

ORIGINAL

NAS7.000177
NASA - JPL
SSIC No. 9661

REMEDIAL PROJECT MANAGERS' MEETING

NASA/JET PROPULSION LABORATORY

3 December 1997

ATTENDEES:

Charles L. Buri, JPL

James Chang, US EPA

Mark Cutler, Foster Wheeler

Richard Gebert, DTSC

Stephen Niou, URS

Judith A. Novelly, JPL

B.G. Randolph, Foster Wheeler

Peter Robles, Jr., NASA



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Reported by: Louise K. Mizota, CSR 2818

1 Pasadena, California

2 December 3, 1997

3 10:30 A.M.

4
5 BURIL: The first thing, that's not on the
6 agenda, though, is I wanted to deal with the minutes
7 of the last meeting to get these things officially
8 accepted. Does anyone have any comments or concerns
9 regarding these?

10 Okay. Then we'll accept them as written
11 and we will publish them in that fashion, get them
12 out to the information repositories and such.

13 The first thing on the agenda is our
14 proposal for the soil vapor extraction. B.G., have
15 you got that handy?

16 RANDOLPH: Yes, I sure do.

17 BURIL: Let's go ahead and hand out that whole
18 series of things there.

19 BURIL: I think we might combine the first two
20 items on the agenda just a little bit because we're
21 going to be talking about both of these as we go
22 along.

23 Starting off with the package that you
24 just received, we've got a couple of things in here
25 that are part of that. B.G., do you want to hand

1 out the map, too?

2 RANDOLPH: You bet.

3 BURIL: To start with the vapor extraction
4 system, we've got a proposal here of a soil vapor
5 extraction pilot test. And this is a very
6 generalized type of document. I'll just walk
7 through this a little bit to try and give you an
8 idea of what it is that we're trying to do.

9 Basically, we're looking at installing a
10 soil vapor extraction well right next to, what is
11 it, 26, B.G.?

12 RANDOLPH: Yes. Closer to 25. Between 25 and
13 26, and hopefully it will draw in 28 as well.

14 BURIL: Basically, that's intended to give us
15 the opportunity of placing a portable vacuum
16 extraction system on this well and seeing how well
17 the soil vapors can be extracted from the soil in
18 this area. This is where we found the high
19 concentration of carbon tetrachloride vapors.

20 NIOU: Can you say the purpose of treating this
21 again?

22 BURIL: Is to allow us to determine the
23 feasibility of soil vapor extraction.

24 NIOU: Okay. Thank you.

25 BURIL: We're looking at doing this in a fashion

1 that will allow us to look at the various depths
2 within the soil strata. Currently we've got planned
3 for a system that has three screens in this well and
4 it will be over three intervals. It would actually
5 basically be like a cluster well, wouldn't it, B.G.?

6 RANDOLPH: Correct.

7 BURIL: Multiple completion well. Each screen
8 would be tested, as well as various combinations of
9 the screens. We'd drill it using the sonic drilling
10 technique again, and also finish it off in a fashion
11 that we could isolate the individual screens.

12 James, were you around when we did the
13 sonic drilling before?

14 CHANG: No.

15 BURIL: I think it would be useful to just talk
16 about that for a moment. It might be useful just to
17 describe that briefly for your benefit, then.

18 Basically, the sonic drill is one that --
19 rather than me, you worked on it, B.G. Why don't
20 you tell him.

21 RANDOLPH: It's a hydraulically-driven,
22 counterbalanced head and it imparts a vibratory
23 response, an nodular response down through the drill
24 stem and by manipulating the amount of draw-down
25 pressure and speed, you get the complete force at

1 the bit face. And what it does, it just powers your
2 way through without any type of fluid, neither air
3 nor water, and you can even core rock with it. It's
4 quiet. It's very economical when compared to other
5 drill types of systems because we only have the core
6 that we have to dispose of. We really have no drill
7 cuttings whatsoever. We only have sample.

8 BURIL: It actually brings out a continuous core
9 as you go down. And it's an extremely efficient
10 technique as well. We're able to drill, what, 180
11 feet in a couple of days?

12 RANDOLPH: Yes.

13 BURIL: It's very quick.

14 CHANG: So it's faster than the other systems,
15 too, then.

16 RANDOLPH: Right.

17 BURIL: The ideal thing in terms of a soil vapor
18 well, too, is it doesn't inject any fluids into the
19 subsurface so you don't plug your system up.

20 RANDOLPH: It's not quite as fast, especially
21 for this terrain or subsurface conditions here, as
22 dual wall air percussion, but you don't have the
23 diesel fluid flying through the air. You don't have
24 the noise pollution. You're not generating lots of
25 dust and extra cuttings. And basically, this last

1 time, by comparison with cost, the sonic was
2 cheaper.

3 CHANG: I'm surprised.

4 NOVELLY: Can I interrupt for a minute?

5 BURIL: Sure.

6 NOVELLY: We've gone through six different
7 people so far with the State. What we know is that
8 Jon was transferred to another group. Our Superfund
9 site has not been reassigned yet, so Jon is supposed
10 to be still covering it, but nobody knows where he
11 is. So now they're going to see if they can get
12 somebody else to come up and cover part of the
13 meeting. But it looks like we better just go
14 without him.

15 BURIL: It looks like we're just left in limbo
16 until someone shows up. So we'll press on in hopes
17 that we'll get a replacement soon.

18 CHANG: Thanks for the information. When do you
19 plan on installing this?

20 RANDOLPH: We'd like to get started here by
21 early February, if possible, if everybody -- you
22 know, we're going home with this and everybody is in
23 agreement to proceed.

24 BURIL: Let me continue on, then, with the plans
25 that we have. Basically, we're planning to do two

1 tests, two major kinds of tests with a lot of
2 subtests inside.

3 The first one is designed to be able to
4 design a full-scale SVE system. And that one we're
5 trying to get established so that we know what the
6 radius of vacuum influence is from the various
7 wells, and so forth. A variety of the different
8 types of parameters that we're concerned with.
9 We'll be doing some field testing with field
10 instruments, either an FID or PID, to see how well
11 the vapors are being extracted, and then also we'll
12 be doing some laboratory tests as well in order to
13 verify what we're seeing to come up with removal
14 rates for various vacuum rates and flow rates and
15 things of that nature.

16 Test 2 is a long-term test, and really
17 we're trying to optimize the selection of the
18 screens. We may find that screens 1 and 3 work
19 best, 1 and 2 work best, all three or just one, or
20 whatever combination we might find that works best.
21 We'd find that during phase 1 and then put that into
22 phase 2 and see just how well it works over a longer
23 period of time. And we would be doing various
24 monitoring during the course of that test as well.

25 The equipment itself that we plan on using

1 is basically a trailer-mounted type of piece of
2 equipment. I don't know if you fellows have worked
3 with vacuum extractions, say, at gasoline stations
4 and like that. They often use these kind of rigs to
5 go out and just test to see whether or not a given
6 site has got the ability to have vacuum extraction
7 utilized. It's the same kind of thing, based on
8 what B.G. and some of the other folks have been
9 telling me. Basically, it's vacuum pumped with a
10 couple canisters of activated carbon to absorb the
11 materials and then expel the air. It's got an AQMD
12 permit already, so there's no problem with that.

13 Then once we have all that data, we would
14 generate a report that would identify all the
15 different data and then provide various analyses
16 that allows us to see what the vacuum responses
17 were.

18 What the various suggested portions of a
19 design would be -- and, in fact, we have here as
20 part of the package. If you look through this, we
21 have a proposed table of contents for the workplan
22 itself that we would generate as part of this
23 overall approach so that you know exactly what it is
24 that we are doing. This gives you the barest bones
25 conceptual idea to give you an idea of what we're

1 thinking of at least at this point. This tells you
2 the kind of thing that you would find in the
3 workplan. We're developing this.

4 NIOU: This is the workplan. Okay.

5 BURIL: We have one there for the workplan. We
6 also have one for the actual pilot test report.

7 So you can see that we would have an
8 introduction section, talking about the background,
9 the site characteristics, and so forth; the scope of
10 the project, which is described in conceptual terms
11 here in the proposal that you've got; then the
12 equipment; and the design of the experiment, the
13 equipment, sampling and analysis; and how we would
14 intend to analyze the data, which is again very
15 briefly discussed here, and ultimately give us all
16 the different things that we'd want to get in the
17 report. So this is what we would plan to
18 incorporate in a workplan type document to you
19 folks.

20 And then the pilot test report itself,
21 we're looking at going through similar type of
22 information, but at this point we would be providing
23 the data analysis and the interpretation and try to
24 identify the various things that we determine
25 throughout the course of the test, including how

1 many wells we need, and so forth. And then we would
2 actually get into design criteria and come up with a
3 recommended extraction flow rate and vacuum, as well
4 as knowing how large the radius of influence was for
5 a given well, how much VOC we could expect, and then
6 kind of a design of a full-blown system, how many
7 wells we would think we would need, and so forth.

8 So what we're thinking of right now is
9 that we would generate this in the form of a
10 secondary document ultimately. And in the FFA
11 they've got a thing here called treatability studies
12 as one of the types of secondary documents that can
13 be generated. I'm trying to find the page here.
14 Here we go. This is in Section 7.4. They talk
15 about treatability studies only if generated. We
16 have that thought in making this more or less a
17 treatability study to see how well vacuum extraction
18 would be utilized here at the Lab.

19 We'd do these in a fashion that would
20 allow us to incorporate them ultimately into the
21 feasibility study itself so that you can get some
22 information on the overall test and you know what
23 we're doing. Because if this turns out to be
24 something that's effective, and based on our site
25 geology we think it has a real good chance of being

1 effective, we may want to move forward on an interim
2 remedial action as opposed to sit back and have to
3 wait for a feasibility study to come out. This
4 gives us that flexibility to approach it that way.

5 We're also thinking now, I'll digress for
6 just a minute, we're also thinking about doing
7 similar things for the perchlorate work that we're
8 working on. But I'll talk about that when I get to
9 perchlorate. We're talking about doing similar kind
10 of work for dealing with that, although we've
11 already started some of those tests and we'd have to
12 kind of catch up on some of the documentation for
13 you fellows.

14 That's it in a nutshell. B.G., do you
15 have anything to add in terms of the SVE work?

16 RANDOLPH: No, I don't. You've covered
17 everything pretty well.

18 BURIL: Any questions you fellows have? I know
19 you haven't had a chance to look at this yet,
20 unfortunately. But if there's anything that's a
21 glaring concern in your mind, maybe we could try to
22 answer the question now.

23 NIOU: I think this is good so far. The
24 details, of course, I have to --

25 BURIL: Oh, yes. The detail you've got to get

1 into, sure.

2 NIOU: But so far it sounds real practical.

3 BURIL: So in concept, at least, we're moving in
4 the right direction, from your perspective?

5 GEBERT: Yes. Yes. I'm very happy that we're
6 moving in the direction of actually starting to
7 remove something. That's really good.

8 BURIL: When we have something that would be
9 kind of a nice change, wouldn't it. He's only been
10 bugging me about this for about three years now?

11 ROBLES: Since 1994.

12 GEBERT: But you didn't have any source so --

13 ROBLES: The characterization and extent of
14 contamination. That's where most of the money has
15 gone into.

16 GEBERT: Right.

17 ROBLES: But we're looking at really moving into
18 this phase with all speed.

19 NIOU: What's the AQMD allowable discharge for,
20 say, chlorinated pounds per day? Do you have that?

21 BURIL: I really don't know. I've never
22 bothered to find out.

23 NIOU: Because your permit -- because you say
24 you have the permit. That's why I was asking that
25 question.

1 BURIL: Well, no. Actually, the company that
2 owns the equipment that we'd be using on the pilot
3 test, they have the permit for their equipment.
4 That's what I meant.

5 NIOU: Oh, I see.

6 BURIL: I mean, when we ultimately get the
7 system in place, assuming that it's something that
8 requires an AQMD permit, then we would procure the
9 permit and we'd have whatever limitations they would
10 impose on that system.

11 ROBLES: Currently I think it's 5 pounds per
12 day, but so many days you can do this, not annual.
13 It's averaged. And there is a maximum limit. But I
14 don't know what it is in AQMD here.

