as if
23 you're trying to just dilute the numbers. You're
24 trying to eliminate everything you can and dilute
25 the numbers. And then the public doesn't believe

1 what you've actually done in your risk assessment.
2 BURIL: Okay. So let me ask a question, then.
3 This particular comment, when you say should not be
4 dropped as contaminants of potential concern, were
5 you viewing that more as an issue for the depiction
6 of these isopleths that you're requesting?
7 STRALKA: Actually, a little bit of both. I
8 mean, I would incorporate it in the isopleths. But
9 I also think that when you're doing the risk
10 assessment, a risk assessment, no matter what, even
11 if it was only two chemicals, that you wouldn't --
12 you don't want to eliminate anything that was
13 detected. It's much easier just to do the
14 calculation and show everything that was detected
15 and what the risk would be according to that and
16 then go through and say, well, all right, why is
17 this a problem that we need to follow or why is it
18 not a problem we need to follow.
19 CUTLER: Well, it may sound easier just to do it
20 that way, but it's not realistic, I think. We have
21 one screen that's 600 feet deep that we have very
22 low levels of arsenic. It's not real that there's
23 no arsenic plume. I believe even to get it into a
24 risk assessment is just going beyond the realms of
25 reason on this one.

1 BURIL: Let me ask you this. One of the things
2 that strikes me is that you're going to identify
3 risk for -- you're using arsenic as an example.
4 You're going to identify a risk posed by a single
5 screen at a single well and then you're going to
6 identify why you don't need to worry about that, is
7 what I've heard you describe.
8 I guess I would turn that process around
9 and say why don't you eliminate the things that you
10 aren't going to be concerned with, based upon the
11 same kind of rationale, and not present it in the
12 risk because you're going to eliminate it anyway.
13 STRALKA: Primarily because it's -- I guess the
14 openness. You're saying, all right, we've detected
15 it. It was detected at such and such a
16 concentration and that concentration would give us,
17 you know, such a level of concern, whatever it is.
18 But then the reality check of now we're asking
19 questions about what do these numbers mean, where
20 are they.
21 I agree we're going to do the same
22 process. And I think we're going to end up at the
23 same point. The only thing I'm saying is that it
24 has played better to the public when we have shown
25 everything up front, everything that was detected

1 and what that level of concern would be based on
2 what was detected and then follow on and, well, what
3 can we do anything about?
4 ROBLES: Have you seen in other sites where they
5 did not include that, you know, small hits that are
6 anomalies and the public came back later and said,
7 "Well, why didn't you include this in the risk
8 assessment?"
9 STRALKA: Yeah, we've got questions about that.
10 You know, why was it like this or why did you not do
11 it that way.
12 BURIL: Was that because that wasn't adequately
13 explained in the document, or was there some actual
14 technical concern with the way that it was done?
15 STRALKA: Well, there's always -- not so much a
16 technical concern on the way it was done, but
17 there's always a lot of questions about how the risk
18 assessment is done.
19 BURIL: Sure.
20 STRALKA: And the interpretation of it. It just
21 appears when you're eliminating a lot of things up
22 front, that gives you the appearance that you -- and
23 then that baggage is just eliminated. I mean, it's
24 lost. It's not followed through at all. Then it
25 gives you the appearance that you are just cooking

1 the books to keep the numbers down.
2 CUTLER: I disagree with that.
3 BURIL: I guess I would disagree with that only
4 from the standpoint that first you determine a risk,
5 then you say why you don't have to worry about it.
6 That's cooking the books in reverse.
7 STRALKA: Well, I think it is. It is saying
8 it's there. What we're talking about here pretty
9 much is probably semantics. I mean, we're covering
10 it in both directions. Right? We're going through
11 the same process and we're asking the same question.
12 We're doing it in different orders.
13 BURIL: Right.
14 CUTLER: Do we really think that that arsenic,
15 those low levels at that bottom screen is a risk?
16 Are we -- why do we need to -- I mean, are we going
17 to do the risk on a few zinc hits? Is what it
18 sounds like you're --
19 RIPPERDA: Include it in the risk calculation
20 and if the risk of that arsenic is, I don't know, 10
21 to the minus 9, it's infinitesimal. It's not going
22 to change anything. At least you've included it.
23 If it's 10 to the minus 5, but it's only at that one
24 spot --
25 CUTLER: Why go through this --

1 RIPPERDA: But it is at that one spot, so you
2 include it.
3 STRALKA: Then you're just kind of -- it's kind
4 of keeping track of it saying yes it's there, we
5 know it's there, we know it would be a level of
6 concern. It's not a big enough of a volume that in
7 our feasibility study that we're going to do
8 anything about.
9 RIPPERDA: We're talking about contaminants of
10 potential concern. We're not talking remediation
11 goals or anything like that. This is just not
12 dropping data out before you do your calculation.
13 BURIL: I guess one of the questions I would
14 have, then, is let's take compound dimethyl double
15 death. I don't know what that is in the real world,
16 but dimethyl double death we found in one screen.
17 We find it consistently in extremely low levels and
18 its toxicity is unbelievably high. Now suddenly if
19 we incorporate this very high toxicity compound into
20 our risk assessment, the calculation may very well
21 show that this thing is the most dangerous part of
22 our entire project simply because of its high
23 toxicity.
24 Now, if we try to eliminate that kind of
25 information on the basis, well, it's only at one

1 place, I guess from my perspective I begin to
2 question, well, if somebody reads the fact that
3 you've eliminated the most highly toxic part because
4 you don't see enough of it, well, that's not good
5 enough for us.
6 STRALKA: And that's precisely what we're
7 looking at. If for the same argument arsenic --
8 everybody knows arsenic is toxic and you say, well,
9 we're eliminating arsenic because we only have one
10 hit and they say, well, how high is that hit? Is
11 that hit at a level of concern? How can you be
12 eliminating that? Do you really have enough data to
13 say what's the volume of arsenic that's out there?
14 How good is your data? So all those questions start
15 coming back on you and it's going to start -- you
16 know, if you've already eliminated it, then your
17 conclusions are -- there's a shadow cast over your
18 conclusions. Well, should that really be included?
19 Why isn't it there?
20 Remember, this was the same problem we ran
21 into with the perchlorate. Initially we looked at
22 the perchlorate. We didn't find it. We didn't find
23 it because of our detection limits. But now that
24 we're looking for it and our detection limits are
25 lower, now all of a sudden, oh, okay, we have a

1 problem.

2 Well, the same sort of thing can happen

3 with your dimethyl double death. If we could only

4 detected it one spot, should we eliminate it? Well,

5 we should at least keep track of it. Maybe if our

6 detection limits change we might know that it has a

7 bigger plume there. But maybe that's -- maybe the

8 problem is the detection limits. Maybe it really is

9 only one point. If it is really toxic, then it's

10 something we should be following.

11 JOHNSON: Dan, just to understand, I guess this

12 is a philosophical difference, because every site

13 that I have worked at, and I have not done a whole

14 lot of California sites, I've done more Region VI

15 and X, is that we try to screen out things up front

16 so you are not taking a lot of chemicals through.

17 Because I guess my opinion is that it's more

18 confusing to people to have lots of risk numbers in

19 there, especially on things that are probably at

20 background levels.

21 So if we took sort of a weight of evidence

22 for the metals that were detected and if we could

23 look at potentially on site and regional background

24 and do that comparison and then also do comparison

25 to a toxicity benchmark value which was done in the

1 preliminary screen, could we use that as a way to
2 get these chemicals out?
3 Because I just -- I believe it's confusing
4 for people, opposite of what you're telling me, that
5 you take -- we're taking through chemicals that
6 are -- probably represent background and showing
7 some kind of risk, when in theory in most people's
8 mind that there should be zero risk because it is
9 background.
10 STRALKA: Right. I guess that's a philosophical
11 difference that we've always had, at the different
12 regions as well as different risk assessors and we
13 do not eliminate that background. We typically do
14 not go through and eliminate the compounds. We do
15 both calculations.
16 What you're suggesting, I think, is one
17 way to go, but I think that's the harder way to go.
18 I think that's probably a more significant level of
19 effort than is warranted. If we go through and just
20 incorporate, show the risk, that most of those
21 compounds are going to fall away, they're just not
22 going to be a risk. So you're coming clean and
23 you're showing, well, look, they're below level of
24 concern. So most of those are going to fall away.
25 One or two that aren't that we're going to have to

1 do the reality check on and say, well, what is the
2 area, what are the levels of concern, what are we
3 detecting, and go through that description. I think
4 that will -- that's all we're asking for.
5 JOHNSON: Okay. I understand.
6 The other question that I have for you is
7 consistency for OU-2 for the soils. And you can
8 correct me on this. It was my understanding that
9 they were allowed to screen out COCs based on a
10 comparison to background values and also screening
11 tox values which were the Region IX PRGs and then
12 California derived PRGs using the more conservative
13 number of those two.
14 STRALKA: My recollection was that it was only
15 the tox base, the PRG screen, and not the background
16 screen.
17 JOHNSON: Could we do something like that up
18 front for this?
19 STRALKA: I don't think it's -- it's not going
20 to buy you anything. I think here it's easier -- it
21 would be easier to do it all. I mean, the
22 spreadsheet is already there. You can do the
23 spreadsheet.
24 CUTLER: No, I think it will buy a lot because
25 last time we did this we did a full suite of Title

1 26 metals plus hex chrome, plus strontium, plus
2 aluminum, so we had a lot of metals. And through
3 our screening we got down to four. I disagree with
4 two of the four, but we went ahead and did them
5 anyway. So I think it dropped out a tremendous
6 number of metals.
7 LUTHRA: Dan, this is Yugal here. I've been
8 listening to this conversation very interestingly.
9 I think we need to find out whether in a
10 risk assessment chemicals of concern that have been
11 detected should be or should they not be addressed.
12 As far as we are concerned at HUD, irrespective of
13 the chemical, as long as it has been detected, there
14 should be a risk assessment on that.
15 JOHNSON: May I ask, does that mean a
16 quantitative?
17 LUTHRA: A quantitative risk assessment. Once
18 you have detected a chemical, you have to do a risk
19 assessment of that.
20 CUTLER: And our question is can a screen --
21 LUTHRA: There's no screening allowed. No.
22 BURIL: Wait a minute. Wait a minute. That
23 brings up a myriad of problems because there are
24 recognized EPA screening methods that say that if
25 it's below a certain level you need not carry it

1 through a quantitative risk assessment.
2 We've been basing our approach on this all
3 the way along on this. We're talking about now
4 having to bring in things like thallium, strontium,
5 vanadium, all those others that we have very tiny
6 hits on and having to carry these through on a
7 quantitative risk assessment?
8 CUTLER: Years ago that was all acceptable.
9 LUTHRA: I was just going to add something to
10 that.
11 CUTLER: We're changing the rules.
12 LUTHRA: The most important thing that -- you're
13 referring to metals, basically, here. You're not
14 referring to organics. The metals usually are
15 compared versus the background. And if there is a
16 problem, then you address it more. If there is not
17 a problem compared to the background, then that's
18 the end of the matter.
19 STRALKA: Well, I guess, Yugal, for this
20 situation where we don't have background
21 determination for water right now, would it be
22 acceptable to do using the PRG screen as a level of
23 concern and screen the metals in the water against
24 that and say if they're below a level of concern,
25 regardless of background, do we need to carry them

1 through?
2 LUTHRA: Well, I certainly won't have any
3 problem with that because you compared with the
4 MCLs, presumably, as well.
5 STRALKA: Well, yeah, the PRGs are lower than
6 the MCLs.
7 BURIL: Quite a bit lower.
8 STRALKA: They're lower. So that at least
9 catches everything there and shows that, well, is it
10 a problem or isn't it and do we need to follow it.
11 So I guess as far as the question that was
12 asked, that would reduce the amount of work because
13 it's showing -- those chemicals that were detected
14 that are below levels of concern, even if we add
15 them up, shouldn't be a problem.
16 BURIL: Right. That's my point.
17 LUTHRA: Yes. In the specific medium of water.
18 BURIL: Sure. Understood.
19 I guess one of the points that I would
20 like to point out, though, is that we've already
21 done that.
22 STRALKA: Right.
23 BURIL: And the ones that dropped out were
24 arsenic and lead and a variety of the other ones as
25 well.

1 CUTLER: Actually, that's why right now we're
2 sampling arsenic and lead and the two chromiums, is
3 because of that early screening. It failed the
4 early screening, arsenic and lead.
5 BURIL: I'm sorry. I got it backwards.
6 CUTLER: Even though lead is a rare random hit
7 in a single 2s and 3s parts per billion range, it
8 still made it through. I still contend that arsenic
9 and lead -- we don't have arsenic or lead plumes at
10 this site, but they failed the screening. So that's
11 why we're still --
12 BURIL: Still analyzing it.
13 CUTLER: -- analyzing it. Our original approach
14 was then to discuss arsenic and lead before we got
15 into the qualitative or quantitative assessment and
16 explain this, it's at one screen, it's historically
17 been there for 10 years, nowhere else for 10 years,
18 we obviously don't have a plume, it's not a COC.
19 But you're saying go through the risk and then throw
20 that paragraph in and drop it out.
21 STRALKA: That's right.
22 CUTLER: And we're saying we don't want to do
23 the numbers on it and you're saying please do the
24 numbers. So I guess that's something --
25 BURIL: Well, I think we'll have to sit and talk

1 amongst ourselves here, I mean JPL/Foster Wheeler
2 folks. This is a difference of philosophy as
3 opposed to anything else. I think the end result
4 comes out the same. I don't see that we're arguing
5 that we are going to have to address an arsenic
6 plume or a lead plume or any kind of plume like
7 that. We're not talking about that. We're talking
8 about how do we present data. I think that's a
9 philosophical difference.
10 I understand where you folks are coming
11 from. I understand you've done it at other sites.
12 I'm sensitive to trying to be sure that EPA stays
13 consistent within their own purview of sites and so
14 forth so you don't have to answer questions about
15 you did it like this at one site, why don't you do
16 it like that at this site. I'm sensitive to that.
17 I'd just like to get a feel from my folks
18 just how difficult is this to do, and, again, from a
19 philosophical difference that it makes sense to me
20 that if it's not going to be part of the thing at
21 the end of the day, why do you bother carrying it
22 through and do the work. That's something, again, I
23 think that's a philosophical difference that I'd
24 like to discuss with our folks and then we'll get
25 back with you on this one on how to deal with it.

1 JOHNSON: I have one question for both the State
2 and Dan. Does either agency ever allow chemicals to
3 be screened out on frequency of detection?
4 STRALKA: No.
5 JOHNSON: The State does, but --
6 BURIL: The State does --
7 LUTHRA: The State does and -- it's in the regs.
8 It's in the regs.
9 BURIL: But, Dan, you're saying that frequency
10 detection is not an issue, that if it's there it
11 needs to be in?
12 STRALKA: No. We at Region IX -- I guess Region
13 IX, like federal facilities branch, that I know of,
14 we have not used frequency detection for screening,
15 period. It's always a question of site
16 characterization.
17 LUTHRA: Dan, I would like to correct myself
18 here. Frequency of detection basically looks at
19 laboratory contaminants specifically.
20 JOHNSON: Okay.
21 LUTHRA: Laboratory contaminants, not everything
22 and anything.
23 CUTLER: We certainly have some of those.
24 BURIL: Oh, yeah. Okay. Great.
25 Let's see. The rest of Dan's comments

1 here, "Further description of the location screening
2 interval of the production wells." That's not a
3 problem. We can provide you that.
4 Your Section 5 comment regarding the way
5 that we present information in some of the stuff,
6 that's done, actually, and we had no problem with
7 that.
8 STRALKA: Okay.
9 BURIL: And your comment regarding the correct
10 RfD for PCE, that's no problem as well.
11 I think we've actually, although through a
12 long process, I think we've actually got you through
13 most of your comments there.
14 CUTLER: There's one more actually fairly
15 important one, Dan, back up on your Section 2
16 comment, the first sentence.
17 BURIL: Oh, I missed that right by. Okay. I'm
18 sorry. This is one on Section 2, Dan, also. It
19 says "Based on the solubility, all chromium found in
20 water should be considered hexavalent and evaluated
21 as such."
22 I don't know whether you were aware of the
23 fact or not, but we did speciate for trivalent
24 versus hexavalent or total versus hexavalent. So we
25 would take exception to this because we do have the

1 information that speciates for hex chrome and that's
2 what we would be using.
3 STRALKA: I'm sorry. I know you did the
4 speciation, but this was on filtered samples, right?
5 CUTLER: No.
6 BURIL: No.
7 STRALKA: So these were unfiltered samples.
8 CUTLER: In the pre-RI we did some filtering.
9 But for the risk assessment we did the most recent
10 year's worth of data per request of agencies.
11 STRALKA: Right.
12 CUTLER: And none of that was filtered.
13 BURIL: That's right.
14 CUTLER: It was back in '94 and I think maybe
15 early '95 we did some filtering.
16 BURIL: We did some filtering because there was
17 concern with regard to aluminum and some other
18 constituents that we felt were really --
19 STRALKA: On the speciation, when you did the
20 speciation in the water, you were getting chrome 3?
21 BURIL: Well, I don't know if it was chrome 3.
22 It was just total chrome.
23 STRALKA: Right. See, total chrome, I mean, if
24 you look at the solubility of chrome 3 and chrome 6,
25 chrome 3 is hardly at all soluble.

1 LOSI: Chrome is colloidal. It can be
2 colloidal.
3 STRALKA: Right. It can be. It can be. But I
4 guess usually what we would look at -- we don't have
5 a colloidal problem here.
6 BURIL: I don't know that that's entirely true.
7 STRALKA: There's not an indication that there's
8 a colloidal problem. Typically what we would do is
9 if you have total chrome numbers and it's in water,
10 the total chrome number is evaluated at the
11 hexavalent chrome based on the solubility
12 differences between chrome 3 and chrome 6.
13 BURIL: But given the fact that we've speciated
14 for chrome 6 identifies that at least in part this
15 may be due to colloidal or particulate or any other
16 kind of matter you want to talk about. The idea
17 that we are going to ignore the speciation causes me
18 a great deal of concern because we agreed to do this
19 at the insistence of the State.
20 STRALKA: Okay. The speciation -- now I'm
21 trying to remember. It's been such a long time
22 since I read that document. I don't remember that
23 there was a speciation argument. The speciation
24 argument wasn't clearly presented there. I know you
25 had done the speciation information and I guess I'd

1 have to look at that again to see whether that
2 should be incorporated. Just as a knee jerk we
3 almost always use, based on the solubility
4 differences, chromium in water, total chromium in
5 water is chrome 6.
6 CUTLER: Right. When you don't speciate.
7 BURIL: When you don't speciate.
8 STRALKA: Right. So I guess the speciation
9 argument, what actually came out of that speciation
10 information needs to be presented clearer. I need
11 to take a look at that. I wonder, can you refer in
12 the document where that was? I'll have to go back
13 and look at that and get back to you.
14 BURIL: The comment that you identified was for
15 Section 2. Specifically where it is I'm at a loss
16 to give you an immediate answer. I'd have to look
17 at it myself.
18 STRALKA: Don't worry. If you guys could just
19 send me an e-mail or something on that I'll check
20 that again. If you think there's enough of a
21 description of the speciation information in there
22 to --
23 BURIL: Well, we'll look at it. We can
24 certainly just pass it by you and see if we need to
25 bolster that argument, then certainly we can do

1 that.
2 STRALKA: Okay.
3 BURIL: All right. That's great. Okay.
4 Dan, that pretty well covers it for your
5 comments. I'd like you to be present for when we go
6 through the DTSC's as well, if that's possible.
7 STRALKA: Sure. I guess -- what's the agenda?
8 Are you going to just go in --
9 BURIL: I'm going to do all the risk assessment
10 ones first principally because of trying to get that
11 phone out of your ear as rapidly as we can. I would
12 like to take a five-minute break right about now.
13 If you like, you can just put your phone on hold or
14 we'll give you a call back when we get back.
15 STRALKA: I'll just put it on hold. That's
16 fine.
17 BURIL: We can come back together in about five,
18 seven minutes.
19 STRALKA: Okay.
20 BURIL: Thanks.
21 (A recess was taken from
22 10:31 A.M. to 10:48 A.M.)
23 BURIL: We're back. And I wanted to take a look
24 at the DTSC RA comments now.
25 Most of these are ones where we just need

1 to get a little more explanation on the kinds of
2 things that you're looking for.
3 LUTHRA: Has Dan got a copy of this thing?
4 BURIL: I don't know. Dan, do you have a copy
5 of these particular comments?
6 STRALKA: Yes.
7 RIPPERDA: I gave him my copy. I don't have a
8 copy.
9 BURIL: Do you need a copy of this? First of
10 all, does everybody have a copy of these? I have
11 extra ones here if you want it. Let me get you an
12 extra one.
13 Does anyone else need a copy?
14 ROBLES: We are looking at this one. Right?
15 BURIL: Yes.
16 I'm assuming most of these are directed to
17 you, Yugal.
18 LUTHRA: Yes.
19 BURIL: Could you explain a little bit more
20 about the kind of thing you're talking about in the
21 first paragraph under General Comments? We have an
22 idea, but we don't want to go off without
23 understanding exactly what you're thinking here.
24 LUTHRA: Yes. Well, basically, what it's trying
25 to convey is that we are looking at only one medium

1 here, which is the medium of water. And what I had
2 recommended was that once we have looked at the
3 medium of water, then we have to combine all the
4 mediums with all the exposure pathways and then look
5 at the risk posed by contaminants at the site.
6 That's basically what I was trying to --
7 BURIL: So you're talking about a combination of
8 soil and water mediums?
9 LUTHRA: And air and whatever it may be.
10 BURIL: Here is something that we had thought we
11 had agreed at some point in the past. Let me just
12 put it out there.
13 It had been thought on our part that based
14 upon the site conditions that we have here, in so
15 much as groundwater does not have the ability to
16 form ponds, pools because of the geohydrology of the
17 area. We're not in an artesian condition.
18 Basically you can't be exposed to groundwater with
19 contaminants in it until after you've gone down some
20 100, 200 feet into the soil, that casual contact
21 outside of the pathway that we've identified already
22 as the production wells simply wasn't possible, and
23 on the basis of that, that we could keep the soil
24 and groundwater media separate and that a cumulative
25 risk would really pose no additional useful

1 information because that cumulative risk does not
2 have a practical way of actually occurring.
3 LUTHRA: Well, I can understand what you're
4 saying. And what I'm trying to say, you may express
5 that in quantitative terms, but you can demonstrate
6 that there is no risk when you're combining the soil
7 and the water medium. Because here we're just
8 talking basically about risk assessment. And in the
9 process of risk assessment what we have to do is
10 determine what kind, to what extent the contaminants
11 pose risk in all the media combined. And it may be
12 nothing at all, as you are implying, but we have to
13 demonstrate that.
14 BURIL: Okay. We had talked last night about
15 mechanisms that we might use to do that, but really
16 we were in a position of saying that the point of
17 doing this was actually we were premature in doing
18 it, if I recall correctly.
19 CUTLER: Right. I'm not familiar with the OU-2
20 risk assessment, but from what I've heard, there's
21 no time when somebody on site would be at risk from
22 both soils and groundwater. And the same with off
23 site. But maybe we're a little premature to decide
24 if we need to combine them. But it appeared from
25 some of those discussions I'd heard that there is no

1 way to have cumulative risks. So if that, indeed,
2 does turn out to be the case after we see the OU-2
3 risk assessment, then maybe combining them is --
4 there's no real -- you're not gaining anything. And
5 we won't know that, I guess, until we see the OU-2
6 risk assessment.
7 LUTHRA: Precisely.
8 CUTLER: If there is a cumulative risk, of
9 course, then something like this has --
10 LUTHRA: And I think that's a very fair
11 approach. I think as long as you demonstrate that.
12 That's the basis of it.
13 BURIL: Let's talk about how we might document
14 that kind of thing if we were to make that
15 determination.
16 We have the OU-2 RI and RA combined coming
17 out here in a little bit. Obviously there will be
18 comments and so forth exchanged and addressed.
19 In doing so, is there an appropriate means
20 to address this kind of a concern when we have a
21 groundwater media and a soils media remedial action
22 or, rather, risk assessment documents? Is there
23 some appropriate means by which we can easily draw
24 this conclusion if, indeed, it is suitable to draw
25 that conclusion without generating an entirely new

1 document?

2 LUTHRA: I think you can combine the resources

3 of both those documents, the OU-1 and OU-3 and the

4 OU-2, and see where the chips fall. And also, I

5 think nowdays EPA has brought up something very

6 good, and I like it, is RAGS Part D. And I mean It

7 really gives you the format and the content how to

8 approach such things.

