

1 the focus group will go on at the 25 sites in Denver
 2 information on the 25 sites, look at what's most
 3 important and put an emphasis on those 25 sites to get
 4 the attention of our headquarters to get something done.
 5 Right now, since we have the focus group
 6 which, there are still other sites that we have that
 7 have to be assessed. Some of the things that will need
 8 to be taken a look at the whole picture in general.
 9 All these sites and which ones need to have the most
 10 priority to get the most work done. So we are going
 11 through that process now. I am not trying to mislead
 12 you question. It's only that I can't tell you that
 13 information because the process is still going on in
 14 which to assess that.
 15 JONATHAN BARREY: So the assessment would include
 16 months from now?
 17 ROGER GEE: That would be a better guess than what
 18 I would have. I don't know. And I don't want to
 19 guess like I -- it's just really don't know. That's
 20 what I went through the presentation for the focus group.
 21 JONATHAN BARREY: And is your intention that
 22 the comments that this working group put together and the
 23 DOT's comments and EPA's comments would be incorporated
 24 into the next draft of the EA -- or if that would be?
 25 ROGER GEE: They're being considered because we had

1 an open comment period. In fact that was extended
 2 because it was the year-end, and we extended it as a
 3 matter we could make sure everybody got their comments
 4 in. So those comments are part of a package now that is
 5 being reviewed.
 6 And all the things to consider now is there are
 7 some people looking at this that we originally intended
 8 And it's not just about what's good for FTRC but what's
 9 good for all facilities across the country. If that
 10 are far enough, if you want people looking at it to
 11 see what is good for this country, which sites need to
 12 be closed up first, maybe which sites would have the
 13 greatest impact because -- just -- because FTRC is not
 14 necessarily the biggest site in the DOE complex, part of
 15 the problem that we've had when we thought things
 16 forward to our headquarters is that we need to bring
 17 get the attention that -- that a big site might get the
 18 attention. So this is a good thing for us to go through
 19 because it allows the facilities to actually have more
 20 of a voice in the national community to get our needs
 21 addressed. So this is a good process for us to go
 22 through.
 23 I hope we're getting to your question.
 24 comment project when this would be done. We would
 25 definitely request and we're asking for it to be done

1 soon. Because obviously, as you can see shown on the
 2 slide, there has been some things that has changed.
 3 JONATHAN BARREY: And EPA has had some things
 4 issues with the EA. One of the major issues with the
 5 Environmental Assessment is that the way it was
 6 presented initially months ago by Alicka Johnson is that
 7 doing an Environmental Assessment was come back and say
 8 you know, we need to do a thorough Environmental Impact
 9 Report that it's not sufficient.
 10 Is there any possibility that the next draft
 11 of the EA will come back and say you know what we need
 12 to do a full Environmental Impact Report?
 13 MIKE LOPEZ: Yes, for that is still in the loop.
 14 because we have not made a decision and that's one of
 15 the possible outcomes.
 16 JONATHAN BARREY: It's possible. Is it like a
 17 50-50 chance or --
 18 ROGER GEE: That one we would -- it would be hard
 19 to address. I think that would be a hard question
 20 that for -- when a technology -- I would be
 21 dependent if I had you that I would be dependent on
 22 that what a federal agency has to do is either
 23 if takes a major action, it needs to consider some of
 24 the alternatives. Since we're going through this one
 25 possibility is to DOT go ahead and do what you

1 initially planned. Another alternative is not to
 2 have it done enough and you need go back and do
 3 something more extreme, more detailed. That's certainly
 4 a possibility. This is not a foregone conclusion. When
 5 we submit this to the public, what will happen, I
 6 cannot answer that question because we are not the
 7 authority to make that decision. So please understand
 8 that.
 9 JONATHAN BARREY: I just would like to say that we
 10 don't think the environmental impact studies are
 11 necessarily extreme, but perhaps more thorough.
 12 ROGER GEE: Definitely. With the State, there were
 13 actually fewer comments in order to analyze these. With
 14 the federal government, there is more comments, more
 15 of doing it with the State, there is less. So we need
 16 to be more flexible responsible. And if that means
 17 more study, then we will be directed to do that.
 18 MIKE LOPEZ: That's also what happened to the
 19 release of the EA, we are looking at the
 20 January-February time period. We don't want this
 21 process to drag out for any longer than is absolutely
 22 necessary. We do need to get comments from our
 23 headquarters, but we want to move forward on this.
 24 So we don't like the fact the EA is -- as a major
 25 decision-making document, has not moved forward. So

1 we're -- like I said, I may be going out on a limb, but
2 January, February is maybe optimistic, but that is what
3 we are thinking.

4 **BARBARA JOINSON:** I would like to address
5 Mr. Beach's comments that he made.

6 First of all, I would like to thank the EPA on
7 the comments that they made on the EA. They are right
8 on.

9 However, the comments that Mr. Beach made
10 tonight regarding the planning of a survey looks to me
11 like delaying tactics. We have been told for years and
12 years that they're going to be doing a survey and that
13 Greg Dempsey would be on this survey. We're tired of
14 getting paper surveys and not getting a full survey
15 done. Why aren't they out there doing soil samples?
16 Why aren't they doing the survey instead of just giving
17 us paperwork?

18 **SHELDON PLOTKIN:** I'll comment on that if I may.

19 Some of the history that the public may not be
20 aware of is that way back, 10 or 12 years ago, a survey
21 was done. And the community objected strenuously at
22 that time, and everything that we had that Rocketdyne
23 should not be doing the survey. The Department of
24 Energy made the decision and arbitrarily decided to have
25 Rocketdyne do the Area IV survey. Again, doing it with

1 Because of 9-11, he was too busy around the country and
2 couldn't do it.

3 He was asked at one of these meetings,
4 specifically, if he were allowed to select the team that
5 did the work, he took -- it would be done under his
6 leadership, but he would select the people that would
7 actually do the work, and he would consult them, maybe
8 periodically, and he would review the final document,
9 and could that be worked into his schedule. And he
10 thought for 15 -- 10 or 15 seconds, he didn't answer
11 right off, but then he finally said "Yes." So that is
12 what the community has asked for. We were promised
13 that. We're willing to back off with him doing the
14 actual work himself as long as he is in charge, not just
15 the consultant, but in charge of the whole work. And
16 instead of doing all of that, we are back doing this
17 historical assessment.

18 Let me ask you, John, what documents in this
19 historical assessment, whose documents are you going to
20 use?

21 **JOHN BEACH:** We will be looking at all of the
22 documents we can find.

23 **SHELDON PLOTKIN:** Namely Boeing's? The same ones
24 they used originally?

25 **JOHN BEACH:** Well, to the extent that Boeing has

1 their own documents and in their own way, et cetera.
2 And it was -- that survey tells them where to clean up,
3 you see, and by how much, et cetera. All this cleanup
4 that's been going on all these years has been based on
5 Rocketdyne's survey.

6 Years ago it was noted, and I don't want to go
7 into the details, but it was agreed that that survey was
8 inadequate. It's not that it was wrong, it was just
9 inadequate and that it had to be redone. That is what
10 the Area IV survey is about.

11 So here we're starting all over again to
12 evaluate what has to be cleaned up in order to then go
13 ahead and do the clean up, et cetera, while we're told
14 that a lot of it has been cleaned up, 69 percent of
15 something was already done, buildings have been released
16 for unrestricted use, et cetera, et cetera, when we are
17 still talking about doing a survey.

18 Okay. So then we get to the point where we
19 are redoing the survey. It was promised that
20 Greg Dempsey would be in charge -- well, first it was
21 that he would be doing the work, it was his laboratory
22 and he was going to be in charge of doing the work, et
23 cetera. That's what we were promised. And this went on
24 for several years with these various delays. Then we
25 were finally told that he couldn't possibly do it.

1 generated far and away the largest amount of documents
2 for this facility, we will be reviewing those. But we
3 will be also be seeking additional documents, as well.

4 Speaking to Greg's involvement. Greg's
5 involvement has not changed. His statement that he will
6 be involved in that way still stands.

7 **SHELDON PLOTKIN:** In charge of the work? In charge
8 of the survey? Done under his responsibility?

9 **JOHN BEACH:** I can't guarantee you at this point.

10 **SHELDON PLOTKIN:** That's what we were promised, and
11 that's what we've asked for. You know that

12 **JOHN BEACH:** We know that, and you reiterate it all
13 the time

14 We will strive to achieve that. We may well
15 be able to do that, Sheldon. And we will try. But I
16 can't guarantee it today for you.

17 Also, as to why we need to look at the papers
18 and plan. As I said, I can't tell you the number of
19 times I have had good people do good surveys and bring
20 them back and they missed stuff because they didn't
21 plan. And if we just walked out of here and started
22 doing surveys today, we would be back here in a year or
23 two or something like that saying, you know, I wish we
24 would have thought about this because we would have
25 collected X, Y, and Z data and now --

1 Because of what he was doing around the country and
 2 could do it.
 3 He was asked in one of the meetings
 4 specifically if he were allowed to select the team that
 5 did the work. He said -- it would be hard under the
 6 leadership but he would select the people that would
 7 control the work and he would control their money.
 8 periodically and he would review the final document
 9 and could that be worked into the schedule. And he
 10 thought for 12 -- 10 or 12 seconds he didn't raise a
 11 right off, but then he finally said "Yes". So that's
 12 what the commission has asked for. We're organized
 13 that. We're willing to back off with him doing the
 14 actual work himself as long as he's in charge. Not just
 15 the consultant but in charge of the whole work. And
 16 instead of being all of that, we are back doing this
 17 historical assessment.
 18 Let me ask you, John, what documents in this
 19 historical assessment, whose documents are you going to
 20 use?
 21 JOHN BEACH: We will be looking at all of the
 22 documents we can find.
 23 SHELDON PLOTKIN: Names being? The same ones
 24 they used originally?
 25 JOHN BEACH: Well to the extent that flooding has

1 gathered the and away the largest number of documents
 2 for this facility. We will be reviewing them. But we
 3 will be also be seeking additional documents as well.
 4 Speaking to Greg's investment. Greg's
 5 involvement has not changed. His statement that he will
 6 be involved in that way will still stand.
 7 SHELDON PLOTKIN: In charge of the work, in charge
 8 of the money? Does he have his responsibility?
 9 JOHN BEACH: I can't guarantee you at the point.
 10 SHELDON PLOTKIN: That's what we're concerned and
 11 that's what we've asked for. You know that.
 12 JOHN BEACH: We know that and you're asking us all
 13 the time.
 14 We will strive to achieve that. We may not
 15 be able to do that. Sheldon. And we will try. But I
 16 can't guarantee a paper for you.
 17 Asked us to win. We need to look in the papers
 18 and plan. As I said, I can't tell you the number of
 19 times I had a bad day. People do good things and I can
 20 turn back and they missed that because they didn't
 21 plan. And if we just walked out of here and started
 22 doing surveys today, we would be back here in a year or
 23 two or something like that. Right? You know I wish we
 24 would have thought about this because we would have
 25 collected X, Y, and Z data and now --

1 were -- like I said I may be coming out on a limb, but
 2 I really, I really am very optimistic, but that is what
 3 we are doing.
 4 SHELDON PLOTKIN: I would like to address
 5 Mr. Beach's comment that he needs
 6 that of all I would like to thank the EPA on
 7 the comments that they made on the EPA. They are right
 8 and
 9 However, the comment that Mr. Beach made
 10 roughly regarding the planning of a survey looks to me
 11 like a better plan. We have been told that years and
 12 years ago they're going to be doing a survey and that
 13 Greg's survey would be on this survey. We're tired of
 14 getting paper surveys and not getting a full survey.
 15 One. We've seen them out there doing soil samples.
 16 Why aren't they doing the same kind of soil giving
 17 us reports?
 18 SHELDON PLOTKIN: My comment on that if I may
 19 some of the history that we pulled out, we've
 20 done of it that way back, 10 or 12 years ago, a survey
 21 was done. And the commission objected strenuously at
 22 that time and everything that we had that Kookerdyne
 23 should not be doing the survey. The Department of
 24 Energy made the decision and ultimately decided to have
 25 Kookerdyne do the survey. Again, doing it with

1 their own documents and in their own way at cost.
 2 And it was -- that survey tells them where to clean up,
 3 you see, and be how much of cost. At this cleanup
 4 that's been going on all these years has been based on
 5 Kookerdyne's survey.
 6 Years ago it was noted, and I don't want to go
 7 into the details but it was agreed that that survey was
 8 inadequate. It's not that it was wrong, it was just
 9 inadequate and that it had to be redone. That is what
 10 the Area IV survey is about.
 11 So here we're starting all over again to
 12 evaluate what has to be cleaned up in order to then go
 13 ahead and do the clean up at cost. While we've told
 14 him a lot of it has been cleaned up, 83 percent of
 15 something we already done, buildings have been released
 16 for unannounced use at cost, at cost when we are
 17 still asking them doing a survey.
 18 Okay. So then we get to the point where we
 19 are redrawing the map. It was pointed out
 20 that Greg's survey would be in charge -- well, first it was
 21 that it would be doing the work. It was his laboratory
 22 and he was going to be in charge of doing the work, or
 23 what. That's what we were promised. And this went on
 24 for several years with these various delays. Then we
 25 were finally told that he couldn't possibly do it.

1 SHELDON PLOTKIN: Have you talked to Greg about
2 this? Because he is pretty much aware of all those
3 things. He came up with a plan on exactly how that
4 survey should be done, et cetera. And the only question
5 was how many samples and, you know, and what the depth
6 should be for digging the samples and how many.

7 JOHN BEACH: Okay. Greg was involved with our
8 scoping document and the scoping of the historical site
9 assessment and concurs that that's the appropriate
10 approach to be taken.

11 JONATHAN PARFREY: May I ask, just very briefly?

12 JOHN BEACH: Sure.

13 JONATHAN PARFREY: How forthcoming has DOE been
14 with all the documents and Boeing been with the old
15 Atomics International documents related to the site?

16 JOHN BEACH: We are not in the HSA process yet.
17 That's part of our process. So we will be able to tell
18 you when we get there.