15 BURIL: We haven't got a Title 5 limitation on
16 us yet. We're just now entering that particular
17 phase of the AQMD's implementation of the Clean Air
18 Act amendments. So we don't have the bubble over
19 the place yet and we can only use so much for one
20 thing versus another. We're still all on command
21 and control permits. Each one has a specific limit
22 associated with it.

23 NIOU: I see. Because the reason I say that is
24 I know like Arizona, when they say 3 pounds per day,
25 they say that, doesn't mean the whole JPL is 3

1 pounds per day. You can divide JPL into several
2 operable things that each one is 3 pounds per day.

3 BURIL: Oh, really.

4 NIOU: Yes. That's why I was asking that.

5 ROBLES: That's what we did at Edwards AFB.

6 Instead of one bubble for the whole base, we have 21
7 stationary sources and each one has a certain
8 threshold limit, because there were 21 squadrons
9 with individual needs.

10 NIOU: Exactly.

11 ROBLES: So it can be done here the same way.

12 BURIL: We're still investigating how we're
13 going to do that. Right now it looks like we're
14 going to have a problem. But we're still trying to
15 get all that information together.

16 NIOU: Okay.

17 BURIL: Okay. Any other questions as far as
18 that approach goes?

19 Let me tell you that we anticipated that
20 you would be pleased with this and we've already
21 gone and begun our modification to our contract in
22 order to implement this in as rapid a fashion as we
23 can. In fact, we should hopefully have our contract
24 finished by the end of the holiday season, first
25 week of January. This is what our current schedule

1 is. That bars any kind of contractual concerns
2 about fees or whatever else. There aren't any
3 problems on the horizon that I can see that are
4 going to be show stoppers, at least at this point.
5 So hopefully we will have the ability to move
6 forward on this come the first of the year, first
7 week or so of the year.

8 CHANG: So that's the contract to execute the
9 workplan?

10 BURIL: That's correct. That's to actually
11 begin doing all of that work.

12 CHANG: This looks like a good, well-planned out
13 process.

14 ROBLES: We want to start a process that will
15 handle the chemical du jour of the month,
16 perchlorate, and the next chemical that becomes a
17 concern, we want to have a process in place that
18 immediately addresses the problem, because our goal
19 is to find and determine the kind of technology that
20 we need to mitigate the concern. We can't wait. We
21 have to try to bench scale a lot of different
22 technologies. So we'd like to see this as a process
23 to be able to address new chemicals of concern. If
24 we can give you something like this, you guys are
25 pleased with it, you tweak it, you add, subtract,

1 whatever you want to do and we can get it fast
2 tracked, that helps us a lot, gets things in place.

3 BURIL: We're really trying to divorce the
4 remedial action aspects of this from the remedial
5 investigation portions where we can. Because the
6 remedial investigations have been taking a long time
7 and that takes a long time to get all that stuff
8 together and analyze it and provide the data, and so
9 forth. This gives us a little more flexibility to
10 be able to move out on this under a separate kind of
11 approach. And so we don't have to wait for the RI
12 to be finished, we don't have to wait for the FS to
13 go through, we can go ahead and do this and just
14 incorporate it down the road.

15 So that's our approach. I'm pleased to
16 hear that you folks think we're on the right track.

17 If I could impose on you to take a look at
18 these things regarding the soil vapor extraction to
19 get back with us with any changes that you may have
20 or any concerns or questions. I think after this
21 meeting our next regularly scheduled meeting will be
22 the teleconference on the first Thursday of January.
23 And I'm not sure exactly what that date is, to be
24 honest.

25 ROBLES: 5th.

1 BURIL: The 5th? Oh, good.

2 ROBLES: Excuse me. Wrong calendar. First
3 Thursday?

4 BURIL: Right. After the holiday.

5 ROBLES: Oh, first Thursday is New Year's.

6 BURIL: Then the following Thursday.

7 ROBLES: 8th.

8 BURIL: The 8th. Okay. So if we can go ahead
9 and put that on the schedule now.

10 ROBLES: At 10:00 o'clock?

11 BURIL: Let's make it at 1:00 o'clock, I think,
12 for the telecon, if that's amenable to everybody. I
13 don't know if that creates a problem.

14 GEBERT: As far as I know, that's fine.

15 BURIL: That kind of catches everybody in the
16 afternoon, after you've had a chance to get things
17 together for the afternoon. So January 8th at 1:00
18 o'clock for the telecon. If I could impose on you
19 all to review this and bring forward --

20 NIOU: 1:00 o'clock, right?

21 BURIL: 1:00 o'clock. -- and bring forward any
22 of the concerns or thoughts that you have regarding
23 the approach that we're taking so we can get those
24 built in at the outset and move on from there.
25 Okay.

1 Let's talk about something else that we've
2 decided that we think is necessary, and we've
3 already alluded to it to you on the last telecon
4 that we had, and that's additional soil vapor
5 characterization.

6 RANDOLPH: During the last RPM meeting, too,
7 there was pretty much mutual agreement that
8 characterization was not complete and not finished.

9 BURIL: Right. And we kind of agreed with that
10 and we went back and scratched our collective heads
11 and tried to figure out, well, what is it that we
12 should be doing to try and understand what's
13 happening in terms of soil vapor. We think we've
14 got groundwater understood now. We're still
15 analyzing data from the newest wells, but those are
16 still under analysis. But I don't know that we'll
17 need extensive more.

18 (Interruption.)

19 BURIL: I'll just read this to you. Arthur
20 Heath returned our call after he spoke with Hank
21 Yacoub. Hank said that right now Jon is still our
22 representative for the project. However, he is in
23 San Francisco attending an EPA operable unit
24 meeting. They apologize for the confusion and for
25 Jon not informing us of the change in the schedule.

1 So Jon is still our official representative, but he
2 is up in your neck of the woods, James.

3 CHANG: We should have had the meeting up at
4 EPA.

5 BURIL: You wouldn't have broken my heart. I
6 would love to go to San Francisco and eat over at
7 Fisherman's Wharf.

8 CHANG: Any time you want to come and visit me
9 I'm more than game.

10 BURIL: Let me get back here.

11 In the package you've got a table of
12 contents that's in a portrait format. What this is
13 is a table of contents that we would anticipate
14 having to make an addendum, second addendum to the
15 field sampling analysis plan for Operable Unit 2
16 that would talk about how we were going to install
17 these new wells. It's basically very vanilla in
18 terms of what's in there. It's all the same things
19 we had in terms of the previous FSAP addenda. All
20 the drilling methods would be exactly the same.
21 Sample collection, soil analysis, all these things
22 would be identical to what we've done in the past.
23 So there would be basically nothing new.

24 But what might need to have some
25 discussion is the location and number of the

1 proposed sites that we've got. If you take a look
2 at the map that we have here for you, you'll see
3 that the proposed additional soil vapor monitoring
4 wells are the round circles there. The ones we
5 already have in place are the triangles and the one
6 that we're going to use as our pilot well is the
7 square.

8 When we started looking at this we
9 realized that in looking at vapor wells 27 and 28
10 and 25 -- 25 and 26 were the highest concentrations
11 we had, weren't they, B.G.?

12 RANDOLPH: Yes.

13 BURIL: We realized that we might be close to
14 the center of a source plume and that's why we're
15 anticipating putting the SVE extraction well there.
16 But that begs two questions: One is how far to the
17 east it goes, and how far in other directions does
18 it go.

19 So in trying to answer those questions and
20 looking at the data that we've had from our existing
21 wells, we tried to place additional wells in a
22 fashion that would allow us to say that the plume
23 extended to X distance or Y distance and try to
24 understand in better detail, at least to the east,
25 where we might have a potential problem, which is

1 why you see this one dot located right here, to try
2 and get a handle on how far to the east that goes.

3 We aren't as concerned to the north. The
4 principal reason for that is the fact that right at
5 Well 27, just to the north of that is where we
6 believe the fault that has shown itself here at JPL
7 resides. If the fault is right there, we do not
8 anticipate the vapors are going to be crossing that
9 fault. In fact, the data we have from soil boring
10 and vapor work above the fault indicate that we
11 don't really see much of anything up there anyway.
12 So it appears to act as a ground water and a vapor
13 barrier. So we're looking at that one location to
14 try to delineate the extent of the carbon
15 tetrachloride plume in the easterly direction.

16 Then we have placed these three, if you
17 can follow this, these three here in trying to
18 establish the west and southwest direction, and then
19 this one here to establish the southerly direction.
20 So you've got these four that are trying to deal
21 with the carbon tetrachloride plume. I'm pointing
22 to these here, guys.

23 But they're going to perform a dual
24 purpose for us because we've got another concern
25 here that heretofore we haven't really taken a look

1 at and don't have a good explanation for yet, and
2 that is the fact that Well MW-16, which is located
3 -- where is that, B.G.? I don't see it. I'm trying
4 to pick it out on the map. It's in the Surveyor
5 parking lot, isn't it?

6 RANDOLPH: Right here. Yes. It's in the
7 southeast corner of the Surveyor park area.

8 BURIL: That's right.

9 RANDOLPH: Right at the top of that walkway.

10 NIOU: Okay.

11 BURIL: Right in there.

12 And that's the highest concentration of
13 TCE that we've had off and on now for a while. And
14 because of that, we think that there may be
15 something in that particular area that may be a
16 concern in terms of TCE instead of carbon tet. And
17 we haven't done a great deal of soil vapor work out
18 in that direction principally because we didn't feel
19 that we had the need to up to now.

20 However, based on the fact that we're
21 seeing TCE in Well 16, I think we also see it fairly
22 high in 13, which is located next to Building 114
23 here, we think that we need to expand it out that
24 direction and see what we're dealing with because we
25 may have a two-phased plume, if you will, a carbon

1 tet plume and a TCE plume and maybe a mix in some
2 fashion. But without doing some work out there, we
3 really don't know what we're dealing with in terms
4 of a total soil vapor remedial action.

5 So we've proposed putting some more wells
6 in the immediate area of 16. You can see the one
7 directly down from Building 313 is to give us an
8 idea of hopefully how far it might extend just to
9 the east of Well 16. The one just to the west of
10 the Surveyor parking lot there -- excuse me, just to
11 the east of the Surveyor parking lot, next to
12 trailer number 1712 and 1709, that's kind of a
13 combination of where is it in terms of the carbon
14 tet plume, and so forth. That's kind of filled two
15 purposes there.

16 We're hopeful that south of Building 67
17 will give us a potential idea of where we've got the
18 southerly boundary, and if that doesn't do it, then
19 we've got two more, one near Building 111, the other
20 near Building 264. That tends to spread it out and
21 really look at what we're dealing with here,
22 particularly since we see MW-13, which is right
23 there near Building 114, we see TCE concentrations
24 there that might be of concern.

25 And then the one near Building 296 is

1 again kind of a dual purpose, looking at what it
2 might be like in terms of TCE vapor to the east of
3 Well 13, but also maybe carbon tet to the south of
4 soil boring number 26.

5 The last one, of course, is down by
6 Building 264. That's just trying to give us what we
7 hope is the southern boundary of all contamination,
8 regardless of what it might be, in terms of vapor.

9 So this is our first shot at it as far as
10 looking at something that we hope will be
11 encompassing enough to take it in one shot. It may
12 require a second iteration of this, depending upon
13 what we find, but we're hopeful, based upon what
14 we've seen thus far, that we won't actually see that
15 happen.

16 NIOU: So you will drill all these in one shot,
17 right, just one after another? You won't do it in
18 phases?

19 BURIL: No. One after another. Just one fell
20 swoop.

21 NIOU: Okay.

22 BURIL: These would go all the way to
23 groundwater, and depending upon what happens with
24 our good friend El Nino, we don't know exactly how
25 deep those might be. But we're hopeful that the

1 groundwater won't have risen sufficiently to curtail
2 our putting these things fairly well down. And
3 they'll have soil vapor points, sampling points put
4 in throughout the length of them, 20 to 25 feet
5 apart. How many did we say? 10?

6 RANDOLPH: Yes. At least 10.

7 BURIL: At least 10, depending upon the depth of
8 the well.

9 NIOU: 10 sections.

10 BURIL: 10 individual sampling locations within
11 the vertical.

12 RANDOLPH: Just like we've done before.

13 BURIL: Yes.

14 NIOU: Okay.

15 BURIL: Yes. And with any luck, we would be
16 able to delineate any additional vapor that we might
17 find a need to remediate based on that.