9 As far as cumulative risk is concerned,

10 let us assume, for the sake of trying to illustrate

11 a point, let's assume there is a contamination in

12 the soil, but the soil has not been characterized

13 yet and there's a continuous contamination of the

14 water, whereas the water has been characterized.

15 Now, at that juncture there is a

16 cumulative risk, although we have not looked at the

17 soil risk yet, due to ingestion or due to

18 particulate or volatilization, but all we have

19 looked at is what's in the water, but we have not

20 looked at the fact how much soil has to be

21 remediated to make sure that the water does not

22 continuously get contaminated.

23 BURIL: I see where you're going.

24 LUTHRA: So this may not be the case here, and I

25 don't know. That's why I said, okay, that's fair

1 enough, we look at the water and we look at the soil
2 and then see where it falls after that.
3 BURIL: Okay. So you're not indicating that
4 there's an immediate need to combine these at this
5 particular time.
6 LUTHRA: Oh, no, no, no.
7 BURIL: Okay.
8 LUTHRA: It should be the eventual goal.
9 BURIL: I understand.
10 CHRISTMAN: Chuck, one other point. What's the
11 source of potable water for the facility here?
12 BURIL: City of Pasadena.
13 CHRISTMAN: That may bring it back in as
14 cumulative because you've got workers being exposed
15 on site to water that's been contaminated
16 potentially. So --
17 CUTLER: That's assuming the VOCs are a problem
18 for workers on site from the soils.
19 CHRISTMAN: Right. But at least you have to
20 deal with that and indicate that -- you can't say
21 there's no cumulative risk if the people on site are
22 drinking the same water the public is and they're
23 working on site.
24 BURIL: I know what you're saying.
25 CUTLER: Right.

1 BURIL: More information that will deal with
2 that kind of thing will come out in the OU-2.
3 That's the thing I think when we have both of these
4 documents in our hands we'll be ready to make that
5 determination that you've indicated.
6 LUTHRA: Yes. Yes.
7 BURIL: Okay. Great. On Section 2.0 under your
8 Specific Comments, on Section 2.0, we were, quite
9 honestly, a little bit mystified by the need for a
10 deed restriction on the basis of topography of the
11 site. At least this is what it appeared to be to
12 us.
13 Could you explain that a little bit?
14 LUTHRA: Absolutely. Firstly, I'll plead
15 ignorance here because I had to ask a few people.
16 What my thoughts were, you know, firstly,
17 if a site is assumed to stay in the current
18 situation, it's contaminated and the residential
19 scenario has not been addressed, then a deed
20 restriction is recommended. Whether the risk
21 manager goes for it or not is another thing.
22 Now, I had a conversation with --
23 actually, with Richard as well. So he said, well,
24 you know, that thing is not going to be developed
25 into a residential area. I said that's fine.

1 What I'm saying is if it is, then look at
2 it. And I was given to understand the topography
3 just will not allow that kind of development.
4 And my thought was if they can live in
5 space nowdays you'll never know what they can do
6 here on earth.
7 BURIL: Let me explain a little bit what the
8 comment here was actually trying to convey. Maybe
9 that might clarify in your mind what we were trying
10 to indicate with respect to topography.
11 If you had opportunity to remember the
12 tour at JPL --
13 LUTHRA: That's right. Yes.
14 BURIL: -- you see we are built up basically
15 border to border all the way to the south and then
16 right up against the hill that we have just right up
17 here. And if we were going to build anything new,
18 we basically would have to tear something down and
19 put something in its place.
20 As far as going up the hill, the hill is
21 such that it's unstable in terms of structures and
22 it's more than a little costly to try to build on
23 something like that. And so as far as being
24 constrained by topography, that's really what we
25 were intending to say, is that we can't build

1 anything more because we can't build on the side of
2 the hill and we're already built pillar to post.
3 That's really all the more kind of information we
4 wanted to convey with that kind of a comment.
5 LUTHRA: Yeah, I can understand that. And of
6 course, if there is no way of building anything, you
7 know, I think once it's recorded and the risk
8 managers have looked at it, they might make a
9 suitable decision.
10 BURIL: I think what you may be pointing out
11 here is something that if we were to shut down the
12 Laboratory at some point in time and the federal
13 government deemed it necessary to --
14 ROBLES: Sell the site.
15 BURIL: -- sell the site, demolish all the
16 buildings and basically turn it over to whomever
17 purchased the property to do with it as they will,
18 at that particular time there may be the need to
19 evaluate the need for a deed restriction.
20 RIPPERDA: This comment is probably a little
21 more applicable to OU-2. Jumping a little forward,
22 if you do something in OU-2 that says the risk is
23 acceptable for industrial but not residential, at
24 that point EPA, at least, would say, okay, well,
25 now -- I don't know what you call your base

1 operating plan -- you can't call it an operating
2 plan -- but some kind of deed restriction or
3 whatever to memorialize that.
4 CUTLER: Exactly. This water is being served to
5 thousands of residents. To say we can't put
6 residences here -- a deed restriction doesn't really
7 make sense. It's OU-2 is where it's possible.
8 LUTHRA: Absolutely. Absolutely.
9 BURIL: There isn't really anything for us to
10 address in here, but it's more of an informational
11 piece to us.
12 LUTHRA: Absolutely. Absolutely.
13 CHRISTMAN: We've addressed this at other sites
14 where they've had the same concerns and their
15 decision has been to do a residential risk
16 assessment so that they didn't have to have a deed
17 restriction. So --
18 CUTLER: Which is what we did.
19 CHRISTMAN: -- there are those two options.
20 BURIL: Okay. All right.
21 GEBERT: It refers to the OU-2 risk assessment
22 more. We'll wait and see what that --
23 LUTHRA: It seems I had anticipated.
24 BURIL: Okay, then. Under Section 2.4,
25 Selection of Constituents Concerned, maybe if you

1 just kind of explain some of the thoughts that you
2 had in writing this, it would help us. We have a
3 couple of questions, and maybe just in hearing your
4 overall explanation this might help us understand.
5 LUTHRA: Yes. Well, I think we have already
6 fairly -- discussed this issue fairly well earlier.
7 BURIL: I think we might have, yes.
8 LUTHRA: I'll go along with whatever my laddy
9 says is right. You are right that we have
10 discussed.
11 As far as the metals of concern, I think
12 we said we can look at the MCLs or the PRGs and see
13 where the chips fall. That's fair enough.
14 CUTLER: Are MCLs acceptable?
15 LUTHRA: Well, I think PRGs --
16 Dan, you said PRGs are more conservative
17 than the MCLs?
18 STRALKA: They're either equal to or lower, yes.
19 LUTHRA: We'll let it then.
20 That's fair enough. There's no problem
21 there.
22 BURIL: Let me turn to the Foster Wheeler folks.
23 Is there anything based on the discussion we've had
24 already that is not clear with regard to this
25 particular comment?

1 JOHNSON: Luthra -- that last sentence in that
2 first paragraph, that was a little confusing.
3 LUTHRA: "DTSC also recommends reporting the
4 risk and hazard background, in addition to the total
5 risk"? Is that the one you're looking at?
6 JOHNSON: Yes.
7 LUTHRA: I don't think that applies now because
8 we have said that we compare the MCLs or PRGs. So I
9 don't think that applies.
10 BURIL: Fine. So we can --
11 LUTHRA: Because background comparison usually
12 refers to the metals. So that does not apply.
13 BURIL: So this particular comment on the last
14 sentence I think we can just say that doesn't apply.
15 LUTHRA: Yes. Yes.
16 BURIL: Great. Thank you.
17 Next paragraph, then, in talking about
18 VOCs, you indicated that we had inappropriately used
19 as a screening criteria the MCLs. I guess what
20 we're really saying now is that we may have done
21 that and that we're now agreeing that the PRGs would
22 be the appropriate screening mechanism and that we
23 will go back and review where we may have used MCLs.
24 If the MCL and the PRG happen to coincide, then it's
25 a happy coincidence. If they don't, we'll use the

1 PRG in exclusion to the MCL.
2 LUTHRA: I think that's fine.
3 However, I would add one thing. When the
4 time comes to the cumulative, then you have to
5 include those data into the cumulative risk, if it's
6 the same location and the exposure is to the same
7 receptor.
8 CUTLER: After it's been screened out?
9 LUTHRA: We are screening it out for the --
10 first only one medium, which is the water medium.
11 JOHNSON: Right.
12 LUTHRA: Right. Now, as I said, if we have
13 found that the contaminant source, which has
14 contaminated this thing and it happens to be soil,
15 then we have to do a cumulative risk. That's what
16 I'm trying to say.
17 JOHNSON: Down the road potentially.
18 BURIL: Down the road.
19 LUTHRA: Down the road.
20 JOHNSON: Okay.
21 BURIL: What you have is total risk from the
22 soil, put it together and determine that.
23 LUTHRA: That's what I'm trying to say. At the
24 moment there's no problem.
25 BURIL: I follow that. I see where you're going

with that.

RIPPERDA: I'm a little unclear on one thing. We were just outside here talking about it, and VOCs, anything organic you don't screen to PRGs. Did I misunderstand something you said?

LUTHRA: No. No. Only for a single medium. We have recommended that they can look at the PRGs. But when they're doing the cumulative risk, it's a whole different thing. You have to include that with any other contamination, soil contaminations, overall cumulative.

BURIL: Are you following that?

JOHNSON: I think so.

LUTHRA: You may feel free to call me.

JOHNSON: Okay.

LUTHRA: It must be my accent, I'm sure.

JOHNSON: No.

BURIL: Actually, this is confusing for us dumb engineers. Okay.

Then you have a comment here with regard to "Table 1, summarizing the RI events in the risk assessment document, no explanation being offered for the blank spaces."

Mark, do you want to address that one?

CUTLER: We can easily -- we'll put some

1 rationale in. You'll see things like Title 26
2 metals, we did it the first few times, then it
3 dropped to just the four metals we're doing now, so
4 there's blank spaces before and after. So the
5 decision was after a screening to -- things like
6 that. And after VOCs it was decided, agreed by all
7 it was not a concern, so blank spaces. So we can
8 add all that in. That's easy.
9 LUTHRA: Yes. Something like that.
10 CUTLER: It should be in there.
11 BURIL: Then under Section 3, the Exposure
12 Assessment, you wanted to validate that the
13 groundwater under the OU-1 site is not drinking
14 water specific.
15 Let's try to draw the nexus between the
16 drinking water wells and Operable Unit 1 and
17 Operable Unit 3 for you. I'm pretty sure you
18 probably already know this, but the comment leads me
19 to think that you have a concern that the well or
20 the water here on site is being utilized for
21 drinking water purposes. Is that where you're
22 coming from?
23 LUTHRA: Or any other beneficial use.
24 BURIL: Okay. One of the things that's unique
25 about this particular basin, unique from my

1 experience at least, is that it is a fully
2 adjudicated basin.
3 You cannot withdraw water from it
4 whatsoever unless you have granted rights by
5 agreement and by court order that happened many
6 decades ago. As such, there are no legal wells save
7 those that are provided by water purveyors, and
8 therefore they have total control over the water
9 quality and the water source, if you will, that's
10 provided to the various customers in the area.
11 So as far as anything here at JPL, to make
12 the longer story short, we have absolutely no wells,
13 save monitoring wells, here on site. And we have
14 never had a production well here on site that we've
15 been able to identify thus far.
16 And based on everything that we've seen
17 thus far, we have always obtained our water from the
18 City of Pasadena. And they have taken it from the
19 Arroyo or whatever wells happen to be operating in
20 that area at the time or from Metropolitan Water
21 District, and so forth.
22 So I think as far as a validation, I think
23 that we have a lack of wells and that the
24 adjudication of the basin kind of gives you the
25 clear indication that if we had a well, it would be

1 illegal. And history says that we just simply have
2 not done that.
3 LUTHRA: Well, as far as this particular comment
4 is concerned, I would like to defer this to our
5 regional geologist and whatever he may think fit,
6 that would be fine with me.
7 BURIL: Okay. Is that you, Craig?
8 CHRISTMAN: That's me.
9 BURIL: Is that explanation I just gave
10 sufficient to you, then?
11 CHRISTMAN: I think so. I want to talk to Yugal
12 about it a little bit more.
13 BURIL: That's fine.
14 CHRISTMAN: But I think what you've given us is
15 fine.
16 BURIL: Good enough.
17 In the next paragraph you talk about the
18 desire to utilize the 95 percent upper confidence
19 limit of the mean.
20 This is where we appear to have a protocol
21 departure, EPA versus the State, at least based upon
22 what we've been working with thus far. I'm going to
23 try to repeat the methodology that was used. And,
24 Kristen, if I misstate it please correct me.
25 But as I understand it, when we did the

1 mean of the concentrations, we took all of the
2 nondetects and basically put them aside. We did not
3 calculate those into the mean. We took all of the
4 detects and used those to establish what that mean
5 value was. So anything that was dealing with a
6 nondetect did not even enter the calculation.
7 As a result, we think that we actually
8 have a much more conservative value than a 95
9 percent confidence interval mean because we are not
10 taking into account what I understand to be half the
11 value of the detection limit and factoring that into
12 the calculation for the 95 percent confidence
13 interval.
14 Is that acceptable, or is there a need to
15 do something else?
16 LUTHRA: Let me propose something and see what
17 you think of it.
18 BURIL: Sure.
19 LUTHRA: What I would like to propose is you
20 just take a couple of examples, not all of them,
21 just a couple of examples to demonstrate that if you
22 calculated the 95 percent UCL it's not as
23 conservative a value --
24 BURIL: Perfectly acceptable.
25 LUTHRA: -- as the average.

1 BURIL: Excellent suggestion. I think we can do
2 that with no problem.
3 LUTHRA: I think that would cover all the bases.
4 CUTLER: We need to know, because if we do these
5 risk isopleths, we're going to need to know what
6 basis to do them on. So it's actually something we
7 can resolve relatively quickly.
8 LUTHRA: Yeah. That's fine.
9 CUTLER: We don't want to make two sets of
10 isopleths if that's what we end up doing.
11 BURIL: I think that the end result will be that
12 we will want to use the most conservative approach.
13 Based on the calculations, as I understand them, the
14 most conservative appears to be the methodology that
15 was proposed by EPA.
16 So we'll verify that, as you suggested,
17 and provide some of that information to show. And
18 then on the basis of that verification we'll use the
19 most conservative protocol and make an assumption
20 EPA will as well.
21 LUTHRA: I think it makes sense. Because if
22 we're leaving the nondetects out. The
23 (unintelligible) goes down, but the numbers go high.
24 And then the numbers are likely to come higher than
25 the 95. That's the feeling I have. And then I have

1 no problem with that if you can demonstrate that.
2 BURIL: Sure.
3 CUTLER: Is this acceptable to EPA?
4 LUTHRA: Dan?
5 STRALKA: Yeah. I think you just need to -- I
6 don't think there's a problem when you do the
7 isopleths. The isopleths would be a point and we're
8 averaging within a well. So it doesn't enter into
9 that.
10 Yugal is saying the general procedure is
11 to take the upper confidence limit of the mean.
12 It's still a mean statistic, right. It's just a
13 fudge factor depending on how much data you use.
14 JOHNSON: Right.
15 STRALKA: I guess what Yugal is saying is show
16 that by dropping out the nondetects that it is
17 health protective, or it is a conservative
18 assumption. I'm thinking it really should be -- we
19 really should decide over the area in which it's
20 being averaged over and then do the 95 percent upper
21 confidence limit.
22 CUTLER: Well, it does come into the isopleths a
23 little bit, because we have multiple screens in
24 individual layers and whether we just average them
25 or --

1 STRALKA: I guess my understanding was you were
2 going to do each layer.
3 CUTLER: Right. There are layers -- we have
4 some layers that there would be three screens in one
5 layer or two screens in one layer.
6 STRALKA: Right. If you were to do an upper
7 confidence based on the RAGS protocol, if you were
8 to take those three samples and do an upper
9 confidence limit on a mean of those three samples,
10 it would be higher than your maximum detect. So
11 then you would end up defaulting to the maximum
12 detect.
13 CUTLER: Right. And then you were saying that
14 we could average.
15 STRALKA: Doing the isopleths we would just do
16 the average for that point.
17 CUTLER: Right. So it will make a difference to
18 us. We would get different numbers.
19 STRALKA: Right. Slightly, but yes.
20 BURIL: But the numbers, from what I'm hearing,
21 are likely to be relatively close, at least from the
22 outset, it sounds like, unless we have one that's a
23 nondetect and one that's a 10,000. That could be a
24 problem. But I don't think we have that kind of
25 situation.

1 CUTLER: We're bouncing around MCLs a lot on
2 this site. I mean, it could make a difference.
3 BURIL: The MCLs won't be the driver in terms of
4 the determination of risks.
5 CUTLER: We're down in those low levels. If you
6 take a .5 and average a zero into it --
7 BURIL: It becomes a .25.
8 Have we got a clear understanding of what
9 we need to do on that?
10 JOHNSON: I think so.
11 BURIL: Okay. Good.
12 Another question in that same paragraph,
13 Yugal, you were talking about some of the things as
14 far as the various parameters that we would want to
15 use. You indicate here groundwater adjustment rate
16 should be two liters per day, which I think is okay.
17 JOHNSON: Uh-huh.
18 BURIL: Something that confused me, and maybe
19 Kristen had a better understanding of it than I did,
20 but "Additionally, intake from inhalation of VOCs
21 from domestic use of water is equivalent to the
22 amount of ingested water."
23 Can you explain what you mean by that?
24 LUTHRA: Sure. This assumes that the water is
25 being used for domestic activities. If it's

1 contaminated, there's going to be some inhalation
2 associated with it. And I was recommending that
3 that should be taken into consideration when
4 calculating the risk from --
5 STRALKA: That is if you follow the PRG
6 calculation.
7 LUTHRA: That's right.
8 STRALKA: Because for volatiles that inhalation
9 route is taken into account.
10 LUTHRA: There you go.
11 BURIL: So then if we follow the protocol --
12 now, is this EPA and DTSC protocol that match each
13 other?
14 LUTHRA: Yes.
15 JOHNSON: So we are basically using the default
16 parameters that are listed in the newest version of
17 the Regional correction table.
18 STRALKA: Right.
19 BURIL: So we should be all right as long as we
20 continue with that.
21 It says default parameters should be used.
22 Okay. We've got that.
23 "Threshold weighted average values should
24 not be used in calculating risk/hazard." I have a
25 note here that this was another issue regarding

1 protocol. I guess I would turn to Yugal and Dan and
2 say is there a protocol difference between the State
3 and the federal in terms of the use of TWAs for
4 risk?
5 LUTHRA: For the screening level process DTSC
6 uses the PEA document, preliminary environmental
7 assessment document, which usually looks at the more
8 conservative approach that for soils is just a
9 child, but for water and soil it's child and the
10 adult, whereas, and correct me if I'm wrong, Dan,
11 EPA gets the weighted average value and uses that in
12 the calculation.
13 BURIL: Okay. We obviously have what appears to
14 be a distinction in the protocol. Which protocol
15 should we be following, then?
16 LUTHRA: Well, I would like to recommend
17 something.
18 BURIL: Okay.
19 LUTHRA: These things can be important if you're
20 talking about something that is very, very
21 significant. The basic difference is where we use
22 the Cal EPA-modified health criteria. That's where
23 the problem lies. Overall there is not much of an
24 inconsistency between the two things. Again, I
25 would like to recommend, do the EPA total weighted

1 average thing and then, again, just a couple of
2 examples, do the Cal EPA stuff. It will just tell
3 us what the differences, if the differences are
4 significant, and we can resolve the issue that way.
5 BURIL: Is that a reasonable approach, Kristen?
6 JOHNSON: So you want that both for carcinogens
7 and noncarcinogens.
8 LUTHRA: Please. Not everything, but just a
9 couple of examples.
10 JOHNSON: And we would do both an adult and a
11 child?
12 LUTHRA: And a child, yes.
13 JOHNSON: Separately?
14 LUTHRA: Separately.
15 CUTLER: There's no problem.
16 BURIL: That's a good suggestion. We'll proceed
17 on that. Okay.
18 Under your Section 5, the equations and
19 formulas that you're talking about, that's no
20 problem. We'd be happy to provide those to you.
21 The question, though, that we have here,
22 you say the "hazard/risk should be presented
23 separately for OU-1 and OU-3 because two operable
24 units have been considered in the risk assessment
25 document and the remedial investigation report."

1 We're kind of confused by what you're
2 trying to ask for there because the document is a
3 combination of those two operable units.
4 LUTHRA: Basically, if my memory serves me
5 right, what I was trying to look at was the risk or
6 hazard index associated with OU-1 and the risk and
7 hazard index associated with OU-3.
8 But I think that the tables that I looked
9 at just gave a combined risk and hazard for both
10 OU-1 and OU-3.
11 CUTLER: It's one plume. What we did, we did it
12 for one plume, and then we did it just the off-site
13 wells, because that's really the point of exposure,
14 just for comparison purposes. So we did it pretty
15 much by the regulations, one plume, and then did
16 just the off site.
17 Long ago we all talked and agreed that we
18 would do one -- deal with this as one plume. I
19 mean, the two OUs were split up, then they were put
20 together, then they were split up again and then
21 back together again. I mean, a lot of discussion
22 has gone into this.
23 BURIL: There was a lot of discussion.
24 LUTHRA: Let me just ask one question.
25 BURIL: Certainly.

1 LUTHRA: Do you think that would be all right
2 considered just as one plume in the risk assessment?
3 CHRISTMAN: Yes. I think that it is. It's
4 obvious that on site is the source for most of what
5 you've got off site. And it's continuous for the
6 most part, so I don't have a problem with that.
7 BURIL: That's fine. We'll assume that it's
8 suitable, then, to just keep them combined and
9 present that. Okay. Great.
10 We go down a little bit further and we
11 talk about here "These risk and hazard values are
12 likely to change when appropriate default parameters
13 in the 95% upper confidence limit of the mean values
14 are applied."
15 I think we had an understanding what
16 appears to be a difference in protocol here. I
17 think we've got the approach, as you suggested, is
18 to do it one way and then check with the other a
19 little bit and see, compare and if the first way is
20 the most conservative, then we utilize that.
21 LUTHRA: Yes. That's fine.
22 BURIL: That is fine. I have no problem with
23 that.
24 And I think that that pretty well
25 addresses --

1 CUTLER: The last sentence.
2 BURIL: -- the risk assessment --
3 ROBLES: The last sentence.
4 BURIL: Excuse me. Oh. Right.
5 "Risk assessment does not contain any
6 information or data regarding potential impact of
7 the contaminants on the surrounding ecology."
8 Again, I think the RI itself had
9 information provided in it that dealt with the
10 ecological risk assessment. We have data that we
11 summarize in that thing. And, I don't know, have
12 you had an opportunity to read that particular part
13 of the RI, or are aware?
14 LUTHRA: I can't recollect. I just gave a
15 deposition, so I can say that. I can't recollect.
16 No, frankly, I can't. But I think it
17 should be made part of the risk assessment. It
18 should be made part of the risk assessment, and I
19 would very strongly recommend that you look at the
20 DTSC guideline on that. Also, the EPA has built up
21 a very good guideline. Just look at those
22 formatted --
23 BURIL: Let me suggest that by perhaps
24 incorporating what we have in the risk assessment
25 now with the RI, that we may address that particular

1 comment. I would encourage you that when we provide
2 that document back to you, take a hard look at it
3 because we have more information about this
4 particular aspect in the RI than we did in the RA,
5 as I recall.
6 CUTLER: We didn't discuss that at all in the
7 RA.
8 LUTHRA: Not at all.
9 CUTLER: In the RA. And the RI puts it back
10 together. I think you'll find it there.
11 LUTHRA: I have a weakness, being a risk
12 assessor, I just concentrate on risk assessment. I
13 would also suggest that if you do combine the RI and
14 the HRA or the RA, if you could cross-reference
15 things, it would help us so that we can flip the
16 page and go to the appropriate page.
17 BURIL: In fact, one of the things that was
18 asked for at another meeting was some form of a
19 matrix that would allow us to tell you where the
20 changes were in the old document to the new
21 document.
22 LUTHRA: Exactly.
23 BURIL: So that falls right into place.
24 LUTHRA: Yes.
25 JOHNSON: Dan, I have a question for you. Does

1 Region IX have its own eco guidance, or do they just
2 follow the federal?
3 STRALKA: Well, there was the joint
4 California/Region IX eco guidance out. I don't have
5 a copy of that right now. Then there's the new
6 federal guide, federal eco guide.
7 JOHNSON: Right. Okay.
8 STRALKA: Which those are all consistent.
9 JOHNSON: Okay. Great.
10 STRALKA: Pretty much the same.
11 BURIL: Okay. Great.
12 That takes care of the risk assessor
13 comments.
14 Let me ask a question of Mark. Do we need
15 to keep Dan on line as we go through your comments?
16 RIPPERDA: I think if I have to be here Dan has
17 to.
18 STRALKA: Thanks a lot.
19 BURIL: Fair enough.
20 RIPPERDA: No. You can do what you want, Dan.
21 I think we're going to move on and talk about more
22 the hydrogeological aspects of the RI now.
23 STRALKA: It's up to you. Do you want me to
24 hang in, or no?
25 RIPPERDA: No. Get out of here.