19 JONATHAN PARFREY: All right.

20 VICKI ROSEN: Okay. We're behind, so I'm going to
21 make a couple of propositions. If you have questions of
22 EPA, we can do a couple of things. You can ask them
23 now, or we can wait and get to the DTSC presentations,
24 which are pretty thorough and they deal with
25 perchlorate, which has been in the news lately. And

1 areas. One is the soil, the soils out at Rocketdyne.
2 We are also focusing on the shallow ground water, the
3 deep ground water, and the deep bedrock. And, lastly,
4 on the geology and stratigraphy of the Santa Susana
5 Field Lab. As you can see from the photograph, the
6 facility sits atop bedrock. So the sandstone and the
7 shale stratigraphy very much controls how the
8 contaminants are going to move in the subsurface.

9 Before I talk about the investigation work, I
10 wanted to give some background on the Santa Susana field
11 lab. I think most people know, Santa Susana was used
12 for rocket testing engines and development from the late
13 1940s.

14 In the photo up on the screen in the
15 foreground, you can see the Department of Energy ETEC
16 area, which was used for reactor research area and
17 energy-related research, as well.

18 At Santa Susana, one of the major sources of
19 contamination resulted from engine testing. In the old
20 days following the engine test, they used to flush the
21 engines with the trichloroethylene. And the
22 trichloroethylene, after each flush, was allowed to run
23 down the rock spillways and into the bedrock material.

24 So at Rocketdyne, then, the contamination
25 is -- the ground water contamination is associated with

1 then you can just combine questions of them with
2 questions of EPA if that would work for everybody.

3 We could also take a little bit shorter break
4 or no break at all depending on what you want to do.

5 So does anybody have any feelings about this
6 one way or the other?

7 SPEAKER: No break.

8 SPEAKER: Move on. No break.

9 VICKI ROSEN: Would everybody be amenable to moving
10 on? Well, I tell you what. We are going to take a
11 really short break and call everyone back in in seven
12 minutes.

13 (Brief recess taken.)

14 GERARD ABRAMS: The purpose of my talk is to talk
15 about the status and discuss the status of the
16 investigation work out at the Santa Susana Field Lab.
17 I'll do that first, and then I'm going to finish up with
18 the information on the perchlorate that's been
19 collected.

20 Ultimately, the purpose of the investigation
21 is to clean up the site. And to do this, we need to
22 understand where the contamination is, where it's going,
23 does it present any risk. And once we know that, we can
24 make decisions on how to clean it up. To understand
25 where it's going, we focused our activities on four main

1 the rocket test areas and also where they were handling
2 a lot of chemicals, usually around the support labs and
3 the support buildings and the chemical storage areas.

4 The practice of flushing the engines was
5 discontinued in the late 1960s. After the 1960s, I
6 believe they recycled the trichloroethylene and they no
7 longer use that practice today.

8 What I wanted to show you with this photo was
9 as I had mentioned, the highest -- the ground water
10 contamination out at Rocketdyne and the contamination is
11 associated with chemical use areas. And so this photo
12 shows the eastern portion of the Santa Susana Field Lab.
13 And if you look at the photo, you can see -- let me see
14 if I can point it out for you here -- along here is the
15 Area I road. And this area in particular, there were a
16 number of chemical buildings and chemical use areas, as
17 well as some of the older rocket testing done in these
18 areas here and here. And so at Rocketdyne, we find the
19 highest contamination is located along this Area I road.
20 There is also a very high -- a fairly high contamination
21 of the ground water, solvents in the ground water
22 associated with these test stands in this area, and also
23 here and here.

24 As long as I have got this slide up, since we
25 will talking about perchlorate, later, Rocketdyne tested

1 SHELDON FROTHINGHAM: Have you talked to Greg about
 2 that, because he is pretty much aware of all those
 3 things. He comes on with a plan on exactly how they
 4 are to be done in detail. And the only question
 5 was that they might change and you know what the depth
 6 should be for digging the samples and how many.
 7 JOHN DEWITT: Okay. Greg was involved with the
 8 setting document and the copying of the historical site
 9 assessment and reports that that's the appropriate
 10 approach to be taken.
 11 JONATHAN BARREY: May I ask just one thing?
 12 JOHN DEWITT: Sure.
 13 JONATHAN BARREY: How forthcoming has DOE been
 14 with all the documents and being open with the bid
 15 award. Historical documents related to the site.
 16 JOHN DEWITT: We are not in the HSA process yet.
 17 That's part of our process. So we will be able to tell
 18 you a lot more about that.
 19 JONATHAN BARREY: All right.
 20 JOHN DEWITT: Okay. We're behind, so I'm going to
 21 make a couple of questions. If you have questions of
 22 that we can do a couple of things. You can ask them
 23 now or you can wait and get to the DDC positions.
 24 Which one would you prefer and then deal with
 25 that. Which has been in the news lately. And

1 the you can just continue questions of them with
 2 questions of EPA. If that would work for everybody.
 3 We could also take a little bit shorter break
 4 or no break at all depending on what you want to do.
 5 I think anybody having anything about this
 6 or not at the office.
 7 SPEAKER: No break.
 8 SPEAKER: Move on. No break.
 9 WICKI ROSE: Would everybody be amenable to moving
 10 out. Well, I'll tell you what. We're going to take a
 11 15 minute break and call everyone back in 15
 12 minutes.
 13 (Brief recess taken.)
 14 WICKI ROSE: The purpose of my call is to talk
 15 about the water and discuss the status of the
 16 investigation work out in the Santa Susana Field Lab.
 17 We do have that and then I'm going to finish up with
 18 the information on the perchlorate that's been
 19 collected.
 20 Ultimately, the purpose of the investigation
 21 is to clean up the site. And to do that we need to
 22 understand where the contamination is, where it's going
 23 and if we know that we can
 24 make decisions on how to clean it up. To understand
 25 where it's going, we focused our activities on four main

1 areas. One is the soil, the soils out at Rockaway
 2 We are also focusing on the shallow ground water, the
 3 deep ground water and the deep bedrock. And then
 4 on the geology and stratigraphy of the Santa Susana
 5 field lab. As you can see from the photograph, the
 6 facility sits atop bedrock. So the mountains and the
 7 hills surrounding very much control how the
 8 contaminants are going to move in the subsurface.
 9 Before I talk about the investigation work, I
 10 wanted to give some background on the Santa Susana field
 11 lab. I think most people know Santa Susana was used
 12 for nuclear testing engines and development from the late
 13 1940s.
 14 In the photo up on the screen in the
 15 foreground, you can see the Department of Energy ETEC
 16 area, which was used for reactor research area and
 17 engine-related research, as well.
 18 At Santa Susana, one of the major sources of
 19 contamination resulted from engine testing. In the old
 20 days following the engine test they used to flush the
 21 engines with the trichloroethylene. And the
 22 trichloroethylene after each flush, was allowed to run
 23 down the rock spillway and into the bedrock material.
 24 So at Rockaway, then the contamination
 25 is -- the ground water contamination is associated with

1 the rockier test areas and also where they were handling
 2 a lot of chemicals, mainly around the support labs and
 3 the support buildings and the chemical storage areas.
 4 The practice of flushing the engines was
 5 discontinued in the late 1960s. After the 1960s,
 6 believe they covered the trichloroethylene and the oil
 7 leakage area that happened today.
 8 What I wanted to show you with this photo was
 9 as I had mentioned, the highest -- the ground water
 10 contamination out at Rockaway and the contamination is
 11 associated with chemical use areas. And in this photo
 12 shows the eastern portion of the Santa Susana Field Lab.
 13 And if you look at the photo, you can see -- in the
 14 top left corner, you can see the ground water is the
 15 highest. And this area in particular, there were a
 16 number of chemical buildings and chemical use areas in there.
 17 Well, as some of the other rock testing areas in there
 18 areas here and there. And so at Rockaway, we had the
 19 highest test contamination as located along this area I had
 20 shown. There is also a very high -- a fairly high concentration
 21 of the ground water, trichloroethylene in the ground water
 22 associated with these test areas in this area and this
 23 area and there.
 24 As long as I have got this slide up, since we
 25 will talking about perchlorate, here, Rockaway tested

1 liquid fuel engines. And perchlorate is an oxidizer
 2 associated with solid propellants. At Rocketdyne, they
 3 were using the perchlorate with a program that was
 4 located over in this portion of the facility. In fact,
 5 they were storing the perchlorate in this area here, in
 6 Building 357. And they were using a -- some of their
 7 energetics testing where they would fire projectiles
 8 into targets in this area here. So we find a fair
 9 amount of perchlorate in the ground water in this area
 10 And the highest contaminated areas that we find, in the
 11 wells anyway, are associated near the storage area for
 12 perchlorate. And that's roughly this area. And the
 13 highest concentrations were between 600 and 700 parts
 14 per billion in one of the wells in that area.

15 There is also perchlorate in the soils in this
 16 area. And we're finding that generally in the shallow
 17 wells, and the deep wells in this area, as well.

18 There are two other areas in the Rocketdyne
 19 site where perchlorate has been detected in the ground
 20 water. The other area is over in the former sodium
 21 disposal facility. There were some questions and
 22 discussions about this a little earlier this evening.
 23 But the former sodium disposal facility is located here.
 24 Two years ago there was a remediation of the soils in
 25 this area.

1 released into the subsurface. They calculated that
 2 close to a million gallons of TCE was flushed through
 3 the rocket engines during the history of the programs
 4 out there. And they estimate that about half of that
 5 they figure went down into the subsurface.

6 The next couple of slides I am going to talk
 7 about the investigation work itself. The first couple
 8 of slides deal with the soils investigation. I will
 9 show some slides regarding the shallow ground water
 10 investigation and then talk about the ground water and
 11 bedrock investigation out at Rocketdyne.

12 There is a number of sampling techniques that
 13 we use to investigate soils near the bedrock material at
 14 Rocketdyne. One of them is trenching. In a facility as
 15 old as Rocketdyne, there has been a lot of activities.
 16 And there has been a lot of, you know, a lot of history
 17 and a lot of dirt removed. So trenching is a way for us
 18 to get a pretty good look at the subsurface to see if
 19 there are some areas that have been backfilled.
 20 Occasionally you can see, you know, staining or just
 21 other visual indications of what some of the past
 22 history might be. And it helps us to direct where we
 23 want to collect our samples.

24 Other sampling techniques for collecting the
 25 data deals with the use of drill rigs. And this is a

1 There are 22 wells around -- in and around the
 2 sodium disposal facility. The well right here, RD 21,
 3 has 3.7 parts per billion perchlorate, and there's a
 4 well in the center, RD 50, that has 5.5 parts per
 5 billion perchlorate.

6 There are also a number of surface water
 7 discharge areas that are monitored by the Water Board
 8 under their permit system which are monitored for
 9 perchlorate. My understanding is that they don't detect
 10 perchlorate in those surface discharge.

11 There is one other location in this area near
 12 Compound A where there is a shallow well that is 30 feet
 13 deep that has -- detects perchlorate in the nine parts
 14 per billion range, though there are quite a number of
 15 other wells that have no reported perchlorate.

16 As mentioned, one of the main sources for
 17 contamination at Rocketdyne are the rocket test stands.
 18 This photo shows one of the test stands. This one in
 19 particular actually was used to test the space shuttle
 20 engine, main engines. But, again, in the early days of
 21 Rocketdyne following each rocket test, the engines were
 22 flushed with trichloroethylene and that was allowed to
 23 spill down spillways like this and into the subsurface.

24 I believe NASA did a report many years back to
 25 try and get an estimate of how much TCE may have been

1 drill rig we can drill down to various depths and
 2 collect samples.

3 One of the really useful sampling techniques
 4 that we use at Rocketdyne is soil gas sampling. And the
 5 majority of the chemicals released are volatile
 6 chemicals associated with, you know, the test stands and
 7 the chem buildings and stuff like that. What that means
 8 is that that stuff is spilled into the subsurface. It
 9 moves down into the soils and is there. But it's also
 10 volatile. So the volatiles move off away from the
 11 actual spill area into the pores of the soil. And soil
 12 gas sampling is a really excellent way for finding
 13 contamination in the subsurface for volatile compounds.

14 This photo shows the colored tubes -- the
 15 colored tubes sticking out of the ground are probes,
 16 soil gas probes. And how they're installed is
 17 they're -- usually you drill a hole to your target depth
 18 and you install the sample end of the soil gas probe,
 19 which is -- looks pretty much like the bubbler on an
 20 aquarium, and there's a plastic tube that's run up to
 21 the surface, and you can install these things at various
 22 depths, and then you put a vacuum on the tube and you
 23 suck out the soil gas and you measure it.

24 Here is also -- not only are we concerned
 25 about the human risk related to the contaminants at

1 And perchance is an oxidizer
 2 associated with solid propellants. At Rockwell, they
 3 used about the propellant with a grain that was
 4 located over in the portion of the facility. In fact,
 5 they were using the propellant in the area here in
 6 facility 357. And they were using a -- some of their
 7 original testing where they would use propellants
 8 and grains in this area here. So we find a fair
 9 amount of propellant in the ground water in the area.
 10 And the highest concentrations were that we find in the
 11 wells anyway, and associated with the storage area for
 12 propellant. And it's roughly this way. And the
 13 highest concentrations were between 500 and 700 parts
 14 per million in one of the wells in this area.
 15 There is also propellant in the soil in the
 16 area. And we're finding that generally in the shallow
 17 wells and the deep wells in the area as well.
 18 There are two other areas in the Rockwell area
 19 where propellant has been detected in the ground
 20 water. The other area is out in the former Saturn
 21 disposal facility. There were some propellants and
 22 questions about this a little earlier this evening.
 23 But the former Saturn disposal facility is located here.
 24 The years ago there was a remission of the soil in
 25 this area.