18 And then on the basis of the work that
19 we've already done on the SVE, we would then know
20 the scale of the effort that we would have to
21 undertake in order to deal with the vapor
22 remediation itself throughout the Laboratory. And
23 then we can begin -- at that point we're almost to
24 the point of moving on to feasibility study, into
25 proposed plan, into ROD in fairly, hopefully,

1 reasonable order.

2 ROBLES: This will probably turn into our
3 proposed remediation for the soil vapor portion of
4 the remediation.

5 GEBERT: Right. For OU-2.

6 BURIL: For OU-2, yes.

7 ROBLES: And this will address the hot spots, we
8 believe.

9 BURIL: So this will give us all the information
10 to be able to actually go to proposed plan. That's
11 our goal right now. And making the assumption that
12 the SVE turns out to be the method of choice, we
13 would be able to hopefully move into ROD in
14 relatively rapid fashion once we've completed this
15 work and it wouldn't need to be an interim ROD while
16 we still collect more information. This would
17 hopefully be a final ROD.

18 GEBERT: So this is going to be two separate
19 documents now?

20 BURIL: Yes. We're talking about two separate
21 documents right now.

22 GEBERT: One on the soil vapor extraction test
23 and one on the workplan addendum.

24 BURIL: Exactly.

25 GEBERT: Additional soil vapor work.

1 BURIL: Again, trying to keep the two things
2 separate so we have the maximum flexibility --

3 GEBERT: Right.

4 BURIL: -- in terms of document delivery
5 scheduling and things like that.

6 As far as scheduling, let me pass along
7 what that entails. We've got a couple of versions
8 of this. I'm just trying to see which one would
9 probably make it easier for you to see. Let me show
10 you this one. It doesn't have as much gobbledygook
11 on it. It doesn't get as confusing. It's got
12 everything on one page.

13 When you get this, this is just basically
14 a Gant chart showing approximately how long we would
15 be taking to do these things. We've got the
16 additional field work for Operable Unit 2, which is
17 the additional characterization, and then we also
18 have the SVE pilot work now. Both of those would be
19 taking place concurrently so that we don't have to
20 have first one, then the other. We'll be doing them
21 at the same time. So we can keep the schedule cut
22 back in that regard.

23 And when it comes right down to it,
24 overall we're looking at the schedule stretching for
25 OU-2 by about six months and that's to get all that

1 work done, and then the remedial investigation
2 report would incorporate all of the work that we've
3 done in Operable Unit 2. And then the SVE work,
4 which had been done already, would form the basis
5 for continuing on into the feasibility study right
6 away.

7 ROBLES: This is pretty aggressive.

8 NIOU: Is the long-term test about one month?

9 BURIL: Which one?

10 NIOU: The long-term SVE test.

11 BURIL: Yes. It's about a month. Yes. I think
12 we've identified exactly how long it is here in the
13 proposal. It's about three to four weeks long
14 overall.

15 GEBERT: So by this schedule, we would be
16 receiving the workplans early January. Right?

17 BURIL: For the addendums you would be seeing it
18 toward the middle to end of January for the OU-2
19 work, and for the SVE you would be looking for it
20 about the same time frame.

21 GEBERT: End of January. Mid to end.

22 BURIL: Mid to end of January.

23 ROBLES: Pretty fast.

24 GEBERT: Yes.

25 BURIL: Like we said, we've been talking about

1 this now for a while, both with you folks and then
2 amongst ourselves. That's why we're able to hand
3 you this and the table of contents and things like
4 that because we're in a phase now where I think --
5 personally, I think the work becomes almost obvious
6 that has to be done. We need to do some form of
7 evaluation as to whether soil vapor extraction is
8 useful to us, and once that's done, we can move on
9 to remedial action in total. But in order to get
10 that total remedial action, we need to know how big
11 an area we're going to be dealing with, and that's
12 what this additional characterization deals with.
13 So the extent of the work is not nearly as fumble in
14 the dark as it was initially. It's fairly focused
15 now.

16 ROBLES: The biggest concern is if we're talking
17 about a massive area, that's a lot of money. So
18 we've got to know. This will help us justify to
19 NASA headquarters, hey, we need a big slug of money
20 to get this because this is the area of impact that
21 we need to work on.

22 BURIL: If we identify, for example, taking what
23 I would term a worst case, if we were to identify
24 that we have a TCE plume that's significant enough
25 that needs a separate remedial effort in addition to

1 the carbon tet plume near Well MW-7 which requires a
2 simultaneous remedial effort, we may be in a
3 position of having two, maybe three, maybe more, who
4 knows, individual extraction units operating here on
5 the Laboratory at various locations. So that we can
6 plumb these things together to the most reasonable
7 extent we can or do something that gets this stuff
8 taken care of in as rapid a fashion as we can. And
9 that generally adds up to a fair amount of dollars,
10 and that's something that we want to be able to know
11 up front so that we can go back to headquarters.
12 We've got this happening and at the same time we're
13 anticipating, making the assumption that someone
14 finds the silver bullet for perchlorate. We may be
15 going to something on site here as well. So we
16 don't know what's going to happen to that one at
17 this juncture.

18 So between the two of them we're trying to
19 come up with a mechanism that we know what the scope
20 of the effort is going to be. And on the basis of
21 that, we can get our budgets in line and be able to
22 do this without having to sit back on our heels and
23 wait for money to become available, because money is
24 tight. I think we told you once before that
25 Congress, wasn't it, or somebody yanked back 20

1 million bucks from the environmental fund at NASA
2 headquarters.

3 ROBLES: It was for the space station.

4 BURIL: It was for dealing with space station
5 problems.

6 ROBLES: To help the Russians.

7 ROBLES: NASA had to cough up \$100 million. 20
8 million came out of the environmental restoration
9 account. So we had 35 million and now it's 15
10 million for this year.

11 BURIL: We have no problems with the amount of
12 money that we're doing to talk about implementing
13 this. That's covered. We've got that taken care
14 of. This is about \$2 million of work between now
15 and the end of the project, meaning that we get to
16 proposed plan and ROD within about two years, going
17 through the whole process. That's the same schedule
18 we were on before. So --

19 ROBLES: What do you think, guys?

20 BURIL: What do you think? Are we talking in
21 the right ballpark here? Any major problems that
22 you folks can anticipate?

23 GEBERT: I don't see any major problems. You're
24 using the same technology, the same procedures and
25 drilling. The only thing probably will get some --

1 have to negotiate on is maybe the locations and the
2 number of wells. That's usually the sticking point.

3 Other than that, it looks great.

4 ROBLES: We're flexible. We're flexible.

5 BURIL: We can be flexible on the number and
6 locations. Obviously, the more that we put in, the
7 greater concern we have for budget and time
8 considerations.

9 GEBERT: Of course. Of course.

10 BURIL: I would encourage you to take a hard
11 look at these and convince yourselves that they're
12 either adequate for the purpose that we described or
13 that you've got other concerns that we maybe haven't
14 addressed or haven't recognized yet. So I would
15 encourage you to take a look at it and at our
16 already scheduled telecon, if we could hear back
17 from you folks as to what you think about this
18 approach as well.

19 ROBLES: Not even formal, but at least you come
20 and say "We think that preliminary review shows
21 these concerns."

22 BURIL: We'd like to have that on a conceptual
23 level.

24 ROBLES: It gives us a heads up, so therefore we
25 could start working on addressing those problems.

1 BURIL: If we're just completely out to lunch
2 on, you know, we need more wells or the locations
3 need to be altered because of thoughts that you have
4 in one regard or another, we'd like to have that up
5 front so we know what we're dealing with up front.
6 And as far as a formal workplan, my ideal is to have
7 a workplan addendum that goes to you fellows that
8 says this is basically a review to make sure that
9 the "T"s are crossed, the "I"s are dotted, because
10 everything else has been done. We're not going
11 through an iterative process on a formal workplan.
12 That just takes a lot of time.

13 RANDOLPH: If it's okay, I'd like to maybe
14 suggest if we get informal calls or you get informal
15 calls even prior to the holiday season so we can be
16 working on this during JPL Christmas holiday.

17 BURIL: He has a good point. If you fellows
18 actually happen to come up with something that you
19 feel very strongly about before our next telecon,
20 please give us a call. We would very much like to
21 hear it. One of the things that happens here at JPL
22 during the holiday season, particularly Christmas,
23 is the Laboratory all but rolls up its sidewalks and
24 goes away for a couple weeks. From about the 19th
25 on, until January 6th, this place will be in essence

1 shut down. I myself am going to be on vacation for
2 those two weeks.

3 So if we can get more information from you
4 fellows prior to that, and I can pass that on to
5 Foster Wheeler, because they don't have the same
6 luxury. Whether it's lucky for me or unlucky for
7 them, I don't know. They're going to be sitting on
8 their hands waiting for this telecon. If we
9 actually find something that you fellows believe
10 really does need to be addressed before this can
11 move forward, it would be really helpful to have
12 that at the time.

13 ROBLES: Then they can strategize and work out
14 the issues and say, "Yes, we think it's correct and
15 these modifications," or "Yes, you have a good
16 point," or what have you.

17 BURIL: Something.

18 ROBLES: So that way they could be working on
19 it.

20 BURIL: Because, like I say, I don't know if
21 Pete has taken the time off, but my office is going
22 to be all but shut down for the duration of the
23 holidays.

24 ROBLES: If Chuck doesn't have a problem with
25 it, I wouldn't have any problem with them calling

1 Foster Wheeler, just giving them their comments.

2 BURIL: No, just to give the comments directly,
3 I don't have a major heartburn with that.

4 GEBERT: Okay. The 19th --

5 ROBLES: So that way, even after the 19th, if
6 you guys -- I know you guys may be taking off, or
7 some people that you may have may -- I know I
8 sometimes come in even though I'm on leave because
9 that's the best time. There are no phones and
10 nobody is bugging me and I can finally clear my
11 desk. And sometimes that's a good time to call B.G.
12 and Foster Wheeler, "Hey, I want to chat about
13 this."

14 BURIL: If you happen to have comments and you
15 want to contact Peter, by all means do so if he
16 happens to be in.

17 ROBLES: I have no problem with that.

18 BURIL: For that interim I don't have any
19 problem with Pete talking to Foster Wheeler. That's
20 fine. Just pass along comments.

21 ROBLES: Or even you guys calling Foster
22 Wheeler. It's just basically a courtesy call if we
23 have these issues so that at least they can start
24 working on it.

25 GEBERT: Okay. I'll try to do that.

1 BURIL: I'm just at home. I'm not going
2 anywhere. I've got to stay home and take care of my
3 young kids because there's no day care. So if
4 anything comes up that we need to talk about, I'm
5 available. I can make myself available.

6 Just on a cursory look, without having had
7 the opportunity for you fellows to look at this in
8 any detail, what do you think about the
9 characterization aspect of it?

10 Does anything leap to mind that we are
11 totally out to lunch, or are we at least approaching
12 the right direction? Or what's your thought?

13 GEBERT: The concept looks good and the plan
14 looks good. I don't see any -- nothing strikes me
15 as being --

16 BURIL: Nothing is an obvious, glaring omission
17 or concern?

18 GEBERT: No. No. No.

19 BURIL: Obviously, you have to have time to
20 review it in more detail.

21 GEBERT: It's the location and the placement
22 that will take some time.

23 ROBLES: I'm just excited about it because it's
24 finally getting us --

25 GEBERT: So am I. We're finally getting --

1 ROBLES: We can show to the public that we're
2 doing something.

3 GEBERT: Right.

4 BURIL: I like the idea itself. It's very
5 difficult when you have the announcer from a
6 television station with a microphone under your
7 nose, trying to explain why things have taken so
8 long. It's not a position I like being in. This
9 guy hides, so I have to careful.

10 Okay.

11 CHANG: I think your approach is really good.
12 Your time frame is aggressive. I hope you can do
13 it. It will be great.

14 ROBLES: Chuck has worked out the procurement
15 issues that have been a problem in the past, which
16 has accelerated that process. Plus, the strategy of
17 bringing it outside the normal Superfund process
18 gives us an accelerated issue. Also is the fact
19 that we can then bring it back up to a full-blown
20 remediation when we need to. I see this as a norm
21 across federal agencies. It's an ability to get
22 something done without getting it bogged down in the
23 normal Superfund process.