1 STRALKA: All right. When I find work.
2 LUTHRA: Thank you, Dan.
3 BURIL: Thank you very much, Dan.
4 JOHNSON: Yes. Thanks.
5 STRALKA: Thanks a lot. Bye-bye.
6 BURIL: I thought I'd follow much in the same
7 order that I did before and start back with the
8 Regional Board comments, as they're the shortest
9 that we have on the RI itself. And we will just
10 bounce through those. We'll probably touch briefly
11 on some of the ones which Mark has identified.
12 Does everyone have a copy of Alex's
13 comments?
14 JOHNSON: I would like one.
15 CUTLER: I seem to have misplaced mine.
16 BURIL: Okay.
17 JOHNSON: Is that the right one?
18 BURIL: That's not it. Let me see if I can find
19 the right one here. Okay.
20 Everybody have one now that needs one?
21 Okay. Great.
22 I'll just go ahead and jump right into --
23 under the first paragraph there didn't appear to be
24 anything to address there. Didn't appear to have
25 any general comments that we need to address, Alex,

1 but then we had some of the specific points that you
2 wanted to see get addressed.
3 "Define the meaning of the 'B' qualifier
4 for semivolatile organic compound results." That's
5 no problem. In fact, I think it's found in the
6 blank, isn't it?
7 CUTLER: Yes.
8 BURIL: So that will be on the table. If it
9 wasn't in the copy that you had, that was obviously
10 an error and it will be corrected.
11 CARLOS: Okay.
12 BURIL: On the volatile organics, talking about
13 giving the total picture in terms of the history for
14 VOCs, I can pass on with reasonable confidence, and
15 correct me if I misspeak, Mark, that we are putting
16 everything that we have, both the material that we
17 have presented already as well as the material that
18 we had prior to this data that's already been
19 presented. We're going to present that in a graphic
20 format so that the trend analysis, which was a
21 request of both the State and federal EPA, can be
22 presented and have opportunity to look at that.
23 CUTLER: Yes, and just to make an important
24 point. I think you're talking about specific --
25 were these the figures, the graph figures? Okay.

1 BURIL: That's right.
2 Then in the next one, you're asking about
3 the -- it sounds like you'd like to draw the nexus a
4 little bit between source areas in the soil to
5 constituent concentrations that we find in the
6 groundwater, trying to have some idea of whether or
7 not these portions of the groundwater that we're
8 finding with higher concentrations are, indeed,
9 associated with potential source areas? Is that
10 what you're aiming at?
11 CARLOS: That's correct.
12 BURIL: We're prepared to put some limited
13 information in there with the recognition, of
14 course, that the detail would be provided in the
15 Operable Unit 2 Remedial Investigation report.
16 CARLOS: I don't think we're looking for
17 anything elaborate with respect to the connection
18 between site sources and what you have in the
19 groundwater. At least provide some summary.
20 BURIL: Something that gives you indication that
21 the highest concentrations may, indeed, be
22 associated with a source based upon what we're
23 seeing in soil vapor. If you want detail about soil
24 vapor, soil constituents and all of it we could
25 limit to that. We could refer you to the RI. Okay.

CARLOS: We can see that in the OU-2 RI.

BURIL: I don't think that's a problem per se. We can summarize what we're finding as it relates to the concentrations in the groundwater and then refer you to the Operable Unit 2 RI to obtain the detail, if you wanted to, for any particular facet of it.

CARLOS: My main point on this comment, at least you develop a link between the two. Because right now there's a disconnect.

BURIL: There is a little bit of a disconnect. And I think by doing what you're suggesting I think we can begin to draw a point there. That's a good comment.

CUTLER: We can do that now.

CHRISTMAN: Chuck, that also goes along with the comment that I have that we'll get to later, but making sure that you have identified the sources of contamination in the soil so that we know that there's that linkage there, and we also know that you've identified where that stuff is coming from. That's the concern that I had as well.

BURIL: Well, we can address that when we get to yours for that. I think I see where you're talking about it in your comments, but I'd like to be specific about which one we address.

1 CHRISTMAN: Sure.
2 BURIL: Okay. Section 4.2.4.2. "Indicate the
3 maximum concentration of hexavalent chrome detected
4 in JPL's soil samples analyzed for the OU-2 RI.
5 Provide a summary describing any link between
6 concentrations of hexavalent chrome detected in soil
7 and groundwater" in the vicinities of MW-7 and 13.
8 I'm guessing what you'd like us to try to
9 do here is again to draw the link between potential
10 source in the soil and groundwater.
11 CARLOS: That's correct.
12 BURIL: Okay. But this time specifically for
13 hex chrome and chrome as opposed to the VOCs.
14 CARLOS: Right.
15 BURIL: Okay. Same answer. I think we can give
16 you a summary and refer details to the OU-2 RI.
17 Okay.
18 Then Summary of Risk Assessment, I think
19 we've covered the risk assessment in adequate
20 detail. Was there anything more with regard to that
21 you wanted to provide?
22 CARLOS: Nothing right now.
23 BURIL: Okay. Well, that's Alex's comments. I
24 like that. That was nice. Not to say that -- all
25 your comments were useful.

1 RIPPERDA: I'm just going to defer all my
2 comments to Alex.
3 BURIL: Okay. Let's go ahead. Now that Mark
4 piped up, I'm going to go ahead and jump to his,
5 then.
6 Does everyone have a copy of Mark's
7 comments on the RI? Let me go ahead and pass those
8 out now.
9 Everybody have a copy that needs one?
10 Okay. Great.
11 We'll just skip right into the comments.
12 Number 1), this is a no-brainer. We'll
13 modify the Executive Summary as you indicated. It's
14 not a problem.
15 With regard to number 2), I think that
16 it's a reasonable thing to point out that a draft
17 document may not be appropriate, but one that was
18 released for public comment I think might be
19 appropriate because it was something that was out
20 there that gave people opportunity to see what ATSDR
21 was coming up with. I'm thinking of the brown cover
22 public comment draft.
23 We've been waiting for ATSDR to finalize
24 their report. Apparently they have had --
25 ROBLES: They're going to finalize it at the end

1 of this month. I talked with Mr. Wagner.
2 BURIL: Weber.
3 ROBLES: Mr. Weber. It was held up because
4 there was a local couple that had some concerns.
5 And basically they've had their hearing and as far
6 as ATSDR is concerned, they don't feel that there
7 will be any major revisions, that the conclusions
8 will still stay the same. They're planning on
9 trying to get it out, a final one, at the end of
10 this month.
11 BURIL: So what I'm proposing here is that we
12 would reference the public comment draft, and if
13 indeed by the time we actually submit the final or
14 they submit their final document, that we would just
15 change that to the ATSDR report.
16 RIPPERDA: Okay. Yeah. I don't feel strongly
17 about this, but I think that quoting from a draft
18 report, even though it's out for public comment,
19 your document, the one that goes final, if their
20 final is different from their draft, you've quoted
21 from a draft, which may not be reflected in its
22 final.
23 BURIL: I understand what you're saying.
24 Hopefully it will be finalized completely. We can
25 just call it the ATSDR report.

Comments number 3) and number 4). I wish they were all that simple.

Comment number 5). This goes back to the discussion that we had about where we eliminate compounds, I think, for risk assessment and so forth. I feel as though we've resolved this, that we would incorporate it at this particular point, based upon our discussions.

CUTLER: If you want, yeah. There again, fluoride, just to get you guys up to speed on the data, was only detected, it's like arsenic, only at the bottom screen of Well 3 is it detected above an MCL. Fluoride MCL is temperature dependent. So it's above the lowest number in this range. So whether it's really below an MCL, I didn't do the calculation. Just be ultraconservative. So it's at that one screen associated with the arsenic.

We talked about it yesterday. If you want, we could throw that into Section 4, because this is a previous investigation. We can throw a table in of all the fluoride hits and do this, if you'd like.

BURIL: I don't have a problem with it.

CUTLER: So we can throw it in Nature and Extent of Contamination and I guess treat it the same way

1 we do arsenic in a risk assessment.
2 BURIL: Is that satisfactory?
3 RIPPERDA: Yes. Some of this is just because
4 I'm somewhat new to the site. Sometimes when you
5 reference "We decided this two years ago at a
6 meeting," I didn't know that you decided that.
7 CUTLER: We really didn't. We just never --
8 BURIL: This one never really cropped up. It's
9 reasonable to deal with this in the same fashion we
10 deal with arsenic and the other constituents. We
11 will just go ahead and plan on doing that.
12 RIPPERDA: Okay.
13 BURIL: Okay. Number 6). Okay. We can do
14 that.
15 And on number 7), this is something that
16 we've got some data available. Let me explain what
17 we do have. Initially they found this particular
18 problem and they dug out some soil. They took some
19 analyses, which we have only kind of almost
20 anecdotal data. Was it handwritten notes by someone
21 who was there at the time, kind of thing? We don't
22 actually have laboratory reports on this. Those
23 have been lost in the annals of time.
24 And based upon that particular set of
25 analyses they went in and they did some more digging

1 and then they called it done. We have not been able
2 to find confirmation sampling that things were,
3 quote-unquote, cleaned up.
4 What we have done subsequent to that is
5 that we have installed soil vapor monitoring points
6 near and around, and I believe directly at that
7 location. That's described in Operable Unit 2's RI.
8 What we can do is we can take the portion of the
9 OU-2 RI and summarize it and place it here so that
10 you'd have that same connection that Alex was
11 talking about with regard to sources and so forth,
12 with the indication that if you needed detail you
13 could refer to the Operable Unit 2 RI.
14 RIPPERDA: I think that's appropriate. Some of
15 this historical review, you're just like throwing it
16 out there for historical review, that raises
17 questions, which doesn't mean that you have to do
18 everything in this RI, but at least do what you say
19 you can. I'm reading through this, like wow, you
20 found 13,000. That sounds like a source area to me.
21 And then it stops right there.
22 CUTLER: That was in the sediments within the
23 catch basin.
24 BURIL: We should probably make that point.
25 CUTLER: It is.

1 BURIL: So we'll handle it much the same way as
2 we handled Alex's comments.
3 RIPPERDA: Yeah.
4 BURIL: Okay. Great.
5 Let's see. Number 8). "This data has
6 been used to identify requirements for further
7 work." Basically it sounds like you're asking us to
8 take the older data and provide it to you so that we
9 could get a better understanding of historical
10 trends and trend analysis and so forth.
11 Is that the appropriate way to interpret
12 this?
13 RIPPERDA: Yeah.
14 BURIL: And we're planning on doing that.
15 CUTLER: Similar to Alex's.
16 BURIL: Yes, similar to Alex's comments. We
17 think we've got that particular one covered.
18 I'm trying to get a sense on number 9)
19 again. I think one of the things -- first of all,
20 let me try to interpret the comment and then tell
21 you what we thought we would try to address it with.
22 It looked as though there was a concern on
23 your part that the different layers and so forth
24 were reacting differently over the course of time
25 and that that different reaction within the layers

1 would actually have some impact to the way that the
2 groundwater movement and flow regime actually set
3 itself up.
4 Is that kind of a fair characterization,
5 summary?
6 RIPPERDA: Yeah.
7 BURIL: Okay. Mark, do you have that hydrograph
8 that we talked about last night that you could show
9 him?
10 What we really think is happening is that
11 we really do have some pretty good agreement in
12 terms of the different responses. And what we see
13 overall is the responses appear to track each other
14 very, very closely over time. You don't see large
15 phase shifts in terms of time.
16 CUTLER: The part of that comment where it says
17 there's one- and two-month delays between aquifer
18 layers, there is some delay probably on the order of
19 days or a week or so, but I think it's a function of
20 when we collect the data. We collect the data
21 monthly. And so you're seeing -- say, in September
22 you take a water level reading. A few days later
23 something has responded to a pump going on, but we
24 don't get a next reading until October so it doesn't
25 show up until October on our chart.

1 So we can go through a lot of other
2 evidence that shows that things aren't reacting that
3 slowly. I think looking at these graphs you might
4 get that impression, where one peak might be offset
5 a little bit from another screen or something. But
6 it's not really that way. It's a function of the
7 data.
8 Is that what you're talking about?
9 BURIL: Yes. And that the general trends that
10 you see there do track each other fairly well.
11 CUTLER: This is what I think you're talking
12 about, Chuck. This is our aquifer layer 1 and
13 aquifer layer 2. And if you line up the peaks, this
14 is April '96, this is April '96, October '96 is the
15 low, October '96 is the low. We have a peak here in
16 February '97, February '97 is here.
17 So in general, you're not seeing these
18 one- and two-month delays, really, even on some of
19 this. There may be instances where it is happening.
20 BURIL: So from more of an overall long-term
21 systems viewpoint, there doesn't appear to be that
22 delay. We thought that we could address this
23 particular aspect of it by pointing out in the text
24 this kind of an argument so that people could
25 recognize it. And the delay isn't something that is

1 readily apparent. It may be, as Mark indicated, a
2 function of when data was taken, but that in the
3 long term, the trends track each other very well.
4 And so there isn't really that delay there.
5 RIPPERDA: Yeah. I think that the main focus of
6 this comment is kind of a thread that goes through
7 several comments, where, you know, there's flow
8 reversal, basically this is complicated hydrogeology
9 with multiple layers and flow reversals because of
10 the spreading basins. And this is one example that,
11 you know, I saw in one of the hydrographs that, you
12 know, appeared to be a month or so delay between
13 different levels. So it's not just focusing on the
14 hydrographs. You know, it's kind of like the
15 monthly contour -- I debated internally whether I
16 should say this or not because like I don't want to
17 see 12 months of this. This is already
18 overwhelming.
19 BURIL: You'd see 36 of them. That's the
20 problem.
21 RIPPERDA: Yeah. So you get lost in the
22 details. So I don't feel that strongly about this
23 comment, but I finally decided to just throw it in
24 because you guys are making the argument about flow
25 reversals and whether something is from on site or

1 off site and, you know, actually with how quick the
2 response is, if you only show quarterly maps you may
3 totally be missing some aspect of, you know, things
4 moving south or east or west.
5 CUTLER: I think the biggest evidence --
6 hopefully we can tone that language down. Hopefully
7 we didn't rely on groundwater flow directions to
8 really define plumes. We relied on the data. The
9 carbon tet never showed up in Well 14. We're making
10 the assumption that these flow reversals over the
11 decades have not pushed carbon tet to Well 14. So
12 they're not that important. So maybe we played up
13 flow reversals too much because of the fact we
14 observed them and they just turned into -- it's a
15 dynamic aquifer. There's a lot going on.
16 But these flow reversals are short term
17 enough we don't see contaminants going west, is the
18 overall point. Maybe by presenting as much as we
19 did, we maybe gave it more importance than was
20 intended. We spent a lot of time getting this
21 information to try to understand these flow
22 reversals because we wanted to get it in here.
23 BURIL: I think the thing that we'd like to
24 suggest in this particular case is, based on Mark's
25 explanation here and kind of a desire to maintain a

1 reasonably sized and usable document, is that the 36
2 groundwater contour elevation maps that would be
3 generated from this may actually be more detail and
4 more confusing than if we addressed it in a textual
5 fashion and placed an explanation in the text and
6 then referenced the different hydrographs and the
7 explanation that we have, and be able to maybe, as
8 Mark indicated, tone down that language just a
9 little bit, because the flow reversals don't appear
10 to be a major issue in terms of contaminant
11 transport. Otherwise, we would be seeing
12 contaminants in our western wells and having greater
13 concerns as a result.
14 So from that perspective, I think it would
15 be a good way to approach dealing with this
16 particular comment as opposed to nearly 40
17 additional figures, which may confuse rather than
18 clarify.
19 RIPPERDA: Yeah. I think that's okay.
20 BURIL: Okay. All right. Well, we'll approach
21 that and when you see it in the draft-final, then
22 certainly let us know if we've hit the mark and we
23 can go from there. All right.
24 Number 10). I'm trying to remember what
25 it was. I think this goes to kind of the same kind

1 of approach because we're talking again about the
2 flow reversals in this particular one.
3 CUTLER: We did estimate the time periods that
4 the flow was reversed. We did put that in the text.
5 So that's already in there.
6 RIPPERDA: How frequently do you take
7 groundwater level elevations?
8 CUTLER: In the shallow wells, daily. Daily
9 since 19 --
10 BURIL: '92, wasn't it?
11 CUTLER: '92. That's what this hydrograph is
12 based on. This is daily data. We only went to June
13 '94, the RI period, but we have some before that.
14 The multi-port wells, once a month. And
15 that's where this type of data comes from.
16 RIPPERDA: Because even though I don't want to
17 add too many -- maybe pick one layer and show 12
18 additional figures just so you can see a more
19 detailed timeline of flow behavior.
20 CUTLER: Well, to talk about that a little bit,
21 get back to your flow reversals. So we outlined
22 this flow reversal on this figure, and it appears
23 the flow reversal went stipple. This is based on
24 daily hydrographs or daily water level measurements,
25 so we know to the day. So you see in the text.

1 This one I think was nine days. This one maybe 14
2 days in the text. I mean, we have it to the day
3 because we have that information out there. We
4 thought that was explained well enough. Let me
5 revisit to try to make it clearer.
6 But to get back to your point about water
7 level now just so -- we got sidetracked. During
8 vast periods, most of the period of the year these
9 things just march as railroad tracks with time. So
10 to generate a map in June, July, August, September,
11 October you don't see any differences other than
12 water levels going down. It's when they start
13 turning their pumps off and you start getting rain
14 is where you see things. So we've made our maps to
15 kind of be representative of periods of time
16 throughout here.
17 RIPPERDA: Okay. That makes sense.
18 CUTLER: So to do one monthly you're just going
19 to see things that are kind of the same thing.
20 RIPPERDA: I hadn't looked carefully enough at
21 that.
22 BURIL: I wanted to see which figure he was
23 looking at, as well. Okay. Good.
24 All right. So are we copacetic in terms
25 of what we presented thus far, then, is adequate to

1 address your comment number 10)?
2 RIPPERDA: Yes.
3 BURIL: Okay. Great.
4 Number 11), then. Stiff diagram and water
5 analysis to prove that there is an offsite
6 contamination source west of JPL.
7 Well, I guess one of the things that we'd
8 want to point out is there's a slightly different
9 philosophical reason why this was used. This isn't
10 really to point out that there are upgradient
11 sources per se. One may deduce that, but this is
12 really designed to show that there is a situation
13 where the contaminants that we find here at JPL were
14 not of JPL origin.
15 Now, that sounds like semantics, but we're
16 kind of in a position of saying that when the water
17 character changes, particularly at Well 10, that
18 we've seen over the years, that we've actually seen
19 increases and that water type appeared to match
20 those that were at our most upgradient wells. And
21 we assume those to be basically representative of
22 what's coming down to us.
23 And from that perspective, that could lead
24 one to believe that there were sources upgradient.
25 The folks at the Valley Water Service Company have

1 seen TCE and have seen PCE in their wells, which
2 does not implicate them in any way that they are a
3 source, but they may be picking up on something else
4 further upgradient that we have no way of being able
5 to identify.
6 Certainly based upon the data that we have
7 here that Mark just showed you, the groundwater
8 reversals that we have here are not of sufficient
9 duration to create a significant contaminant
10 transport episode. And also given the fact that our
11 Wells 6 and 14 are basically clean, we don't find
12 TCE, we don't find PCE, except maybe on an occasion
13 very vanishing in small quantities, that gives rise
14 to the argument that, well, if it's not going out
15 the western side of the Laboratory to have basically
16 created this condition of contamination to the west
17 and the water character that matches our most
18 westerly wells is the one that carries constituents
19 to our one Well 10, which is our southernmost well
20 on site, leads you to conclude that we aren't the
21 source of some of these contaminants. So,
22 therefore, we aren't pursuing them.
23 Now, PCE is an excellent example of that.
24 We have only found PCE above the MCL once in the
25 nine years that we've been monitoring for it?

1 CUTLER: No, it was about four or five times,
2 actually.
3 BURIL: Was it that many? Okay. Four or five
4 times over the course of nine years.
5 Then when you compare the PCE
6 concentrations that we've had reported to us from
7 the Valley Water Service, they have oftentimes seen
8 concentrations higher than the MCL. In fact, our
9 most recent quarterly analyses which -- are they in
10 this particular report, Mark, the most recent, the
11 ones that show the TCE in 21?
12 CUTLER: No. That's in the annual report.
13 BURIL: Right. In our most recent annual
14 report, which you'll be getting here in just a
15 couple of days, Well 21 shows PCE at -- I think it's
16 like 8 point something. The wells on site, if
17 memory serves correctly, shows nothing.
18 CUTLER: Single digit below MCL.
19 BURIL: Single digits below MCL.
20 If you look to the southwest -- excuse me,
21 southeast and you get to Rubio Canyon Water Company
22 wells, they currently have their wells shut down
23 because of PCE contamination. That's at 8 point
24 something. I had requested some information from
25 Ron Palmer of Raymond Basin to see whether they were

1 seeing elevated concentrations of PCE in their areas
2 currently. He got back to me while I was on
3 vacation. Unfortunately I haven't had a chance to
4 get back with him.
5 But it appears to me that we do have a
6 situation where, while these stiff diagrams weren't
7 intended to try to implicate individuals upgradient,
8 I still think it does point out that there is strong
9 potential that some of the contaminants that we see
10 are not of JPL origin. That's not to say that I can
11 point to a dry cleaner or a garage or any individual
12 entity upgradient of JPL and say he's the culprit.
13 And, in fact, I would strongly resist doing anything
14 like that because that's beyond the scope of this
15 project.
16 And so that's really where we're at in
17 utilizing the water chemistry in this fashion, is to
18 provide some rational basis for us to point and say
19 that particular constituent or constituents very
20 easily could not be of JPL origin and in fact, in
21 some cases, for example, PCE, it is not of JPL
22 origin because we do not have the concentrations
23 that we find off site.
24 CUTLER: There again, I think maybe we can --
25 that wasn't our intent to use stiff diagrams to

1 prove there was an off-site source. That's just
2 part of a piece of a puzzle. So if it implies that
3 we were trying to use that to prove it, we'll change
4 that. We'll relook at that. That's not the intent.
5 Your last sentence "Water type analysis
6 may not be conclusive in pointing sources of
7 contamination." Well, we agree with that, but that
8 along with flow directions, along with contaminant
9 levels and everything else may be conclusive.
10 BURIL: I think that's what we need to keep in
11 mind, is that the stiff diagrams by themselves are
12 at this point pieces of the puzzle. In conjunction
13 with the other things that I mentioned, and there
14 are probably a few other pieces of data which I
15 haven't, we are kind of in a position of scratching
16 our heads and saying, well, wait a minute, there
17 could very easily be something other than JPL origin
18 that is impacting not only the JPL site on occasion,
19 but in fact, we pick up in City of Pasadena wells
20 and in Rubio Canyon, and we cannot find
21 concentrations in JPL's history that would
22 consistently point to us as being a source of that
23 contaminant, again using PCE as the example.
24 That is distinct from things like carbon
25 tetrachloride, where we obviously have some residual

1 contamination here well above MCL and we have seen
2 that contamination in downgradient wells and we have
3 seen it nowhere else in the area. That makes sense.
4 CUTLER: Let me give you a real quick example.
5 In Well 20 in the upper screen there's a low level
6 of perchlorate, you know, single-digit number. The
7 plume from JPL, as we all know, starts in the upper
8 shallow aquifer, it's sucked down into the
9 production wells and it's down in the screens 3, 4
10 and 5. At Well 20, the upper screen. So there's a
11 couple hundred feet disconnect between the JPL plume
12 and the perchlorate in the upper screen of Well 20,
13 because you have that physical disconnect.
14 Whenever the pumps are on there's always
15 an induced vertical downward flow of groundwater.
16 We have never seen upward flow of groundwater. So
17 that's a piece of evidence. Then you have, in the
18 upper screen of Well 20 you have this water type 3
19 which we only see in Well 6 or 14 or Well 21, which
20 we have called the upgradient water type.
21 So all that together, physical disconnect,
22 we've never seen an induced upward flow of
23 groundwater and you have a different water type than
24 the JPL plume would lead us to suggest that
25 perchlorate in Well 20 is not from JPL. So that's

1 the intent of us using this data. It's just one
2 other little piece to piece together. And that's
3 our intent with the anion-cation data.
4 BURIL: I think it's very important to remember
5 that in reviewing this data that one would be very
6 remiss if one were to assume that JPL is the sole
7 and only source of contamination here in the basin.
8 It's not. And I think that that's pointed out by
9 the fact that we have contamination upgradient from
10 us at places that are remote enough so that we are
11 not influencing them with mass transfer of
12 contaminants to them and that they are also picking
13 up contaminants which we can, I believe, reasonably
14 argue are not of JPL origin. And when you consider
15 things like perchlorate, where without wanting to
16 point fingers at the Metropolitan Water District
17 without hard evidence, one can deduce on the basis
18 that they have been providing us water here for many
19 years with no idea of what perchlorate level they
20 had in it, that they may very well have been
21 providing perchlorate to the surrounding
22 communities, which was used in irrigation. And
23 upgradient from us La Canada is still largely a
24 non-sewered community. So there may be some
25 potential for contribution there. What contribution

1 I can't tell you. I have not really looked at that.
2 And we've recently found out through the
3 task force or steering committee, I forget what they
4 call themselves, for the San Gabriel Basin, that
5 commercial fertilizers have perchlorate in them.
6 And in fact, one commercial fertilizer which was
7 tested has as much as 50,000 parts per billion; ppb.
8 So the potential of anyone who takes exquisite care
9 of their lawns and gardens by fertilizing them
10 regularly every year may have actually been
11 contributing to this widespread, low-level
12 perchlorate contamination that we find throughout
13 the basin.
14 Now, solid proof? No. Pieces of a puzzle
15 to consider while we're looking at this?
16 Absolutely. And that's one of the things that we
17 are hopeful that we're able to point out
18 sufficiently in the document. And perhaps these
19 kinds of pieces, while they appear disjointed, when
20 you bring them together and begin to think about
21 what's happening, they begin to make the picture a
22 little more clear.
23 And I'm hopeful that our document is
24 sufficiently detailed enough to have that happen,
25 and I would turn to the folks who are reviewing this

1 and ask the question if that is the case at this
2 particular time, that if we need to bolster those
3 kinds of descriptions and so forth, so that this
4 picture becomes more clear to you and to anyone else
5 who may read the document.
6 CHRISTMAN: At least for us, the way you've
7 presented it is that you are invoking these off-site
8 sources without naming them, without really pointing
9 to them. And we don't feel comfortable with you
10 doing that.
11 If you've got evidence that there's an
12 off-site source, as we pointed out, there are four
13 dry cleaners sitting right on top of those Valley
14 Water Company wells, they're the most likely source
15 for PCE in those wells. You can make a very solid
16 argument about that. You can invoke other things
17 that would cause those sites to be investigated.
18 You can ask us to investigate those sites. There
19 are specific things that you can do instead of
20 putting the pieces of the puzzle in there and
21 saying, you know, we want you to be able to take
22 this piece and this piece and this piece and put
23 together in your mind where all these sources are
24 coming from off site. You have to give us something
25 more concrete than that.