1 There are 13 wells around in and around the
 2 Saturn disposal facility. The well right here RTD 21
 3 has 3.7 parts per million propellant, and there's a
 4 well in the center RTD 20, that has 2.5 parts per
 5 million propellant.
 6 There are also a number of surface water
 7 monitoring points that are monitored by the Water Board
 8 under their storm water system which are monitored for
 9 propellant. My understanding is that they don't detect
 10 propellant in those surface discharge.
 11 There is one other location in the area near
 12 Compound A where there is a shallow well that is 30 feet
 13 deep that has -- I think propellant in the parts
 14 per million range, though that's not quite a number of
 15 parts per million. I think propellant.
 16 As mentioned one of the main sources for
 17 contamination at Rockwell is the rocket test stands.
 18 This photo shows one of the test stands. This one in
 19 particular actually was used to test the space shuttle
 20 engine main engine. But again in the early days of
 21 Rockwell's following each rocket test, the engine were
 22 located with test procedures and that was allowed to
 23 fill down with the test fluid and into the subsurface.
 24 I believe NASA did a report many years back to
 25 try and get an estimate of how much TCE may have been

1 released into the subsurface. They estimated that
 2 close to a million gallons of TCE was flushed through
 3 the rocket engine during the history of the program
 4 on there. And they estimate that about half of that
 5 may have went into the subsurface.
 6 The most couple of sites I am going to talk
 7 about are the investigation work here. The first couple
 8 of sites deal with the solid propellant. I will
 9 show some slides regarding the shallow ground water
 10 investigation and then talk about the ground water and
 11 bedrock investigation out at Rockwell.
 12 There is a number of sampling techniques that
 13 we use to investigate solid near the bedrock material at
 14 Rockwell. One of them is monitoring in a facility as
 15 old as Rockwell, there has been a lot of history
 16 and there has been a lot of you know a lot of history
 17 and a lot of bit removed. So monitoring is a way for us
 18 to get a pretty good look at the subsurface to see if
 19 there are some areas that have been identified.
 20 Occasionally you can see you know staining or just
 21 other visual indicators of what some of the past
 22 history might be. And it helps us to direct where we
 23 want to collect our samples.
 24 Other sampling techniques for collecting the
 25 data deals with the use of drill rigs. And this is a

1 drill rig we can drill down to various depths and
 2 collect samples.
 3 One of the really recent sampling techniques
 4 that we use at Rockwell is soil gas sampling. And the
 5 majority of the chemicals released are volatile
 6 chemicals associated with our fuels. The rest are not
 7 the clean building and stuff like that. What that means
 8 is that that stuff is spilled into the subsurface. It
 9 moves down into the soils and is there. But it's also
 10 volatile. So the volatiles move off away from the
 11 ground drill into the pores of the soil. And soil
 12 gas sampling is a really excellent way for finding
 13 contamination in the subsurface for volatile compounds.
 14 This photo shows the colored tubes -- the
 15 colored tubes sticking out of the ground are probes
 16 soil gas probes. And how they're installed is
 17 they're -- usually you drill a hole to your target depth
 18 and you install the sample end of the soil gas probe
 19 which is -- looks pretty much like the probe in an
 20 apartment, and there's a plastic tube that runs up to
 21 the surface, and you can install these things in various
 22 depths, and then you put a vacuum on the top end and you
 23 suck out the soil gas and you measure it.
 24 There is also -- not only are we concerned
 25 about the human risk related to the contaminants in

1 Rocketdyne, but we also -- part of this investigation
2 work evaluates the ecological risk, as well. So there
3 has also been sampling of biotic specimens,
4 invertebrates, plant material, and an ecologic risk
5 assessment is also being conducted out at Rocketdyne.

6 This photo shows some samples that are
7 collected in one of the ponds at Rocketdyne from the
8 pond's sediments on the bottom.

9 I wanted to show you an example of some of the
10 data that has been collected. As I mentioned, along the
11 Area I road there was quite a lot of solvent handling
12 and use. And so I want to show you some of the data
13 from the instrument equipment lab located in this area.
14 This whole area is one of the -- has one of the highest
15 ground water contamination -- contaminated areas on the
16 hill. Let me just show you what some of the data looks
17 like.

18 This is a soil gas survey collected around the
19 instrument equipment lab buildings. This road right
20 here is the Area I road. And there was chemicals used
21 in this area. And these black dots are soil gas probe
22 locations that were installed to various depths. The
23 blue lines are iso-concentration contour lines and they
24 sort of delimit the -- the soil gas concentrations in
25 the subsurface. So I don't know if you can read it from

1 levels that we thought might be responsible for the
2 ground water contamination. As part of the
3 investigation of this area, a grid was laid out on
4 50-foot centers and soil gas probes installed at these
5 center locations. What we found was that there was
6 pretty high levels of soil gas up in this area
7 located -- here is where the old plant used to be. It's
8 not there any longer. So they must have been using
9 solvents in this area. We're going to go back here in
10 the spring and follow up with some investigation work to
11 the north.

12 This is what the LOX plant looks like. This
13 is the flat area where the plant was located. This was
14 where the clarifying sump was located. And the elevated
15 soil gas was just out of the photo view over on this
16 side here. But you can see that, you know, it doesn't
17 look like much here today. You wouldn't know there was
18 significant contamination unless you had sampled it.

19 Another thing I wanted to talk about was the
20 shallow ground water investigation done at Rocketdyne.
21 One of the things that we were concerned about was how
22 does the shallow ground water move and which direction
23 does it move. We know that there are source areas where
24 there is contamination following rain events, the rain
25 goes down into the soil and to the subsurface. Does it

1 where you folks are, but the concentrations in some of
2 these probes are up to 6,000 and 7,000 parts per billion
3 at various depths. So pretty high concentrations of the
4 soil gas. So it kind of gives you an idea of the levels
5 that we see in some of these very heavily -- areas where
6 the chemicals were heavily used.

7 There was a core that was drilled into the
8 subsurface to a depth of -- about 600 feet located right
9 in this area, and the cores were analyzed. I will talk
10 about this part of the program in a little bit. But
11 contamination was found down to about 500 feet in this
12 area. The Area I road that I was showing, it's over on
13 the Chatsworth side of the hill.

14 The next slide is -- I just wanted to use this
15 as an illustration of how the investigation might -- has
16 been proceeding.

17 This is an area called the LOX plant, and that
18 stands for liquid oxygen, and it's located in Area II.
19 The plant has been removed. And there's a number of
20 wells in the area, and there's a plume of solvents in
21 the subsurface in the ground water. And one of the
22 source areas was initially thought to have been this
23 clarifier sump where the chemicals were used and
24 disposed. And -- but there was a fair amount of
25 sampling done. It didn't really seem to indicate the

1 hit the bedrock and just go straight down or does it
2 move along the bedrock laterally in some direction and
3 then move down? Well, we really need to understand how
4 the shallow ground water was moving out at Rocketdyne.
5 And so prior to last winter, there was quite an
6 extensive phase of work to investigate the shallow
7 ground water. And it consisted of sampling -- or
8 installing about 160 shallow wells. It involved quite a
9 lot of work. There -- those wells just weren't
10 installed helter-skelter. There was a lot of drilling
11 and cores collected. The cores were looked at to decide
12 at what depth to set the wells. Some of the wells are
13 multicompletion wells. Many of the holes were
14 geophysically logged to see where the water was, and we
15 looked at the core to see where the fractures were and
16 that sort of thing.

17 This map, although it's not too clear, I
18 couldn't really get a clear copy of this into my
19 PowerPoint show here, but what it's showing is these
20 blue dots in this area and there's -- there's quite a
21 number of blue dots through this whole area in here
22 showing where the shallow wells were installed. They
23 were monitored through last winter for water level data
24 and also sampled for chemical concentrations, as well.
25 And so in this little cluster right here is an

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1 levels that we thought might be responsible for the
 2 ground water contamination. As part of the
 3 investigation to find out what was going on
 4 to get concentrations as high as they were in these
 5 monitoring wells, we had to find out what was
 6 going on in the area. We had to find out what
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1 in the bedrock and just go straight down or down
 2 near along the bedrock laterally in some direction and
 3 then move down. Well, we really need to understand how
 4 the shallow ground water was moving out in these
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1 investigation, but we also -- part of this investigation
 2 was to understand the ecological risk as well. So that
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 2 these wells. And so that's what we did. And so that's what
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 25 we did. And so that's what we did. And so that's what

1 example of what this data looks like. There is about
2 seven piezometers in there -- the shallow wells, and
3 their well IDs are here. But the point of the slide is
4 that the rain began in January of this past year, and
5 these are the rain events. You can see how the water
6 levels rose in the shallow wells and how it --

7 SPEAKER: Was that 2001 or 2002?

8 GERARD ABRAMS: 2001.

9 The point is that when you know water level
10 data in these wells -- water flows from high level to
11 low level. So if you projected these back on the map,
12 you can see where the water is, which direction water is
13 flowing, and you would know where your shallow ground
14 water is flowing.

15 I wanted to talk about the investigation of
16 deep ground water and the bedrock down at Santa Susana.
17 The investigation of the deep ground water presents
18 quite a number of challenges for us. At Santa Susana,
19 there's been a number of innovative technologies that
20 have been applied to do this characterization. Just to
21 put it into perspective, we attended an international
22 conference earlier this year where there were
23 presentations from all over the country, as well as some
24 international presenters. And, you know, I was
25 surprised that some of the -- you know, compared to

1 and a core hole was drilled down to a depth of 450 feet.

2 Anyway, the core is continuously cored. It's
3 pulled out. The core is logged for the lithologic
4 information. But this technician here is collecting the
5 subcore samples along the length of the core, and they
6 are collected about every 12 to 24 inches through the
7 entire length of the core hole. So these wood blocks
8 show where the samples were collected. Those subcores
9 are taken over to this device. They're crushed in a
10 sealed -- in a hermetically sealed device and
11 immediately immersed in methanol, and then the core
12 material can be analyzed.

13 What that data looks like, then, is something
14 like this. So here you can see this particular core
15 hole was drilled from zero down to 350 feet, and that's
16 the depth of the core hole. You can see that
17 information on the right-hand side. And then about
18 75 feet at depth, there's pretty high concentrations in
19 the core, in the bedrock material, on down to a depth of
20 about 275 feet for the drop-off.

21 So this gives some really valuable information
22 on how the contaminants are distributed in the
23 subsurface. And if we're to get a handle on how to
24 clean up the site and where the contaminants are in the
25 subsurface, this is the type of information we need to

1 what's going on at Santa Susana Field Lab in terms of
2 the technologies that are applied, this site is far and
3 above what's going on elsewhere around the country. To
4 give you an example, as of about seven years ago, I
5 don't think it was possible to drill into sandstone and
6 collect samples and analyze those samples for volatile
7 compounds. When you crushed the rock, the chemicals
8 would volatilize off. They would be gone before you
9 could analyze them. The pilot holes, there was -- this
10 technology was refined a couple of years ago in 1998
11 where two pilot holes were drilled into the sandstone
12 and samples of bedrock collected with quite a bit of
13 success. So that technique has been refined now to
14 where the detection limits for the solvents are down to
15 a part per billion.

16 This is one of the core holes that are being
17 drilled near one of the test stands. This is along
18 Area 1 road. This is the canyon -- the bowl test stand.
19 We began this phase of work a couple of years ago into
20 the bedrock and the ground water. It involves drilling
21 core holes through source areas, and this is one of
22 those core holes being drilled.

23 This particular core hole was drilled over in
24 the former sodium disposal facility. Someone had asked
25 if we had done any work into the bedrock in this area,

1 collect. And this is what we are doing right now.

2 Another part of this whole investigation phase
3 that's going on is once these core holes are drilled,
4 they are retrofitted with sampling devices, wells, but
5 these are multicore sampling devices. Here is an
6 example of an existing well at Rocketdyne that has been
7 retrofitted with one of these sampling devices. Whereas
8 before the well is drilled down into the bedrock and a
9 pump is put down in it and water samples are pulled out
10 of the well and what you get is a blended concentration
11 of the contamination and we are not really sure where
12 the contamination was in the subsurface. But with these
13 retrofits that are going on at Rocketdyne, we get some
14 very good information. Each one of these yellow dots is
15 a port, and we collect water samples from each one.

16 So here you see the upper ports that didn't
17 have the contaminants; but well No. 5 did. So we really
18 get a refinement of what's going on in the subsurface.
19 We put this together with the rock core data and we
20 also, at the same time, are doing pumping tests in
21 nearby wells where each of these ports has transducers
22 hooked up and can measure pressure changes in the water
23 level. And all that means is it gives us a -- very good
24 information on how water is moving in the subsurface in
25 a three-dimensional sense.

22 - substance, this is the type of information we need to clean up the site and where the contaminants are in the substance. And if we're to get a handle on how to how the contaminants are distributed in the substance.

23 - On this gives some really valuable information about the foot for the drop-off.

24 - the core, in the bedrock material, on down to a depth of 125 feet as depth, there's pretty high concentrations in information on the right-hand side. And then about the depth of the core hole. You can see that hole was drilled from zero down to 320 feet and that's the first. So here you can see this particular core. What the data looks like, there is something measured can be reasonably immediately known and in mechanical, and that the core sealed - in a hermetically sealed device and are taken over to the house. It might be included in a show where the samples were collected. Those subsamples length of the core hole. As those wood blocks was collected from every 12 to 24 inches through the subsamples along the length of the core, and that information. But the technician has to collect the limited out. The core is logged for the hydrology. Always the core is continuously sealed. And a core hole was drilled down to a depth of 450 feet

25 - three-dimensional sense information on how water is moving in the substance in level. And all the material it gives us is -- very good looked up and can measure pressure changes in the water nearby wells where each of these points has transducer also in the same time, are doing pumping tests in We put the together with the rock core data and yet a determination of what's going on in the substance. And the contaminants, but well No. 2 did. So we really do want you see the upper parts that that a hole, and we collect water samples from each one very good information. Each one of them will have to transfer that the going on in the substance. We get some the contamination was in the substance. But with these of the contamination and we are not really sure where of the well and what you get is a bedrock concentration that is put down in it and what samples are pulled out before the well is drilled down into the bedrock and a relationship with one of the sampling devices. We're an example of an existing well in Rockledge that has been used as another sampling device. There is an they are remediated with sampling devices. Well, but that's none or is each these core holes are drilled. Another part of this whole investigation phase collect. And this is what we are doing right now.