24 NIOU: Actually, in my opinion, probably you can
25 have more flexibility on your pilot test, SVE pilot

1 test part, because that's leading to the feasibility
2 study and the data are not really needed for your
3 RI. Therefore, that one, if anything, probably that
4 one should --

5 BURIL: Yes. I guess I could agree with that.
6 Yes. If anything that creates a problem needs to
7 have some flex built in, the SVE is probably the one
8 that we could flex on most easily. That's an
9 independent process, as we've already described.

10 ROBLES: That's a good point. That's a good
11 point.

12 BURIL: So if we needed to slip, we could slip
13 that and catch it up again later on and then we
14 still would be able to catch it into the feasibility
15 study and the ultimate schedule that we generate
16 from this.

17 ROBLES: Our goal is to try to get it all in
18 place. I was amazed at the six months. That's
19 aggressive.

20 NIOU: This is very aggressive.

21 ROBLES: But I'm looking at it because I've told
22 Chuck, two years and I want ROD. I want to get out
23 of this business. I want to close this site.

24 BURIL: He does. I don't. I look at this as
25 once we've got ROD in place, there's another God

1 knows how many years until we get through
2 remediation. Who knows. The first Superfund site I
3 ever worked on started remediation back in 1968 and
4 they're still doing it.

5 NIOU: Wow. That many years.

6 BURIL: Anyway, okay. Well, then, if you have
7 anything between now and our telecon, feel free to
8 give myself or Foster Wheeler or Peter a call, let
9 us know what your thoughts are and we can always
10 jump on that right away.

11 CHANG: How does your time look between now and
12 December 19th as far as taking a look at this in
13 detail?

14 GEBERT: I should have something in two or three
15 weeks.

16 CHANG: Okay.

17 BURIL: We hope that we'll be able to kick this
18 thing into gear without too much trouble, then, come
19 the turn of the year.

20 ROBLES: Number 3, ATSDR.

21 BURIL: ATSDR. Okay. The ATSDR. Now, first of
22 all, James, I'm reasonably certain that you are well
23 aware of these folks and what their role is.

24 CHANG: Yes.

25 BURIL: Richard, are you aware of who these

1 folks are and how they work?

2 GEBERT: Oh, yes. I never work directly with
3 them. They usually work on State lease sites. But
4 I'm familiar with who they are and what they do.

5 BURIL: Basically, I have these folks here now.
6 They were at the Pasadena Holiday Inn here yesterday
7 in one of their public availability sessions. I
8 went down to visit with them very briefly yesterday
9 afternoon and dropped off some information that
10 they've been asking for. And thus far, the ATSDR
11 has had two people show up, and that's it. The
12 level of concern regarding this site appears to be
13 extremely low. In fact, they were comfortable in
14 telling me who the folks were because they
15 represented entities as opposed to individuals, and
16 that was one of the attorneys for the Wasserman
17 firm.

18 ROBLES: Not a surprise.

19 BURIL: Big surprise. And the second was the
20 principal water quality engineer for the City of
21 Pasadena, Brad Bowman. And Brad told me he was
22 planning on going down so I didn't find that to be a
23 surprise.

24 GEBERT: The Wasserman firm is the firm that
25 represents?

1 ROBLES: Vallier. The Vallier case.

2 BURIL: This is the one in La Canada with the
3 group of plaintiffs. There's no surprise that they
4 would come down and talk with those folks for a
5 while.

6 I saw them yesterday afternoon about 2:30
7 or so, and there was by no means a line beating down
8 their door. In fact, they all looked relatively
9 bored to death.

10 So at least at the outset there doesn't
11 appear to be a great deal of concern regarding the
12 site. They're currently at the library here in La
13 Canada and they're completing their latest public
14 availability session in another location, basically
15 make them more convenient to the folks here in
16 Glendale, La Canada and so forth.

17 They will be here through today. I think
18 their last time frame is up until 7:00 tonight. And
19 they leave tomorrow. They go back to Atlanta and
20 they're done, basically, with the public input phase
21 of their effort.

22 And we've gotten nothing back from them
23 that indicates that they were seeing major problems
24 here. I have supplied them with information from as
25 many of the water purveyors that I've been able to

1 get information from, and all of them, with the
2 exception of one, have been extremely cooperative in
3 just handing us the information. And one, who was
4 less than cooperative because of potential
5 litigation between ourselves and them, we went to
6 DHS and got the information anyway. And we supplied
7 that.

8 So we are in good stead with those folks,
9 as far as I am aware, and things appear to be going
10 well.

11 They are indicating now that their report
12 that would be coming out for public comment may be
13 available as early as late spring to early summer
14 next year. Exactly what time frame that is, I
15 couldn't tell you. I guess May-June would be my
16 first guess. And we will take that from there.

17 ROBLES: As a note, the Wasserman folks have
18 filed a FOIA request, Freedom of Information Act, to
19 NASA headquarters and have also placed a motion of
20 discovery against Cal Tech/JPL. So basically, these
21 minutes to these meetings are part of that. So they
22 have been looking at these minutes. The fact is
23 I've been deposed by some of their lawyers. And we
24 have a third lawsuit. So we're now to three on the
25 issues dealing with this site and the supposed

1 relationship of exposure to their clients through
2 the Superfund site itself.

3 You may also be getting calls from them as
4 well. You also may be getting discovery motions and
5 FOIA requests as well. So be prepared for that.

6 Our folks here have hired -- Cal Tech has
7 hired a lawyer, and basically they are -- it's going
8 to be a major discovery motion. We're talking
9 about -- it's taken six months to get all of the
10 documents together, thousands and thousands and
11 thousands of documents going as far back. Much of
12 the discovery motion is geared to the fact of "We
13 would like to have all manifests from the foundation
14 of JPL to the present."

15 BURIL: All procurement orders for chemicals.

16 ROBLES: All procurement orders, all memos, all
17 contracts from the foundation of JPL to the present,
18 all indications of any interaction between the local
19 municipalities on hazardous waste, hazardous
20 materials. I mean, 189 questions like that. So it
21 encompasses everything and includes the minutes. So
22 be well aware that you may be getting calls of those
23 as such.

24 GEBERT: Could you elaborate a little bit on the
25 third lawsuit?

1 ROBLES: It's a wrongful death of an individual
2 who, he was a welder, just like the first one, the
3 Savory case, which was an office worker who died of
4 cancer and they're saying he was exposed in his
5 workplace here. Same with the welder, and Vallier,
6 the people that got Hodgkin's. They're basically
7 saying they were exposed, they were given
8 contaminated water. And the purveyors of water have
9 a real hard time with that because they're basically
10 saying that they have never given bad water to
11 customers. So there's a lot of argument in that,
12 the fact that they're trying to find that kind of
13 information. So they're really looking at it. And
14 Wasserman is a very good litigant and he's trying to
15 formulate a class action suit without merit.

16 So it amazes me that when you don't have a
17 level of concern from the public when ATSDR is here,
18 then you have these lawyers who come in and try and
19 stir things up, they still can't generate enough
20 public concern, it's surprising on one hand. But
21 they're trying the case in the papers. That's what
22 they're trying to do.

23 BURIL: This is the same organization or similar
24 organization to the ones that put those full-page
25 ads in the Pasadena Star News here about, what was

1 it, six months ago or so. Richard, you were on the
2 project then. I don't think you were, James.

3 Just as a piece of history, then, what one
4 legal firm did was to place a full-page ad in the
5 Pasadena Star News, and I believe they also placed
6 it in a couple other newspapers, and in big red
7 print, inch and a half high print, screamed
8 "Warning: You may be drinking contaminated water,"
9 and went on to explain how chemicals have been found
10 in the groundwater for years and the water companies
11 have been ignoring the problem, and la da-da, da-da,
12 da-da; "If you're concerned about this, call" this
13 legal firm.

14 The water companies, particularly City of
15 Pasadena and I think it was the San Gabriel Valley
16 Water Company, countered that a few days later with
17 their own full-page ads basically saying "Not true,
18 folks. You're safe."

19 And that's been the genesis of this
20 Wasserman case, at least in part. And it's also
21 been the genesis of another lawsuit that's occurring
22 over in the San Gabriel Basin.

23 So that's a little bit of history there.
24 So it's a very litigious type of scenario that we're
25 dealing with here.

1 ROBLES: And that brings us to perchlorate.

2 BURIL: Yes, it does, but it's lunch time and I'm
3 going to suggest that we leave perchlorate until
4 after lunch.

5 ROBLES: That's a good idea.

6 BURIL: Then why don't we take an hour break for
7 lunch and reconvene.

8 NIOU: Shall we just complete it?

9 CHANG: If the perchlorate issue is nothing
10 earth shaking.

11 ROBLES: I've got two more issues after that
12 issue.

13 CHANG: Oh, do you?

14 ROBLES: Very short.

15 BURIL: We've got a couple shorter ones after
16 that.

17 What's your schedule, James, as far as
18 your plane goes?

19 CHANG: I've got another project I've got to
20 work on as soon as I leave here.

21 ROBLES: Why don't we just --

22 BURIL: Do you want to just press on?

23 CHANG: Sure.

24 ROBLES: I have no problem with that. Let's
25 press on.

1 BURIL: Let's press on.

2 CHANG: Thanks.

3 BURIL: On the perchlorate, then, we have two
4 things that are ongoing right now in terms of basic
5 research. I think we talked about these with you
6 earlier. They are literally under way as we speak.

7 The first is a review of various ion
8 exchange media that we hope will identify a
9 mechanism that will remove perchlorate, either
10 physically remove it or chemically break it down in
11 such a way that we eliminate it from the water.
12 That is being done by Foster Wheeler and a gentleman
13 named Mark Losi. He is literally in the laboratory
14 as we speak running various tests on various media
15 that he has been able to get from various
16 manufacturers. One that appeared promising was an
17 activated alumina compound which on the surface
18 appears to create a total breakdown of the
19 perchlorate and acts simply as a reaction site.
20 There's no sorptive capability here at all. It just
21 lands on it, something happens with the metal and it
22 breaks it down and sends it on and it's available
23 again. That's something that they're looking at
24 trying to understand if that's even feasible and, if
25 so, how well it works.

1 That particular effort is utilizing
2 groundwater from our wells at full strength.
3 There's no artificial introduction of perchlorate
4 into DI or anything like that. It's something that
5 we're looking at a real world scenario to see
6 whether or not this is even feasible.

7 The second one that we're currently doing,
8 and we may have a report as early as our next
9 telecon, is being done by Jacobs Engineering down in
10 Pasadena. These folks are looking at the breakdown
11 of perchlorate by the introduction of hydrogen. On
12 paper the requirements in terms of driving this
13 reaction are very low. In fact, just the presence
14 of the hydrogen appears to be enough to push this
15 reaction to go. I'm not enough of a chemist to
16 remember enough about the redox equations and so
17 forth, but talking to some of our folks here and
18 talking to their folks, this looks like something
19 that has potential at least in terms of a laboratory
20 type of approach. And that's actually what we're
21 doing now. This is a proof of concept. On paper
22 this looks good. Does this really work? When you
23 introduce hydrogen gas into this water, does it
24 really attack the perchlorate and break it down?
25 And it does so in a stepwise progression, going from

1 CLO4 to CLO3 to CLO2 to chloride and oxygen. How
2 does that work? Does it work?

3 They are using a purely laboratory
4 approach at this juncture. They are taking
5 distilled water and introducing to it 1,000 parts
6 per billion of perchlorate, bubbling a known
7 quantity of hydrogen gas through it and then
8 analyzing for the perchlorate after it's been in
9 contact with the water for a certain length of time.
10 And they will be providing us with a report that
11 says, hey, the paper was right, this does work, now
12 let's talk about what we might do to expand this to
13 a practical application scenario, maybe a larger
14 bench scale or pilot scale test, maybe something
15 that will ultimately lead to a different technology
16 to break this stuff down that would require the use
17 of hydrogen injection.

18 So that is just very basic research that
19 we're undertaking right now; very basic.

20 The last one that just came up just before
21 the holiday is one that I think carries a lot of
22 potential promise, but I can't tell you a great deal
23 about it because the folks that came to us were
24 awfully darn secretive about it. They didn't really
25 want to tell us a great deal.