1 CUTLER: We'll probably get to that before we
2 get to those comments.
3 ROBLES: Let me just start off with this.
4 NASA's position is the Superfund site is this site
5 and any sites that we impact. We're not going to
6 look for other sources. I don't know how we're
7 going to resolve that issue, because the
8 government's position is never to go out there and
9 find other people's sources. We know that we don't
10 have a PCE plume coming from our site. We know that
11 there's impacts there.
12 For us to go out there and to investigate
13 the whole Raymond Basin, that's not what we can do,
14 we're not authorized to do. The Superfund site is
15 our location and the plumes that emanate from here
16 and the site that we impact. If we start searching
17 outside of our fenced area or outside of our areas
18 of impact, then basically we are saying the whole
19 Raymond Basin is a Superfund site and it's our
20 responsibility to look for it. We can't do that.
21 CUTLER: The thing is, we all know that there's
22 PCE coming from upgradient. We don't need to know
23 if it came from this dry cleaner or this dry
24 cleaner. We know there's an upgradient source.
25 If you step even further back, JPL has

been cleaning up that PCE for years now. They're paying for this treatment. These plumes are, the off-site plume and JPL plume are right in the text. It gets commingled and right through the treatment. So it doesn't really matter.

CHRISTMAN: I think it certainly does when we're talking about the Valley Water Company wells being -- showing concentrations as high as 50 or 60 ppb of PCE in them.

BURIL: But it's not JPL origin.

CHRISTMAN: That's right. I'm trying to give you a way to demonstrate conclusively that it's not. I don't think we're asking you to investigate the off-site sources. You can ask us to investigate the off-site sources.

BURIL: I think one of the --

CUTLER: Groundwater flow direction, it's upgradient. How conclusive can you get?

ROBLES: Do we have data from the Raymond Basin?

BURIL: Yes. We have some.

CUTLER: That's the basis for all of our maps.

BURIL: I think one of the things that I'd like to defer until we get to Craig's comments is the whole issue of how much proof is adequate to show that there is an off-site source.

1 CUTLER: How can you get more proof?
2 BURIL: There's a position that Craig has that I
3 want to address when we get to his comments because
4 what Pete just said about investigating other
5 sources, it rings very true not only from the
6 perspective that Pete has to take as a government
7 official and so forth and spending money on things
8 that it wasn't appropriated for, but it rings true
9 from a common sense perspective as well.
10 There's really a question as to whose
11 responsibility does it come down to. And I'm not
12 sure that this project is one which needs to address
13 whose responsibility it is. That's probably
14 something on a policy level amongst regulatory
15 agencies and anyone that they can find to deal with
16 this.
17 ROBLES: What we have to do is take as much data
18 as we can find and paint the picture and try to
19 support it as best we can without breaking that
20 requirement that we cannot go beyond that, because
21 the policy of the federal government is basically we
22 don't go out and look for other people's sources and
23 point the finger at them. That is very bad PR.
24 Bottom line is if we could see from
25 analytical data, from working out with the public

1 and the purveyors of water that they have
2 situations, we try to incorporate that information,
3 we try to paint the picture. What we're asking is,
4 is it sufficient. If there's something that can be
5 done more we can do, we'll do it. But I can't go
6 beyond that to say we're going to point the finger
7 and say those dry cleaners there, we took samples
8 there, we know this. We can't do that.
9 GEBERT: I don't think Craig is saying that at
10 all.
11 CHRISTMAN: We're not asking you to do that. We
12 can look at investigating those dry cleaners. Our
13 agency can look at that. If there's data out there
14 at a later date that says they're a source, then
15 that's a much better thing to put in your RI report
16 than this data shows that we've got off-site sources
17 of PCE, we don't know what they are, we don't know
18 where they're coming from. But if there's clear
19 data that shows the source of that PCE, it's a whole
20 lot better argument in your RI report to say these
21 sites are under investigation. There's groundwater
22 contamination associated, period.
23 BURIL: I think there's maybe a question of
24 schedule and timing here, though, because while --
25 what you're saying makes a lot of sense. It would

1 be nice to be able to say that these organizations
2 are currently being investigated by the Department
3 of Toxic Substance Control to determine their
4 contribution to what appears to be an off-site
5 source for this area, or a source of contamination
6 for this area.
7 For this particular RI project, that
8 doesn't exist. And the opportunity for it to exist
9 in any time frame that is going to be supportive to
10 our efforts, I just don't think it's going to
11 happen. In fact, I would hazard a guess that it
12 will be quite some time before your agency will be
13 able to respond.
14 So from that perspective we can only rely
15 upon what we have available to us and infer from
16 that. And that's what we've attempted to do.
17 ROBLES: Let me make a suggestion. I had
18 discussions with Ron Palmer, some of the City of
19 La Canada City Council. There were discussions
20 about the fact that they had to put an ordinance in
21 about the storage of dry cleaning solvents in the
22 City of Flintridge/La Canada and that they
23 specifically named certain dry cleaners and other
24 operations in Flintridge/La Canada because there was
25 a concern from an emergency preparedness standpoint.

1 BURIL: That may be true. I don't recall him
2 saying about specific ones.
3 ROBLES: Right. I'm wondering if that kind of
4 data would be appropriate to put in here to show --
5 CHRISTMAN: If that's already part of the public
6 record, you can demonstrate there were potential
7 sources there.
8 ROBLES: That was identified at that time.
9 CUTLER: That wouldn't get you in trouble if
10 that dry cleaner didn't leak and all of a sudden
11 he's in a CERCLA document as a potential source?
12 You think he would be upset?
13 BURIL: That's one of the things that I would
14 try to avoid.
15 CHRISTMAN: They may be upset.
16 ROBLES: But the thing is that there are public
17 documents and we cite them in the RI as these are
18 public documents and these are a potential
19 supporting for sources. Then the individual can
20 argue that one way or the other. But, you know,
21 they're going to use our documents to support their
22 views the same way.
23 CUTLER: It's up to you.
24 RIPPERDA: But the point of my comment wasn't to
25 say that you can't say that there are other sources

1 than JPL. It was just that, well, like this is very
2 complicated. Maybe it comes up more in meetings
3 than the document, but that you're very sure that
4 you've proved it. And I would say it's just a
5 little more of a professional interpretation,
6 because the document itself, like I know regional
7 flow direction is this way, but when I look at this
8 map, I don't see that. I see one MW-14 is
9 consistently high, but you don't have any upgradient
10 wells that show potential metric surface or
11 anything. You have the regional flow direction is
12 that way. But you're making conclusions that are
13 pretty firm in the document that aren't necessarily
14 fully supported.
15 ROBLES: So that John Q. Public could come to
16 the same conclusion.
17 RIPPERDA: Right.
18 BURIL: What is it that you anticipate in terms
19 of --
20 CUTLER: For 10 years groundwater has always
21 flown this direction past these wells. And you're
22 saying we cannot say that this is an upgradient well
23 because we don't have data up here?
24 I don't buy that. I mean, how far out do
25 you have to go?

1 RIPPERDA: I guess I don't --
2 BURIL: I guess one of the questions I have,
3 Mark, is that one of the things that may be
4 difficult for us to convey in this document is a
5 sense of longevity that this project has had.
6 Because as Mark just pointed out, we've been working
7 on this thing now since 1988?
8 CUTLER: '89.
9 BURIL: '89, with the PA and the SI and so on
10 and so on, the whole process. So we have what we
11 believe to be an extremely firm grasp on the
12 hydrodynamics of this area. And it's complex. No
13 doubt about it.
14 But in the area to the west, from our
15 approximate western boundaries upward, we never felt
16 the need that there was a concern based upon the
17 data that we generated from our westerlymost wells
18 and with the understanding that we had of the
19 long-term implications of flow reversals and so
20 forth. Those pieces pieced together gave us reason
21 to believe that these, Well 14 and Well 6 - Well 2
22 as well, when it's got water in it - are indeed
23 upgradient wells and representative of what's
24 further up.
25 So when we talk about making firm

1 conclusions based upon data that's not further up, I
2 guess I would have to ask what additional
3 information would you expect to see, given the fact
4 that we have seen this kind of pattern now for a
5 very long time.
6 RIPPERDA: You're ranging kind of far afield.
7 My comment here was one type analysis may not be
8 conclusive in pointing sources of contamination.
9 CUTLER: I would agree.
10 BURIL: I wouldn't argue that.
11 RIPPERDA: That's my comment.
12 CUTLER: I would agree.
13 BURIL: I think what we've tried to point out in
14 this meeting is it's a piece of the puzzle.
15 CUTLER: That we use that to prove, to help
16 suggest.
17 RIPPERDA: Okay. I agree. I actually think the
18 whole work analysis is good and I think you've done
19 a good job with it. But I think in several places,
20 and I can't reference them exactly -- I was just
21 getting a feeling like you're hanging your hat and
22 saying, well, because we see water type 3 here, that
23 can't be water from JPL.
24 CUTLER: We'll look for those statements.
25 BURIL: That's a fair comment and that's one we

1 can address.
2 ROBLES: Does there need to be like a summary,
3 conclusion, paragraph, section in there to try to
4 put it all together so that John Q. Public can pick
5 this up and say, okay, what does all this mean?
6 RIPPERDA: I think that would help.
7 CUTLER: It's in there.
8 BURIL: I think maybe we need to call it out a
9 little more specifically.
10 ROBLES: You need to call it out. Because I
11 always think about John Q. Public, not an engineer.
12 The public out there, is going to pick up this
13 document and say, "Whoa, what do I really need to
14 read this for?" And you got to point out to them
15 where they need it so they can tie it all together.
16 LOSI: This discussion is really helpful when we
17 go to tune this up, what we need to tone down and
18 what we need to make clear for the public to
19 understand.
20 CUTLER: I would agree with your comment.
21 RIPPERDA: Yeah. The stiff diagrams make up a
22 huge volumetric portion of your report, which just
23 by, like the weight, gives it more meaning.
24 Anyway, that was it.
25 LOSI: That's a good comment.

1 BURIL: I understand what you're saying. I
2 think that -- I seem to see a pattern of this kind
3 of concern in most of the agencies' comments. I
4 think it's incumbent on us to judge that concern in
5 terms of what haven't we given you and what haven't
6 we shown you that is clear enough for you to pick up
7 on.
8 I think we suffer from the old story of
9 can't see the forest for the trees. We are so close
10 to this in certain respects that we believe that it
11 is obvious to even the casual observer about certain
12 things, when in fact, it may not be.
13 So we will attempt to go back and not make
14 such strong statements on any one aspect of this,
15 but to draw all the pieces that we have described
16 here together to paint the picture and maybe just a
17 little bit more clear focus.
18 Okay. Well, the time is quarter after
19 12:00. We have a number of other comments of
20 Mark's, and then we have Craig's as well. We aren't
21 going to finish this in 20 or 30 minutes. I think
22 we're probably going to be here for the better part
23 of the day. I would suggest we take a lunch break
24 and then come back here at, say, 1:15 to continue
25 on.

1 Everybody comfortable with that?
2 CHRISTMAN: I've got a meeting at 1:30.
3 BURIL: Oh. Okay. I guess, then, we're kind of
4 in a position to switching to your comments, then,
5 if we can identify where we were at. We're up to
6 number 12 on Mark's, I believe. Is that what it
7 looks like to you? Okay.
8 (Discussion held outside the record.)
9 BURIL: Let's go ahead, then, and switch to
10 Craig's comments. And we move to approaches in
11 order to deal with Craig's time constraint here.
12 Craig, when do you actually have to leave
13 for your meeting?
14 GEBERT: I'd say 1:15.
15 CHRISTMAN: Yeah.
16 BURIL: About 1:15. Short meeting?
17 CHRISTMAN: I have no idea.
18 BURIL: One of those. Okay.
19 I think I'll try and speed things along,
20 then, so we have opportunity to spend the maximum
21 amount of time with you, is that most of the
22 comments that you have in your Executive Summary
23 portion I think we can deal with by talking about
24 the individual comments that you have. So I'll
25 leave the summary portion alone, as any changes that

1 we make to the document on your specific comments
2 will likely affect the Executive Summary.
3 CHRISTMAN: Right.
4 BURIL: Okay. On the first one, then, on the
5 second page, 1.3.3.8, you were concerned with regard
6 to whether the groundwater had been high enough to
7 submerge the screen throughout the life of MW-1.
8 CHRISTMAN: Right.
9 BURIL: We have data that shows that we can.
10 CHRISTMAN: (unintelligible)
11 BURIL: On 1.3.3.11 you expressed what I would
12 term a similar concern that Mark had with regard to
13 that particular thing.
14 CHRISTMAN: And Alex.
15 BURIL: And Alex. Was our approach in dealing
16 with those satisfactory as far as --
17 CHRISTMAN: I think so. The only other things I
18 would add is that you would have some indication of
19 where that catch basin drained to and that's been
20 investigated as well, and that other similar catch
21 basins were investigated on the site.
22 CUTLER: That's all in OU-2.
23 BURIL: That's all in OU-2.
24 CHRISTMAN: Two sentences could state that in
25 this report to indicate that those sources have been

1 investigated.
2 ROBLES: So referenced?
3 BURIL: Just reference the OU-2 document.
4 CHRISTMAN: Yeah.
5 BURIL: Okay. On Table 1-1, the analytical data
6 for samples collected from production wells, no
7 qualifications or indications that they represent
8 low estimates. We had that in the text of the
9 report. We can put a footnote in the table if that
10 will address your concern.
11 CHRISTMAN: That will be fine.
12 BURIL: Okay. We can do that.
13 On 2.3, we have -- it appears that your
14 concern was that we were possibly using these
15 analyses on the VOCs of the soil cuttings for
16 something other than disposal?
17 CHRISTMAN: Right. Just indicate --
18 BURIL: What we can do, we will add the word
19 "solely" there so it's basically clear that that's
20 all it was used for.
21 CHRISTMAN: Right. Right.
22 BURIL: On Section 2.4, this one, I guess we
23 disagree with you on this. It's not unacceptable to
24 make a comparison, but it is not site specific so it
25 is not a useful comparison. What we do have is we

1 do have site-specific information that would have
2 been presented in Operable Unit 2 and we can bring
3 that out and address it in that fashion.
4 CHRISTMAN: Yeah.
5 BURIL: And I think with that in mind, I think
6 we would hopefully be able to address your comment.
7 Because we do have, I think it's five locations that
8 have been identified and agreed to as background
9 locations and we can present that information.
10 RIPPERDA: I'm going to jump back to 1.3.3.11
11 for just a second.
12 BURIL: Sure.
13 RIPPERDA: Rather than -- we all point at the
14 fact specifically rather than just referencing like
15 OU-2. I don't remember seeing a specific section on
16 source areas for groundwater. So it might be good
17 to just add a section on nature and extent of
18 contamination on potential sources, say basically
19 you don't have a specific source that -- you know,
20 but lump a little bit of this information into a
21 sourced area of discussion.
22 ROBLES: Area of concern type of discussion, or
23 potential.
24 RIPPERDA: Yeah. He's saying like when you're
25 discussing this, this particular mention was in a

1 historical reference. You're not going to go into
2 that historical reference discussion and put in all
3 the stuff about where the catch basin drains to,
4 other catch basins that might be like it.
5 When you're investigating groundwater you
6 want to look for potential sources. So you really
7 should just take all of our comments and create a
8 little potential source area section, what did you
9 do to look for sources, and then reference OU-2 for
10 the specifics on the soil sampling that went on
11 around those.
12 BURIL: Let me ask you this: We have a fairly
13 extensive discussion about how we made a
14 determination of potential source areas in the
15 workplan. I can suggest that we may summarize that
16 very briefly and suggest that for the rationale
17 behind where we looked you would look in the
18 workplan, because it is voluminous. I mean, it's
19 about that thick.
20 RIPPERDA: Right. And I think that's fine, but
21 groundwater RI is remiss if it doesn't discuss
22 looking for potential source areas or why you looked
23 where you did.
24 BURIL: Sure. And that would be the why we
25 looked where we did. The second part of this, I

1 would suggest to address the specific comment that
2 all three of you appear to have with regard to this
3 specific location is to briefly summarize what we
4 found at this location and maybe some other
5 significant ones from the OU-2 with the
6 understanding that we would reference OU-2 to be
7 specific in terms of the detail about what we found,
8 and so on and so on. Would that be satisfactory?
9 Okay.
10 A little bit more work, but hopefully
11 reasonably simple to accomplish.
12 CUTLER: We have that tie between the
13 groundwater and the soil.
14 BURIL: (Unintelligible)
15 CUTLER: We never looked for sources in the
16 groundwater, but we can state. That's fine.
17 BURIL: Yes, I think that helps draw that link
18 between the two. This is an unusual site to be
19 media driven as opposed to location driven. So it's
20 helpful.
21 LOSI: Keep in mind we've just been working on
22 the OU-2. I think it was already mentioned that
23 that's probably why maybe some of this wasn't
24 included, or any of it, is that this was completed
25 before that was even --

CUTLER: Begun.

RIPPERDA: Yeah. I don't want to see -- like scurry up a site-conceptual model that says "Where did the contaminants come from?"

CUTLER: That's in there, but we can get more specific.

BURIL: We can get more specific.

RIPPERDA: But I'm saying if we have to get all those numerous drainage basins, that's one thing. But to say, you know, we actually investigated a few.

BURIL: I think what Mark is saying is that prior to this report being submitted to you we didn't have that kind of detail developed and readily available to us.

LOSI: That's what I'm saying.

BURIL: Now we can provide it to you.

Where did we leave off?

ROBLES: We're down to 3.4.

BURIL: 3.4.1.3. In this particular situation in the first paragraph I have to say that we strongly disagree with that slug test not being acceptable.

This was a situation where some years ago the workplan and the field sampling analysis plans

1 both identified exactly what we were planning to do,
2 and it was performed. And these plans were approved
3 by all the regulatory agencies involved.
4 Coming in now with a request to provide
5 pump tests, in my opinion, is going to unnecessarily
6 delay this project and add costs that will add no
7 added value.
8 CHRISTMAN: I don't know about no added value.
9 I think that performing pump tests would be far
10 superior, would give you much better data and allow
11 you to model the site in much better fashion. It's
12 going to be your decision to not do that. But this
13 is my recommendation to Richard. You folks decide
14 you're not doing that.
15 BURIL: We'll keep it in mind. I wanted to be
16 sure it was pointed out that this was previously
17 reviewed, approved and executed under the direct
18 cognizance of all the regulatory agencies.
19 CUTLER: Just one more comment. Just keep in
20 mind that those K values, the only time they were
21 used was in a very simplistic fate and transport
22 model between two points.
23 BURIL: Then in the next bullet -- I'm sorry.
24 Go ahead.
25 CUTLER: That's fine.

BURIL: I'm sorry. I didn't mean to interrupt you. Okay.

On the next bullet, you had a concern about the lower hydraulic conductivity in Well MW-11. Could you explain to us a little bit about why you're concerned with that particular location and so forth? It's a little confusing to us.

CHRISTMAN: That well stands out because the hydraulic conductivity is significantly lower than any of the other wells on site. You need to have some discussion in there that that's not an artifact of construction, that that well wasn't damaged, that that hydraulic conductivity was a true representation of that well.

BURIL: I think we can do that pretty easily.

CUTLER: All the same protocols and all the rest.

CHRISTMAN: If you can indicate that there were no anomalies with that well and that --

BURIL: I think we can do that in a paragraph and just describe it was done the same way as the others, and this is just an anomalous condition as a result of, apparently, the geology of the area.

CHRISTMAN: That's the concern here, that there's the indication that the geology is different

there based on the results from that well. Make sure that that's really the case and it's not a matter of --

BURIL: It's not a matter of construction.

CHRISTMAN: Yes.

BURIL: I understand.

RIPPERDA: It would actually make sense that that would have a much lower hydraulic conductivity given the steep gradient right above it.

CUTLER: Right. Something is creating that gradient.

RIPPERDA: Yeah.

BURIL: Again, I think the last bullet on that section is, again, a question of opinion.

CHRISTMAN: Goes to the same thing.

BURIL: Goes to the same thing. And I would again point out that this is something we did review, approve and execute in full cognizance of the agencies. So given that and given the fact that it is what we expected to see, given our knowledge of the geology, that it is our position that the data is adequate.

CUTLER: Whenever you get a number, you want to just make sure its a real -- we're just stating we're doing a sanity check on the values.

CHRISTMAN: The implication comes through that it's --

CUTLER: We can change the wording.

CHRISTMAN: Yeah. If you change the wording I think that falls out a lot better, because the indication was that it was correct because it fell within the range, not that the work was correct. That was just a check.

CUTLER: We'll change that.

BURIL: The next one, then, the explanation of high sulfate, chloride and TDS.

Mark, I had a note here that we had Figures 3-13 and 3-14 that we wanted to use to illustrate that.

CUTLER: I think one of the comments, the RI report was to -- information that excludes the site as a source for these contaminants. That water type, type 3, which has low elevated TDS, chloride and sulfate, is always detected up here in these upgradient wells.