26 - addressed that some of the -- you know, compared to international pressure. And you know, I was presentations from all over the country, as well as some conference earlier this year where there were quite a few papers that we attended an international not a good effort to do the characterization of that's been a number of innovative technologies that quite a number of challenges for us. At Santa Susana The characterization of the bedrock water presents deep ground water and the bedrock down at Santa Susana. I wanted to talk about the investigation of what is flowing. How high and you would have your shallow ground flow and you would have your shallow water in the area. So if you recognized these back in the map and in these wells -- water flows from high level to the point is that when you look at water level. ORINIA ALBANI, 2001. WELLS FOR 2001 OR 2002. in the shallow wells and how it these and the other wells. You can see how the water that the main problem is timing of this year and the both of the TH and the other side of the slide and several measurements in there -- the shallow wells and example of what this data looks like. There is about

27 - the particular core hole was drilled over in the former sodium disposal facility. Someone had asked if we had done any work into the bedrock in any area. The bedrock and the ground water. It involves drilling core holes through concrete walls, and this is one of that's core holes being drilled. We began the phase of work a couple of years ago and the road. This is the canyon -- the bedrock stands. This is one of the test sites. This is along this is one of the core holes that is being a good definition. where the information in the soil and the information that technique has been refined now to and samples of bedrock collected with pins a bit of where the pilot holes were drilled into the sandstone geology was refined a couple of years ago in 1996 would analyze them. The pilot holes that was -- the would be collected. They would be from before you completed the MW. I think that the character of the samples and analyzed those samples for water. I don't think it was possible to do that until sometime in 1997 you as an example, as of about seven years ago. I above what's going on elsewhere around the country. To the technologies that are applied, this site is the and would be going on in Santa Susana Field Lab in terms of

1 Also, there is the shelf beds. When you
2 overlay the geology out here, you know, there is the
3 sandstone beds that are fractured and the shelf beds
4 that are also fractured, but we see dramatic changes as
5 we cross these. There are clearly pressure
6 differentials in these shelf units. So some of them are
7 interconnected and some of them aren't. So we really
8 need to understand what's going on three dimensionally
9 at Rocketdyne in terms of the ground water

10 This photo shows one of the wells out at the
11 sodium disposal pit area. There is 10 wells that are
12 being retrofitted with these -- the deep wells are being
13 retrofitted with these multicore sampling devices. The
14 northeast area was completed earlier this year, and also
15 samples. So that sample data from those cores is
16 available for review. And we should be getting a
17 hydrogeologic report on the northeast area in a couple
18 of months.

19 This is what some of the sampling tubes look
20 like in one of these retrofitted wells. The clear tubes
21 are where you collect the water samples down to the
22 various depths. The yellow ones are the transducers
23 that measure water level.

24 In the course of this investigation that's
25 been going on, one of our main concerns is -- are people

1 that.

2 JOHN BEACH: It is at the top of the hill though,
3 right?

4 GERARD ABRAMS: Yes. The sodium disposal facility
5 is on the Rocketdyne facility at the top of the hill.

6 JOHN BEACH: Right.

7 GERARD ABRAMS: This is what the sodium disposal
8 facility looked like before the cleanup. There was
9 actually an earlier cleanup activity that occurred here,
10 you can see that in the lower portion of the photo, and
11 that was done in 1993 under the Water Board oversight.
12 But the upper part is what's called an impoundment, and
13 that's where, you know, these solvents and whatever were
14 disposed or placed. There's soils up here that were
15 impacted with PCBs and dioxins, and so this material was
16 excavated. This is what it looked like before the
17 excavation.

18 This is the -- the soils are being excavated.
19 This photo is the edge of the upper impoundment area.
20 Soils are being removed.

21 SPEAKER: How large is the burn pit in area?

22 GERARD ABRAMS: It's about five or six acres.

23 Also, the impacted soils in the drainages
24 below the sodium burn pit were cleaned up, as well.
25 Here you can see the crews are removing the soils from

1 being exposed. Are there areas at Rocketdyne that
2 present an immediate risk to folks out there or maybe
3 moving off site and exposing just the environment or
4 create exposure problems? One of those areas was the
5 former sodium disposal facility located in Area IV.
6 This was an area that treated sodium metal, but there
7 was PCBs and dioxins in the soils in this area, and it
8 had also moved quite a distance -- quite a distance down
9 drainage. So every winter it was probably moving
10 further and further into the environment. And we have
11 the option, we felt it was important to move forward in
12 this area to, even though we're not finished with the
13 overall site investigation, to locate -- isolate some of
14 these areas and clean them up where we see there's, you
15 know, immediate risk. And this was one of them.

16 SPEAKER: What area is Area IV located in as far as
17 community? Is it Simi Valley? Is it West Hills? Where
18 is it located approximately?

19 GERARD ABRAMS: Area IV is located at the west side
20 of the Rocketdyne facility. So the drainages that are
21 close to Area IV -- maybe I should go back to that
22 aerial map and I can show you. But it would be
23 Meier Canyon would be one of the canyons that eventually
24 drains down into Simi Valley. In fact, I've got another
25 map that I will be getting to shortly and I can show

1 the soils from the drainages below. They're loaded --
2 they put these soils into the big -- into big half-ton
3 bags that were helicoptered out to the bins before it
4 was transported off site.

5 This photo shows the excavation down through
6 the weathered bedrock into even more consolidated
7 bedrock. Here you can see the soil profile. So the
8 thickness of the soils was two to three feet, and in
9 some cases maybe five feet thick in some areas. But the
10 excavation continued on down through this weathered
11 bedrock down to the more consolidated bedrock.

12 This is following excavation down to the
13 bedrock. And for -- these are the guys holding vacuum
14 hoses here. So these are three workers down here, so it
15 gives you a sense as to the size of the excavation area.
16 These are pump trucks. The soils and everything was
17 excavated with excavators. But there was, you know, a
18 lot of residual material that you can't quite get to
19 with a backhoe, so these guys went in with the vacuum
20 trucks to vacuum up the loose debris.

21 This is a slide showing the -- following the
22 excavation. The area was backfilled with low
23 permeability cover material. This is the installation
24 of that cover. The guy with the truck is testing the
25 density. The backfill cover was in place to engineered

1 Also, there is no shift beds. When you
2 study the geology out here you know there is the
3 sandstone beds that are faulted and the shift beds
4 that are faulted but we see dramatic changes as
5 we move there. There are clearly pressures
6 associated in those shift beds. So some of them are
7 associated and some of them aren't. So we really
8 need to understand what's going on three dimensionally
9 at Rockledge in terms of the ground water.
10 This photo shows one of the wells out in the
11 southern part of area. There is 10 wells that are
12 being run with these deep wells and being
13 run with these methylene sampling devices. The
14 methylene was completely sealed this year, and also
15 samples. So the sample data from those cores
16 available for review. And we should be getting a
17 hydrogeologic report on the northeast area in a couple
18 of months.

19 This is what some of the sampling tubes look
20 like in one of those restricted wells. The clear tubes
21 are where you collect the water samples down to the
22 various depths. The yellow ones are the transducers
23 that measure water level.

24 In the course of this investigation there
25 have been one of our main concerns is -- are people

1 being exposed. Are there areas at Rockledge that
2 present an immediate risk to folks out there or maybe
3 moving off site and exposing the environment or
4 creating exposure problems? One of those areas was the
5 former sodium disposal facility located in Area IV.
6 This was an area that treated sodium metal, but there
7 was PCBs and dioxin in the soils in this area, and it
8 had also moved quite a distance -- quite a distance down
9 drainage. So every water it was probably moving
10 further and further into the environment. And we have
11 the option -- we felt it was important to move forward in
12 this area to even though we're not finished with the
13 overall investigation, to focus -- isolate some of
14 those areas and clean them up where we see things that
15 have immediate risk. And this was one of them.

16 There was a Area IV located in as far as
17 community is it still Valley? Is it West Hills? Where
18 is it located approximately?

19 GERRARD ABRAMS: Area IV is located at the west side
20 of the Rockledge facility. So the drainage that are
21 close to Area IV -- maybe I should go back to that
22 point and I can show you, but it would be
23 where Canyon would be one of the canyons that eventually
24 drain down into Star Valley. In fact I've got another
25 map that I will be getting to shortly and I can show

1 that
2 JOHN BEACH: It is at the top of the hill though.
3 right?
4 GERRARD ABRAMS: Yes. The sodium disposal facility
5 is on the Rockledge facility at the top of the hill.
6 JOHN BEACH: Right.
7 GERRARD ABRAMS: This is what the sodium disposal
8 facility looked like before the cleanup. There were
9 actually an earlier cleanup effort that occurred here
10 you can see that in the lower portion of the photo and
11 that was done in 1993 under the West Hills cleanup
12 but the upper part is what's called an abandonment and
13 that's where you know these solvents and whatever were
14 disposed to placed. There's some up here that was
15 impacted with PCBs and dioxin and so the material was
16 excavated. This is what it looked like before the
17 excavation.

18 This is the -- the soils are being excavated
19 This photo is the edge of the upper abandonment area
20 soils are being removed.
21 GERRARD ABRAMS: Low level is the part in area?
22 GERRARD ABRAMS: It's about five or six acres
23 Also, the impacted soils in the drainage
24 below the sodium dump are being cleaned up as well.
25 There you can see the orange soil coming from the soils from

1 the soils from the drainage below. They're loaded
2 back into these soils into the pit -- into big ball-pit
3 pits that were relocated out to the pits before it
4 was transported off site.
5 The photo shows the excavation below though
6 the western bedrock was once was consolidated
7 bedrock. I don't know you can see the soil profile. So the
8 thickness of the soils was was in fact here and in
9 some cases maybe five foot thick in some areas. But the
10 excavation continued on down through the western
11 bedrock down to the near consolidated bedrock.
12 This is following excavation down to the
13 bedrock. And for -- these are the fine holding capacity
14 loose sand. So here in the west side where there was
15 gives you a sense as to the size of the excavation was
16 there and how much. The soils and everything was
17 excavated with excavators, but there was, you know
18 lot of residual material that you can't quite get to
19 with a backhoe so there guys went in with the vacuum
20 trucks to vacuum up the loose debris.
21 This is a slide showing the -- following the
22 excavation. The area was backfilled with low
23 permeability or material. This is the installation
24 of that cover. The guy with the truck is testing the
25 density. The backfill cover was in place to ensure that

1 specifications for density and compaction.

2 This photo shows the final covering in place
3 and the straw matting before it was reseeded with some
4 of the trees. The trees were planted in the cover
5 material, the background of the cover.

6 Also, there's a number of monitoring devices
7 in the cover. There are moisture probes that are set at
8 various depths in the cover. There are a number of
9 piezometers to monitor the performance. The moisture
10 probe data are connected to this device here, which
11 records moisture data every hour on the hour, 24 hours a
12 day, 365 days a year. So during the wintertime rain
13 events, we get a pretty good idea of how the cover is
14 performing.

15 Next I wanted to talk about the perchlorate
16 data. This shows one of our geologists walking down one
17 of the drainages below Rocketdyne. Some of these areas
18 where we went and sampled the springs were pretty hard
19 to get to and took a better part of a day. Many of them
20 were through canyons pretty thick with poison oak and
21 lots of ticks. I'm going to have to change graphics
22 here to go to the big perchlorate map. So give me a few
23 minutes.

24 This map shows the recent perchlorate data
25 that we collected. Before I begin on this map, I want

1 In the western part of the city and this area,
2 there is high water. And the City has installed a
3 couple of wells in those areas to alleviate that high
4 water that is coming up into people's yards -- in this
5 area right here. And also, there is some dewatering
6 wells located -- there are about six deep wells in this
7 area, a couple hundred feet deep, and they draw water
8 out from the ground water to keep the water table low.
9 And there is a number of wells in this area here.

10 And so the City had sampled one of these
11 wells -- actually it was -- well, it was right in here,
12 and they got a slight detect of perchlorate.

13 SPEAKER: (Inaudible.)

14 GERARD ABRAMS: This one, SA-2, I believe it is.
15 They asked the EPA to resample the well. To make a long
16 story short, we resampled it also. And before we did,
17 we asked the City if there were other wells in the area
18 that we could also access because we wanted to see if
19 there might be a source that we could track it back to
20 or at least get some better information on the area.

21 We didn't find -- we weren't able to repeat
22 the detecting of the perchlorate in the original well.
23 It was less than 2.5 parts per billion. So if it's
24 there, it's just below the detection limit. But we did
25 get a detect in one of the other wells of about -- well,

1 to emphasize that there are no drinking water supplies
2 in Simi Valley that have been affected by perchlorate.
3 There are two water supply wells in Simi Valley located
4 in this area right here, and those are sampled routinely
5 as required by law for perchlorate. Nobody is drinking
6 water with perchlorate; nobody is being exposed.

7 BARBARA JOHNSON: Has there been in the past any of
8 these wells used for drinking water?

9 GERARD ABRAMS: Barbara, the only two wells in
10 Simi Valley that are used for water supply are these two
11 wells, and they report -- there is no detected
12 perchlorate.

13 SPEAKER: Can you tell us where the wells are? Is
14 that the Sycamore well or the No. 3 or is that
15 (inaudible).

16 GERARD ABRAMS: Do you see this part of the map
17 right here? There's two little dots. Those are where
18 the two water supply wells are. They're separate wells.
19 They supply about 20 percent of the water to residents
20 in Simi Valley. The rest of the water that is supplied
21 to residents in Simi Valley is imported from central
22 California.

23 A little background on the history of this
24 perchlorate sampling effort. In 1999 -- well, let me
25 explain a couple of things here.

1 we sampled it a couple of times. The first time we got
2 seven. I think up here on the map it shows nine parts
3 per billion.

4 So of the 11 wells that we sampled in that
5 area, one of the wells, the one with the nine parts per
6 billion with the detect for perchlorate, there were also
7 some samples, some wells in the same location --
8 actually, it's a nested well cluster -- we didn't detect
9 perchlorate at around 80 feet in that well, nor at the
10 25-foot depth as well. We detected perchlorate at
11 50 feet.