1 ROBLES: It's patented.

2 BURIL: Well, they haven't patented it yet and
3 they're very concerned about the fact that they
4 haven't got a patent on it yet. These folks are
5 from ATP, Applied Technology Process, or APT,
6 Applied Process Technology, excuse me. And we met
7 with the director of marketing, and who was the
8 other? Was he the technical director?

9 NOVELLY: I think so.

10 BURIL: Something like that. And what they
11 described to us is that they have been working with
12 the folks in the San Gabriel Basin Superfund sites
13 and that they currently have a system which involves
14 carbon sorption and some proprietary and quite
15 secretive chemical injection.

16 The way they described this is that they
17 inject this chemical into the water stream and it
18 then enters into a carbon tower. The carbon
19 apparently acts only as a reaction site. It isn't
20 actually a sorptive process. And as a result, what
21 happens is the chemicals that are introduced and the
22 carbon acting as the reaction site break down the
23 perchlorate completely, down to chloride and oxygen.
24 At least that's what I took away from that. They
25 never really said what it broke down to.

1 However, they have been testing this on a
2 well, apparently, with a 1,000 gallon a minute
3 capacity and have been working with DHS in such a
4 way that they have had a 12-hour permit. In other
5 words, they could pump it through for 12 hours, put
6 it into a tank, store it until after they had some
7 analyses done to assure themselves and the
8 regulators that the chemicals that they were using
9 and the perchlorate and so forth were at acceptable
10 levels and that it could be distributed to the
11 users. Well, they have been doing that, and when
12 they met with us they were going to a 24-hour permit
13 in order to basically say, well, we'll run this
14 thing for 24 hours straight, store the water and
15 then discharge it once we've tested it.

16 The 12-hour test took 1,000 gallons a
17 minute with an influent concentration of perchlorate
18 of 80 parts per billion, knocked the perchlorate to
19 zero; nondetect. And the added feature of this
20 approach is that -- I'm not sure if it was through
21 the chemical injection or through the fact that they
22 are running it through the carbon tower. If you
23 have VOCs it knocks those out, too.

24 ROBLES: To zero.

25 BURIL: Yes. Nondetect.

1 GEBERT: Zero.

2 NOVELLY: It was set up to handle VOCs. They
3 were ready to start this treatment site to handle a
4 VOC problem when perchlorates came up and so they
5 modified their system to also handle the
6 perchlorates.

7 BURIL: Right. They didn't go into great detail
8 about what the system looked like, what the chemical
9 injection was, what the rates were. They were very,
10 very tight-lipped about that.

11 ROBLES: The potential for this is incredible.

12 BURIL: Oh, the potential marketing capability
13 of this is staggering, just staggering. We would be
14 one of the very first to have it.

15 ROBLES: We would be the first ones to say we'll
16 buy one and give it to Pasadena.

17 BURIL: Or something.

18 ROBLES: Put it on their wells.

19 GEBERT: So they have tested this in the field?

20 BURIL: They have tested this. The reason they
21 came to us is because they needed to know whether
22 they had something that was flexible enough to be
23 used at various locations and with various influent
24 concentrations.

25 ROBLES: They want to use us as a test case.

1 BURIL: They want to use us as a pilot plant.
2 We told them while we really don't have any wells
3 here that are capable of supporting a large pumping
4 rate, you'd have to go and talk to the City of
5 Pasadena or someone like that to see whether or not
6 they would be willing to let you use one of their
7 wells.

8 As a quick aside, one of the City of
9 Pasadena wells has been shut down because of the
10 concentration of perchlorate since July.

11 GEBERT: The Arroyo well.

12 BURIL: The Arroyo well. That's correct.

13 So I passed this on to the City of
14 Pasadena and they were thrilled with the idea that
15 someone might actually come along with something
16 they might be able to use even in a treatment pilot
17 plant type of environment. So they are, I think,
18 going to be talking with the City, but they also
19 promised us a proposal, and apparently they have
20 what I'll call a beta testing unit. The beta
21 testing unit is capable of flows up to 10 gallons a
22 minute. Our wells, currently I think we might be
23 able to get one of our wells to produce about that
24 much. Even if we didn't, we could pump enough out,
25 store it someplace and run it through the system to

1 see how well it deals with, say, 500 to 600 parts
2 plus of perchlorate and a variety of other
3 constituents that we deal with, particularly TCE and
4 carbon tet.

5 We're waiting for that proposal to come
6 back to us. We got a letter of acknowledgement from
7 them very recently, which I haven't even told you
8 about, saying that they're very excited and that
9 they'll be providing the proposal within a few
10 weeks.

11 ROBLES: So we've got three.

12 BURIL: So now we have three independent
13 approaches, one of which sounds like a potential
14 silver bullet.

15 ROBLES: That will not only take care of the
16 perchlorate, but the others.

17 GEBERT: The VOCs.

18 ROBLES: It's something I'm very anxious about,
19 because if it works, I'll be the first one to
20 propose it, put it on the Pasadena wells.

21 BURIL: It's going to be a boon to anybody who
22 is dealing with VOCs or perchlorate because
23 regardless whether it's something that we need to
24 work with people on other places out in the San
25 Gabriel Valley that are dealing with the Aerojet

1 problem or the folks in Riverside that are dealing
2 with the Lockheed problem or things of that nature,
3 this is going to be a gift from heaven, because
4 currently I haven't heard anybody talk about
5 something that was going to have immediate practical
6 application. In fact, most people I've talked to
7 are talking in the neighborhood of two to five years
8 before you've got something.

9 CUTLER: If I could add, too, it's obviously not
10 as good. We took some of the JPL water that had 550
11 parts per billion perchlorate, and in the lab bio
12 knocked it down to nondetect. The guy just let it
13 incubate for three days and it was gone. He's going
14 back. Now he's going to do some time studies and
15 see how quickly did it really knock it down to
16 nondetect. So we know that bio will do it, but
17 whether that is a real alternative for what we need
18 at the site is --

19 BURIL: In terms of batch processing, that may
20 be something that can be very, very helpful and very
21 inexpensive if one of these others doesn't pan out.
22 For a continuous treatment process for a production
23 quantity of water, who knows. It could be a very
24 difficult process to try to put in place.

25 As an aside, this is something that came

1 in, was it University of Riverside?

2 CUTLER: Yes. Mark Losi, the guy that's doing
3 our research, he came from UC Riverside. Mark's
4 background was bench scale treatability type
5 studies. He came out of that lab and his professor
6 has been interested in the bio aspect for a long
7 time. And it was just "Let's see if it will work,"
8 and it did.

9 ROBLES: The flip side to this is even though
10 the technology is there, is it economically
11 feasible. That's the biggest concern.

12 CUTLER: Exactly.

13 ROBLES: It may be the silver bullet, but it may
14 be very expensive.

15 BURIL: There is a treatment technology
16 available right now. We all know it. It's called
17 reverse osmosis. It will work, but you'll generate
18 an incredible expense making it work. For 1,000
19 gallons a minute you'll get 20 or 30 gallons a
20 minute of undisposable brine because it's going to
21 have perchlorate in it and you don't know what to do
22 with it. So for a practical application it really
23 doesn't make any sense.

24 CUTLER: That would be where the bio would
25 probably be perfect.

1 BURIL: Potentially. As a side stream
2 treatment, yes, that's possible. But I don't want
3 to talk about the costs of operating an RO unit of
4 2,000 or 3,000 gallons a minute. The electricity
5 alone would be in the millions a month.

6 CUTLER: Right. No. There's greater problems
7 than that.

8 ROBLES: So that's where we are.

9 BURIL: So that's where we're at currently with
10 perchlorate. We have someone waiting in the wings
11 with bio, we're waiting for the proposal to come
12 from the company who reportedly has a silver bullet,
13 and we've undertaken two things on our own.

14 I have a question for you, James. You may
15 not have an answer, but there's a lot of concern
16 from the water purveyors, and admittedly on my own
17 part, as to what's happening in terms of
18 establishing MCL through EPA. Do you have any
19 insight into that?

20 CHANG: No. Unfortunately, there is no forward
21 progress on that yet. I think that's basically
22 being driven by because there are no risk levels
23 determined yet. So until they -- it's kind of like
24 a foundation that has to be built first.

25 ROBLES: At least to me that's hopeful because

1 this 18 arbitrary really has created a lot of
2 problems because there's no data to support it and
3 what's happening is you are getting Colorado River
4 with 5 to 8 already. So any little bit in there
5 is --

6 BURIL: I'll pass along one of the things that
7 is occurring. In fact, I've got some data here
8 behind me in some cross-sectional maps that I'll
9 show you here in a few minutes. Basically, the
10 Colorado River water has been coming in at between 4
11 and 8 parts per billion now. We don't know what
12 it's been in the past. But in a map that I've seen
13 from the engineers that are representing MWD,
14 they've gone through and sampled all their wells and
15 provided this map that has the various sizes and
16 colors of dots to indicate perchlorate contamination
17 in the various wells.

18 There's almost no wells in the San Gabriel
19 Valley that aren't affected by perchlorate. Almost
20 every single one of them has got some level of
21 perchlorate in it. So if you take the worst
22 possible scenario that the risk foundation that you
23 described is built to, say, 4 parts per billion is
24 really kind of a concern. The groundwater resources
25 of Southern California become unusable.

1 ROBLES: That's right. Because the Colorado
2 River has provided 4 to 8 parts per billion because
3 of the Henderson explosion.

4 CUTLER: They've been injecting that water for
5 years.

6 ROBLES: And they've been injecting that water
7 in the system. So if somebody says, hey, 4 is bad,
8 we have just cut off all the water of California.

9 BURIL: You can't get it from the canal and you
10 can't get it from the ground.

11 ROBLES: So that's something you may want to
12 take back to them, because this is the concern about
13 it.

14 BURIL: The water purveyors are scared to death.
15 In fact, I'll show you something in these
16 cross-sections that I'm handing you here.

17 ROBLES: This leads me to one of the topics
18 that -- that I need to discuss with you. The
19 Raymond Basin Management Board has been pushing me
20 to send them money so they can study the perchlorate
21 problem. They want \$500,000 from NASA to establish
22 oversight of the Superfund, at this site, and on the
23 perchlorate issue.

24 One, their opinion is that we are the
25 major and only source for perchlorate even though we

1 tell them MWD has provided some level of perchlorate
2 contamination, and we're not the only source. We're
3 only talking about the areas of impact, which is
4 Pasadena and Lincoln Avenue only.

5 They don't care. They want the money and
6 their justification is that they want oversight
7 control of the Superfund process here at this NPl
8 site.

9 BURIL: They want their own ability to do this.

10 ROBLES: And my comment back to them, which is
11 being drafted at NASA headquarters, is that NASA is
12 paying the State and EPA to represent their
13 interests. We do not pay two organizations to do
14 the same work.

15 So the question I have for you, are you
16 guys willing to give up the Superfund oversight and
17 the 1 percent State to let Raymond Basin run the
18 Superfund program? Because that's what they want in
19 reality. Now, they're not saying that in reality,
20 but that is what they mean. They're saying "We want
21 to be at this table and we want our 1 percent, too."
22 NASA is not going to be double billed.

23 BURIL: Basically, what it's coming down to is
24 they want their own independent review of everything
25 that's going on. I guess from their perspective,

1 what's being done and utilized here at JPL either
2 won't cover all of their concerns or --

3 ROBLES: We can't pay for their concern.

4 BURIL: -- won't pay for their ability to do
5 this. Whether they think that somehow this is being
6 manipulated in some fashion, we don't know.

7 ROBLES: They want to do their own --

8 BURIL: They want to do their own studies --

9 ROBLES: -- technology studies.

10 BURIL: -- independent of anything else.

11 ROBLES: They want to find out where all the
12 sources of perchlorate are outside of this NPL site.
13 I've told them go to the State and go to EPA, argue
14 with them, get money from them because NASA can't do
15 this. We cannot give municipalities money, or
16 purveyors of water money directly.

17 What we've done is we've worked
18 cooperatively with them. For example, we're putting
19 a lot into our modeling program. We're sharing
20 information with MWD and the local purveyors. We're
21 doing this technology search to see how we can deal
22 with it here. And once we find the technology that
23 works, we'll share that, say, "Hey, look, you can
24 buy it too."