To prove it's not from the site, this blue zone is all what we call our type 1, which is the spring water, basically, that comes out of the Arroyo Seco. We believe that's the source of it. We have years and years and hundreds of samples

1 showing that there aren't elevated chloride,
2 elevated sulfate or elevated TDS on site. So I
3 think we have the evidence that it's not coming from
4 the site. We have it all over.
5 CHRISTMAN: The wells that you're citing here as
6 showing that water type, those are off-site wells?
7 CUTLER: No. They're on site. Wells 6 and 14.
8 CHRISTMAN: That's the concern, to demonstrate
9 that there isn't a source of those things on site
10 that could be giving rise to --
11 BURIL: Remember, now, that the source of --
12 rather the location of Wells 6 and 14 is on the far
13 upgradient side of our site.
14 CHRISTMAN: Indicate that there are no sources
15 in that portion of the site that could give rise
16 to --
17 BURIL: Oh, okay. I misunderstood what you
18 said.
19 ROBLES: I'm sorry. Explain it.
20 BURIL: I guess one of the things, though, that
21 I'd like to address, though, at least in terms of
22 philosophy, is that chloride, sulfate and TDS are
23 not contaminants per se. They are a portion of a
24 water quality type. And while there may be MCLs or
25 water quality criteria, these are not things that

1 JPL would have created a problem with. And based
2 upon Mark's information there, we'll certainly
3 provide the information.
4 But there's a philosophy here that
5 disturbs me only from the standpoint that again we
6 appear to be held responsible for virtually anything
7 that's found in the aquifer unless we're able to
8 show that we aren't the source. And I think that
9 that philosophy is one that we want to be cautious
10 of because we could easily overstate things and
11 create more problems for ourselves than is due.
12 CUTLER: Right. I think we've already stated
13 that this is an upgradient water type. We can try
14 to make it clearer.
15 CHRISTMAN: The thing you have to remember from
16 our point of view, we use TDS, chloride and sulfate
17 as indicators of releases. And they're commonly
18 elevated for industrial sites. So if you've got an
19 area with high TDS, chloride and sulfate, you have
20 to demonstrate to us, and they can be a simple
21 demonstration, that there's no association with
22 activities on site that could have resulted in that.
23 So while those particular compounds may
24 not be, quote-unquote, contaminants, they're
25 indications of industrial activity that could have

contaminated the water.

CUTLER: Our point is this isn't elevated for the site. This is the basin. And this site is low --

BURIL: I understand where --

RIPPERDA: I've got to jump in. This kind of ties in to what I was saying a little earlier. You have information about the whole basin. The report has information about those two wells. So I don't know, reading this report, that the water type all up here is exactly the same.

CUTLER: I can't say we do either.

RIPPERDA: Right. So I see these two wells. He's saying, and I kind of agree with him, that who is to say there's not an industrial discharge from boiler water or something that's got high TDS and it's percolating in and causing that right there.

ROBLES: So we need to describe a paragraph or something stating it's not due to historical operations.

BURIL: Let me interject something. Understanding the gist of what I think Craig's comment was, is that we have water that is not high TDS, not high sulfate, not high chloride here on site. We see something upgradient of us here on our

most upgradient wells, that is, we can explain that we don't have any sources up there that would create that problem and that we don't have any reason to suspect that we have a problem based upon the fact that we don't have the site having high TDS, high sulfate and so forth and that's --

RIPPERDA: Mark knows it's been a parking lot for 50 years. I don't know that.

BURIL: I think, again, we're faced with a situation we're probably just a little too close to the trees to see the forest. I think we can correct that.

RIPPERDA: It's not quite as obvious. I'm not even close to being a geochemist. When I try to look at the actual stiff diagrams, it's not quite as clear cut as dark blue and light blue. I see a lot more funny shaped diagrams kind of like --

CUTLER: There are gradations.

BURIL: There's some interpretation there.

RIPPERDA: When you point to that diagram to prove different water types, and I remember trying to figure out the actual stiff diagrams, it was a lot less obvious than pointing to this as proof.

CUTLER: Well, yeah, there might be some questions in here depending on the time of that

1 year, because this line seems to move back and
2 forth. Typically when you have a water type
3 distinction, the wells right near that distinction
4 may show characteristics of mixing water. It's
5 certainly not 80 percent --
6 BURIL: I think we have a way to address Craig's
7 comments, so let's move on so we don't end up
8 running over on his time here.
9 4.2.1.2. We've discussed this a little
10 bit. And I think on the basis of the discussion
11 that we've had, we are probably in need of dealing
12 with a better piecing together of the puzzle for
13 you.
14 CHRISTMAN: I think there are two ways to
15 approach this. Either you go out and you look for
16 those sources, which you've indicated that isn't
17 something you want to do, or you give us information
18 about them in the report, which you may be able to
19 do, or you take a little bit of a step back in terms
20 of how much you're invoking those sources as being
21 responsible for what you see coming across the site.
22 So there's a philosophical change that you
23 can make that I think would address my concerns, or
24 there's something active that you could do, or a
25 couple things that are active that you could do that

1 would address those concerns.
2 ROBLES: Sometime we'll have to sit down and
3 talk about it because we probably do need to have
4 some more explanation in there besides that.
5 BURIL: Okay. One thing I would like to work
6 away from, though, in dealing with this, is the idea
7 of accepting the responsibility for these things.
8 There is a concern, based upon a number of
9 legal issues, about having things identifying
10 responsibility. The responsibility is still
11 something that's being determined. I think that as
12 a group we need to not make judgments regarding
13 responsibility until we've finished our evaluation
14 and our critical examination of our data. I just
15 want to be sure that people recognize that this is
16 not a situation in which we can point fingers at any
17 one individual, be it JPL, dry cleaners or anyone
18 else, without potential severe consequences coming
19 about as a result. And so we do need to be very
20 cautious about how we deal with assessing
21 responsibility, because with that comes liability.
22 CUTLER: I still have a question about this,
23 Chuck.
24 BURIL: What's that?
25 CUTLER: There again, on that last sentence, it

1 says "Until JPL can demonstrate that verified
2 up-gradient sources of TCE exist --"
3 ROBLES: We cannot accept that statement at all.
4 CUTLER: If you have a production well that's
5 upgradient of the site it has some TCE in it, you're
6 basically saying we cannot infer there's an
7 upgradient TCE source. Is that true?
8 CHRISTMAN: You're invoking those sources as
9 being responsible for a lot of what's going on
10 around the fringe of the facility.
11 CUTLER: No. The question is if TCE is in an
12 upgradient well, significant distance upgradient
13 from the site, can you infer that there's an
14 upgradient source for TCE?
15 ROBLES: And there's no source on the site.
16 CUTLER: Well, even if there was. We do have
17 TCE on the site. I'm just saying if there's an
18 upgradient well on the JPL site we can demonstrate,
19 I think fairly clearly, not under the influence of
20 JPL, that has TCE in it, it sounds to me you're
21 saying we cannot infer there's an upgradient TCE
22 source. Is that accurate, or am I misstating?
23 CHRISTMAN: You've got approximately 10 years of
24 data for the site, groundwater data. We don't have
25 groundwater data from before that. I don't know

1 that you have production well data for before that.
2 CUTLER: No, no. Let's go to a hypothetical
3 situation. There's an upgradient well on the site
4 that is not under the influence of the site that has
5 TCE in it. Can you infer that there's an upgradient
6 source for TCE? It doesn't have to be JPL. Can you
7 do that, or not?
8 CHRISTMAN: It depends on how much data you
9 have. You don't have full knowledge of what's gone
10 on in this basin for the entire time that JPL has
11 been operated.
12 BURIL: Let's be sure we understand something.
13 No one has full knowledge of everything that's going
14 on.
15 CHRISTMAN: That's right.
16 BURIL: We have to take the data as it's
17 presented. And as it's presented to us, we have to
18 make reasonable distinctions as to what is JPL, what
19 is not JPL and how we deal with those issues.
20 In my mind, and in my professional
21 opinion, if you have a sufficiently distant well
22 which has TCE in it and it's upgradient in terms of
23 the regional direction, then there is strong
24 indication that there are upgradient sources.
25 Now, whether you need to go out and point

1 a finger at those individual sources from the
2 perspective of NASA-JPL, the answer we would provide
3 is, "It's not our job."
4 CUTLER: That's the purpose of an upgradient
5 well. As regulators, you know you ask facilities to
6 put that in so you can determine what's coming on
7 site.
8 GEBERT: If you have never used the chemical TCE
9 on your facility, if you do not have it in your
10 soil, if you do not have it in your groundwater
11 wells, then that argument becomes much stronger.
12 But as far as TCE, all those -- that is not the
13 case.
14 CUTLER: We're taking time. This is, to me,
15 critical because we have an on-site plume, we have
16 our upgradient well that doesn't have any TCE in it,
17 and then we have an even further upgradient well
18 that has TCE in it, and we're still saying that that
19 is not evidence of an upgradient TCE source. We
20 even have more data.
21 BURIL: Do we have a map in here?
22 LOSI: It's in the production well. It's clear
23 that there's some kind of upgradient source. It's
24 just reasonable to say that.
25 CUTLER: We have to make this point that there's

1 an upgradient source.
2 BURIL: I think the point that I'd like to try
3 and establish here is that, you know, without
4 knowing what the specific location of the source or
5 the specific entity that the source may be doesn't
6 negate the fact that it may exist.
7 CHRISTMAN: It may exist. The problem I have is
8 that you've used this document and you've used the
9 data you've generated and the way you're using it is
10 to say "There are upgradient sources. We're not
11 responsible for this portion of contaminant. We're
12 not responsible for this portion of contaminant."
13 LOSI: That's not at all what we're saying.
14 BURIL: It's come across that way.
15 CHRISTMAN: But that's what's coming through in
16 the document. That's why --
17 CUTLER: JPL is cleaning it up and they've been
18 doing so for years. Their responsibility is ours.
19 GEBERT: At least my interpretation, I think
20 Craig's too, is that you are saying in the document
21 that the on site is your responsibility. When you
22 get below MW-10, it's not.
23 LOSI: We're not saying that. What we're saying
24 is this is what the data says. We're not saying it.
25 This is what the data suggests.

1 BURIL: Let's take just a moment --
2 LOSI: It's reasonably obvious.
3 BURIL: -- and look at this. We've got a bunch
4 of orange marks on here that don't mean anything.
5 When we start looking at things like
6 trying to decide is there a potential upgradient
7 source, what we try to determine is, okay, you have
8 TCE in this area. These are wells that were in
9 place at the time this map was made. But we have
10 TCE here at 16, 13, 7. It's in this area. Okay.
11 Now, what's the mechanism that's going to
12 push it back and get it into some other location
13 that's upgradient from us? We have a mechanism.
14 There are flow reversals, but based on the data that
15 we have, those flow reversals are, one, short in
16 duration and, two, do not appear to have any
17 significant mass transfer of contaminants from the
18 site to the west. How do we know that? These two
19 wells right here. They don't show TCE or PCE
20 emanating from the site.
21 CUTLER: The other map is a good one there.
22 BURIL: And this are these two wells. So if
23 there was something being pushed from this location
24 to this location, it has to go by here unless you're
25 going to be talking about a complete reversal of the

1 regional gradient all the way across this entire
2 arroyo. And we have never seen anything that would
3 indicate that that would happen.
4 CHRISTMAN: How long do you have data for from
5 the site? How long has the facility been here, and
6 what's the history of when those wells went in and
7 their pumping history? If you can put together that
8 kind of information --
9 ROBLES: But nobody has that kind of
10 information.
11 CUTLER: That's impossible.
12 BURIL: That kind of information doesn't exist.
13 CHRISTMAN: But that's what I'm saying. There
14 has to be questions about stating that that TCE is
15 in no way, shape or form sourced at JPL because you
16 can't say that. You don't have that information.
17 And where I'm getting at in here is that what comes
18 through in this document is that you're very clearly
19 indicating that there are off-site sources and that
20 you're not responsible for the contaminants that are
21 there.
22 BURIL: Well, then, possibly we're in a position
23 of just agreeing to disagree. Because if you have a
24 regional gradient -- here are the boundaries right
25 here. Bedrock. Bedrock. So you're not getting

1 anything coming in from those directions. The
2 regional gradient is in this direction. You come
3 right through what I have affectionately called the
4 Foothill funnel. You don't have a choice. Mother
5 nature doesn't allow water to flow through solid
6 rock.
7 CHRISTMAN: That's not true.
8 BURIL: In this case it is.
9 Now, our TCE plume is in here, our highest
10 concentration, let's say. We are saying, based upon
11 these data and the length of time that the duration
12 of the flow reversals, that we do not get
13 contamination to this point. And I believe that we
14 have sufficient information to prove that. And if
15 there is all this TCE in that well upgradient that I
16 pointed out toward the edge of the map, then there
17 is another source.
18 ROBLES: Is there PCE in that well?
19 BURIL: Yes. There is PCE in that well.
20 ROBLES: That's also an indication, isn't it?
21 BURIL: And the PCE in that well has been fairly
22 high on occasion. One time it was anomalously high
23 at over 200 parts per billion, where at our location
24 we had no PCE even above MCL.
25 So all these things added together create

1 the situation that an upgradient source appears very
2 likely. And one can argue, but in my opinion not
3 argue sufficiently well, that somehow JPL is
4 responsible for that. And the lack of data to
5 justify at all times that it is not part of JPL's
6 responsibility doesn't make sense. No data exists
7 like that. And to implicate somebody as
8 responsible, because data from the past like that
9 doesn't exist, is not something that I believe we
10 can accept.
11 CHRISTMAN: I'm not saying that it implicates
12 you as being responsible. I'm saying that you need
13 to tone down the nature of your assurance that
14 you're not responsible. You can indicate that it's
15 highly likely, but what you do in the report is come
16 through with an impression that it's cast in stone
17 this is not JPL's responsibility and it couldn't
18 possibly be. And that's the impression that the
19 reader gets going through the document. And that's
20 where the problem exists.
21 CUTLER: We can tone it down but I find it
22 impossible to justify how contaminants flow
23 upgradient (unintelligible).
24 BURIL: We'll give due consideration to the
25 comment of toning it down.

1 CHRISTMAN: My concern again is --
2 CUTLER: Even if we have gone back 100 years of
3 data -- anyway, we can tone that down.
4 BURIL: Well, we'll give consideration to the
5 problem and --
6 CHRISTMAN: If you can show that those
7 production wells went in long after, say, JPL was in
8 existence and they couldn't have been pumping and
9 influencing flow direction while there weren't other
10 wells influencing flow direction to go the other
11 way, if you can put in that kind of information,
12 you've got your argument. But you don't have that
13 kind of information. That's what I'm saying.
14 RIPPERDA: My take on this is that there's no
15 way an enforcement action -- I'm going to trying to
16 try to make -- I wouldn't even with a straight face
17 try to make a case that you have to pay for
18 treatment at the Valley Water Company. You know, I
19 can pretty much believe that's from somewhere else.
20 But I think you go a little too strongly
21 sometimes trying to argue that potential sources
22 from in that area come all the way through MW-21 and
23 on through here. So although I agree with some of
24 your basic premise, I think that you extend it a
25 little too far.

As far as expressing your basic premise, the document itself doesn't reflect your knowledge. You don't have any information on here about the regional flow direction. You've got one well, MW-14, with water level higher than anything else on here, but (unintelligible) you don't have anything to show that consistently flows this way and you know that as a hydrogeologist, but your document doesn't show it. In fact, your whole discussion on regional hydrogeology doesn't even talk about the regional flow.

CUTLER: Well --

LOSI: It's in there.

CUTLER: -- it's the general direction.

RIPPERDA: Exactly. All you say is the flow is from northwest to southeast.

CUTLER: Exactly.

RIPPERDA: So there's nothing to back -- you don't reference a USGS report. You don't reference water levels anywhere up there. You don't reference topography changes.

CUTLER: We can throw that stuff in easy enough.

ROBLES: So you're saying we can't assert something if we can't prove it.

RIPPERDA: Yeah.

BURIL: I think that one of the things, Mark, that you're pointing out once again is that to the new reader, and I'll categorize just about everybody but the folks on this side of the room as a new reader in terms of longevity with the project, we haven't provided enough information. I think, again, we're faced with a situation of being too close to the trees to see the forest. I keep using that little colloquialism, but it's very accurate. So we will take a hard look at that and see how we step back to be sure we see the forest in this case.

Okay.

RIPPERDA: Beat this into the ground. All groundwater flow system sections that I've ever read have a regional hydrogeology like intro, and in that, you know, it describes why you believe flow is from west to southeast.

ROBLES: Reference USGS.

RIPPERDA: Yeah, with references.

BURIL: We have all that data available to us.

CUTLER: It's in the FSAPs or something.

RIPPERDA: I'm not asking for a treatise. Just like a good one-page summary of regional hydrogeology.

CUTLER: What we do is we reference the workplan

1 and get right to --
2 RIPPERDA: I think you referenced that way back
3 in pre-support, that little one-paragraph reference.
4 It's not here, though.
5 CUTLER: Yeah. Okay.
6 BURIL: Well, that's a good suggestion. We will
7 bolster that kind of thing to be sure that people
8 understand what's going on, and we will review the
9 assertions and tone them down. But I don't believe
10 that the outcome in terms of the potential for
11 upgradient sources is going to change. Okay.
12 4.2.2. Let's see. I guess I'm a little
13 wondrous as to how you came to the idea of pulses of
14 contamination emanating from JPL.
15 CHRISTMAN: Do you know how the contaminants --
16 do you know the release history of perchlorate at
17 the site and where it came from and what it was, how
18 it was sourced? Do you know that it went in all at
19 the same time at the same place? Do you know that
20 it went -- whether it went in different locations at
21 different times over the course of time. And if you
22 don't know that, then certainly we see a lot of
23 facilities with pulses of contamination that have
24 gone in different places at different times, reach
25 groundwater at different times and they show up in

1 monitoring wells at different times.
2 BURIL: Okay. I guess, again, it's a question
3 of --
4 CUTLER: There's no way we can prove or disprove
5 this.
6 BURIL: I'm sorry. What?
7 CUTLER: There's no way we can prove or disprove
8 BURIL: No, we can't prove it and we can't
9 disprove it. We can only rely on the data that we
10 have now.
11 One of the things that we have -- do you
12 have Figure 4-28, Mark?
13 I think it was the one we looked at last
14 night.
15 Can everybody see this?
16 We've identified something here that we
17 found to be kind of interesting. We have high
18 perchlorate concentrations in this area. There's no
19 doubt about it. 1200 parts per billion, 700 parts
20 per billion. High concentrations.
21 Now, we talk about going to Well 21. it
22 would follow that if Well 21 were being contaminated
23 by site perchlorate that you would see a gradient
24 that would give you indication that it's moving in
25 that direction.

1 First of all, we've got to remember, and
2 recognizing that Mark's comment was valid that we
3 need to give more information as to why we postulate
4 the groundwater flow being in this direction. Take
5 that as a given for the time being. When you look
6 here at Well 24, we've got 300 parts per billion.
7 Following that same direction, 13 is 99. 23 is
8 outside of the area that appears to have any
9 perchlorate but still kind of on a straight line
10 going toward 21. It's nondetect. MW-10 is at 4.7.
11 Again, recognize this is going
12 perpendicular to what we believe the gradient to be.
13 Then when you get down to MW-21 it goes back up to
14 14.7.
15 Now, this kind of a relationship, going
16 down and then going back up, is a disconnect.
17 CHRISTMAN: What are the numbers there, Chuck?
18 RIPPERDA: 4.7 at 10. So right here is 4.7.
19 Right here is 14.
20 CUTLER: Craig is saying that could be a pulse.
21 CHRISTMAN: That's one sampling event, two
22 points. That's putting an awful lot of -- giving an
23 awful lot of credibility to two sampling events that
24 don't have concentrations that are really that much
25 different.

1 CUTLER: I think the way to handle this comment
2 is just like we did up above with the VOCs, is we
3 just can't prove or disprove it. We could go back
4 and forth forever and never know.
5 BURIL: In terms of perchlorate, one thing I
6 would like to point out, though, is that we do have
7 the ability to point to other sources of
8 perchlorate. In fact, we have seen them in our
9 wells. Now, they are at different levels.
10 RIPPERDA: I don't understand your argument in
11 this whole thing, because 14 is much closer to what
12 you have than what you have upgradient. At least
13 what your map shows upgradient is a whole string of
14 nondetects at Valley Water Company, and from what I
15 gather from when Richard Atwater is around, that the
16 highest things that are expected truly off site are
17 in the maybe three to four range.
18 CUTLER: This is a good time to bring this one
19 point up about through these comments there is
20 constantly comparing these numbers to our numbers,
21 which is -- we can't do because this is screened
22 over several hundred feet. Perchlorate may not be a
23 volatile, but you're going to get a lot of dilution.
24 You're going to find this over and over. We thought
25 a good case was made that we're not using production

1 well data, we're just using that to tell us where
2 the plume is. We're not using any in our
3 contouring. But then we keep going back to say,
4 well, your numbers are higher so it has to come from
5 you. So we can't have it both ways. So that's just
6 one point on that.
7 This map is wrong, actually. I think the
8 one you have. This was an error we corrected.
9 There are some perchlorate hits.
10 BURIL: There are numbers there, which is
11 unfortunate and we apologize that it may have
12 created confusion.
13 CUTLER: So that may have been a little
14 misleading. Although -- it is misleading. But that
15 was an error.
16 First of all, on that argument that the
17 numbers are different, we'll never prove anything.
18 RIPPERDA: Right. I'm not trying to argue that,
19 oh, this is low, therefore it can't be the source of
20 that. It's just that when you talk about numbers
21 that are 5 and 14, that they're close enough that
22 when you -- you fixed it to some extent, but the way
23 you draw this, you just like, oh, this must be
24 coming from there and, you know, with low numbers
25 here. Whether it's from a multi-screen production

1 well or not, still, the numbers here are low. This
2 is fairly low and that's fairly low. So I didn't
3 like the kind of editorial bent. I agree very much
4 with Craig that --
5 CUTLER: Yeah. Like for TCE and organic, we'll
6 tone that down.
7 The one part of this comment that I don't
8 agree with was this Well 20, the high perchlorate
9 concentrations in Well 20. We went over that a
10 little bit before. There's a physical disconnect,
11 physical flow.
12 CHRISTMAN: That's fine. If you can put that
13 indication in the document, in the text --
14 CUTLER: That's why this plume is separate.
15 There's this huge disconnect. This plume is
16 actually -- it looks like it's going this direction.
17 But if you look at the flow lines, the plume is
18 being drawn down into the other aquifer layers in
19 this direction. So it's, in a sense, misleading to
20 look at this map. And that's why this is
21 disconnected.
22 CHRISTMAN: There's still the possibility that
23 there was a time when the Arroyo wells were shut
24 down. And that was the other thing I was talking
25 about, plus contamination, something that was

released, got past the Arroyo wells and has now migrated out past them.

CUTLER: No.

CHRISTMAN: I know we've had that discussion around this table before.

CUTLER: So you're saying the stuff in MW-20 could be from JPL.

CHRISTMAN: It's possible. I honestly don't think it's likely, but --

CUTLER: I strongly disagree with that.

BURIL: Okay. Are we up to 4.2.3, then?

ROBLES: Yes.

BURIL: Mark, you said that you had some means of explanation here with regard to expanding this information as far as ethylbenzene and so forth. One of you two Marks did.

RIPPERDA: Oh, yeah. I've got an explanation for that.

LOSI: That compound was identified as an extraneous peak in a VOC analysis.

CUTLER: SVOC.

CHRISTMAN: It was identified out of an SVOC analysis as a tick or something?

LOSI: Which we will clarify. That's an easy one.

1 BURIL: Okay. That's good.
2 On 4.2.4.1. We've got aluminum coming
3 back into the fray here. I think -- I don't know
4 what was in the document, off the top of my head,
5 but let me go back to the history of this a little
6 bit. And if we need to bolster what's in the
7 document to deal with that, then we can do that.
8 Actually, we've had more than one round of
9 analyses of this. We've actually had all the
10 on-site wells done twice and all the off-site wells
11 done three times. During that time -- pardon?
12 CUTLER: I'm sorry.
13 BURIL: During that time we also sampled both
14 the filtered and unfiltered samples. And during
15 that time the analyses showed that we had one hit
16 above the MCL in a nonfiltered sample. It was 1. --
17 what was it, Mark, 1.2 or something like that?
18 CUTLER: 1.1.
19 BURIL: 1.1. When we filtered these same
20 samples for both the secondary criteria and the
21 primary criteria that's identified, they all dropped
22 out. The aluminum analyses went to nondetect. It
23 was on that basis that we eliminated aluminum from
24 the analytical regime because it appeared to be
25 colloidal in nature as opposed to dissolved.

1 CHRISTMAN: Okay. Then reflect that in the
2 document.
3 BURIL: If that wasn't reflected adequately,
4 then we can do that.
5 CHRISTMAN: No. No.
6 BURIL: Also, we did a risk screening on this
7 and it dropped out as well.
8 CHRISTMAN: I understood that. The problem I
9 had was if this, indeed, was going off site you've
10 got the potential of a water company purveying water
11 with MCL. If the water was migrating off site
12 there's still the potential for a water company
13 purveying that water above an MCL.
14 BURIL: Okay.
15 Then on 4.2.4.2. "Natural attenuation as
16 a mechanism for the reduction and dismissal of
17 hexavalent chromium --" actually, we've carried
18 hexavalent chromium throughout the risk assessment
19 and so forth. Somehow this was misconstrued as
20 trying to eliminate it through natural
21 attenuation --
22 CHRISTMAN: There's an issue here. I'm not sure
23 if you understand when you start invoking natural
24 attenuation in a document like this, you're doing a
25 lot of things, potentially, to yourselves

1 downstream. If you look at the EPA guidance on what
2 you have to do to demonstrate natural attenuation,
3 you're talking about a whole lot more sampling.
4 You're talking about a huge amount of analysis to
5 demonstrate that that's happening.
6 BURIL: I think that in this particular
7 situation, this was meant to be more of a comment of
8 general interest and knowledge rather than the
9 attempt to persuade people into thinking this was an
10 issue that could be eliminated on the basis of
11 natural attenuation. I think we could revisit the
12 way that's worded, but I wanted to be sure it was
13 clear that we had carried this all the way through.
14 I mean, we intend to continue this with the comments
15 we've had today.
16 CUTLER: We weren't invoking natural
17 attenuation. Here's the comment. It is worth
18 noting that under anaerobic conditions hex chrome is
19 subject to bio-reduction reactions that in this case
20 may be a mechanism of attenuation. I don't think we
21 were invoking. I think it's semantics.
22 CHRISTMAN: You're implying that's what's
23 happening here or that you think that's what's
24 happening here. If --
25 GEBERT: Just take the comment out?