12 Anyway, we talked with the City, and there
13 were some additional wells that we were able to access.
14 And we also talked with the Water Board and they
15 identified some wells that we could also access. At the
16 same time, we were going to the County and trying to
17 check their records to see if there were any individual
18 drinking water supply wells that we could sample or just
19 wells in the undeveloped area below Rocketdyne because
20 our focus here was, you know, we are concerned about the
21 contaminants at Rocketdyne, and we were trying to get an
22 understanding if there had been a release from the
23 Rocketdyne facility. So we really wanted to see if we
24 could find some wells between the Rocketdyne facility
25 and Simi Valley.

1 applications for permits and construction
 2 I am photo shows the soil covering in place
 3 and the structure below it was covered with some
 4 of the soil. The trees were planted in the cover
 5 material, the background of the cover
 6 which shows a number of monitoring devices
 7 in the cover. There are monitoring probes that are set
 8 various depths in the cover. There are a number of
 9 probes to monitor the performance. The monitoring
 10 probe data are connected to this device here which
 11 records monitoring data every hour on the hour. It shows
 12 day, 2007 days a year. So during the monitoring this
 13 event we got a pretty good idea of how the cover is
 14 performing.
 15 Next I wanted to talk about the performance
 16 data. This shows one of our geologists walking down one
 17 of the channels below Rockledge. Some of these were
 18 where we went and sampled the springs were pretty hard
 19 to get to and took a better part of a day. A lot of them
 20 were through canyon paths that were person out and
 21 lot of risk. The going to have to change graphics
 22 here to go to the big performance map. So you see a few
 23 minutes.
 24 This map shows the recent performance data
 25 that we collected. Before I begin on this map, I want

1 to emphasize that there are no drinking water supplies
 2 in Saint Valley that have been affected by perchlorate.
 3 There are two water supply wells in Saint Valley located
 4 in the east high area and those are supply towers.
 5 as located in the low perchlorate. Perch is in the high
 6 water with perchlorate network is being covered.
 7 BARBARA JOHNSON: How does that in the past any of
 8 those wells used for drinking water?
 9 GERALD ABRAHAM: Before the only two wells in
 10 Saint Valley that are used for water supply are these two
 11 wells and they report -- there is no detected
 12 perchlorate.
 13 SPEAKER: Can you tell me where the wells are. Is
 14 that the Syracuse well or the No. 2 or is that
 15 (Inaudible).
 16 GERALD ABRAHAM: Do you see this part of the map
 17 (Inaudible). There's two little dots. Those are where
 18 the two water supply wells are. They're separate wells.
 19 They supply about 20 percent of the water to residents
 20 in Saint Valley. The rest of the water that is supplied
 21 to residents in Saint Valley is delivered from central
 22 distribution.
 23 A little background on the history of this
 24 perchlorate sampling effort. In 1999 -- well let me
 25 explain a couple of things here.

1 in the western part of the city and this area
 2 there is high water. And the City has installed a
 3 couple of wells in those areas to give us the high
 4 water that is coming up into people's yards -- in the
 5 west high area. And in that area there are two
 6 wells located -- there are about six deep wells in that
 7 area. A couple of them are located in the west high area
 8 out in the ground water to keep the water table low.
 9 And there is a number of wells in the west high
 10 area. And so the City had sampled one of these
 11 wells -- namely it was -- well it was right in the
 12 and they got a slight amount of perchlorate.
 13 SPEAKER (Inaudible).
 14 GERALD ABRAHAM: This one, SA-2, I believe it is.
 15 They asked the EPA to resample the well. To make a long
 16 story short we resampled it also. And before we did
 17 we asked the City if there were other wells in the area
 18 that we could also access because we wanted to see if
 19 there might be a source that we could track it back to
 20 or at least get some better information on the area.
 21 We didn't find -- we weren't able to repeat
 22 the test of the perchlorate in the original well
 23 it was less than 2.7 parts per billion. So it's
 24 there it's just below the detection limit. But we did
 25 get a better idea of one of the other wells of Saint -- well

1 we sampled it a couple of times. The first time we got
 2 around 2.7 parts per billion on the map it shows this part
 3 of the city.
 4 One of the wells that was sampled in that
 5 area one of the wells, the one with the high perchlorate
 6 billion when the detect for perchlorate. It was about the
 7 same amount of perchlorate in the same location.
 8 certainly it's a named well detector -- we didn't detect
 9 perchlorate or around 60 feet in that well, none of the
 10 25-foot depth as well. We've detected perchlorate in
 11 70 feet.
 12 Anyway, we talked with the City and there
 13 were some additional wells that we were able to access.
 14 And we also talked with the Westwood and they
 15 identified some wells that we could also access. And then
 16 some time we were going to the County and trying to
 17 check their records to see if there were any individuals
 18 drinking water supply wells that we could sample or that
 19 wells in the undeveloped area below Rockledge because
 20 our focus here was you know we are concerned about the
 21 maintenance of Rockledge and we were trying to get an
 22 understanding of how it had been a lot of work from the
 23 the City's facility. So we really wanted to see if we
 24 could find some wells between the Rockledge facility
 25 and Saint Valley.

1 But anyway, we ended up sampling -- well, the
 2 Water Board has access -- they oversee gas stations and
 3 other areas where there are monitoring wells in
 4 Simi Valley. So there is quite a number of gas station
 5 monitoring wells that are located around Simi Valley.
 6 So we sampled -- well, actually, the Water Board
 7 collected the samples for us, and we ran the samples at
 8 our lab. We also were wondering if maybe there was a
 9 release from Rocketdyne. If it were a surface release,
 10 did it go down the drainages, the surface drainages. So
 11 as part of this work, then, we went up the canyons and
 12 drainages below Rocketdyne and collected quite a number
 13 of samples, soil samples and analyzed them for
 14 perchlorate. We got a slight detect near Meier Canyon.
 15 But we went back and collected several, over 100 pounds
 16 of soil in that same sample location and we weren't able
 17 to duplicate that detect in that location. So --

18 **SPEAKER:** Those are soil samples from the surface?

19 **GERARD ABRAMS:** Yeah. They are soil samples.
 20 That's because what we were interested in understanding
 21 was has there been a surface release from Rocketdyne.
 22 Let's say, from the sodium burn pit, did it go down one
 23 of these drainages. So we went up these drainages and
 24 collected samples. We weren't able to duplicate it with
 25 about 100 pounds of soil sample, so it's not there

1 **GERARD ABRAMS:** I think you would. If there was
 2 heavy use of perchlorate and it was released into the
 3 soil, to the extent that it has impacted ground water,
 4 you know, it -- it would still be in the soil. It
 5 wouldn't flush out so thoroughly I wouldn't think. I
 6 can see no indication of it whatsoever.

7 **SHELDON PLOTKIN:** Until after Professor Tabidian
 8 gives his presentation, I think a lot of your questions
 9 will be answered

10 **GERARD ABRAMS:** Yeah. So, you know, I don't see --
 11 you know, we talked about it when we started our team
 12 And if a surface release was the source of perchlorate
 13 down in Simi Valley, and that valley is about 10 miles
 14 across and a couple miles wide, so over a wide area,
 15 then there would have had to have been an awful lot of
 16 perchlorate that moved down one of those drainages. And
 17 it's not there today. So, you know, I don't know how you
 18 could impact such a wide area and not see indications of
 19 it still present in the soil. I just don't see how that
 20 can be.

21 **VICKI ROSEN:** Excuse me, but let's not get into the
 22 question-and-answer period yet because we have another
 23 presenter who is going to be talking on this subject,
 24 and then we'll open up the floor to everybody because I
 25 think it will be important for you to hear him, as well.

1 **SPEAKER:** What was your conclusion?

2 **GERARD ABRAMS:** Let me finish up.
 3 So we collected samples at the canyons, and we
 4 didn't get any detects. We couldn't repeat the one
 5 detect that we found here. We also, as part of the
 6 overall ground water investigation out at Santa Susana,
 7 requested that the seeps and springs below Rocketdyne be
 8 mapped, and that part of the effort was conducted about
 9 two years ago. So this past spring we went back to
 10 these springs and there are some old ag wells, as well,
 11 and we sampled those, as well. So we didn't get any
 12 detects in that -- in those springs and ag wells that
 13 were sampled in that area

14 So what we have then is we found of these
 15 roughly 60 or so shallow gas station wells and then some
 16 of these dewatering wells that are owned by the City, we
 17 got 15 wells that had detects of perchlorate, and it's
 18 roughly scattered throughout the City.

19 So based on our collection effort, then, we
 20 weren't able to find any detects of perchlorate in the
 21 drainages below Rocketdyne. And so we haven't made a
 22 connection with the perchlorate that's found in these
 23 wells down here to the activities out at Rocketdyne.

24 **SPEAKER:** Would you expect to find perchlorate
 25 still in the soil after they cleaned it?

1 **GERARD ABRAMS:** That pretty much wraps up my
 2 presentation.

3 **VICKI ROSEN:** Thank you, Gerard.
 4 We have Dr. Ali Tabidian, who is a
 5 hydrogeologist from Cal State Northridge. And
 6 Dan Hirsh, who is a member of our work group, who is not
 7 able to be here tonight, had asked if Dr. Tabidian could
 8 talk about perchlorate.

9 We are glad to have you here. Thank you.

10 **ALI TABIDIAN:** This is a little bit short notice
 11 for the extent of my presentation, but I will try my
 12 best. I do have a little bit of an accent, by the way,
 13 coming from Nebraska. So if you want me to spell a word
 14 for you, please let me know.

15 I have been teaching at Cal State Northridge
 16 since 1988, teaching hydrogeology and environmental
 17 geology classes. Actually, since 1988, I have been
 18 coming to these meetings. I supervise two (inaudible)
 19 hydrology and hydrogeology of Simi Valley. One of them
 20 on an ongoing source for pollution, and the second one
 21 is specifically on hydrogeology of Simi Valley.

22 I would like to acknowledge the help and
 23 cooperation of a number of agencies. I think going
 24 through the past three or four years they have been
 25 doing some decent scientific work, contrary to previous

1 GERARD ABRAMS: I think you would find there was
 2 heavy use of perchlorate and it was released into the
 3 soil to the extent that it has turned around water
 4 you know it -- it would still be in the soil. It
 5 wouldn't flush out so thoroughly. I wouldn't think it
 6 can see no indication of it whatsoever.

7 SHELDON BERTIN: Until after Professor Robinson
 8 gives the presentation, I think a lot of your questions
 9 will be answered.

10 GERARD ABRAMS: Yeah. So you know I don't see --
 11 you know, we talked about it when we started out there
 12 and if a surface release was the source of perchlorate
 13 below in Stimp Valley, and that valley is about 10 miles
 14 away and a couple miles wide so over a wide area
 15 then there would have had to have been an awful lot of
 16 perchlorate that moved down one of those drainage. And
 17 it's not here today. So you know I don't know you
 18 could impact such a wide area and not see indications of
 19 it still present in the soil. I just don't see how that
 20 can be.

21 VICKI KOEHN: Excuse me, but let me go to the
 22 question-and-answer period yet because we have another
 23 presenter who is going to be talking on this subject
 24 and then we'll come up the floor to everybody because I
 25 think it will be important for you to hear that as well.

1 GERARD ABRAMS: That brings things wrap up my
 2 presentation.

3 VICKI KOEHN: Thank you Gerard.

4 We have Dr. Al Tabatabaie who is a
 5 hydrogeologist from Cal State Northridge. And
 6 Dr. Jack who is a member of our work group who is not
 7 able to be here tonight had asked if Dr. Tabatabaie could
 8 talk about perchlorate.

9 We are glad to have you here. Thank you.

10 ALI TABATABAIE: This is a hard job that comes
 11 for the extent of my presentation and I will try my
 12 best. I do have a little bit of an accent by the way.
 13 coming from Nebraska. So if you want me to spell a word
 14 for you please let me know.

15 I have been teaching at Cal State Northridge
 16 since 1988, teaching hydrogeology and environmental
 17 geology classes. Actually, since 1984 I have been
 18 coming to these meetings. I supervise two (master's)
 19 hydrology and hydrogeology of Stimp Valley. One of them
 20 on an ongoing source for perchlorate, and the second one
 21 is specifically on hydrogeology of Stimp Valley.
 22 I would like to acknowledge the help and
 23 cooperation of a number of geologists. I think going
 24 through the past three or four years they have been
 25 doing some decent scientific work, coming to present

1 But anyway, no matter no sampling -- well, the
 2 Westwood has access -- they oversee gas stations and
 3 other places where there are monitoring wells in
 4 Stimp Valley. So there is quite a number of gas stations
 5 monitoring wells that are located around Stimp Valley.
 6 So we sampled -- well, normally the Westwood
 7 collected the samples for us and we ran the samples at
 8 our lab. We also were wondering if maybe there was a
 9 release from Rockledge. It was a surface release
 10 did it go down the drainage, the surface drainage. So
 11 as part of this work that we went up the drainage and
 12 the drainage below Rockledge and collected quite a number
 13 of samples, soil samples and samples from the
 14 perchlorate. We got a high release from Westwood
 15 but we went back and collected several over 100 pounds
 16 of soil in that same sample location and we weren't able
 17 to duplicate that detect in that location. So
 18 SNEARER: Those are soil samples from the surface?
 19 GERARD ABRAMS: Yeah. They are soil samples.
 20 That's because what we were interested in understanding
 21 was has there been a surface release from Rockledge
 22 Let's say from the sodium burn pit did it go down one
 23 of these drainages. So we went up these drainages and
 24 collected samples. We weren't able to duplicate it with
 25 about 100 pounds of soil samples so it's not there

1 SNEARER: What was your conclusion,
 2 GERARD ABRAMS: For me finish up
 3 So we collected samples at the canyons and we
 4 didn't get any detects. We couldn't repeat the one
 5 detect that we found here. We also as part of the
 6 overall ground water investigation out in Santa Susana
 7 reported that the seeps and spring below Rockledge had
 8 seeped, and that part of the effort was conducted about
 9 two years ago. So the part seeping, we went back to
 10 these springs and there are some old as well as well
 11 and we sampled there as well. So we didn't get any
 12 detects in that -- in those springs and as wells that
 13 were sampled in that area.