25 And the zones of impact, Lincoln Avenue,

1 we're working with them. So that if we find the
2 technology for perchlorate we will work with them on
3 that, but we're not going to go upstream to Valley
4 Water and say, "Oh, you have a perchlorate problem
5 we'll just pay for." That's not our zone of impact.

6 But they don't care. They want the money.

7 BURIL: They're of the less than unanimous
8 opinion that the Raymond Basin, the Raymond fault is
9 something that allows perchlorate to cross over and
10 that, in fact, everything on the Raymond Basin is
11 JPL's concern and the fact that water can cross the
12 basin, they believe that we are a principal party in
13 the main San Gabriel Basin as well, which I have to
14 just shake my head and say "Not likely, fellows."

15 ROBLES: We've been bending over backwards.
16 We've been trying to pay for stuff here that may
17 benefit them, because it's basically our site;
18 modeling and so on. And I sense their frustration.
19 I understand where they're coming from. But I do
20 not have the authority to give them money. I've
21 written letters to NASA Headquarters to see what
22 they can do.

23 The only other recourse would be, as
24 they're talking about it to me, that they would like
25 to establish an oversight committee. Now, how do

1 you guys feel about that, too? Because now we got
2 to take two directions. We're paying you the 1
3 percent to the State, and you guys from EPA. And
4 they're going to lobby what they want for their
5 purposes. The issue is not going to be this site.
6 It's going to be the whole Raymond Basin that they
7 want addressed.

8 BURIL: I'll give you an example of the
9 direction that I think things are taking with their
10 concerns. I have a copy of the proposal that one of
11 their consulting engineers provided to deal with the
12 identification and characterization of the
13 perchlorate concern of how to do things. And in
14 bold letters in one of the sections it says
15 "Immediate action is needed. It is obvious that the
16 JPL site is the source of the perchlorate issue in
17 the Raymond Basin." It's just stated that plainly.
18 So it's fairly obvious, I think, to even the casual
19 observer that they have an agenda there to pin the
20 blame on this site.

21 ROBLES: Why I'm identifying this to you is
22 because I've had private talks with them. Like I
23 said, I understand their frustration. They don't
24 have a lot of money. I don't have the authority to
25 give them that kind of money.

1 The key question is I said you got to go
2 to the State and you got to go to EPA. Now, if the
3 Regulators are willing to make the whole Raymond
4 Basin a Superfund site, that's fine, but you got to
5 talk to them because right now I can only deal with
6 this NPL site. I've tried to work it every which
7 way. I've even gone and requested funding from
8 NASA, seeing how we can support them.

9 First of all, NASA nor Raymond Basis don't
10 want a RAB. NASA headquarters doesn't want a RAB
11 because basically then we (the RPMs) will have
12 problems. We lose control.

13 Two, the focus on the RAB has to be only
14 this site. That's not going to be satisfied with
15 that. They want the whole Raymond Basin to be
16 considered. So there is a major concern for them.
17 They're between a rock and a hard place, between the
18 lawsuits that are pending that implicate them as
19 culpable for these issues, and they're not seeing
20 money and they're going to be coming to the State
21 and EPA requesting support. So you've got to
22 develop your own policies and positions on this.

23 But my comment to them is I'm saying I'm
24 paying 1 percent to the State. If you guys want it,
25 you got to ask permission from the State. Because

1 NASA is not going to pay 1 percent to them and 1
2 percent to you guys.

3 BURIL: Or somehow separately fund their line of
4 activities.

5 ROBLES: I told them if we do that, understand,
6 we've got to get an FAA with them. We've got to
7 have an interagency agreement with the local
8 municipalities, and these folks, you guys have to
9 sign up to it, too. I can't just give them money.

10 And they have a lot of political
11 horsepower. One of the purveyors of water is a City
12 Councilman from Flintridge-La Canada. He has the
13 local congressman been lobbying NASA headquarters
14 and they're willing to go up to Senator Boxer and
15 Senator Feinstein to put pressure. They're that
16 serious about it.

17 CHANG: Is this what's been discussed at these
18 Raymond Basin meetings that I keep getting
19 invitations to?

20 ROBLES: Yes.

21 BURIL: Not quite the only topic. Peter and I
22 attended one where that was the principal topic and
23 it was the top membership of Raymond Basin. What
24 was that, about two weeks, three weeks ago?

25 ROBLES: Right. See, they've pressed on.

1 They've already funded this study and they want to
2 be reimbursed to the tune of 50- to \$100,000. So
3 they want that reimbursed by the government because
4 they believe the government is responsible for it
5 even though they're upstream. And we can't convince
6 them that we're not responsible for the whole
7 Raymond Basin. And then they want additional money
8 to go out and do their own pilot programs, their own
9 studies to find out where all the other perchlorate
10 is.

11 I'm saying I cannot take federal funds for
12 this NPL site to find perchlorate sources all
13 outside this site. We're dealing with what we do
14 and what we control and what we impact.

15 BURIL: Regardless of the presumption of the
16 source being JPL, because we just don't have the
17 information that supports that, particularly given
18 the fact that MWD has been supplying water to these
19 various companies for many years and, in fact, many
20 of these companies can only get their water from
21 MWD. They don't have any pumping capacity.

22 ROBLES: Their main issue is if El Nino comes,
23 the perchlorate may go uphill. So they want us to
24 figure that one out. That's a big problem. So I'm
25 forewarning you RPMs.

1 BURIL: They basically want the blank check to
2 do as they please.

3 ROBLES: It's going to be tough. We're trying
4 to work with them. We're trying to share data.
5 We're trying to share information. We're trying to
6 do the best we can. But I don't have the authority
7 to give them money like that without a formal
8 agreement. They don't want an agreement. They just
9 want the check.

10 BURIL: I think also, to give you an indication
11 of the level of cooperation that we're trying to
12 establish with these folks, we currently are working
13 with our own groundwater model. It's something that
14 I thought about showing you today, but it's still
15 being tweaked in its final mechanisms and I think
16 maybe the next time we get together we'll definitely
17 show you the outcome of that. But our model is one
18 that breaks things down into a variety of aquifer
19 layers which their current models simply don't take
20 into account. So we have a much more in-depth and
21 fine-tuned understanding of what's happening right
22 here around JPL and this immediate area than they
23 could ever even dream of.

24 We are trying now to work with them to
25 provide either the output of our model or the model

1 itself for incorporation into their regional model,
2 this is the Metropolitan Water District in
3 association with the City of Pasadena and Raymond
4 Basin, such that our better understanding of what
5 goes on here can be utilized to augment the
6 understanding that their model has. And thus far,
7 it's moving ahead. It's not moving ahead as rapidly
8 as the City of Pasadena would like, but certainly we
9 are talking and we're preparing to possibly just
10 hand the model over to them.

11 ROBLES: Sure.

12 BURIL: Say "Here it is, guys. Do with it as
13 you will and we'd like to be involved with it as you
14 do it so that we understand the kinds of things that
15 it's telling you and what it might be telling us in
16 the same way."

17 ROBLES: This will help us when we get to record
18 of decision because by sharing this information
19 they'll already know because the issues of final
20 remediation will be the pumping rates, where does
21 the water go. So they're very interested. We're
22 trying to develop an open dialogue with them and
23 share freely information. We don't try to stay
24 behind closed doors, and we're trying to advocate
25 their support.

1 BURIL: In fact, we've made it very plain to
2 them that when we come to the proposed plan record
3 of decision point in time, that we want to stand
4 shoulder to shoulder with them in front of any
5 public entity that would like to question what's
6 being done. Certainly if we have you folks on board
7 and we have the Metropolitan Water District and we
8 have the City and we have the Raymond Basin
9 Management Board and we're all saying the same
10 thing, it would be very difficult for anybody to
11 stand up and say "You've done the wrong thing,"
12 particularly if we've been working together all the
13 way along.

14 ROBLES: The only problem I'm foreseeing is they
15 believe the final remedial solution must include the
16 whole Raymond Basin. That, I think, is going to be
17 our biggest stumbling block with the Record of
18 Decision. Our final solution will be for this site
19 and the areas of impact. They want the whole
20 Raymond Basin to be addressed. So I think we're
21 going to be at an impasse.

22 This is going to be a major point with you
23 guys because we're not going to get their signature
24 on it because they're going to say "What about the
25 rest of the Raymond Basin?"

1 You see, as long as it was the VOCs it was
2 not a problem because they can deal with it.
3 Perchlorate they can't. Once we find the
4 technology, it might go away, the issue, because
5 then everybody can do it. The issue will be who is
6 going to pay for this technology to be implemented
7 and who is the responsible party. They're going to
8 look to the federal government.

9 But then the chemical du jour of the
10 month, the next one that comes along, whatever it
11 might be, XYZ chemical, and there's no silver bullet
12 to clean that up, they're going to come back to the
13 same issue. So it's an ongoing thing for them.

14 BURIL: I think where we're at right now is
15 these folks, and understandably so, are panicked.
16 They see one of the main supply wells for a major
17 metropolitan area being shut down with no
18 foreseeable means of bringing it back on line, and
19 they see other wells which are within a few hundred
20 yards which supply, I believe, up to a quarter to a
21 third of the Pasadena water supply being potentially
22 impacted as well. And so they don't know what to
23 do. So they are, understandably, in somewhat of a
24 panic to understand what it is they should be doing.

25 As Pete says, if we find this silver

1 bullet, it becomes less of a panic scenario and more
2 of a who pays for what scenario.

3 ROBLES: Right.

4 BURIL: Which is why we're looking at so many
5 different avenues ourselves because we'd like to be
6 able to mitigate our own problem as well. But this
7 is going to be a concern. It is going to be
8 something that deals with not just ourselves, but
9 we'll be dealing with the Raymond Basin Management
10 Board as an entity --

11 ROBLES: Right.

12 BURIL: -- and with the individual members of
13 that Raymond Basin Management Board in the form of
14 Lincoln Avenue Water Company, City of Pasadena,
15 Valley Water Service Company.

16 ROBLES: Rubio Canyon.

17 BURIL: Rubio Canyon, Las Flores Canyon,
18 potentially. Those are ones to the east of us. And
19 if an MCL over the course of time is developed and
20 lowers that limit of 18 on a federal level, my Lord,
21 the world as we know it is going to get very
22 difficult to live in.

23 ROBLES: That brings me to my last item, Lincoln
24 Avenue negotiations. We're at an impasse. We've
25 already sent them two agreements to try to settle

1 this issue. They keep bringing back the same
2 concerns or the same desires. They want a free
3 ride.

4 We do not pay their legal fees. They want
5 those paid.

6 We will not pay their infrastructure cost,
7 lost opportunity, because they were the ones that
8 did not come to us when we negotiated with Pasadena.
9 We went to them and said "Tell us what your problem
10 is. We will work with you like we worked with
11 Pasadena." They waited four years, then they come
12 as Johnny come lately.

13 They also want infrastructure upgrades,
14 which do not impact or have not been caused by
15 anything that we've done. It was just a total carte
16 blanche.

17 On the perchlorate issue, they want an
18 emergency fund to be put in a bank from the
19 government so that if they need it they can dip into
20 it. I said we don't work that way.

21 I'm at the point right now, because they
22 have made verbal promises to us, we have dealt with
23 them in good faith and they have dealt with us in
24 bad faith. Their lawyers have said one thing
25 verbally and at the negotiating table have come up

1 with a whole different scenario. Their president
2 has done the same thing.

3 I'm at the point right now where I'm going
4 to go in there and I'm going to say, "Ladies and
5 gentlemen, this is the field that we're going to
6 discuss and that's it. If you don't like it, sue
7 us. And it's not JPL you're dealing with now. It's
8 going to be NASA, the big boys."

9 Because I want to put in a wellhead
10 treatment for them just like we do Pasadena. We
11 want to do this. They just don't want that. They
12 want money. They want to buy a building. They want
13 furniture. They want all these other things. We're
14 saying, uh-huh, time out, that's not why we're in
15 it. They want the same amount of money that we gave
16 Pasadena. I says "You're not the same size." We
17 want to be fair and equitable, not equal, treatment.
18 That's the problem that we're faced with.

19 And I'm at a point right now, I can show
20 that we have dealt with them on an environmental
21 justice issue fairly, that we have dealt with them
22 up front, that we have negotiated in good faith,
23 that we have tried our best. And they continue to
24 be obstinate about it. They just basically want
25 their own way. So I'm at an impasse right now and

1 I'm ready to go to them and say, "Hey, here it is.
2 If you don't like it, you know what you can do. Sue
3 us. Because I don't really care anymore because I
4 want to do this and you're the ones that are causing
5 your people the heartache because we want to put
6 that wellhead treatment in there to mitigate an
7 issue."