1 BURIL: That is probably the simplest solution
2 to this whole thing, is just take the words out.
3 Even though they're true, we can just take them out,
4 eliminate the issue. I don't have a major heartburn
5 with that. I know that my consultants don't like
6 the idea, but --
7 LOSI: Well, if we were trying to have a
8 decision based on that, having to -- trying to get
9 people to buy off on that, maybe it would be
10 different. But we're just simply stating that it
11 happens.
12 CHRISTMAN: The concern I have is that when we
13 have comments, statements like that in here, then
14 are we going to see those statements reinforced
15 later on?
16 LOSI: Maybe investigated further with --
17 through analyses.
18 CHRISTMAN: That's fine. If you want to put
19 that in, that's fine. That's great.
20 LOSI: So add a sentence to say this could be
21 investigated further in the future.
22 CHRISTMAN: Absolutely.
23 BURIL: We can do that too. I have no problem
24 with it. Or add it in. Good.
25 LOSI: Good.

1 BURIL: Let's see. The next bullet under that
2 same one, I think that it was basically the same
3 kind of thing.
4 CHRISTMAN: Yes. Same thing, just for a
5 different compounds.
6 BURIL: On tributyl tin, you indicate that the
7 discontinuing of the sampling should be
8 reconsidered.
9 We would disagree on this one. The reason
10 for that is that the analyses that we ran, we only
11 found it in two locations. And we sampled those
12 locations, I believe twice, didn't we, Mark? Do you
13 recall?
14 CUTLER: Three times.
15 BURIL: Three times. Okay.
16 CUTLER: It depends on the well.
17 BURIL: We sampled one twice and one three
18 times.
19 CUTLER: Yeah. There was more than one. I
20 think there were four locations.
21 BURIL: Something like that.
22 Anyway, regardless of the number of
23 locations and so forth, all of the analyses were by
24 about a factor of a thousand below the MCL
25 consistently.

1 CHRISTMAN: Understood.
2 BURIL: And so from that perspective, we, as the
3 RPM, saw no reason to continue sampling that.
4 CHRISTMAN: My only concern, and I bring this up
5 and whether you decide to forget about tributyl tin
6 or not, just think about whether you can state with
7 assurance that you've defined the nature and extent
8 of contamination with respect to tributyl tin.
9 Have you looked in wells other than those
10 where you first looked and did you look downgradient
11 and make sure that those concentrations were, in
12 fact, representative of what's there and what's
13 downgradient, and how old is this discharge and
14 could tributyl tin have migrated off site and we
15 never saw it because we didn't look for it? And
16 that's where the comment was coming from.
17 BURIL: We'll take that into consideration.
18 GEBERT: Right. Because it doesn't appear in
19 the areas closest to the source, but it does appear
20 in the more downgradient wells, the ones right next
21 to the Arroyo. So there's always a possibility that
22 maybe you just caught the edge of it. So you might
23 want to consider the off-site wells, 18, 17 and 21.
24 BURIL: We'll have to go back and look at these
25 again.

1 GEBERT: If they showed nothing, then it makes
2 your case a lot better.
3 BURIL: The one thing I would look to is that if
4 we're 1,000 parts below -- a thousand factor below
5 the MCL on site, the distance that we would travel
6 would probably only increase that number to the off
7 site. I think that was the basis that we made the
8 decision back, what was it, two years ago to
9 eliminate it.
10 CUTLER: I guess that's the point. Maybe we
11 should have discussed it then.
12 BURIL: Okay. We'll give that some
13 consideration.
14 CUTLER: Yeah.
15 BURIL: Next Section, then, 4.2.7. I guess one
16 of the things we would suggest that we could do is
17 that we can provide additional information.
18 Mark, you had a couple of tables.
19 CUTLER: I have to check. I had forgotten all
20 about this. In the early days, like between '90 and
21 '93, we did analyze just about everything for gross
22 alpha and gross beta so we do have background
23 numbers. I had forgotten about that until
24 yesterday. We'll throw that in there.
25 (Multiple speakers unintelligible.)

1 CHRISTMAN: I honestly didn't think that it was,
2 but I just wanted to see if you had something else
3 you could put in there to bolster it.
4 CUTLER: It was way back in one of these Section
5 1 summaries.
6 BURIL: I guess we're up to 5.3.1. Okay.
7 We don't really have a problem with this.
8 I think one of the things that may have been, again,
9 one of these situations where we were too close to
10 the trees, is that we weren't trying to indicate
11 that the volatilization took place in the septic
12 system. We were thinking more along the lines of
13 some of these open areas, where things would be
14 dumped and so forth. We can make changes to the
15 text that makes this clearer --
16 CHRISTMAN: You've got a variety of resources.
17 BURIL: -- and there's none of the ambiguity
18 that apparently you picked up.
19 On the next one, 5.4.1, I'm going to ask
20 you to explain your worst case and then we'd like to
21 try to understand a little better because we don't
22 understand.
23 CHRISTMAN: Okay. My understanding of what your
24 worst case was that all the wells, all production
25 wells off site would be shut down, and that was your

1 worst case scenario.
2 What I'm saying is, if the wells close to
3 the site are, indeed, shut down but the wells
4 further off site continue to pump, then you've got
5 contaminants that are out here that are already past
6 the Arroyo wells and now you've got a mechanism for
7 moving that contamination further away from the
8 site.
9 BURIL: Okay. I think I understand what you're
10 saying now.
11 CHRISTMAN: Stop pumping here. You continue to
12 pump here. The contaminants that are here continue
13 to migrate.
14 ROBLES: So you want that to be the worst case.
15 CHRISTMAN: If you're going to say it's the
16 worst case you can change it and say it's the most
17 likely case.
18 LOSI: The most likely worst case.
19 BURIL: Most likely worst case, yeah.
20 ROBLES: You can think of something worse than
21 what we can think of.
22 GEBERT: Yes.
23 CHRISTMAN: It may be unlikely that that's going
24 to happen, but if you're going to invoke
25 something --

1 BURIL: This is in connection with that little
2 one-dimensional modeling that we did. Is that
3 correct?
4 CUTLER: Yes.
5 GEBERT: Right.
6 (Multiple speakers unintelligible)
7 CUTLER: The model goes from Well 17 to Well 20.
8 You're saying have the Lincoln wells pumping and
9 these wells pumping. Well, we think that's probably
10 maybe not the worst case because this contamination
11 will just go right to here and may never get here.
12 So that's one of the reasons. Turn all these guys
13 off and just let it naturally flow.
14 CHRISTMAN: If you think that, indeed, is the
15 worst case, then put some more back-up in there on
16 why it's the worst case and that you looked at the
17 other situations and these other situations would be
18 less of a concern.
19 BURIL: Okay. You may not even see that model
20 exception in the draft-final, but we'll decide that
21 down the road. But your points are well made.
22 We'll address that.
23 The next two points also deal with
24 modeling. And I think one point that we'd like to
25 be sure we make here in connection with the first

1 bullet is that a model that we're using here in
2 terms of this one-dimensional thing is only used in
3 terms of a kind of indication. It's not meant to be
4 a concrete definition of how long things would
5 migrate. It gives us a rough order of
6 understanding. It's not going to migrate rapidly.
7 It's not going to contaminate something within a
8 period of weeks or months. It's going to be years,
9 possibly a number of years. So from that
10 perspective, we have a better understanding of what
11 may be happening.
12 Also, when we talk about contaminant
13 plumes, when we look at our more sophisticated
14 model, we use Mod Flow and basically we've got it
15 pretty well tuned in, it was our intention that we
16 would never model contaminant fate and transport
17 with the model and that it would be a physical
18 groundwater flow regime only.
19 And the principal reason for this was at
20 the very outset of the project, about four RPMs
21 before you, Mark, EPA had a meeting with us and they
22 had one of their modelers come and talk with us
23 about the usefulness and acceptability of modeling
24 results. Basically, what they told us is they're
25 unreliable, they're costly, they're too dependent

1 upon assumptions, and they aren't going to wait
2 schedule to finish modeling results for anything,
3 because the only thing at the time we would believe
4 would be data coming out of the well and analyzed at
5 a laboratory in terms of contaminant transport and
6 fate.
7 CUTLER: They said they wouldn't believe it.
8 BURIL: They said basically they just would not
9 believe it, to which we said okay, fine, we won't go
10 there, we'll use it for things like understanding
11 zone of influence on pumping wells for remediation,
12 maybe placement of monitoring wells once we had a
13 good understanding of the flow regime, things of
14 that nature. But we won't use it for contaminant
15 fate and transport. And I just want to be sure that
16 everyone recognize that that is our continuing
17 approach.
18 Now, we don't intend to use the model that
19 was here presented as a contaminant fate and
20 transport delineation. We don't have any intention
21 of doing that with the model that we're currently
22 planning to use in the FS.
23 CHRISTMAN: Then please say that.
24 BURIL: Okay. We can do that.
25 Last thing, on the dispersivity of the

1 perchlorate plume. Again, this model was not
2 intended to be predictive, only illustrative. But
3 also when we did the model, we did take the most
4 conservative approach that we could reasonably,
5 which meant that when we factored in dispersivity
6 into this we actually factored in a very high
7 dispersivity. And while it may not be entirely
8 called out, I think that somewhere within our
9 document we had identified that we had a relatively
10 high dispersivity built in.
11 CUTLER: That's a table with the values that
12 were used of dispersivity.
13 BURIL: It may be something that if we choose to
14 leave the model in, we can add something to the text
15 that also refers to the table so that that's
16 addressed and we can deal with that.
17 RIPPERDA: I was a full-time modeler for three
18 years and my eyes still glazed over from reading
19 this. I think it would be much better if you left
20 it in but severely truncated it. Instead of like
21 worst case or most likely case, anything like that,
22 just say, for example, like under one scenario this
23 is how far it moved, how fast it moved, this is
24 indicative of potential behavior. It goes from --
25 it runs 1 to 2 to 3 and this and that and -- I'm

1 talking -- not very fast, but --
2 LOSI: Could I say something else? That's a
3 great suggestion. But I want to just also add that
4 when we talk about worst case scenario, he thought
5 of another one that was worse in terms of the wells
6 being shut off. We were also referring to we used a
7 much higher concentration than we had ever observed
8 at the starting point. We used a continuous
9 release. We used no retardation.
10 CHRISTMAN: Absolutely.
11 LOSI: But I don't want you to -- I just want to
12 make that point.
13 RIPPERDA: I'm not trying to argue about worst
14 or not worst. Just call it a potential or a
15 representative and use it as an example scoping
16 level calculation.
17 CUTLER: That's the intent of this.
18 LOSI: You picked up on that, I noticed, in your
19 comments. It's just a scoping level type
20 assessment.
21 RIPPERDA: Yes. And just leave it at that and
22 drop comparisons of runs, maybe, and just leave it
23 as a scoping.
24 LOSI: That's probably a good idea.
25 BURIL: That sounds like a good suggestion.

1 CHRISTMAN: You could call it a conservative
2 run. But worst case is --
3 CUTLER: Like Mark said, our worst case is --
4 BURIL: Actually, we again overstated it. And
5 that's fine. We can step back on that.
6 It is 1:14, so I think, Craig, you
7 probably need to run out the door on us.
8 Why don't we take a break for those of us
9 who are staying, get some lunch and reconvene, say,
10 at 2:00 o'clock. Is that satisfactory to everyone?
11 ROBLES: Yes.
12 BURIL: Let's do so, then. Thank you.
13
14 (A recess was taken from
15 1:16 P.M. until 2:05 P.M.)
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25

1 AFTERNOON SESSION
2 2:05 P.M.
3
4 (Messrs. Carlos, Christman,
5 Gebert, and Luthra not present.)
6
7 BURIL: We're back after lunch and we're going
8 to continue on with Mark's comments from EPA,
9 starting with his number 12) regarding the maps
10 showing general water types.
11 And we agree with you and we already made
12 changes with regard to the extent that we show on
13 the maps.
14 CUTLER: Does that look better?
15 RIPPERDA: Yes.
16 CUTLER: I might even trim this.
17 BURIL: So hopefully that will address that one
18 and you shouldn't have a problem there.
19 On number 13), then, Hydrographs of Daily
20 Water-Table Elevations in Shallow --
21 RIPPERDA: Actually, on number 12), Mark has
22 kind of alluded to this earlier, but why wasn't
23 water chemistry analyzed from any production wells,
24 especially from La Canada or Valley Water?
25 CUTLER: We thought of doing that and partly

because they were screened over many levels and we felt we had for our purposes of what we wanted to do with the anion-cation data, we had enough. That was basically it.

ROBLES: Is it beneficial to do it or not do it, in your mind?

RIPPERDA: In my mind it would help support some of your conclusions about Wells MW-20 and -- any time you argue about on JPL water type 1 versus water type 3, that if you had data from even farther away and not just 6 and 14 as your sole upgradient water type 3 points. It's something that I wouldn't require, but it just seems like it would help people believe your argument more.

CUTLER: That way we could put this color up here.

RIPPERDA: Right.

ROBLES: Why don't we look at that and see if there's something --

BURIL: He's probably got dissolved mineral information coming out of his ears. We could ask easily enough.

RIPPERDA: Again, I know that you can't truly compare one for one production well versus monitoring well, but those production wells do seem

1 to be screened primarily through layer 2. Some of
2 your water type analysis shows that, I think at Well
3 14, that all three levels trended towards water type
4 3. So it's kind of close enough. Even though it's
5 not purely a one-to-one correlation, it's at least
6 similar.
7 ROBLES: So it allows us to support our
8 assertions a little more definitively without
9 getting into an investigation.
10 RIPPERDA: Right.
11 ROBLES: That lends credence to the fact that we
12 have a third type of water constituency.
13 RIPPERDA: Yeah.
14 ROBLES: Okay.
15 BURIL: We can check into that.
16 On number 13), this is with regard to the
17 elevation, water elevations at MWs 1, 9 and 15. And
18 it was your suggestion that these three wells should
19 be classified as a different layer from layer 1. I
20 guess I'd like to hear a little more of the thought
21 that you had with that in mind.
22 RIPPERDA: Just that it seemed so obvious that
23 they were such a strong gradient from those to the
24 rest of what you call aquifer layer 1 that, you
25 know, although they may be a source to aquifer layer

1, they don't seem to be a contiguous aquifer layer 1.

BURIL: Let me ask a somewhat pragmatic question. Given the fact that MW-1, 9 and 15 basically show, my recollection says no contamination, is that something that you feel is really necessary? I mean, it's almost academic at that point.

RIPPERDA: Right. This was not a big point. They just seemed to be separated by a fault or something like that. And so not truly aquifer layer 1.

BURIL: Well, how about if we put something in the text of the document that said something to the effect that, well, we put them in aquifer layer 1, but they may be different, but there's nothing really driving us to identify a separate layer just because there's no contaminants, there's no issue with those particular wells. Would that be --

CUTLER: We can do that.

BURIL: -- suitable?

CUTLER: Sure. We can do that. We do talk about the groundwater mound quite a bit. And those three wells are separate. They're separate on the hydrograph. But we can --

1 RIPPERDA: I don't know if somewhere within the
2 document if they're really discussed as particularly
3 being an aquifer layer 1. So rather than like add a
4 discussion of how they're separated by a fault,
5 because you already have that in there, this is just
6 more of a general comment. I wouldn't want any of
7 the modeling efforts where you start to talk about
8 different aquifer layers to have these be assigned
9 to aquifer layer 1.
10 BURIL: That makes some sense, but I think maybe
11 we better make sure we understand that because in
12 the risk assessment, then, we would be eliminating
13 those from aquifer layer 1 and doing the isopleths
14 that Dan had talked about earlier?
15 RIPPERDA: Let me see how far apart they are.
16 CUTLER: I don't think they can be eliminated.
17 Because they're control points for chemical data.
18 BURIL: How difficult would it be, just as a
19 suggestion, to call that mound, say, aquifer layer
20 zero?
21 CUTLER: My personal opinion is why. The reason
22 the aquifer was divided up in the first place was to
23 show contaminants with depth. It was a request by
24 the agencies to have some visual way to look at
25 things with depth, because we have such a deep

aquifer. We tried to use hydrogeology as best we could and I think it worked out to a reasonable extent to use actual, you know, sediment layers to divide the aquifer. So when you look at the intent of what the layering was for, trying to put these three little wells on a separate layer and a discussion on that is kind of maybe more confusing and not -- I'm not sure what we'll gain. They're odd and they're different and maybe we should --

ROBLES: Note them as such.

CUTLER: Right. Talk about that a little more.

RIPPERDA: That's a valid response to my comment.

BURIL: So we'll note that they are different for reasons that we understand to be true, talk of the Arroyo mounding, et cetera.

RIPPERDA: Just because I make a comment doesn't mean you have to go rewriting your comment. You can respond to my comment with a reasonable answer and I can say, oh, okay.

BURIL: That's great. That's a big difference from some people we've worked with. Okay.

"Why are groundwater table elevation data not available at MW-8 and 10?" We had an equipment failure at the time. But the data at the time, what

1 was it, Mark, at a point in time when we were
2 pumping with a flow reversal or --
3 CUTLER: This particular map, right. I believe
4 it's aquifer layer 1 showing a flow reversal with no
5 pumping.
6 BURIL: Oh, no pumping. Okay.
7 CUTLER: So really -- and that map shows pumping
8 had just started. So it was basically impossible in
9 the RI period to find that time where there was flow
10 reversal and no pumping. And this was as close as
11 we could find. And during that one week or two, for
12 some reason we had equipment failure on those two
13 wells. So we were forced to use that day or week
14 for the data to show this condition of flow, because
15 it just didn't happen in the RI. It was a very rare
16 occasion.
17 ROBLES: Do you want to note that in the chart,
18 pursuant to equipment failure?
19 BURIL: MW-8 and 10 experienced equipment
20 failure during this time frame? Would that be good
21 to at least document?
22 ROBLES: Because I know if you've had a question
23 and someone picking up the book is going to say,
24 "Ooh, why is it these two points?"
25 RIPPERDA: It kind of jumps out at you when

you're looking at it. You know, their screen was in there. You know, the water level is above those screens.

BURIL: Sure. We can do that. Just add a little sentence on the chart.

RIPPERDA: So if I went and looked at one of the other monitoring reports from a year before this or six months before this or after this, I would be able to find data for --

BURIL: You should be able to, yeah, because we fixed that a long time ago.

RIPPERDA: Okay.

CUTLER: The data, as you look at some of the hydrographs you see little blank spots here and there. Something goes wrong, it rains out here, water gets in the well boxes and it shorts things out, or batteries just go bad. We use them year after year and one month a battery goes bad. So it comes and goes. Can't predict.

BURIL: Okay. Then on number 15), the slight difference or -- excuse me -- slight depression in the water table at MW-16 and 7.

Mark, you had what I thought was a rational explanation for that last night. Why don't you pass that along and see if that's --

1 CUTLER: This is the figure. I know it's upside
2 down for you, Mark.
3 RIPPERDA: Just tell me what number it is.
4 CUTLER: 3-819.
5 RIPPERDA: Okay.
6 CUTLER: The reason there's that little low
7 there is it's really between two highs. It's
8 between the groundwater mound and it's between the
9 regional high coming out of La Canada. We can
10 explain that in the text.
11 There's also just the shape of the bedrock
12 here at JPL is kind of -- there's a little cupped
13 kind of protected area. As this regional flow comes
14 down it's a little protected. So you have a high
15 here and a high here. And that's why that's low.
16 Because where these two highs meet there's a little
17 pocket that's kind of protective.
18 Does that make sense? I'm probably
19 confusing things.
20 RIPPERDA: It sounds like it might make sense.
21 But water, if you've got two highs, they're going to
22 flow towards the low and there's going to be a --
23 water is a little elastic.
24 CUTLER: It's not there the whole time. You
25 notice it comes and goes. But in periods of time

the two highs before they meet --

RIPPERDA: So this is more like on this particular day if you'd come by one week later --

CUTLER: It may not be there.

RIPPERDA: -- it may not be there.

BURIL: It's kind of ethereal, one day it's there and one day it's not.

CUTLER: That depends on the recharge of the Arroyo. If that mound starts growing rapidly.

RIPPERDA: Okay.

BURIL: So we've got that one covered?

RIPPERDA: Yeah.

BURIL: All right. Number 16), Municipal Well Pumping Volumes Precipitation Data, et cetera, et cetera.

Let me ask you, Mark, have we addressed this already?

RIPPERDA: I think this kind of came along in an earlier discussion.

BURIL: I think so, too. I just want to be sure that I don't oversimplify what's being said here.

RIPPERDA: Yeah.

BURIL: So we've addressed this through our work already?

RIPPERDA: Yeah.

BURIL: Okay. Great.

Then number 17).

RIPPERDA: Just back to 15) for a second.

BURIL: Sure.

RIPPERDA: It isn't mentioned, but it actually shows up, I make my comment in September and December, which you'd think September would be -- it's fairly dry without water recharge happening, where December maybe there is recharge happening.

BURIL: We could go back.

RIPPERDA: The cumulative effect is --

BURIL: If memory serves properly, '95 was something of a dry year. I don't think we had started seeing rain down here -- in fact, I think that was the year of the miracle March where we were in a drought situation and we got 15 inches of rain in March and saved us. We could verify that, but --

RIPPERDA: Yeah, it might be an instrument artifact. The number of differences are not that great. I didn't pour through this to like compare MW-7 through all the available data points. So I just want to make sure it's not some kind of instrument error.

BURIL: Okay.

CUTLER: I think it is.

RIPPERDA: Okay.

BURIL: We can check that. That's a reasonable thing to do. All right.

RIPPERDA: So we're on 17).

BURIL: Right. I'm just looking to see.

You had asked to have a graph installed directly on a map, or graphs for concentration versus time on a map.

RIPPERDA: Do you have the sample I mailed down with my comments?

BURIL: We didn't get a sample with the comments.

RIPPERDA: I'm sure I sent a sample.

BURIL: I'll go back and look, but I sure don't remember seeing one.

RIPPERDA: If I didn't -- because I can space out sometimes. So you got a map --

LOSI: Can we discuss that a little bit? I think I know what you're saying.

RIPPERDA: I'm drawing an example for you here. So you got all these wells. Basically what I've seen at some other sites that helps me much more so than looking at drawn contours. I personally don't like to look at other people's drawn contours that much, or color, because it's too leading. It's too

1 definitive.
2 So they just put a little plot here
3 with -- you know -- so each well has a tiny little
4 plot by it kind of like that, which isn't nearly as
5 busy or confusing as you might think.
6 BURIL: I'm not thinking in terms of how the
7 data is presented. I'm thinking in terms of the
8 logistics of doing something like that. You get on
9 site here, unless we did something like that on a
10 very large sheet of paper, I think it would be very
11 difficult to see.
12 RIPPERDA: The sites that I've seen use this do
13 it on this size paper, 11 by 17, with about, you
14 know, 20 wells total and they split it into two
15 graphs, so about 10 wells and 10 wells, kind of like
16 either the center and the outside or else those over
17 some number and those under some number. What that
18 does is it lets you look at spatial and time --
19 BURIL: Sample trends.
20 RIPPERDA: -- trends all at once rather than
21 paging between multiple, multiple pages, remembering
22 what was what when. Here I can see it's trending
23 down here, it's flat here and it's going up a little
24 there over time.
25 BURIL: I see your point.

RIPPERDA: It's not a requirement that I want on you. It's just that I found this to be a more useful thing for me to look at than other --

BURIL: Let us look at it and see if we can come up with a way to do that.

LOSI: Can I make a comment? We tried that for the OU-2 kind of. And we found there are more wells in the OU-2, but it really got confused. You're saying it hasn't got confusing in your experience, but it obliterated a lot of the features of the map and so it became difficult to, you know, to really get a feel. I mean, it seemed like it was too much on one graph.

RIPPERDA: OU-2 is a bad example because that's too much data.

BURIL: On a small area.