14 So what we have here is we found of these
 15 roughly 60 or so shallow gas station wells and then some
 16 of these monitoring wells that are owned by the City. We
 17 got 15 wells that had detects of perchlorate and it's
 18 roughly scattered throughout the City.

19 So based on our collection effort that we
 20 weren't able to find any detects of perchlorate in the
 21 drainage below Rockledge. And so we haven't made a
 22 connection with the perchlorate that's found in those
 23 wells down here to the activities out at Rockledge.

24 SNEARER: Would you expect to find perchlorate
 25 still in the soil after that cleaned it?

1 years. And I think ultimately we are going to lead to
2 some good conclusions and understanding of hydrogeology
3 of the area. During the past 14 years, actually, I have
4 learned about American democracy through these meetings.
5 It has been very interesting to look at all sides.

6 So anyways, let me move on.

7 Here, on this picture, I'm trying to show the
8 four areas within the Santa Susana Field Laboratory
9 showing the drainage basin that actually could
10 potentially collect a lot of water from the Santa Susana
11 Field Laboratory. So those blue colored lines that you
12 see basically indicates that potentially they could
13 receive surface runoff that would include Meier Canyon,
14 for example, and -- and a few unnamed canyons around the
15 area.

16 I would like to mention Area I you will find
17 the highest concentration of perchlorate. These are
18 some of the specific numbers of perchlorate
19 concentration in Area I, and I should mention you will
20 find concentrations of close to 700 parts per billion.

21 So, again, these samples are all related to the Area I.

22 The next slide shows the concentration of
23 perchlorate in Areas III and IV. As you see here,
24 again, these concentrations are very low compared to
25 Area I. Most of them are comparable to Area IV.

1 imported fertilizer material. Again, I'm sure
2 you have heard about this. From Chile, that is the
3 place that actually naturally percolate has formed and
4 those materials has been imported to the U.S., is being
5 used at different locations

6 Over here, the local airport. There used to
7 be a little airport here. Again, the shipment of the
8 materials and the storage of the materials, that's a
9 possibility. The full extent of what they did at that
10 airport, I don't know anything about it.

11 Imported Colorado River water. Again, that is
12 something that has been mentioned. I have heard about
13 it, you have read about it. I think that the
14 concentration that you find in the imported Colorado
15 water about three, four parts per billion. I could be
16 wrong about that, but I think --

17 SPEAKER: Four to nine.

18 ALI TABIDIAN: Four to nine. Okay.

19 There are a couple -- or a few location of
20 dumps on old maps that these dumps are sitting on
21 Simi Valley floor. Obviously, they could be potential
22 sources. On old maps you do find location of natural
23 waste lagoons and sewage lagoons. Okay.

24 So these are water sources that you know of.
25 you heard of, possible sources for perchlorate in Simi.

1 actually. The Ahmanson Ranch concentration, as you see,
2 has the highest concentration that has been detected off
3 site, and that is something that has basically puzzled
4 everybody.

5 Here are the concentrations that has been --
6 have been detected in valley floor wells. Again, the
7 highest concentrations, as you see, again, goes up to
8 about 20 parts per billion.

9 SPEAKER: Is that the San Fernando Valley or
10 Simi Valley?

11 ALI TABIDIAN: These are all Simi Valley floor
12 Possible sources of perchlorate in Simi's
13 ground water reservoirs, and I'm sure that you have all
14 read about the possible sources, fireworks. One thing
15 that hasn't been mentioned as far as I know and nobody
16 knows anything about it is that about 1,000 movies and
17 TV shows are being made on eastern end of Simi Valley
18 and on north central Tapo Canyon. Okay. And the
19 question is many of those movies I understand they were
20 western movies. In any western movie, the people, they
21 shoot each other, and they kill each other. So I don't
22 know what type of components they used if there were any
23 type of explosives, any type of fire, that is something
24 that I don't know anything about. That would be
25 something to do some research on.

1 Now, as far as fireworks goes, I don't know if
2 somebody did something, for example, in Ojai, would you
3 find perchlorate out there? Obviously, that would be an
4 easy thing to do. And if nobody finds perchlorate in
5 Ojai water sources, maybe fireworks is not a source of
6 perchlorate in Simi Valley.

7 Movie making and the explosive-type usage.
8 Again, I don't know about that. I can't talk about
9 that.

10 Imported fertilizer material. U.S. EPA, they
11 have done some work, and they basically have ruled out
12 as far as percolate in ground water is from fertilizers
13 in Simi Valley.

14 Let's see. Imported Colorado River water. If
15 I show you -- if I can show you on a picture here
16 that -- basically from early 1900s to about the '60s,
17 the early '60s, Simi Valley was an agricultural type
18 community. They were totally dependent on water
19 delivery.

20 SPEAKER: Can you show us on the map where the
21 Ahmanson detect was?

22 ALI TABIDIAN: Ahmanson Ranch is south of the
23 Santa Susana laboratory. I can't point in the specific
24 area on this map, but it's roughly down -- somewhere
25 around here.

1 imported fertilizer material. Again, I'm sure
 2 you have heard about this. From what I know, it
 3 place has actually been imported from the
 4 those materials has been imported to the U.S. is being
 5 used in different locations.
 6 Over here, the local nitrogen fertilizer used to
 7 be a little different. Again, the shipment of the
 8 materials and the storage of the materials, there's
 9 possible. The full extent of what they did at the
 10 airport, I don't know anything about it.
 11 Imported fertilizer material. I'm sure you know that
 12 something that has been mentioned. I'm not sure about
 13 it, you have read about it. I think that the
 14 concentration that you find in the imported fertilizer
 15 water about that, you know, I could be
 16 wrong about that, but I think --
 17 SPEAKER: From to now.
 18 ALL TARRANT: From to now. Okay.
 19 There are a couple -- or a few locations of
 20 dumps on old maps that those things are sitting on.
 21 Saint Valley floor. Okay, that could be potential
 22 sources. On old maps you do find location of natural
 23 waste lagoons and sewage lagoons. Okay.
 24 So there are water sources that you know of
 25 you heard of possible sources for perchlorate in that

1 place as far as I know, I don't know if
 2 somebody did something, for example, in Utah, would you
 3 find perchlorate out there? Obviously, that would be an
 4 easy thing to do. And if nobody finds perchlorate in
 5 Utah, water sources might give you a sense of
 6 perchlorate in Saint Valley.
 7 I've made and the explosive-type maps.
 8 Again, I don't know about that. I can't tell you
 9 that.
 10 imported fertilizer material. I'm not sure if
 11 there's some work, and they basically have tried to
 12 as far as perchlorate in ground water is from fertilizers
 13 in Saint Valley.
 14 I don't see. Imported Colorado River water. I
 15 I show you -- if I can show you on a picture from
 16 him -- coming from early 1900s to about the 1950s,
 17 the early days, Saint Valley was an agricultural type
 18 community. They were totally dependent on water
 19 delivery.
 20 SPEAKER: Can you show us on the map where the
 21 Alamosa River was?
 22 ALL TARRANT: Alamosa River is south of the
 23 Santa Susana laboratory. I can't point to the specific
 24 area on this map. On the roughly down -- somewhat
 25 around here.

1 years. And I think ultimately we are going to lead to
 2 some good conclusions and understanding of hydrology
 3 of the area. I think actually, I have
 4 learned about a number of things through these meetings.
 5 It has been very interesting to look at all sides
 6 of the problem for me to move on.
 7 Here on the picture, I'm trying to show the
 8 location within the Santa Susana Field Laboratory
 9 showing the drainage back that actually comes
 10 potentially collect a lot of water from the Santa Susana
 11 Field Laboratory. So there are several lines that you
 12 see that indicate that potentially they could
 13 receive and that would include other things. Okay.
 14 For example, and -- and a few unnamed canyons around the
 15 area.
 16 I would like to mention Area I you will find
 17 the highest concentration of perchlorate. There are
 18 some of the specific numbers of perchlorate
 19 concentration in Area I, and I should mention you will
 20 find concentrations of close to 400 parts per billion
 21 and of the other samples are all related to the Area I.
 22 The next slide shows the concentration of
 23 perchlorate in Areas III and IV. As you see here,
 24 some of these concentrations are very low compared to
 25 Area I. Most of them are comparable to Area IV.

1 actually. The Alamosa River concentration, as you see
 2 has the highest concentration that has been detected off
 3 area, and that is something that has basically existed
 4 everywhere.
 5 Here are the concentrations that has been --
 6 that has been detected in other areas. Again, the
 7 highest concentration, as you can see, goes up to
 8 about 40 parts per billion.
 9 SPEAKER: Is that the San Fernando Valley or
 10 Saint Valley?
 11 ALL TARRANT: There are all Saint Valley floor
 12 possible sources of perchlorate in Saint
 13 ground water resources, and I'm sure that you have all
 14 read about the possible sources, I'm sure. One thing
 15 that hasn't been mentioned as far as I know and nobody
 16 knows anything about it is that about 1,000 meters and
 17 1/2 there are being made on eastern end of Saint Valley
 18 and on some central Iago Canyon. Okay. And the
 19 question is many of those moves I understand they were
 20 waste moves. In any waste move, the people, they
 21 don't just throw it and they fill each other. So I don't
 22 know what type of components they used if there were any
 23 type of explosives, any type of that is something
 24 that I don't know anything about. That would be
 25 something to do some research on.

1 SPEAKER: Wasn't it the east Las Virgenes watershed
2 area there?
3 ALI TABIDIAN: Exactly. Exactly. Actually, that
4 is where I -- I didn't think that I would have enough
5 time to explain the details on these maps, but
6 Las Virgenes is basically --
7 SPEAKER: Can you point that out where the
8 Ahmanson Ranch is?
9 ALI TABIDIAN: It's about two and a half to three
10 miles south of Santa Susana Field Laboratory. That is
11 where the Ahmanson Ranch is located and where they found
12 the perchlorate concentration.
13 SPEAKER: Dr. Tabidian had indicated that the well
14 was right here, and that's incorrect. That is actually
15 at the property boundary. That is Bell Canyon.
16 Ahmanson Ranch is about two miles down here.
17 ALI TABIDIAN: Can I borrow this?
18 Here is the Las Virgenes water drainage basin
19 and the Santa Susana Field Laboratory. And like I said,
20 that well is located in Las Virgenes drainage basin.
21 Okay. It's not in Bell Canyon or anything like that.
22 SHELDON PLOTKIN: Is there a connection between
23 Area I with the blue lines going down into Ahmanson?
24 ALI TABIDIAN: You see that Bell Creek, the
25 headwaters of Bell Creek starts from Area I and it goes

1 SPEAKER: Can I ask a quick question?
2 There are areas through here of oil wells, old
3 abandoned oil wells. Could something have punctured
4 through create a pathway that could draw down into the
5 basin?
6 VICKI ROSEN: I'm going to ask you to please hold
7 your questions until after the presentation. Could we
8 do that?
9 ALI TABIDIAN: Someone asked me to talk about
10 drinking water in Simi Valley. Like I said, before the
11 early 1960s, local ground water was utilized extensively
12 for drinking, for irrigation, for various purposes.
13 Initially, water -- Colorado River water was imported to
14 Simi for a short period of time. But after that,
15 basically the State water project was imported to the
16 valley. So at the present time, we -- most of the
17 population in Simi utilizes imported water from Northern
18 California from the State water project.
19 Now, this map shows the extent of impact of
20 ground water pumped from ground water reservoirs. And
21 in many areas, ground water actually dropped by about
22 200 feet, 250 feet in some areas. So we are talking
23 about extensive ground water drawdown throughout the
24 valley.
25 This map shows ground water levels during the

1 down here. So that is the Bell Creek drainage basin
2 here.
3 SHELDON PLOTKIN: So it doesn't get over to
4 Ahmanson from Area I?
5 ALI TABIDIAN: No. That's right. Actually, based
6 on this map, potentially you don't get any surface
7 runoff from Area I into Las Virgenes drainage basin or
8 to Ahmanson Ranch area.
9 SPEAKER: Is there surface runoff into the west
10 San Fernando Valley from that area?
11 ALI TABIDIAN: From Area I, yes. Sure.
12 SPEAKER: From what area of Rocketdyne would
13 something drain into the Las Virgenes basin? Which area
14 of Rocketdyne are you showing on this map? I'm having
15 trouble following.
16 ALI TABIDIAN: Actually, potentially, surface
17 runoff wouldn't get to Las Virgenes drainage basin.
18 SPEAKER: Nothing could?
19 ALI TABIDIAN: No. Because the Santa Susana Field
20 Laboratory is located in a different drainage basin.
21 SPEAKER: Could you get water moving through
22 fractures and joints in any of that area?
23 VICKI ROSEN: Why don't we --
24 ALI TABIDIAN: Should I continue or answer the
25 questions or --

1 late '50s and early '60s. And those black-colored
2 numbers, those are the streambed elevations. So as you
3 see, ground water levels during the late '50s and
4 through the '60s, many locations were from hundred to
5 200 feet lower than streambed. So what, basically, I'm
6 trying to show you here is that potentially ground water
7 reservoirs would have received water from the river.
8 What they are proposing here is that, based on
9 available hydrology data, surface and ground water
10 hydraulics and spatial distribution of soil/water
11 perchlorate concentrations, there is no supportive data
12 to believe that the source of perchlorate in Simi Valley
13 area is somewhere else but the Santa Susana Field
14 Laboratory.
15 Why do I think that may be the source? First,
16 let's talk about possible off-site release modes. You
17 could have continuously with high concentrations, or you
18 could have release of perchlorate from Santa Susana
19 Field Laboratory episodically with low concentrations.
20 Now, as we have mentioned earlier, if there
21 was continuous release of perchlorate with high
22 concentrations, then you would see that perchlorate in
23 soil samples, that they were around the perimeter of
24 Rocketdyne.
25 So what I think happened is that episodically

25 questions or --

24 ALL TABBIAN: Should I canvas or answer the

23 WYOMI ROBERT: Why don't we --

22 houses and points in any of that area?

21 SPEAKER: Could you get water moving through

20 laboratory is located in a different drainage basin.