8 Right now there is no well that's shut
9 down for perchlorate.

10 BURIL: From Lincoln Avenue.

11 ROBLES: From Lincoln Avenue. There is no well
12 that has also been shut down for VOCs, carbon tet or
13 anything else like that. So from that standpoint,
14 they haven't suffered their opportunity issues as
15 such. But we want to work with them fairly and they
16 just refuse to. So I'm at an impasse right now.

17 They may come to you and invoke
18 environmental justice because they are classified as
19 an environmental justice site, minority community.
20 I also don't play that game either because we've
21 dealt fairly with them. So this is a heads up on
22 it. They may be calling you guys. I have to really
23 play hard ball with them because they are becoming
24 obstinate about it. And the longer we wait -- you
25 know, I cannot in good faith present to you a ROD

1 without having Lincoln Avenue's issues resolved
2 before them.

3 BURIL: Wouldn't it be nice if everything was
4 just a technical question?

5 CHANG: That's what makes Superfund such a
6 headache. It's not just a technical question.

7 ROBLES: Technical is easy. Contamination is
8 easy, you know. It's the people issues that
9 become a problem.

10 CHANG: It is.

11 ROBLES: They're trying to what? They're trying
12 to get a second plant?

13 BURIL: Which we had already offered them, which
14 really isn't an issue. But the second plant being
15 constructed now as opposed to later, when an
16 understanding of how to deal with the perchlorate
17 issue is available, is at issue. Why would we build
18 a plant now that will deal with VOCs when we can't
19 deal with perchlorate and then find potentially that
20 the plant that we built was the wrong thing to do
21 and then waste all that money and operation costs,
22 and so forth, and go back and build them another
23 plant. It doesn't make sense.

24 ROBLES: We also found out that we took a hell
25 of a long time to get their facility data.

1 BURIL: We finally got it. We finally got it
2 from DHS.

3 ROBLES: We finally got it and we finally found
4 out that what they've been telling us is not
5 correct.

6 BURIL: Some of the levels are lower than what
7 they reported to us. I don't know if there was just
8 mix-ups in data or what. I don't want to give any
9 kind of indication that there's something pejorative
10 happening between us.

11 ROBLES: They're trying to say that they have
12 lost opportunity, they've lost the potential to be
13 able to provide water for their people, but they've
14 never shut down.

15 BURIL: No, they have shut down.

16 ROBLES: They have shut down?

17 GEBERT: So they have VOCs, but it's below MCL.
18 Is that correct?

19 BURIL: At the current time I'd have to go back
20 and look. I think the well that they are pumping
21 that's closest to JPL tends to go up and down; you
22 know, above MCL, below MCL, above MCL, below MCL.
23 That's the one that they treat most often with their
24 current granular activated carbon system, is the way
25 I understand it. They have the potential of having

1 a problem there any given time just because of the
2 proximity to the Arroyo well, which is literally
3 within a few hundred yards as the groundwater flows.
4 The perchlorate is in the 10s right now for Lincoln
5 Avenue, the 8 to 12 range, which is knocking on the
6 door.

7 GEBERT: Getting very close.

8 BURIL: Analytically, it could be the same
9 number.

10 GEBERT: Right.

11 BURIL: So they're understandably concerned.
12 However, they have worked on this now for the past
13 three years and we thought we had come a long way --

14 ROBLES: We negotiated with them for so long and
15 it's just a frustration.

16 BURIL: -- in a variety of areas only to see it
17 all go back down to where we started three years
18 ago. It's very difficult.

19 ROBLES: We've changed lawyers twice.

20 BURIL: Not us. They did.

21 ROBLES: They did.

22 BURIL: Because they didn't like the first deal
23 that they cut. I mean, we were at the point of
24 writing the check, literally writing the check.

25 ROBLES: They didn't like it. They fired their

1 lawyer and canceled the agreement and hired somebody
2 else.

3 BURIL: And came back with all the same things
4 that the other lawyer said "No." "Okay, we'll work
5 with you on that." They came back and told us
6 "Okay, well, you said you're not going to do this,
7 this and this. Okay. Then we'll accept that and
8 we'll move on from there."

9 They never gave it to us in writing. It
10 was all verbal. We kept on bugging them for over a
11 year. "Give it to us in writing. Tell us what you
12 think. Give it to us in writing."

13 ROBLES: Waiting for comments back for a year.

14 BURIL: And what we got back in writing was a
15 complete reversal of their position that they agreed
16 to earlier. So we don't know what to do now.

17 ROBLES: I've got to play hard ball with them.

18 BURIL: Anyway.

19 ROBLES: That's all I have.

20 BURIL: Well, I have a couple things I just want
21 to pass along to you.

22 Let me start off with these
23 cross-sections, and then I've got some questions for
24 you on OU-1 and 3 reports and how we might
25 streamline some of that.

1 The cross-sections that I've given you
2 here are a variety of things. Mark, do you have the
3 plot plan in here that shows where?

4 CUTLER: No.

5 BURIL: It's not in here. Okay. We'll have to
6 get that to you. I apologize. I thought I had
7 that.

8 You can see by the location, or the well
9 names, rather, the approximate direction that these
10 things are taken. That has got the E logs, the
11 various silt layers that we think are present. And
12 also on one set you'll notice that there are some
13 drawn-in lines here. These are what we think might
14 be the trace of the contaminant plumes. That's on
15 this one here. You can see these hand-drawn lines.

16 Some of this is in color and unfortunately
17 our color Xerox machine wasn't operating so I took a
18 chance to just try to explain this to you.

19 We had some color coding in here which is
20 kind of there to give you an indication. The first
21 one here is perchlorate. You can see on these
22 drawn-in lines here for around Well MW-22 and 24 and
23 such where it looks like we've got a downward
24 trending plume of perchlorate that appears to be
25 possibly coming in from the site. Then you look

1 just to the left of that and you see kind of a
2 spear, if you will, of contamination that we're
3 seeing. And we've got a little note there "Injected
4 from the Valley Water Service wells." What we're
5 seeing is that at depth, greater than we see it on
6 the site, we're seeing perchlorate showing up even
7 in our upstream well, Well 14. And so it appears
8 that Valley Water Service, and they are getting
9 their water from MWD and are injecting it, they have
10 told us that it is at the 4 to 8 parts per billion
11 level. We're seeing that as a secondary plume
12 coming in onto the site. Now, that's our
13 supposition.

14 We don't have concrete evidence that tells
15 us that that is exactly what's happening, but
16 certainly it makes some sense from the standpoint
17 that we know they're injecting the well water, we
18 know it's got perchlorate in it and it's deeper on
19 the upstream side than we see on the Laboratory. So
20 it certainly appears that we've got an indication of
21 a secondary problem there, albeit it's low
22 concentration, currently below the action level.
23 They've never injected anything that gives us reason
24 to believe that they created an unacceptable
25 condition, at least under today's current regulatory

1 scheme.

2 The second cross-section, in that same
3 area you see the same kind of thing again, where we
4 see what we think is our own well or our own
5 potential plume, somewhat high, up in the Q01 to Q04
6 area, maybe slightly below the QP, but then another
7 spear of contamination moving in at Well 21 that's
8 below that. So it looks like we've got support for
9 that kind of approach, that kind of interpretation.

10 NIOU: The first screen has 19, right? On 21.

11 BURIL: Mark, the 19 on section BB-BB', that's
12 TCE, isn't it?

13 CUTLER: No, that is a -- yes.

14 BURIL: That's TCE. This is where the color
15 coding was.

16 CUTLER: No, actually, I believe that's probably
17 perchlorate.

18 BURIL: Is it perchlorate?

19 CUTLER: I believe that's perchlorate. I can
20 tell you in a second.

21 It was in Well 21. Yes. That's
22 perchlorate.

23 BURIL: It is perchlorate. Okay.

24 NIOU: Well 12. Yes. Perchlorate.

25 CUTLER: I guess the shading was in yellow on

1 this.

2 BURIL: The shading got lost, unfortunately.

3 CUTLER: Right. That's perchlorate.

4 BURIL: But regardless, what I'm showing here to
5 you is kind of a thought process that we're going
6 through right now, trying to determine the shape of
7 the groundwater plume, particularly with regard to
8 perchlorate. It's difficult to read without that
9 color coding. I think what I'll do is try to get
10 that color coding to you so you understand how those
11 things are set up.

12 CUTLER: The outline, the pencil outline is on
13 the perchlorate.

14 BURIL: Yes.

15 ROBLES: Try CC.

16 CUTLER: The color coding was for other
17 chemicals just to give you an idea how they're
18 related.

19 BURIL: On cross-section CC-CC', this one is
20 going across the Arroyo. And we have something here
21 that we think might explain a little bit of why
22 we're seeing the Arroyo well having a higher
23 concentration of perchlorate than other wells in the
24 area. You can see that the Arroyo well has got some
25 of their screen interval, in fact, their pump

1 intake, more or less right in the middle of the main
2 perchlorate plume. And Well Number 3 from Lincoln
3 Avenue doesn't show the same concentrations. And
4 while on this diagram it's difficult to see --

5 ROBLES: May be diluted.

6 BURIL: -- it may be a dilution effect
7 happening. It may be that this is actually in a
8 different soil type that doesn't transmit it as
9 well. We don't know yet. We're still trying to
10 understand it ourselves. But it's apparently not
11 gotten out to Lincoln Avenue Well Number 5.

12 ROBLES: Or 20.

13 BURIL: We have not seen it out at Well 20
14 either.

15 CUTLER: Only in the uppermost screen.

16 BURIL: And that was a what?

17 CUTLER: Single digit.

18 BURIL: Single-digit number, which could be
19 potentially explained by infiltration of water
20 supplied by MWD.

21 Section B-B', similar kind of thing, but
22 this one is looking in a north-south direction. You
23 can see kind of a cross-sectional shape of the plume
24 here.

25 ROBLES: So it could be that the transivity of

1 QP and TQ soil is different in causing the different
2 variation.

3 BURIL: Yes. That's one of the things that
4 we're trying to understand.

5 And then in AA-AA' we've got another
6 cross-section, more or less an east-west trending
7 one, and shows you kind of a double plume here. The
8 one that goes through MW-21, we're beginning to
9 wonder if that's coming from Valley Water Service
10 again. Is that correct, Mark?

11 CUTLER: Right. The upper one in the other
12 cross-section possibly related to the site, question
13 mark. But screen 4, perchlorate, possibly from
14 injection wells and then maybe they are somehow
15 coming together by the time they get to Well 19.
16 It's hard to say.

17 BURIL: We aren't entirely familiar with what's
18 happening here, but I show you this just to give you
19 an idea of what it is that we're trying to
20 understand.

21 The second set of cross-sections here is
22 just provided for your information. This is what
23 I'll term clean cross-sections. It doesn't have
24 anything from the contaminants included on it.
25 That's provided for your use to map out anything

1 that you might want to try and map out. And on this
2 we've included the same information with regard to
3 the individual screens, the soil types that we saw
4 on the logs, the E logs, and our interpretation
5 currently of what we think might be significant silt
6 or clay layers.

7 Mark, is there anything else we want to
8 tell them?

9 CUTLER: No, except we're still waiting for the
10 last bit of data from this last quarterly sampling
11 event. We hope to have a report to you I guess
12 early January, is what the schedule has it, I
13 believe.

14 BURIL: Right.

15 GEBERT: And that will have the results from the
16 new wells. Right?

17 CUTLER: Yes.

18 NIOU: I tried doing some homework last time you
19 gave us these.

20 CUTLER: I know.

21 NIOU: I just --

22 BURIL: Boggles your mind, doesn't it? I know
23 exactly how you feel.

24 NIOU: I was really trying hard, comparing
25 things, connecting this to that. I finally gave up.

1 BURIL: It's very, very difficult to do.

2 CUTLER: It might be a mission impossible.

3 There's so much.

4 ROBLES: Action items?

5 BURIL: I have one other thing I want to talk
6 about very briefly. This is regarding the reporting
7 deliverables for Operable Units 1 and 3. We've been
8 looking at this and we've come to a conclusion that
9 continuation of keeping the report for Operable Unit
10 1 and Operable Unit 3 separate, while initially it
11 appeared to be reasonable when we were just dealing
12 with VOCs, now with the issue of perchlorate built
13 into this and seeing the tremendous influences that
14 we see from these pumping wells and even these
15 pumping wells on occasion and contaminant
16 distribution, we're beginning to think that
17 combining the Operable Unit 1 and 3 reports together
18 as an overall groundwater operable unit might be the
19 better way to go.