RIPPERDA: Where you have, you know, maybe 15, 20 wells.

BURIL: My thought in terms of a concern would have been on site, particularly in the northeastern half of the site there where you've got a preponderance of our wells. That could get really messy.

RIPPERDA: Right.

BURIL: We can look and see how we can do it.

1 If we can, we'll do it.
2 RIPPERDA: If you have them together, like, you
3 know, MW-1, 5 and 9, they're all pretty much clean.
4 No reason to draw three plots showing essentially
5 flat zeros or flat nondetects. Throw one in there
6 and it represents all three.
7 BURIL: We can look and see how we might be able
8 to do that. I won't promise that we'll do it, but
9 we'll certainly look and try.
10 RIPPERDA: Okay.
11 BURIL: If you could fire down a copy of that
12 one from Schofield Army barracks, that would be
13 great. I'll go back and look at my thing, but --
14 RIPPERDA: I thought I sent it.
15 BURIL: You may very well have. But just to
16 cover my back side, if you could just send down
17 another copy, that would be great.
18 RIPPERDA: Okay.
19 BURIL: Okay. I think we've got this one
20 covered from the standpoint that we're going to be
21 providing all of the data that we have prior to
22 August '96. So I think the things that you'd like
23 to be able to do with previous data, the data will
24 be there and available for you to use. So I think
25 that will address your comment.

RIPPERDA: Does that include production well data?

BURIL: Everything that we've got. Yeah.

RIPPERDA: Okay.

BURIL: Then in number 19), basically we think we understand what your comment is on this. We have changed the maps based on not only your comment but some other comments that came through as well.

Mark, do you have those there, by chance?

CUTLER: We talking about Figure 4-9 right now. Do you have your original version?

RIPPERDA: Yeah.

CUTLER: This is a draft of the new version which we made. There is TCE up here, so we believe there's going to be something up here. We've added the question marks on the southern boundary, added question marks up here as well. We don't know connections this way or this way. All we know is that it's out here.

RIPPERDA: That's much better.

LOSI: Also, one other thing to keep in mind is you've noted that, maybe it's the bottom part of the comment, where you mention that the concentrations in the Valley wells don't indicate, since they're lower here than here. But as we kind of discussed

earlier, those concentrations don't really mean much just because we don't know, we don't have any idea of where the sources originate.

RIPPERDA: I agree with you wholeheartedly, but my comment was based on this figure, and this figure showed the high part absolutely ending right up to that.

BURIL: That's a well-founded comment.

LOSI: Perfect.

RIPPERDA: This figure is just -- you could even cut the green off, you know, sooner to give it less --

BURIL: You could cut it off anywhere you'd like.

CUTLER: You can cover the wells.

RIPPERDA: Either way. Cover the wells, you can cut it off sooner. I just didn't like the big dark blue.

BURIL: If the question marks where they're at are adequate we'll just leave it there.

RIPPERDA: That's fine.

BURIL: Great.

Then number 20).

CUTLER: And 14) I think was the same.

BURIL: Did we have another figure?

CUTLER: I'm sorry, Mark. Same thing.

RIPPERDA: Yeah. Much better.

BURIL: Okay. Great. Good.

Number 20). We needed to show some groundwater contours at the time these borings were drilled was your concern. Those are the B-34 and B-36, in dealing with the perched water.

Yeah, I think, based on our conversation, we can develop a figure here that will show you where the water table was at the time these were drilled, and also the elevation of the perched water. Based on what Mark was telling me yesterday, there's about 100-, 120-foot difference between water table and where we found the water.

RIPPERDA: The other intent of this question was there's other bore holes, but it's not clear whether they were above that, like would they have encountered perched water or not? Did they go through that depth?

CUTLER: Here is a revised version based on your comment and we've included the other bore hole locations and the water table at the time.

And Chuck -- actually, yesterday we showed this to Chuck. He wants us to add these two borings that had the perched water, put an elevation so that

1 number can be compared with the elevation of the
2 water table.
3 BURIL: Exactly.
4 RIPPERDA: I don't remember exactly what the
5 text said, but I wanted to make sure B-35, for
6 example, was drilled through that depth and it did
7 not have perched water.
8 BURIL: Right.
9 RIPPERDA: Because otherwise, is it a continuous
10 perched water layer that's the whole region, or is
11 it just two isolated little things separated by
12 wells that went as deep or deeper but didn't
13 encounter perched water.
14 CUTLER: Right. Separated little ponds.
15 BURIL: That makes sense. We can do that.
16 Okay.
17 Number 21), a discussion on the Quality
18 Assurance/Quality Control. And the comment is that
19 "The section should discuss whether or not data
20 quality objectives were met and present data quality
21 parameters, including precision, accuracy,"
22 et cetera, et cetera.
23 We also said that we had a discussion in
24 Section 4.3 that should be moved to a separate
25 section.

1 Could you kind of explain that a little
2 bit more for us so we have a better understanding of
3 what your thoughts are?
4 RIPPERDA: I guess I just didn't think it was a
5 natural fit for quality assurance/quality control to
6 be under Nature and Extent of Contamination. It's
7 usually in its, I guess, own section.
8 BURIL: You mean like a Section 5.0 as opposed
9 to a 4.3 kind of thing?
10 RIPPERDA: Yeah. This is more of a style thing
11 than anything else. I just really haven't seen
12 QC/QA stuff as a subsection of Nature and Extent.
13 BURIL: Let me ask you a question, Mark. When
14 we put it together like that, I remember in the FFA
15 it had like a generalized outline of an RI report.
16 Does this follow that, or is this
17 something we did on our own, or do you remember?
18 CUTLER: I don't remember what that looks like
19 at this point.
20 BURIL: I don't remember either. I don't
21 recognize it right off the bat.
22 RIPPERDA: I didn't look at my own RI guidance.
23 Maybe all those RIs I've been reading all these
24 years --
25 CUTLER: I do know there was not a separate QA

1 section in EPA's guidance. We stuck with those
2 major headings. 4 was Nature and Extent. 5 was
3 Fate and Transports. 6 was --
4 BURIL: That's what was in the FFA as well.
5 CUTLER: Right. Now, where QA/QC went in one of
6 those, I don't remember, but it was not a separate
7 heading.
8 BURIL: How difficult would it be to insert a
9 separate heading on QA/QC as like a 5.0 or whatever?
10 RIPPERDA: Before you do that, we should either
11 look at the FFA or -- I should look at the EPA RI
12 guidance just to make -- it is best to follow that
13 format whenever possible.
14 BURIL: All right. That's fine.
15 RIPPERDA: First we'll look at that, and if
16 there's something --
17 BURIL: (unintelligible).
18 RIPPERDA: -- and then if there's -- we'll make
19 it match that.
20 LOSI: Because it's not a complete disconnect.
21 I mean, he's describing the quality of the data
22 right after the data is actually presented.
23 BURIL: Let's look at the guidances we have in
24 the FFA and the RI guidance. And whatever it says
25 we should be doing we'll do.

Okay. Where are we? 22). You had asked that we remove the groundwater flow directions in Figure 4-2 and other contaminant contour maps. We did that already.

CUTLER: Yes. They're on the next version.

RIPPERDA: Okay. It actually makes -- I also debated on whether or not to include this comment because I kind of like them and I kind of --

BURIL: That kind of makes it difficult.

RIPPERDA: And I kind of don't. It helps to know, oh, the flow is supposed to be going this way. But now I can see whether or not, like that's upgradient or not. But it also kind of leads the reader maybe a little too much and it makes the map much busier.

BURIL: We didn't have a problem taking them off per se, so I don't think that we have an issue with that. I think it worked out fine.

Okay. So we're done with 23) -- excuse me. 22).

And 23), "If 1990-1993 data is available, it should also be included for trend analysis." We agree. We're going to be providing that in the draft-final. So you'll have everything we've got.

On 24), Mark, I have marked down here that

1 Figure 4-10 is what we would want to show on this.
2 I'm trying to remember exactly what Figure 4-10
3 shows.
4 CUTLER: Looking at some of these, I think we
5 need to add question marks on other ones. So we'll
6 revise them.
7 RIPPERDA: Okay. Yeah. That's part of what I
8 was looking at before when I said this was looking
9 much better.
10 CUTLER: Looking at these yesterday I noticed
11 not all of them have question marks.
12 BURIL: Yeah. Not all of them have the question
13 marks. Yeah, we should include all those.
14 If I remember our conversation yesterday,
15 we were looking at -- it's a similar pattern that we
16 saw with perchlorate where we had high
17 concentrations here, and you see a gradation down
18 right until we get to 1.1 here at MW-1. That would
19 take a jump up. This one is bigger than the other
20 one that we had with just perchlorate. Here we are
21 an order of magnitude. So there seems to be that
22 same perceived disconnect. It obviously doesn't get
23 manufactured between here and here. So where is it
24 coming from? It doesn't appear to be coming off the
25 site coming from the south. These wells are clean.

1 These wells are clean. This well has got an order
2 of magnitude less than this one, another indication
3 that maybe something is feeding in from someplace
4 else and augmenting what might already be coming
5 from JPL, if anything at all.
6 RIPPERDA: I don't disagree with that and I
7 don't necessarily agree with it. I like the way
8 this map is shown, like it shows the data.
9 BURIL: Right.
10 RIPPERDA: It doesn't lead you to too strong of
11 a conclusion and, you know, because somebody would
12 argue that there's a preferential flow path and
13 you're just --
14 BURIL: Missing.
15 RIPPERDA: -- you're just missing it. You don't
16 have any data in here to show that it is necessarily
17 coming from upgradient. So this does what you're
18 supposed to do, you're just showing the data.
19 BURIL: So that will take care of your comment
20 on 24)?
21 RIPPERDA: Yeah.
22 BURIL: Okay. On number 25), you'd like us to
23 provide histories for the production wells in the
24 region for all contaminants concerned, much like we
25 did on Figure 4-11.

1 Mark, do you have some of the examples
2 that we put together?
3 CUTLER: Yeah. You know, we tried doing that
4 for the production wells. Okay. We'll add previous
5 data for our monitoring wells. But for the
6 production wells what we're finding is some of them
7 are off. Some of them are on. They sampled
8 different periods of time depending on what, you
9 know, purveyor it is. And so we found these maps
10 actually -- these graphs useless, and here is why.
11 Here's a carbon tet. This is just for City of
12 Pasadena and Lincoln Avenue, where we have the most
13 continuous data. If we get into the Valley Water,
14 the Rubio Canyons and Las Flores, it's even much
15 more spottier than that. So if we added those guys
16 on here, which we had at one time, it gets real --
17 there's no way. It's very hard to do trends.
18 Here is for PCE downgradient. Same thing.
19 So we suggest that our figure -- or our table,
20 excuse me, Table -- this table here in a sense is
21 easier to read, which we would change the shading
22 because you can't read that, but you can look at
23 trends across this way. If you want to look at
24 trends of contaminants, this is actually easier to
25 read than some of this.

RIPPERDA: That's Table 4-6.

Cutler: 4-3. We went back to '94 on this and now we've got it back to, what was it, '89, I think, because the City wells were off before that for many years. So we're going back to '89.

But we messed around with a lot of different things. These are two of the examples where we had the most data, carbon tet and PCE.

BURIL: Otherwise, you end up with just line segments kind of just dots stuck on there, yeah.

CUTLER: Just dots.

RIPPERDA: I can certainly look at this and in five seconds say no discernible trend. Sometimes the absence of data is just as good as the presence of data. I can look at this and say, okay, your downgradient wells aren't increasing consistently year after year. I can say that by looking at this in five seconds. It's going to take me a lot longer to look at this table and kind of figure out which ones are downgradient or like find the contaminant and track that.

So in my opinion, the absence of a trend on this tells me something significant.

BURIL: So in spite of the fact that it's very sparse data and looks like you can't do a trend

1 analysis, that's still something that tells you you
2 can't do a trend analysis because there may be no
3 trend.
4 RIPPERDA: Yeah.
5 BURIL: Okay. I see the logic to that.
6 RIPPERDA: The one thing I want to know is, is
7 there a trend. And if so, is it going up or going
8 down. And it certainly tells me that there's not a
9 consistent increase over a 13-year period. That's
10 important.
11 BURIL: I think it sounds to me, Mark, like
12 you've got an awful lot of these already done, so to
13 speak.
14 CUTLER: We messed around with these and decided
15 to stop.
16 BURIL: Let's plan on doing them, and we can
17 incorporate it in.
18 CUTLER: Can we stick with the City of Pasadena
19 and Lincoln wells, the ones that are --
20 RIPPERDA: I think so.
21 CUTLER: Because the data down here is real
22 spotty. Is that okay?
23 RIPPERDA: Yeah. I think that's good,
24 especially when we get to -- like if you want to
25 argue natural attenuation or not, probably not argue

about if you do a TI waiver or not. When I go into brief -- we're always thinking public meetings, but I also have to think about briefing my management. This is way easier for me to brief my management with than this is.

BURIL: Okay. Believe me, I know how hard it is to educate management.

Okay. We're up to 26). Color Depiction of Plumes. I think we may have this one already covered.

RIPPERDA: This is the same comment with a slightly extra thing, is that in some of your maps that were based on very similar data sets, how much color you used or the extent of the -- how far the color went was different from some maps to another map.

CUTLER: Okay. You commented on Figure 4-5 where you said the color ended. We brought it up to the fault and then the darker plume we question marked it with a darker color.

"Figure 4-5 shows the layer 2 plume as distinctly ending southeast of monitoring Wells 16 and 17, although these are shallow wells with no data we would reasonably expect to find contaminants in the deeper layers --" We did. We extended that.

RIPPERDA: Okay.

CUTLER: We got a little bit of --

RIPPERDA: Yeah.

BURIL: So that covers us on 26), then. We got you satisfied there.

RIPPERDA: Yeah.

BURIL: So number 26) is done. Great.

Okay. Number 27). We've gone back and forth on the idea of plumes to the west and how we reflect the western portion of the plumes. I think we've already done this.

CUTLER: This is the same actually (unintelligible).

RIPPERDA: Yeah.

BURIL: So number 27) is fixed already, too. Okay.

And number 28) is just the same kind of thing, it looks like, only for the next layer down. 4-12 and 4-13.

RIPPERDA: Part of this was having to do with you drawing flow directions on here. And your flow directions as drawn on your map show it coming from JPL. See, your arrow goes that way.

BURIL: Okay. No more flow arrows. Have we got the colors straightened out now, as far as you're

1 concerned?
2 CUTLER: Yeah.
3 RIPPERDA: The only comment, it looks like you
4 kind of --
5 CUTLER: This is an isolated case. Those wells
6 aren't on very often. This is not quite like
7 it's --
8 BURIL: Why clients shoot consultants.
9 RIPPERDA: No, it's reasonable. When a well
10 pumps, it throws in --
11 BURIL: It probably does draw something back,
12 but who knows.
13 LOSI: When we initially did these we had fatter
14 arrows for the more prevalent, you know, flow
15 direction, and we threw that out.
16 BURIL: I'm glad you didn't show me that.
17 RIPPERDA: So this is just that same theme.
18 Your own document doesn't report what you're trying
19 to present.
20 BURIL: But it sounds like we got that
21 corrected, then.
22 RIPPERDA: Yeah.
23 BURIL: So we got number 28) squared away.
24 CUTLER: You're taking one isolated incident.
25 RIPPERDA: I'm looking at this figure and I say,

okay, this contaminant's coming from JPL to Valley Water. It may be only one map. That happens to be the map I'm looking at.

ROBLES: All it takes is one map to say, "Aha."

BURIL: That's a good catch. Yeah, that's a good catch. So we got number 28) squared away.

Number 29). It just looks like we're going down through the aquifer layers. Western depiction of the plume should be changed. I think we've got that done as well.

RIPPERDA: Same thing.

BURIL: So we're in good shape there.

Then it looks like "it might be better to show the blue zone directly around these wells in all three figures with a disconnect between the rest of the plume."

Mark, I have a note here that we've already completed Figures 24 through 28.

CUTLER: We have changed them, but let's see.

RIPPERDA: I don't think we agreed with --

CUTLER: You know, not coming right out of the plume --

RIPPERDA: Yeah.

CUTLER: That was a particularly bad one.

RIPPERDA: Yeah.

1 BURIL: Number 30).
2 CUTLER: 24 through --
3 BURIL: 24 through 28.
4 CUTLER: The suggestion was to put this blue
5 interval here just around these wells and then have
6 it separate from this part of the plume. So there
7 would be a disconnect. Is that what you meant,
8 Mark?
9 And "Also, plume contours include several
10 wells which have no detects." The wells with no
11 detects are these production wells here, were such
12 low levels of PCE, they were in a single digit.
13 Every other contaminant gets drawn into those. It's
14 just assumed that they were very low levels. But we
15 could take that out. So we'll take that out. It's
16 very easy to dilute a couple parts per billion TCE.
17 LOSI: Or blow it out.
18 CUTLER: Or blow it out. So we just took that
19 out and then disagreed with having a darker blue
20 layer here and having it disconnect from the plume.
21 BURIL: I agree with that to a limited degree.
22 The darker blue around the wells may be of some
23 benefit to indicate that they do have higher
24 concentrations than the rest of the plume.
25 RIPPERDA: You're kind of trying to have it both

ways. When these values are low, you say it's an artifact of it producing from multiple layers, it has nothing -- you can't, say, draw any conclusions that this is low while this is high. Now that these are high you're saying, oh, that's completely separate.

CUTLER: No, not really. What we're saying is it can never be lower than this.

LOSI: But it can definitely be higher.

CUTLER: But it can definitely be higher.

So this is a -- so this data, in a sense -- that's the distinction. We're not having it both ways, really.

RIPPERDA: I still kind of think you do. I don't disagree with you that -- well, I agree with you that there is most probably a source in this area that's affecting these wells and that these wells are drawing -- as well as they're drawing kind of radially in this area. They're coming in here and just a tiny bit in there.

What I think -- when I look at this figure, this says to me that it's also moving pretty strongly towards here. And although that may be true, I don't think it's as strongly supported.

CUTLER: We could make this smaller?

1 RIPPERDA: To make me happy, you should use just
2 less delineation. So again, maybe question marks
3 along here, make it a little smaller. Because this
4 is one. I would guess that it does -- that the
5 higher levels don't come that close to a monitoring
6 well with one.
7 BURIL: I don't have a problem with that. We
8 question mark that, make it smaller.
9 RIPPERDA: I just hate to see contours drawn
10 with solid lines when you don't really -- when
11 there's question marks elsewhere, when there's
12 question marks kind of to your benefit.
13 BURIL: Like the southern boundary there, Mark,
14 should that have question marks all along there?
15 CUTLER: Yes. We're going to do that on all of
16 them.
17 BURIL: I agree with you, Mark. Taking a second
18 look at this, I think we were looking at this about
19 6:00 o'clock last night and my eyes were already
20 glazed over. I agree with you that it needs to be
21 reduced and kind of less emphasized.
22 RIPPERDA: I have much less problem with this
23 part being green because that's undoubtedly an
24 artifact of production. So I don't know which is
25 better. Because we know most probably it's an

1 artifact of production, are we kind of artificially
2 making it look clean there when the aquifer is
3 probably not clean, or do we just say this is what
4 our actual measurement data shows?
5 BURIL: This is what the actual measurement data
6 shows.
7 ROBLES: Just say that.
8 BURIL: So depict that and just be sure we
9 continue to do that consistently; correct?
10 RIPPERDA: Yeah.
11 BURIL: We don't have to interpolate the data,
12 we simply present it.
13 RIPPERDA: Yeah.
14 BURIL: While the data may be questionable in
15 terms of, you know, relying on production well data
16 versus monitoring well data in those areas, we're
17 still taking it at face value.
18 I guess one of the things that I would
19 wonder, then, is when we start talking about the use
20 of production well data in comparison to monitoring
21 well data, whether we end up with an inconsistency
22 for exactly the same reasons as we were talking
23 about just a moment ago, that we don't want to look
24 at low levels in production wells and call them,
25 well, since they're low here and you go downstream

1 and you got higher, then it can't possibly be coming
2 from the production wells.
3 Maybe that same kind of argument holds.
4 While you got high all the way around and then low
5 in the middle and we're looking at a specific layer
6 with our monitoring wells where it's higher than
7 what you see in the production wells, but the
8 production wells are screened over several layers,
9 so therefore you don't know what you're dealing with
10 in terms of what's in that layer, you can only say
11 that it's nondetect for this composite.
12 Do we want to make the assumption here
13 that we report the lower levels as it's depicted
14 there, or do we want to interpolate the data and say
15 we don't know, but because it was a production well,
16 we assume that that particular layer may actually
17 have higher concentration that is masked by the fact
18 that the production well is screened over so many
19 other layers? That's a toss-up. I could go either
20 way.
21 RIPPERDA: Consistency. Once you pick a way, if
22 you absolutely use that same methodology for these
23 and these, that's good.
24 I'm glad that you didn't do what I
25 suggested as a possibility when I didn't like how

1 this was drawn. I think it's good that you present
2 the numbers here and that you show that it does like
3 lead to something. There is something there.
4 BURIL: There is something there, yeah.
5 RIPPERDA: We don't know what the numbers are
6 because it's a production well, but there is
7 something there. So I want to see -- I always want
8 to see production well data even if you can't
9 compare it to monitoring well data. It tells you if
10 there's something there or not. You just can't do a
11 quantitative level comparison.
12 Here, because you have monitoring wells
13 kind of -- well, you can pretty reasonably say it's
14 downgradient and they are contaminated.
15 BURIL: In some layers of the production wells,
16 but you can't see it.
17 RIPPERDA: Throughout there.
18 CUTLER: We were just changing this based on
19 your comment.
20 RIPPERDA: I was looking kind of like you. I
21 was looking at 40, you know. And there's multiple
22 problems throughout and I was just making broad,
23 sweeping comments.
24 BURIL: But the idea of the consistency of how
25 we approach this I think is important to keep in

mind, because while we may say that, yeah, definitely there's going to be something coming out of those production wells that we should depict, at the same time we should depict what we think is actually in the layers around those production wells, even when the production shows zero.

RIPPERDA: 17 is clean. I think I can go either way on this.

BURIL: I can too because there may be actually some cleansing happening as a result of production there.

RIPPERDA: Right. The Arroyo wells are capturing it and you can't measure it because it's being agitated, volatilized, but there's still a little bit that's either coming this way or that way and kind of pluming up underneath.

BURIL: Okay. Well, we'll leave it as it is, then. This one is kind of a toss-up, it sounds like. It could go either way. It sounds like it's reasonably depicted the way it is, the modifications Mark has drawn on it. We'll just leave it as is, then.

RIPPERDA: Again, maybe more use of no black lines and question marks kind of in here just to -- even if you don't -- maybe a note here. Like here

1 you have a note. Maybe have another note just
2 saying, you know -- just less black lines.
3 BURIL: Yes, less definitive.
4 CUTLER: That's actually a good idea.
5 BURIL: I like that idea too. Because we really
6 don't know per se. We need to make that clear.
7 RIPPERDA: Because your buddy, Joe Six-Pack, is
8 not going to read the document, absolutely no.
9 ROBLES: They'll look at a picture.
10 RIPPERDA: But they will look at a picture.
11 BURIL: Okay. So let's see. That puts us done
12 with number 30). We're up to number 31).
13 I think we've actually addressed this one,
14 too, throughout the discussions that we've had
15 regarding western edges and so forth.
16 Mark, do you have the drawings there?
17 CUTLER: Yes. 28, 29 and 30. We had some
18 errors showing it to be all nondetect upgradient.
19 So that was, I'm sure, misleading.
20 RIPPERDA: But even adding just a single 3.0
21 there, it still fits within the gist of my comment.
22 So if this is your drawing, that's better.
23 CUTLER: I think we backed this off a little
24 bit.
25 RIPPERDA: Yeah.

1 CUTLER: Because of the dilution factor here.
2 We're just taking this as that's what it is there,
3 that's been diluted somehow because of the length of
4 the screens.
5 RIPPERDA: I think this is good enough. I could
6 argue with you whether or not there might really be
7 15 -- you know, 10 to 20 parts per billion in this
8 region, given what I've heard -- I said this
9 earlier, given what Peter Atwater said about other
10 wells scattered throughout this basin and other
11 basins that get their water from MWD and use it to
12 water their lawns and use the same fertilizer and
13 everything. I think regionally you don't see
14 non-NASA or non-Army type sources above that kind of
15 3 to 4 level.
16 BURIL: That's a real open issue. And that's
17 something people are still trying to figure out.
18 RIPPERDA: Right. Because that's so open, I'm
19 just happy to leave a reduced figure like this and
20 not try to argue one way or another in a document,
21 in an RI.
22 BURIL: All right. That sounds reasonable to
23 me. I think that's fine. So it sounds like we've
24 got number 31) taken care of as well.
25 RIPPERDA: Yeah.