19 ALL TABBIAN: No. Because the Santa Susana Field

18 SEMAINE: Nothing could?

17 would wouldn't get to Las Virgenes drainage basin.

16 ALL TABBIAN: Actually, potentially, surface

15 would be following.

14 of Rockledge, are you showing on this map, I'm having

13 something that has the Las Virgenes basin? Which area

12 SPEAKER: From what area of Rockledge would

11 ALL TABBIAN: From Area 1 was Santa

10 San Fernando Valley from that area?

9 SPEAKER: Is there surface water into the west

8 to Antares Ranch area.

7 from Area 1 into Las Virgenes drainage basin or

6 on this map, potentially you don't see surface

5 ALL TABBIAN: No. That's right. Actually, based

4 Antares from Area 1?

3 SHELDON FLOTTIN: So it doesn't get over to

2 here?

1 down here. So that is the Bell Creek drainage basin

25 This map shows ground water levels during the

24 valley.

23 about extent's ground water drawdown throughout the

22 200 feet 100 feet in some areas. So we are talking

21 in many areas, ground water actually dropped to about

20 ground water dropped from ground water reservoir. So

19 Now, this map shows the extent of impact of

18 California from the State water project

17 a problem in Santa Susana. Groundwater from Northern

16 variety. So in the greatest times we -- most of the

15 basically the State water project was imported to the

14 Santa Susana area. But what that

13 initially, water -- Colorado River water was imported to

12 for drinking for irrigation, for various purposes

11 early 1960s, that ground water was raised extremely

10 drinking water in Santa Valley. Like I said, before the

9 ALL TABBIAN: Someone asked me to talk about

8 to that?

7 Some questions with after the presentation. Could

6 WYOMI ROBERT: I'm going to ask you to please hold

5 through, correct a pathway that could draw down from the

4 throughout the valley. Could somebody have pumped

3 I think the stress through here of on wells, old

2 SPEAKER: I can I ask a quick question?

1 there has been some slugs of radioactive water with low
 2 concentration of perchlorate, and especially if the
 3 release happened right -- it meets with a major
 4 rainfall. Suppose that we were in eight-hour rainfall
 5 period, and after two or three hours of rainfall, you
 6 had a slug of this fluid got into creek and followed by
 7 fuel, more hours of rainfall, of lower intensity
 8 rainfall, then you wouldn't -- it wouldn't be potential
 9 for perchlorate to stay in those sediments,
 10 especially -- sediments, they could contain clay
 11 minerals. And clay minerals, some of them, they are --
 12 they are available with negative charges. And
 13 perchlorate is a negatively charged ion. So it is like
 14 two pieces of magnet. Okay. If you put opposite ends
 15 of two pieces of magnets next to each other, they're
 16 going to absorb. Okay. But if you put the similar
 17 ends, they are going to reject.

18 Now, if you have clay minerals in the
 19 sediments of those canyons, okay, and you have low
 20 concentration of perchlorate in that water, potential
 21 for staying would be extremely low.

22 Now, back to my other slides. We can actually
 23 classify sources of perchlorate that would get into
 24 ground water into three different types: Diffusive
 25 source, it would be like application of fertilizers to

1 Toxicology Section, Office of the Environmental Health
 2 Hazard Assessment, California Environmental Protection
 3 Agency.

4 And it states "U.S. EPA 2001 recently tested a
 5 variety of fertilizers collected from representative
 6 sites around the nation and did not find perchlorate
 7 contamination to be a problem." It further states, "In
 8 general, almost all of the areas where perchlorate
 9 contamination has been detected have had some activity
 10 involving rocket engines or fuel."

11 ALI TABIDIAN: I am open to any type of question
 12 from anybody.

13 VICKI ROSEN: This is what we will do. Why don't
 14 we just open the floor to questions in general about the
 15 perchlorate discussion that we have had and anything
 16 that Gerard spoke about earlier.

17 And, Dr. Tabidian, you can either stand there
 18 or you can have a seat and answer questions when they
 19 come to you. However you want to do it is fine with me.

20 One more thing. Jonathan has a fact sheet on
 21 the health effects of perchlorate that he would like to
 22 pass out.

23 SHELDON PLOTKIN: There are some -- I would like to
 24 point out that the map with the concentrations, while
 25 they spelled out the 9 to 20 parts per billion

1 Simi Valley floor, or application of imported water. If
 2 perchlorate in ground waters of Simi came through that
 3 process, you could see detectable or positive samples at
 4 many locations throughout the valley. So that's why I
 5 am ruling out that source of perchlorate would have been
 6 from imported water. Okay.

7 Point-source, as I discussed earlier, there
 8 were refuse dumps in Simi Valley, some domestic lagoons,
 9 industrial lagoons, those types of facilities are
 10 considered point-source. If you have a point-source for
 11 a contaminant, then you will see the highest
 12 concentration where you have the contaminant. And
 13 consistently as you get away from the source, you detect
 14 lower and lower and lower the concentration. So through
 15 all the available data, you really don't see that.
 16 Okay.

17 And finally, line-source. That would be
 18 Arroyo Simi. And that is where -- basically, I propose
 19 that perchlorate got into Arroyo Simi. And because of
 20 low ground water levels, it has seeped into ground water
 21 basically.

22 BARBARA JOHNSON: To follow up what Dr. Tabidian
 23 has just presented, I would like to quote from a draft
 24 from a public health goal for perchlorate in drinking
 25 water. And this was prepared by Pesticide Environmental

1 contaminations on the floor in Simi Valley, they only
 2 included briefly in Dr. Tabidian's presentation of the
 3 contamination on the Rocketdyne property. And it's
 4 three and 400 parts per billion in many of the wells,
 5 going as high as 700 parts per billion on the Rocketdyne
 6 property. So you need to keep those things in mind.

7 GERARD ABRAMS: Excuse me, Shell. There are how
 8 many wells that are active with perchlorate on the
 9 Rocketdyne site?

10 SHELDON PLOTKIN: My notes, which I got from Dan
 11 and I haven't compiled myself, were that he told me that
 12 15 were contaminated on the Rocketdyne property; is that
 13 true?

14 GERARD ABRAMS: And where are those impacted wells?

15 SHELDON PLOTKIN: Dr. Tabidian, maybe you should
 16 put that chart up with the --

17 GERARD ABRAMS: Well, it's not the chart.

18 I'm asking you where those impacted wells?
 19 Where the high contamination is is where the perchlorate
 20 use area was over in Area I.

21 SHELDON PLOTKIN: Right.

22 RICHARD McJUNKIN: Well, also -- my name is
 23 Richard McJunkin, and I'm a licensed hydrogeologist with
 24 DISC, and I was involved with a lot of collection and
 25 the trying -- and the attempt to revolve this

1 there has been some signs of radioactive water with low
 2 concentration of perchlorate and especially in the
 3 release program right -- it meets with a major
 4 finding. I suppose that we were in eight-hour running
 5 program and the level of rainfall you
 6 had a high of this kind got into the area followed by
 7 low rainfall. I think that's probably
 8 rainfall then you wouldn't be getting
 9 perchlorate in any in that amount
 10 especially -- sediments, they could contain clay
 11 minerals. And they mineral some of these things are
 12 high in available with respect to perchlorate. And
 13 perchlorate is negatively charged ion. So it is like
 14 two pieces of magnets. Okay, if you put opposite ends
 15 of two pieces of magnets next to each other, they're
 16 going to attract. Okay, but if you put the similar
 17 ends, they are going to repel.
 18 Now, if you have clay minerals in the
 19 sediments of these regions, they may have low
 20 concentration of perchlorate in that water potential
 21 for that would be extremely low.
 22 Now, back to my other slides. We can actually
 23 classify sources of perchlorate that would get into
 24 ground water into three different types. Diffusive
 25 sources, it would be the application of fertilizers to

1 San Valley floor or application of imported water. If
 2 perchlorate in ground waters of that area through the
 3 process, you could see deposits or positive samples in
 4 some locations throughout the valley. So that's why I
 5 am hoping that some of perchlorate would have been
 6 from imported water. Okay.
 7 Point number one I discussed earlier, there
 8 were some dumps in San Valley, some domestic legend,
 9 industrial lagoons, these types of facilities are
 10 considered point-sources. If you have a point-source for
 11 a contaminant, then you will see the highest
 12 concentration where you have the contaminant. And
 13 perchlorate, as you get away from the source, you believe
 14 that it will lower and lower the concentration. So through
 15 all the available data, you really don't see that
 16 Okay.
 17 And finally, the source. That would be
 18 diffuse. And that is where -- basically, I propose
 19 that perchlorate got into Area 21. And because of
 20 low ground water levels, it has seeped into ground water
 21 basically.
 22 YAMAMAKA YOSHIZUMI: To follow up what Dr. Peltzman
 23 has just presented, I would like to pose from a cliff
 24 from a public health goal for perchlorate in drinking
 25 water. And this was prepared by Residue Environmentalists

1 Toxicology section, Office of the Environmental Health
 2 Hazard Assessment, California Environmental Protection
 3 Agency.
 4 And it states "U.S. EPA 2001 toxicology tested a
 5 variety of freshwater collected from representative
 6 sites around the nation and did not find perchlorate
 7 concentrations to be a problem." It further states "In
 8 general, almost all of the sites where perchlorate
 9 contamination has been observed have had concentrations
 10 involving rocket engines or fuel."
 11 ALLYBARTH: I am open to any type of question
 12 from anybody.
 13 VICKI ROSEN: This is what we will do. We will
 14 go just open the floor to questions in general about the
 15 perchlorate discussion that we have had and anything
 16 that Gerard spoke about earlier.
 17 And, Dr. Peltzman, you can either stand there
 18 or you can have a seat and answer questions from my
 19 side to your. However, you want to do it is fine with me.
 20 One more thing -- Jonathan has a fact sheet on
 21 the health effects of perchlorate that he would like to
 22 pass out.
 23 SHELDON PELTZMAN: There are some -- I would like to
 24 point out that the man with the concentration, while
 25 he applied the 10 to 20 parts per billion

1 concentrations on the floor in San Valley, they are
 2 cited briefly in Dr. Peltzman's presentation of the
 3 continuation on the Rockledge property. And it's
 4 three and 400 parts per billion in many of the wells.
 5 Being as high as 700 parts per billion in the Rockledge
 6 property. So you need to look those things in mind.
 7 GERRARD ABRAMS: Excuse me, Shell, there are two
 8 water wells that are native with perchlorate on the
 9 Rockledge site.
 10 SHELDON PELTZMAN: My guess, which I got from your
 11 and I haven't compared myself, was that he told me that
 12 15 were contaminated on the Rockledge property. Is that
 13 correct?
 14 GERRARD ABRAMS: And where are those impacted wells?
 15 SHELDON PELTZMAN: Dr. Peltzman, maybe you should
 16 put that chart up with the --
 17 GERRARD ABRAMS: Well, it's not the chart.
 18 I'm asking you where those impacted wells
 19 were. The high concentration is where the perchlorate
 20 was seen as well in Area 1.
 21 SHELDON PELTZMAN: Right.
 22 RICHARD McINTOSH: Well, also -- my name is
 23 Richard McIntosh, and I'm licensed in geology and I
 24 got it, and I was involved with a lot of collection and
 25 the testing -- and the attempt to resolve this

1 uncertainty about this perchlorate. And in the essence
2 of time, we left out the details to the map that was
3 provided in the lobby and Gerard presented, that we need
4 to maybe further elaborate on; that, as I say, in the
5 essence of time, we didn't show all or talk about all of
6 the data that add a little bit more uncertainty to this
7 situation. So we would like a couple of minutes to
8 address a little bit more of the uncertainties here in
9 the map that Gerard had

10 JONATHAN PARFREY: In the well samples in Simi, did
11 you test for nitrates, as well?

12 RICHARD McJUNKIN: No, we did not.

13 JONATHAN PARFREY: Okay. Because from what I
14 understand, that is a great indicator of whether the
15 source would be the fertilizer or it would be the rocket
16 fuel. And so if you could get back to us on that, that
17 would be great.

18 Also, a question for Dr. Tabidian about the
19 map. I notice that there doesn't seem to be any
20 drainage that goes directly to the east off of Area 1.
21 Is that accurate that would -- it would have moved south
22 and then to the east out through Bell Canyon?

23 ALI TABIDIAN: Right.

24 JONATHAN PARFREY: So there is no direct flow that
25 would go out towards the Chatsworth reservoir area from

1 Simi Valley began to show the exposure of the
2 concentrations of perchlorate. And think of
3 Arroyo Simi, the drainage, it's not a divide, it's not a
4 barrier in the subsurface literally, but it is kind of.
5 It's difficult to get -- when you have rivers that are
6 gaining and losing, it's difficult to get ground water
7 to cross those barriers in a general sense. Not
8 literally, because it will. There are exceptions. But
9 we kind of think of Arroyo Simi as a quasi boundary

10 Now, a lot of the detections are way up on the
11 alluvial fan on the north side. That is a problem,
12 especially if we're trying to associate it with the
13 surface drainages from the north side of Rocketdyne from
14 a spillway release. Because how can it go down and hit
15 Arroyo Simi? The gradients are upward. That's why they
16 put in the relief wells because water was coming up into
17 people's yards and foundations and causing damage. So
18 it's coming from the mountains, through the subsurface,
19 and coming back up. Because there is no perchlorate in
20 the deeper levels in the water table, it must be -- it
21 must suggest very strongly that we have a surface
22 release from a spill or a landfill or fertilizer or
23 whatever it is or isn't.

24 That's -- so my point is these wells -- and if
25 you look at the flow directions that we got from the

1 Area I?

2 ALI TABIDIAN: No.

3 VICKI ROSEN: Did you want to refer to the map or
4 can we proceed to the public questions?

5 RICHARD McJUNKIN: Before we go on to the public
6 questions, we'd like to show the map here -- just a few
7 more of the bits of rationale that we used in the
8 sampling effort.