20 The first thing, we can get ourselves in a
21 position of maintaining a schedule maybe a little
22 more easily. We don't have to repeat work. Because
23 right now we're at a position of having for the
24 first time in the project that Operable Unit 1 and
25 Operable Unit 3 are actually matched in schedule.

1 They're moving on the same time line. So we have
2 the opportunity to have these reports simultaneously
3 available, so combining them appears to be a
4 reasonable way to do it.

5 All of the wells that we're going to base
6 the RI reports on, all the samples are going to be
7 collected simultaneously. So we'll have the
8 opportunity there to look at a similar set of data
9 for each operable unit as opposed to phased over
10 time like we have been in the past.

11 The cost, quite honestly, is going to be a
12 lot lower for us, which makes it attractive from
13 that perspective only. But then we've got a lot of
14 things that are happening in terms of the dynamics
15 of this place. We're talking about things like the
16 El Nino, like the pumping influences and injection
17 from off site and all these different things that
18 really affect it as a system as opposed to discrete
19 units. And so splitting this thing in half
20 arbitrarily is something that is going to be very
21 difficult for us to try to weld back together when
22 we're reading two separate reports.

23 So our suggestion is that rather than the
24 current way that we have it put together, that we
25 would meld the OU-1 and OU-3 RIs, FSSs, proposed

1 plans, virtually make it a groundwater operable unit
2 from this point on and continue on in that fashion.
3 Because we're at the outset right now of completing
4 the RI sampling that we had discussed. We have,
5 what, in January we start the last event before the
6 RI?

7 CUTLER: January is the last sampling event
8 before the RI. And it's the same data set for the
9 on-site and off-site groundwater. So at that point,
10 after we sample, we kick off OU-1 RI report, on-site
11 groundwater and then an off-site groundwater report
12 with the same set of data, the same timing, same
13 schedule. It didn't really seem to be very
14 efficient to split it up.

15 BURIL: And I think it would make it difficult
16 to understand from a reviewer's standpoint as well.

17 NIOU: Yes. I agree. How can they merge OUs
18 together?

19 BURIL: You can still call them separate OUs,
20 but if we just provide one report that identifies
21 that it's dealing with two operable units in
22 conjunction with each other, I think that might be
23 an easy way to do it.

24 GEBERT: For me, I don't see any reason why you
25 couldn't. Their schedules are about the same.

1 BURIL: They're identical currently.

2 GEBERT: I think it's a month or two. The RI
3 report you should get in April. One is April '98
4 and one in July, I think.

5 CUTLER: That might have been the old schedule.
6 I think it's all --

7 BURIL: They are identical.

8 GEBERT: I know they're very close.

9 CUTLER: Because the perchlorate issue put
10 everybody together. We needed two rounds of
11 perchlorate data and it put the two schedules on top
12 of each other.

13 NIOU: Actually, technically I would rather see
14 the two sites be reported together because there is
15 no definite separation between the two operable
16 units. So whenever I look at OU-1 I have to bring
17 OU-3 data together. But, in fact, they are the same
18 aquifer, same everything.

19 CUTLER: It's one plume and, as Chuck was
20 saying, very dynamic. You have pumping off site
21 that affects on site. You have sources on site that
22 affect off site. To try to, because of a line on
23 the ground, make two distinct RI reports and FS and
24 risk assessments. Fate and transport, we're trying
25 to think, how are we going to do this? How are we

1 going to address these issues in an RI report?

2 BURIL: I mean, we can still report data in
3 terms of Operable Unit 1 and 3 within the table, but
4 the analysis that we'd generate would cover both of
5 those.

6 ROBLES: A brine analysis.

7 BURIL: So that we'd deal with it as a
8 groundwater system as opposed to two arbitrarily,
9 now what I think we could reasonably identify as
10 arbitrarily divided areas.

11 CHANG: I'm not familiar with the history of why
12 you split this groundwater plume into OU-1 and OU-3.

13 BURIL: The initial one was to try and address
14 the on-site issues as rapidly as possible. When
15 this first started back in '92, the first RPM
16 identified the fact that we didn't have any on-site
17 containment going on. And I'm not sure that there
18 was a recognition that all the pumping wells in the
19 area had already had treatment systems put on them.

20 So the desire was to accelerate the on
21 site to the exclusion of all the rest so that we
22 tried to mitigate that situation of not having
23 containment. Subsequent to that decision, it was
24 found out that, well, actually, yes, we have already
25 got the health and safety issues contained and

1 addressed because there's treatment systems and so
2 forth that are going on, and we could actually pull
3 back a little bit in that regard.

4 But it was already basically set and it
5 moved on in that fashion throughout the course of
6 time until we just got here now. We had talked at
7 one point of actually going to an interim ROD for
8 Operable Unit 3 just about six, eight months ago
9 because we thought that we knew enough about the VOC
10 issues. And we pretty well knew what we might be
11 doing out there in terms of wellhead treatment.

12 We went so far as to generate a schedule
13 to identify when we would get to ROD on Operable
14 Unit 3 on the basis of what we had done thus far.
15 About 30 days after we came up with that fantastic
16 plan, up popped perchlorate. And everybody just
17 kind of sat back and went "Oh, crap."

18 CUTLER: Right. It was more of a convenience
19 thing because it started, we already had groundwater
20 wells on site but not off site. So the RPMs thought
21 we're way ahead on site, you can get to ROD quicker.
22 Well, then we put in some more wells, put in the
23 off-site wells, found data gaps on site, so all of a
24 sudden OU-3 was ahead of OU-1 because we found data
25 gaps on site. So then we went to interim ROD on

1 OU-3 to speed it up and then we found perchlorate.
2 It's one plume and it put everybody back on the same
3 schedule. So I don't know if that --

4 BURIL: Does that help?

5 CUTLER: These things have leap frogged over
6 time and now they've landed together.

7 BURIL: It seems, James, you might be
8 uncomfortable in giving us a thought right now, but
9 if you could get back with us regarding that, I
10 would appreciate it.

11 CHANG: Sure.

12 BURIL: Richard, it sounds like you're agreeable
13 to the idea at least at the outset. If you have any
14 change of heart, hopefully you'll let us know.

15 GEBERT: Technically it makes more sense.

16 BURIL: I think so.

17 GEBERT: Unless there's any administrative
18 problem, which --

19 BURIL: I'm not aware of any from my
20 perspective, but certainly there might be a concern
21 on James' part. So we'll wait to hear from him.

22 CHANG: I'm definitely for streamlining whatever
23 we can. It sounds like this is a good time to do
24 that too. But I'll get back with you.

25 BURIL: All right. Great. Sounds good.

1 Okay. Action items from the last meeting.
2 Judy, do you have those?

3 NOVELLY: You're supposed to have them.

4 BURIL: I'll go back in here and find them.

5 Let's see. I don't see them.

6 Given the fact I'm not seeing any, and
7 generally we do try to do that, I don't recall
8 anything coming out of the last meeting that was an
9 action item other than the fact that we were going
10 to lay out more information regarding the SVE and
11 additional characterization, which we have done now.
12 So I make the assumption that is built in here, and
13 I think that now has been addressed.

14 We also had a tacit action item, if not
15 overtly called out here, of trying to understand
16 what we were going to do about perchlorate. And we
17 have taken a number of actions, one of which I
18 haven't mentioned yet, which I think you're aware
19 of, is that we've added perchlorate onto our normal
20 analytical suite for all the monitoring that we're
21 doing.

22 As an aside to that, I'll mention that our
23 annual report is coming up and we are not
24 anticipating any changes at all to the current
25 monitoring scheme. We're going to leave things as

1 they are, given the perchlorate issue as well as
2 some of the other dynamics that are happening out
3 here.

4 Those are the only ones that I'm seeing
5 here. I'm going a ways back into the meeting from
6 the last time and I'm not seeing anything that gives
7 me an indication.

8 I think that one of the actions that we
9 would need to take from today is that we need to
10 have you folks review the information that you've
11 been given.

12 GEBERT: Right.

13 BURIL: And to get back to us at your earliest
14 convenience, hopefully no later than the first
15 Thursday meeting that we've set.

16 Once we've received that, I think that it
17 falls upon us to generate a new schedule to deal
18 with the additional work as we may have agreed to by
19 then, hopefully, and then ultimately to merge the
20 schedules for OU-s 1 and 3 if we don't find any
21 other concerns with merging the reports, and move
22 crisply from there.

23 NOVELLY: And you'll send them a color-coded
24 copy.

25 BURIL: Yes. And I will be sending you a

1 color-coded copy of those cross-sections and you'll
2 have an opportunity to see what we're talking about
3 there.

4 NOVELLY: We also need to set our next meeting
5 date.

6 BURIL: The next meeting for face to face, as
7 required by the FFA.

8 ROBLES: February, March?

9 BURIL: Would be technically the first part of
10 March. So the first week of March would be within
11 the realm of the right time.

12 GEBERT: There's a very strong possibility that
13 I will be on vacation the first two weeks of March.

14 BURIL: We can move it backward or forward. It
15 doesn't make any difference to me.

16 CHANG: I prefer you move it forward because I'm
17 going to be tied up. I know I'm going to be really
18 busy towards the middle of March and to the end.

19 ROBLES: The 18th. The 18th is the third
20 Wednesday of the third week.

21 BURIL: No, he needs to move it backward into
22 February.

23 ROBLES: Oh, backward into February.

24 CHANG: Yes, backward into February. Maybe that
25 last Thursday or something would be okay with me.

1 ROBLES: Wednesday, Thursday.

2 BURIL: Pete, don't we have the environmental
3 conference for NASA popping up in there somewhere?

4 ROBLES: I think it's February 3rd.

5 BURIL: I thought 23rd. Do you have your
6 announcement handy?

7 ROBLES: Let me look.

8 BURIL: There's an agency-wide conference that
9 comes up at that time.

10 CHANG: While we're waiting for him to come
11 back, Chuck, can you give me a little background on
12 this Lincoln Avenue thing? I know it's the name of
13 a street, but that's about it. I've got an
14 environmental justice specialist that I think could
15 help us out if I kind of understood it a little
16 better.

17 BURIL: Sure. Louise, do you want to take this
18 off the record, please.

19 (Discussion held outside the record from
20 12:31 P.M. to 12:56 P.M.)

21 BURIL: Okay. Back on the record. Setting the
22 meeting date for sometime in February. The week of
23 the 23rd is out.

24 ROBLES: 18th or 19th? Do you want to set it
25 for February 18th, Wednesday, or February 19th,

1 Thursday? Whichever one.

2 CHANG: 18th sounds good to me.

3 GEBERT: 18th is good.

4 BURIL: February 18th, 10:00 o'clock again.

5 CHANG: Sure.

6 BURIL: And the location?

7 CHANG: You're welcome to come up if you want to
8 come to EPA.

9 BURIL: Richard, does that pose a concern for
10 travel for you?

11 GEBERT: Not really. It's easier to come here.

12 BURIL: But you get a free trip out of it.

13 GEBERT: That's fine.

14 BURIL: I don't know what Jon will be able to
15 do. He may have a replacement by then, too.

16 ROBLES: Let's shoot for here because we really
17 need to worry about Bishop if he's going to be here.

18 BURIL: I have to agree because if the Regional
19 Board for some reason determines that they can't
20 make it and we're going to be finalizing something.

21 ROBLES: I'd like to make the one after that up
22 at San Francisco.

23 CHANG: Okay.

24 BURIL: Spend time in the City? Cool.

25 CHANG: Springtime is a great place in San

1 Francisco.

2 GEBERT: Always cold there for me.

3 CHANG: During summer is when it's cold, so
4 don't come during summer.

5 BURIL: Great. I will call that done, then, and
6 we'll adjourn the meeting. Thanks.

7 NIOU: Thank you.

8 (The proceedings adjourned at 12:57 P.M.)

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