1 BURIL: Contaminant and Fate and Transport
2 Modeling. I was happy to see, as I think Mark
3 pointed out earlier, that you recognize this as a
4 scoping level assessment about off-site migration.
5 This was not meant to be definitive, just an order
6 of magnitude understanding of what we're dealing
7 with here.
8 And no, it doesn't offer concern such as
9 contaminants at MW-21 migrating to the south and
10 whether or not they will be captured or continue to
11 migrate.
12 There's kind of a catch here that we've
13 kind of tripped back and forth over. I don't know
14 that we've ever really addressed it directly, but
15 when it comes down to the material down in 21, there
16 becomes a real question mark as to whose it is and
17 who should be responsible for chasing it. I guess
18 that I don't have a ready answer with regard to
19 what's going to happen to the contaminants, but I do
20 have concerns that they would be attributed to
21 NASA-JPL and therefore we would be held responsible
22 for pursuing that, given all the things that we've
23 talked about before.
24 I'm not sure that your comment really goes
25 to that kind of thought. I don't think you had that

1 in mind. But if we were to pursue trying to
2 understand what happens from 21 on out to the
3 southeast, I think we would presumptively assume
4 responsibility for that if we were to do that. I
5 think that is something that I'm not sure that Pete
6 is ready to do that.
7 RIPPERDA: It was unfortunate that I used that
8 as an example. Because 21 and migration to the
9 south has huge policy implications, nothing really
10 to do with the modeling section.
11 But since you -- so on the modeling
12 section, I think I said this on the way to lunch and
13 I'll say it here, you went to such detail in it that
14 it makes it look like a major effort with major
15 conclusions. So I'll just repeat what I already
16 said at lunch. Scale it way back, make it a scoping
17 level and kind of leave it at that.
18 And as for 21 and the policy implications
19 apart from modeling, I think the State and myself
20 frequently get the impression that you're always
21 trying to show that that's not from JPL and our
22 conclusion that we draw is why is JPL hammering that
23 so hard unless they're going to try to disavow
24 responsibility for it.
25 So my take on that is just kind of let the

data sit here and then when we go to remedial design we can try and draw the conclusions. I think the State was pushing much harder than me in that, no, you cannot draw that conclusion now and we won't even let you --

ROBLES: Think about it.

RIPPERDA: -- think that way.

BURIL: I guess I understand where you're coming from on that kind of a note. I guess the problem I have, though, is TCE is a tough one to deal with, first of all. It's ubiquitous within the region in a lot of ways. And certainly the Arroyo Seco appears to have a fair amount of that stuff out there. If it came from upgradient, if it came from JPL, they're commingled. Once they end up into the Arroyo and beyond, how do we deal with that.

RIPPERDA: Right.

BURIL: That's one issue. I don't have a ready answer to that.

RIPPERDA: Right. And I don't either. All I'm saying is that when I look at the RI, I can't tell whether or not the contamination at 21 is from JPL or not and whether that might extend farther south or not. And I'm willing to leave it at that. I can live with that. An unresolved question in the RI.

1 Okay.

2 BURIL: I would only make one distinction in
3 dealing with that kind of issue, and that is again
4 from the perspective of the PCE and seeing the
5 relatively higher -- really much higher
6 concentrations at the Valley wells and recognizing
7 that they are production wells and showing still
8 those high concentrations in comparison to what we
9 see on site and seeing our very specific wells that
10 don't show anything near those levels, and certainly
11 by no means consistently like those other wells down
12 there, does, in my mind, still point to a different
13 source, at least for the PCE. TCE we could argue
14 for days.

15 But for the PCE it becomes a little more
16 clear that there is something that needs to be
17 evaluated at some juncture that says someone else
18 may be creating this problem. And I think in the
19 spirit of fairness at some juncture we need to make
20 that kind of determination. And as to what actions
21 we take on the basis of the determination, I don't
22 know. That depends on what that is.

23 But I want to be sure that we're clear
24 that we do still firmly believe that at a minimum
25 PCE is not of JPL origin, based on what we've seen.

1 And TCE, okay, we can argue that. We can argue that
2 because they're commingled. We really can't draw a
3 distinction.
4 RIPPERDA: Right. And perchlorate, you can
5 argue that. I tend to agree with you on the PCE. I
6 don't think we can really talk about this much more
7 without the State here.
8 BURIL: I agree.
9 RIPPERDA: Because they disagree with you more
10 than --
11 BURIL: And it's something where I think we'll
12 need to work through that, of course. I just --
13 RIPPERDA: They may not even disagree with
14 you -- well, they don't actually disagree with you,
15 was my take on it.
16 BURIL: They just don't like it stated as
17 strongly as we did.
18 RIPPERDA: They disagree with your presentation
19 of it.
20 ROBLES: Right.
21 RIPPERDA: I'm not sure exactly what that means.
22 That's up to you to figure out.
23 ROBLES: I think the basic thing is they don't
24 want us to assert something without any back-up
25 because standing in a public meeting with all of us

1 there, the question is going to be asked "Where is
2 the data to show that conclusion?"
3 BURIL: Not only that --
4 LOSI: It's going to be like here it is.
5 CUTLER: We have a lot of data.
6 ROBLES: No, no. You know that. The public
7 looking at that doesn't see that when you present
8 the data. It has to be explained to them. And so
9 the key issue is that the State wants to make sure
10 that it doesn't come back to bite them.
11 BURIL: I think that there you have maybe more
12 of the explanation on the part of the State than
13 what you might otherwise anticipate. Because I
14 could see someone coming to a meeting like this,
15 okay, JPL has got data. They say they aren't
16 responsible. They presented it to us. Okay, they
17 don't have it on the site. It's other places.
18 Okay. They don't have it. It's not theirs because
19 it didn't come from their site. They don't even
20 have it there now. So State, or whoever, you've
21 seen this for a long time. You've known about it.
22 Why haven't you done anything about it?
23 RIPPERDA: That happens.
24 BURIL: I'm sure it does.
25 CUTLER: We're cleaning it up.

ROBLES: But they want to be able to cover themselves. The key is always going to be why didn't you do something about the whole Raymond Basin. The key is if you're going to make an assertion, you got to back it up simply because it just tends to cause the public to not believe the people that are standing up there in the panel in front of a public meeting.

RIPPERDA: You guys are already going to add a little more regional hydrogeology and take a step back, look at a bigger picture and prove that the water regionally really flows through here. That's another piece of the puzzle. Nothing definitively said, but that's anther piece that I would like to see. Even though I wouldn't, in a document like this, I agree with you, you don't go in an RI pointing fingers at named entities and saying, no, no, no, it's them. You should at least know the facts yourself quite well and have them like with you and ready to hand like at a public meeting. That's just a suggestion.

BURIL: We don't even have to be overly specific in those kinds of situations. We are aware of X organizations whose operations would utilize PCE. We don't even have to call them dry cleaners. We

1 just know that these organizations, because of the
2 nature of their business, would utilize this
3 particular chemical.
4 ROBLES: See, Mark comes in a public meeting,
5 "Whereas, the regional water flow goes this way;
6 whereas, we have this data here, whereas --" and you
7 just go down the list and develop a preponderance of
8 the evidence to show your point.
9 BURIL: And we have all of that.
10 CUTLER: Exactly. That's my point.
11 ROBLES: You have that. But the key issue is
12 each and every one of those points by themselves we
13 can't just make a conclusion without real good
14 back-up information. The preponderance of the
15 evidence can paint a picture, but unless we have
16 hard data, we're going to lose credibility in front
17 of the public if we put that in a document. That's
18 what I'm saying.
19 CUTLER: Right. And I think if you read this,
20 it's not that strongly stated, but we'll tone it
21 down, assigning responsibility.
22 LOSI: So essentially it's appropriate to say
23 that it does appear, based on what we have here,
24 that there's an outside source, but it's simply
25 stated to the effect that, however, it hasn't been

1 verified at this point.
2 ROBLES: That's exactly right.
3 CUTLER: I disagree with that.
4 ROBLES: No, I wouldn't say "verified." I would
5 just say that there is an appearance of a --
6 CUTLER: It may not be identified.
7 LOSI: The prospect that there is an upgradient
8 source that has not been identified.
9 ROBLES: Period.
10 LOSI: That's a much better way of saying it.
11 ROBLES: That's it.
12 BURIL: I think we got that squared away.
13 RIPPERDA: Not quite. Rather than just like
14 both the State and I tend to view saying we'll soft
15 pedal the conclusion, I think what irritated me a
16 little bit was seeing the conclusion sprinkled
17 throughout. You see like one little piece of data
18 and it implies a conclusion. I wouldn't mind seeing
19 a discussion on potential sources and in that tie
20 together your whole argument and just make one -- I
21 like to just see data through most of the text and
22 then have some kind of conclusions or discussion
23 section and, you know, kind of discuss sources here
24 and discuss that the nature and extent of the plume
25 extends far beyond JPL to the south, may or may not

1 be from JPL, extending to the west may or may not be
2 from JPL, but we believe it's not because, and in
3 one place make the argument --
4 ROBLES: Not all over the place.
5 RIPPERDA: Not all over the place.
6 ROBLES: Just one place.
7 RIPPERDA: Don't draw an absolute conclusion.
8 ROBLES: Right.
9 RIPPERDA: Just say it "may be because . . ."
10 And even though that's actually stronger than --
11 it's making your argument stronger, not weaker.
12 It's putting it in one place with all the reasons
13 all together. Does that make sense?
14 LOSI: It might be difficult to do because, you
15 know, as the thing is structured there's -- you
16 know, you present the data, then there's a
17 discussion about it. It might be kind of hard not
18 to say --
19 ROBLES: But, you see, you present the data and
20 you discuss it from the standpoint of risk
21 assessment, not from the standpoint of a conclusion
22 of where is another source. That you put in another
23 conclusion or discussion point to tie in those
24 issues that you want to bring together across your
25 whole document. Therefore, somebody can look at it

1 and say, okay, this is ultimately what they're
2 thinking of.
3 BURIL: I think I know where you're coming from,
4 Pete. I think you and I --
5 CUTLER: It might get too disjointed is what
6 Mark is saying.
7 LOSI: When you present a figure like that,
8 okay, and you're presenting chronologically by
9 compound, it sort of begs a little bit -- well, not
10 this one, but the revised one, it almost -- I mean,
11 it just begs for some discussion, at least a
12 comment.
13 CUTLER: That's an important part of the figure.
14 LOSI: I know what you're saying. I could
15 probably do it.
16 ROBLES: Let me just show you an example. One
17 piece of data. Then a little later in the document
18 here's another piece of data. And if you keep doing
19 that what you're trying to do is get each piece of
20 data to stand on its own. It can't. That's what
21 the State was trying to say.
22 There should be a discussion of what Mark
23 is saying at the end and say, "Oh, here is data one,
24 data two, data three, data four, data five and here
25 is our conclusion."

1 BURIL: That's what I've been saying.
2 LOSI: I think that's a good way to say it, I
3 think.
4 BURIL: That's what I've been trying to say as
5 well, is we haven't really pulled all the pieces.
6 We presented a piece and discussed it, presented a
7 piece and discussed it, presented a piece and
8 discussed it. But then we never took all these
9 pieces and put them -- there is what the puzzle
10 looks like.
11 LOSI: I'm starting to see.
12 ROBLES: I think that's what the State's biggest
13 concern is because what they were saying is they
14 couldn't stand the scrutiny in a public meeting by
15 presenting one data and arguing through it. It
16 should just not be sprinkled all over, but should be
17 kept in one area.
18 And that is proper at the end of a risk
19 assessment to say after looking at all these things
20 and these points, we kind of think this.
21 BURIL: Actually, I think more importantly than
22 a risk assessment that if we're talking about where
23 concentrations are and where sources may be and so
24 forth, that would probably more logically fit within
25 the nature and extent of contamination.

LOSI: Exactly.

BURIL: And then on the basis of that you determine the risk based on that understanding and then move forward from there.

LOSI: So there's a general conclusions section. I can't remember exactly how it stretches out. I think I see what you're saying. I hope that makes sense to you, Mark.

CUTLER: I'd have to think about how to actually do that.

RIPPERDA: Nothing is easy. When I'm reading under Nature and Extent of Contamination, I'm just reading like bits of data, bits of data, bits of data, then the QA/QC. I'm not seeing the site conceptual model all tied together. I'm not seeing a good discussion of the whole picture. And that is something that you should have. Whether you use it to specifically argue about off-site sources, no.

But you need to take all the data together and wrap it up into a discussion that's not just leaning on some little modeling prediction, but it takes all the data and discusses it in terms of the conceptual model.

ROBLES: Right now they can cut each one of our assertions into data to support it because to us we

1 see the whole picture. But they get it in pieces.
2 Once it's all presented in a discussion, all there,
3 then they got to say, "Hum," you know, it's more
4 plausible and they're going to have a hard time
5 trying to take it out.
6 BURIL: I have some specific thoughts on this.
7 I think I should sit down with you later.
8 LOSI: We should probably make an attempt, make
9 some kind of attempt and at least --
10 CUTLER: I can see the merit of it.
11 LOSI: Yeah, I can see the merit of it.
12 CUTLER: Tie in the flow, and --
13 BURIL: Because I think when we draw all those
14 puzzle pieces together, we've laid out the puzzle
15 pieces and discussed each one of them. But now we
16 need to draw each one together and show the picture.
17 And I think that while we may have attempted that to
18 some degree, it isn't clear to the people who are
19 reading the documents, and as a result it's bringing
20 up questions and bringing up concerns.
21 Because individually these puzzle pieces
22 don't mean the picture, which I think is, at least
23 in part, some of the failing that we had in putting
24 it together and in my reviewing it, because I knew
25 how all these things fit together.

1 ROBLES: It means something to us because we
2 work with the data all the time. So of course, oh,
3 yeah, in our mind it's together, but somebody
4 picking up the document, it's not -- it's a piece
5 here, it's a piece there.
6 BURIL: I think what we're faced with at this
7 particular point is not so much strong disagreement
8 regarding the technical merit of how we've
9 identified things and how we've laid out, you know,
10 a picture, how we arrived at what we believe to be a
11 picture, but in our presentation of how we've
12 arrived at that and what the picture looks like in
13 that presentation.
14 RIPPERDA: Yeah. You already have Section
15 7.1.1, Summary and Conclusions, Nature and Extent of
16 Contamination. And you could take something like
17 that and put it directly into the Nature and Extent
18 of Contamination, or you could just kind of rewrite
19 this.
20 When I read this right now I don't get any
21 of what we've just been talking about. I get that,
22 you know, you've analyzed this, this and this and
23 this is where this is and then you go right into the
24 modeling.
25 CUTLER: Section by section.

RIPPERDA: Yeah.

ROBLES: Don't tie it in.

RIPPERDA: I want --

BURIL: He wants definitive -- lay it out.

RIPPERDA: The data quality objective isn't a QA/QC issue. It's why are you doing this. You know, what are your objectives in doing the RI and what conclusions do you want to reach, which is kind of the same as a site conceptual model. So think of it in terms of what's happening at the site and then bring the data to support it.

BURIL: I think we've got a good idea on how to approach this now.

Let's go on to number 33) because I'm like a horse sensing the end of the ride here and I see the stable.

RIPPERDA: After you do that, then we'll rip you to shreds for making unfounded conclusions.

ROBLES: Well, that's always a given.

BURIL: Number 33), Potential Migration Pathways. Basically, I just have a note here that we'd like you to explain a little bit about what is it that you'd like to see here. We're not picking up on it.

RIPPERDA: I've got to find Figure 5-11.

BURIL: It's page 5-1, it says here.

RIPPERDA: Yeah, but then it says "as shown in Figure 5-11."

BURIL: Oh, okay.

RIPPERDA: I guess it's that this is contaminant fate and transport and this thing is talking about sources without being specific at all about sources. It's just talking about how things got into the groundwater. It's not talking about where it's going to go in the groundwater. I guess -- I didn't really see the point of this. Maybe my comment wasn't very good, but --

This is all very -- this stuff is good. It's true. It's very generic. You could put this on any Superfund site. You probably have this in your Foster Wheeler files and you just like take it out and slap it into any RI you're doing.

CUTLER: Not quite. We take out boxes that don't fit and have boxes that do fit. But yeah, you're right. It's a figure.

BURIL: There's nothing wrong with that.

RIPPERDA: No, it's a good figure.

LOSI: We like that figure.

RIPPERDA: I like it.

I guess that was my point. I'm sorry.

1 Discussion is not site specific. Well,
2 it's not really, because you don't talk at all about
3 the cesspools, the seepage pits, where it might have
4 come from, where it might not have come from. It's
5 just a very generic, bland discussion.
6 LOSI: Would it have benefited John Q. Public in
7 any way, do you think, just to kind of get him -- I
8 think that's the way it's actually --
9 CUTLER: Meant to be.
10 LOSI: -- meant to be. Just an introduction to
11 the topic. We know it's a generic thing, obviously.
12 RIPPERDA: Right. We talked earlier when all
13 three, the two State guys and myself all commented
14 on the 13,000 parts per million carbon tet and you
15 should add a source discussion that also references
16 OU-2 for details.
17 This might be a good place for that. I
18 think that was kind of my point.
19 BURIL: Say that once again.
20 ROBLES: Remember the seepage pit that the
21 13,000 parts, that that might be a good place to put
22 it in to reference it from OU-2.
23 LOSI: So in other words, the tie-in, however
24 it's going to end up being.
25 CUTLER: A discussion on contaminant sources

1 would go right here.
2 RIPPERDA: Now I'm remembering more and more, is
3 that this is incredibly generic and nowhere in here
4 do you discuss sources, really.
5 ROBLES: There would be a good place to put it.
6 RIPPERDA: If this is your source discussion,
7 it's inadequate. You should beef it up with more
8 site specific info, and change the header of from
9 Potential Migration Pathways to Potential Sources
10 and Migration to Groundwater.
11 BURIL: I see your point. I think I know where
12 you're coming from on this. The upper paragraphs in
13 section, I guess I termed 5.0, should be the generic
14 introductory ones with, say, Section 5.1 being the
15 site specific, this is what happened at JPL. While
16 you remember what we told you about and how it works
17 generically, this is what specifically happened here
18 at JPL and here are some of the sites that we looked
19 at specifically, like the --
20 RIPPERDA: This figure still works exactly as
21 is, but your discussion can be more site specific.
22 BURIL: More site specific. So Section 5.1
23 becomes the specific discussion of the sources at
24 JPL and the migration to groundwater as opposed to
25 generic --

RIPPERDA: "Migration pathways," what does that mean?

BURIL: All we have to do is just take the header 5.1 out of that because I think that the text that's there under 5 point now is still valid text, but it just doesn't need to be under 5.1. We make 5.1, as you suggested, a site-specific description of how we evaluated these generalized pathways and what we came up with.

Is that what you're thinking?

RIPPERDA: Yeah. Well, kind of. I think that you get it. Go ahead and take a stab at it. I would change the header to be Potential Sources and Possible Migration to Groundwater.

BURIL: I think I got it too.

RIPPERDA: This text here isn't necessarily bad. If you add a little bit of site-specific stuff, specifically mention some cesspools, that they were dug up, there was chemicals found at these, no definitive link to groundwater has been -- whatever. You didn't drill bore holes that showed increasing with depth all the way to groundwater, but just -- this is not wrong that's here.

BURIL: But it's just not complete.

RIPPERDA: Right.

1 BURIL: I think we got the idea.
2 Number 34), then. Methodology. Here we
3 talk about model again. The more I think about this
4 model, the more I wish we would have kept it out.
5 LOSI: Or at least -- see, the thing is we
6 talked a lot about whether or not we should do some
7 modeling. Okay. And we pretty much agreed that
8 based on the fact, you know, all the crazy
9 groundwater flows and the fact that the EPA had
10 initially said they weren't going to accept it, that
11 probably the simpler the better. And so, you know,
12 this is kind of why we decided on this approach, is
13 to just --
14 RIPPERDA: No. I think we're done with this.
15 BURIL: I was going to say I think we've covered
16 this.
17 RIPPERDA: We've addressed it. I think it's
18 good you did what you did.
19 LOSI: Just tone it way back. Scale it way
20 back.
21 BURIL: That's fine. We'll do that on 34). So
22 we'll scale back the modeling on 34) and we'll be in
23 good stead. Okay.
24 Number 35). "Please include data and
25 discussions on model calibration in this section."

In this particular model, and I'll let the guys who did it talk a little more of it, basically, there were no calibrations.

RIPPERDA: Time out. If you were going to have this much detail, you better calibrate it and better do a real modeling effort, given the conclusions you were trying to show with this. If you're going to scale back your discussion, cross 35) out and say not --

BURIL: Not applicable, if we scale it back as discussed.

RIPPERDA: Yeah.

BURIL: Marvelous. Love it.

Number 36). MW-20 considered a "guard well."

RIPPERDA: Again, same as 35).

BURIL: So in other words, if we scale it back and not claim it to be the epitome of all guard wells, but that it's only focused on one particular area.

RIPPERDA: Right.

BURIL: Okay. I think that's reasonable.

We've already talked about the cumulative, or the isopleth in the groundwater, so that's --

RIPPERDA: I think you guys are going to have to

1 put that in the risk assessment.
2 BURIL: I think we are seriously considering
3 doing that, yes.
4 And then the last one, by removing Section
5 7.1 -- okay.
6 LOSI: What is that, 7.1?
7 CUTLER: A synopsis of each individual section.
8 LOSI: So we're going to show, do something with
9 it.
10 ROBLES: Mark, you did send it.
11 BURIL: You did send it. My copy that I've been
12 working with doesn't have it on the back, but I
13 think this is a Xerox that's --
14 RIPPERDA: It actually folds open. So you could
15 look at that and say --
16 BURIL: My secretary just copied the folder 11
17 by 17 when she took it out of the file. It was
18 folded over when she took it out of the file.
19 We'll get copies of that out to you guys
20 so you can see it. I have not seen that before
21 because I got the fax, which was then Xeroxed for my
22 use. That's what I've been working off of. When
23 the hard copy came in, my secretary just stamps it
24 "File Copy" and puts it in the file. I didn't even
25 know this existed in the back. Thank you.

1 I think that covers it.
2 NOVELLY: We only had two action items.
3 One, we're going to e-mail Dan Stralka the
4 information on speciation of chrome.
5 And then the second one, on both sides of
6 the table, we're going to check the FFA and the
7 guidance to see where we're going to put the QA/QC
8 section.
9 RIPPERDA: That was easy.
10 NOVELLY: Do we want to pick another date before
11 we go?
12 BURIL: We had established the 28th as another
13 get-together, but I don't know that we can do that
14 now. I don't know that we can pick a time either,
15 because we have two agencies that are absent.
16 Mark, what days work for you toward the
17 end of the month?
18 RIPPERDA: I'm going to be in Guam from the 18th
19 through sometime of that week. When I get back from
20 Guam I'm not that coherent. So even if I like
21 rushed and came back on Wednesday, which would be
22 tough, I doubt that I could come to any meeting that
23 week.
24 BURIL: You're talking about the 18th of
25 January?

1 RIPPERDA: Yeah.
2 BURIL: How about subsequent to the 28th, after
3 the 28th?
4 RIPPERDA: Gee, calendar is empty.
5 BURIL: I had a thought you were going on leave
6 at some point.
7 RIPPERDA: I was going to, from Guam, go to
8 Bali, but I'm no longer doing that.
9 BURIL: Oh, okay. So you're available after
10 that return from Guam.
11 Let us do this, then. With the
12 understanding your calendar is fairly wide open,
13 let's have my secretary get together with folks and
14 try to arrange a mutually agreeable time, say, for
15 sometime the first or second week of February and we
16 can go from there.
17 RIPPERDA: How are those ARARs coming?
18 BURIL: That is in my bailiwick, and it is being
19 reviewed. We should hopefully have that ready for
20 us at the next meeting.
21 CUTLER: Put on the agenda we have to discuss
22 our 1, 4 dioxane an NDMA. We're going to start
23 sampling the last week of January, hopefully, based
24 on other issues.
25 We've said all along if we don't detect

this stuff in any real quantities, it's a screening to see if they're there. We'd like to get a decision made before we start sampling, if possible.

BURIL: That may be a topic of a teleconference when we can get everybody in. That may be just a special teleconference to deal with that issue specifically so that we can proceed on schedule.

CUTLER: Right.

BURIL: On that other issue you're thinking about, I think we have everything we need in house, it's just a matter of getting through the ponderous wheels of JPL.

So we are done. Thank you very much. We appreciate all your help.

(The proceedings adjourned at 3:25 P.M.)

ENVIRONMENTAL AFFAIRS OFFICE
MEETING ATTENDANCE RECORD

SUPERFUND RPM MEETING

January 7, 1999

Please print the information requested below and pass this sheet along to the next person. Thank you.

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