9 VICKI ROSEN: Can we make it pretty quick? We have
10 a lot of people who want to ask questions.

11 RICHARD McJUNKIN: Okay

12 VICKI ROSEN: If you would just be patient, we will
13 be there real soon

14 RICHARD McJUNKIN: When the data first began to
15 materialize, we saw it was down at the southwest corner
16 of Simi Valley, and it was in wells that were actually
17 completed at different depths in the water table. And
18 the deep wells are not contaminated. And that was an
19 issue that all of a sudden indicated that this is
20 probably a shallow release, it's a surface release. And
21 Dr. Tabidian did indicate that some of the drainages he
22 felt, you know, he alluded to a surface release, as
23 well.

24 As we expanded our investigation of the wells
25 in Simi Valley, more and more wells on the north side of

1 Regional Board wells on the north side of Arroyo Simi,
2 they're pointing upgradient to the north east. That's
3 another problem.

4 Now, if it's Rocketdyne from Area 1, it could
5 be going through the bedrock, down several thousand feet
6 under the valley and coming back up on the north side of
7 the valley. That is one way you could explain it. But
8 that is not a very simple explanation, and we are
9 talking about a very long, circuitous pathway. So that
10 is not easy to explain.

11 Dr. Tabidian -- and I would point out how we
12 went out and sampled these. We went out and we
13 collected about eight to 12 pounds of dirt from the main
14 drainage where water would flow today from the streams
15 coming off Rocketdyne. We also collected another pair
16 of samples on a little terrace that would be two or
17 three feet above the present drainage, because I don't
18 know how long ago those terraces were active, maybe 40
19 years ago. I don't know how much sampling for
20 perchlorate has been done by people in this room, but I
21 have done quite a bit of it -- not just at Rocketdyne,
22 but at Whitaker-Bermitz, in an area now called the
23 Portobello in Santa Clarita, which is an extremely
24 perchlorate-contaminated site. Perchlorate can last in
25 the surface for a very long time, because we are talking

1 concerning about this perichlorate. And in the essence
2 of things we left out the details to the map that was
3 provided in the exhibit and I think I said in the
4 evidence further elaboration on that as I said in the
5 evidence of things we didn't show all of that about all of
6 the data that was a little bit more concerning to this
7 question. So we would like a couple of minutes to
8 address a little bit more of the questions that are in
9 the map that I showed you.

10 JONATHAN PARREY: In the well samples in 21 and 22
11 you had the numbers as well?

12 RICHARD MATHIAS: No, we did not.

13 JONATHAN PARREY: Okay. Because from what I
14 understand, that is a great indicator of whether the
15 release would be the release or it would be the release
16 that. And so if you could get back to us on that, that
17 would be great.

18 Also a question for Dr. Tabidian about the
19 map. I notice that there doesn't seem to be any
20 change that goes directly to the east of Area 1.
21 Is that accurate that would -- it would have more of a north
22 and then to the east out through Bell Canyon?

23 Dr. TABIDIAN: Right.

24 JONATHAN PARREY: So there is no direct flow that
25 would go on towards the Chatsworth area from

1 Area 1?

2 Dr. TABIDIAN: No.

3 JONATHAN PARREY: Did you want to refer to the map or
4 was we proceed to the public questions?

5 RICHARD MATHIAS: Right, we go on to the public
6 questions. We'd like to show the map here -- just a few
7 more of the data of materials that we used in the
8 mapping effort.

9 JONATHAN PARREY: Can we make a pretty quick? We have
10 a lot of people who want to ask questions.

11 RICHARD MATHIAS: Okay.

12 JONATHAN PARREY: If you would just be patient, we will
13 have them next hour.

14 RICHARD MATHIAS: When the data first began to
15 be collected, we saw it was down in the southwest corner
16 of Sun Valley, and it was in wells that were actually
17 completed in different depths in the water table. And
18 the deep wells are not contaminated. And that was so
19 near that all of a sudden indicated that this is
20 probably a shallow release. It's a shallow release. And
21 Dr. Tabidian did indicate that some of the changes he
22 told you were he attributed to a surface release as
23 well.

24 So we expanded our investigation of the wells
25 in Sun Valley more and more wells on the north side of

1 21 and 22, which began to show the exposure of the
2 concentrations of perichlorate. And that of
3 Area 1, the highest. It's not a divide. It's not a
4 barrier in the subsurface. It's just a hill. It's
5 the highest of the -- when you have a hill, the
6 ground and looking it's difficult to get ground water
7 to cross that barrier in a general sense. Not
8 directly, because it will. There are exceptions. But
9 we kind of think of Area 1 as a quasi boundary.
10 Now, a lot of the statements are way up on the
11 altitude that on the north side. That is a boundary.
12 especially if you're trying to associate it with the
13 surface changes from the north side of Rockledge from
14 a shallow release. It doesn't seem to go down and the
15 Arroyo drain. The gradient is upward. That's why they
16 put in the relief wells because water was coming up into
17 people's yards and foundations and causing damage. So
18 it's coming from the mountains through the subsurface
19 and coming back up. Because there is no perichlorate in
20 the deeper levels in the water table, it must be -- it
21 must suggest very strongly that we have a surface
22 release from a spill or a landfill or fertilizer or
23 whatever it is or isn't.

24 That's -- so my point is these wells -- and if
25 you look at the flow directions that we got from the

1 Regional Board wells on the north side of Arroyo drain,
2 they're pointing upgradient to the north east. That's
3 another problem.

4 Now, if it's Rockledge from Area 1, it could
5 be going through the bedrock down several thousand feet
6 under the valley and coming back up on the north side of
7 the valley. That is one way you could explain it. But
8 that is not a very simple explanation, and we are
9 talking about a very long, convoluted pathway. So that
10 is not easy to explain.

11 Dr. Tabidian -- and I would point out how we
12 went out and sampled these. We went out and we
13 collected about eight to 12 points at this time the main
14 changes where water would flow into from the stream
15 coming off Rockledge. We also collected another pair
16 of samples on a little terrace that would be two or
17 three feet above the present drainage because I don't
18 know how long ago those terraces were active, maybe 40
19 years ago. I don't know how many samples for
20 perichlorate has been done by people in this room, but I
21 have done quite a bit of it -- not just at Rockledge, but
22 out at Whitaker-Hunter, in an area now called the
23 Bonabella in Santa Clarita. That is an extremely
24 perichlorate-contaminated site. Perichlorate can last in
25 the surface for a very long time, because we are talking

1 40 years over there, and it's hanging up on the sides of
2 the canyon. You can still find it where it is exposed
3 to rain and the elements. So it can hang around.

4 So Dr. Tabidian did accompany us on one of our
5 sampling efforts. He gave us pointers, and we gave him
6 pointers. There was a lot of open communication, and we
7 appreciate this -- this joint effort so to speak.

8 But the rationale by sampling these drainages
9 is, okay, given it's a shallow release and it's
10 migrating via surface drainages, it's got to be coming
11 not from spontaneous or intermittent charges, because
12 you have a source area that is from a spill, whether
13 it's intentional or unintentional, the source area is
14 still there, and all the time, every rain it comes down.
15 It does that at Whitaker-Bermite, and it does that in
16 Las Vegas wash coming from Henderson into Lake Mead.
17 That's the way it comes. So it's always coming down
18 these drainages.

19 Whether you want to prewet the drainage and
20 make the perchlorate go over a saturated surface and not
21 have a tendency to go in during a storm, because it's
22 slippery and dangerous to do during a storm, or whether
23 you want to have the surface dry and have it go down
24 into the drainage, but it has got to come down
25 continuously.

1 working on this. We are going to continue working with
2 the Regional Board. And we are going to share
3 information with you, with Dr. Tabidian. And I'm sure
4 as we continue this effort, Dr. Tabidian is going to be
5 convinced that the data we have is not really conclusive
6 as to whether SSFL is the source or is not the source of
7 this.

8 So this is where we are at. But please, as
9 you leave tonight, and as you have this fact sheet on
10 the health effects of perchlorate, it is very, very
11 important to remember it doesn't mean anything, whatever
12 the health effects are, if there is no exposure. And
13 this is why, as a regulatory agency, we have been
14 concerned about drinking water. We have been looking
15 into this. We have been asking questions about who has
16 wells. Because this is really what is important: Is
17 anybody being exposed? And we need to know and take
18 action, if need be, to deal with this. So please bear
19 this in mind. And we are going to continue to work with
20 everybody involved, including the Regional Board, and
21 Dr. Tabidian. Thank you.

22 (Court reporter changed paper.)

23 SPEAKER: -- we have reports about a Rocketdyne
24 subcontractor called Ground Water Resources Consultants,
25 Inc., and they noted that they had very high

1 But my point is that we used the judgment that
2 it should be in the soils, and we couldn't find it. Why
3 that one occurrence? And that was based on one sample,
4 and it showed up 4.4 I believe it was. And we went back
5 and duplicated five samples and got nondetects in all
6 the samples. I'm sorry. I can't explain that.

7 VICKI ROSEN: We need to move on to the public
8 questions, now.

9 PAULINE BATARSEH: I do need to say one thing
10 before we leave.

11 If I were sitting in the audience and
12 listening to all of this, I would be very confused.
13 Obviously, we, as regulators, addressed some very heavy
14 technical issues; Dr. Tabidian did the same. So before
15 we leave tonight, I just want to make sure that
16 everybody understands that we have been working with
17 Dr. Tabidian. I appreciate his effort. He highlighted
18 some things that we didn't highlight, which are
19 potential sources for perchlorate. He mentioned the
20 fertilizers, the fireworks and other things. And
21 really, what it boils down to is, what are the sources,
22 and what are the migration pathways? How has the
23 perchlorate migrated? And as you have heard tonight,
24 there are different interpretations.

25 So the bottom line is we are going to continue

1 concentrations of radionuclides in the water, and they
2 wanted to know how to lower them. So they contacted the
3 DHS scientists in the DHS radiation laboratory in
4 Berkeley for direction in how to handle these samples.
5 And it was suggested, and we have the documents to back
6 it up, that upon collecting these samples with high
7 content of sediment, they should be allowed to settle,
8 and then they would be decanted, and then they would be
9 filtered. As I understand it, Greg Dempsey criticizes
10 this technique as it skews the results.

11 My question is, since the EPA has stated here
12 tonight that they plan to use a lot of Boeing Rocketdyne
13 studies and tests because they have the most of them,
14 are they going to be aware of this fact, and are they
15 going to, themselves, use these kinds of techniques in
16 terms of handling samples of water with high sediment
17 content?

18 JOHN BEACH: Yes, we are aware of the issues. And
19 we will use all the available data that we can get our
20 hands on. We will reach out to find out what data are
21 available. And we are aware of the issue regarding
22 sediment in water and filtration and decanting and that
23 sort of thing. Measuring the concentration in the whole
24 water before it's decanted and measuring them
25 afterwards, both of those give you important

1 working on this. We are going to continue working with
 2 the Regional Board. And we are going to share
 3 information with you with Dr. Tardiff. And the
 4 as we continue this effort Dr. Tardiff is going to be
 5 involved and the data we have is not really complete
 6 and what SBE is the source or is not the source?
 7
 8 So the is where we are at. But please, as
 9 you have tonight, and as you have the fact sheet on
 10 the health effects of perchlorate, it is very, very
 11 important to remember it doesn't mean anything whatsoever
 12 and health effects are, it's not an exposure. And
 13 that is why as a regulatory agency, we have been
 14 concerned about drinking water. We have been talking
 15 into this. We have been asking questions about who has
 16 wells. Because this is really what is important is
 17 anybody being exposed. And we need to know and take
 18 action. I don't want to deal with this. So please bear
 19 this in mind. And we are going to continue to work with
 20 everybody involved, including the Regional Board, and
 21 Dr. Tardiff. Thank you.
 22 (Court reporter changed paper)
 23 SPEAKER -- we have reports about a kiosk-type
 24 measurement called Ground Water Resource Consensus
 25 and they noted that they had very high

1 concentrations of perchlorate in the water and they
 2 wanted to know how to lower them. So they contacted the
 3 DHS scientists in the DHS radiation laboratory in
 4 Berkeley for an action in how to handle these samples.
 5 And it was suggested, and we have the documents to back
 6 it up that upon collecting these samples with high
 7 content of sediment, they should be allowed to settle
 8 and then they would be decanted, and then they would be
 9 filtered. As I understand it, Greg Demery, who does
 10 this technique as it allows the results.
 11 A question is, does the EPA have stated that
 12 tonight that they plan to use a lot of boring techniques
 13 and tests because they have the most in their
 14 and they going to be aware of the fact that they
 15 going to be involved, are there kinds of techniques in
 16 terms of handling samples of water with high sediment
 17 content?
 18 JOHN HADDA: Yes, we are aware of the issues. And
 19 we will use all the available data that we can get out
 20 there on. We will reach out to find out what data we
 21 available. And we are aware of the issue regarding
 22 sediment in water and filtration and decanting and that
 23 sort of thing. Regarding the consensus in the whole
 24 water before its decanted and measuring them
 25 standard, both of those give you important

1 - it's over there, and it's sitting up on the side of
 2 the canyon. You can still find it where it is exposed
 3 to rain and the elements. So it can last a long
 4 So Dr. Tardiff did accompany us on one of our
 5 sampling efforts. He gave us pointers, and we got a
 6 picture. There was a lot of open contamination and we
 7 explained this -- this point effort to speak
 8 that the rationale for sampling these changes
 9 is only given it's a shallow well and the
 10 sampling the surface drainage, it's not to be coming
 11 in from the atmosphere or infiltration through the surface
 12 you have a source as that is from a well, whether
 13 the infiltration of groundwater, the source is
 14 the same, and the time, every time it comes down
 15 it does that in Whiteaker-Berkeley, and it does that in
 16 Las Vegas wash coming from Henderson into Lake Mead.
 17 That's the way it comes. So it's always coming down
 18 these drainage
 19 Whether you want to prevent the drainage and
 20 make the perchlorate go over a saturated surface and not
 21 have a tendency to go in during a storm, because it's
 22 slippery and dangerous to be during a storm or whether
 23 you want to have the surface dry and have it go down
 24 into the drainage, but it has got to come down
 25 eventually.

1 For my point is that we used the judgment that
 2 it would be in the soil, and we couldn't find it. With
 3 that one occurrence. And that was based on one sample.
 4 and it showed up 4.4 I believe it was. And we went back
 5 and analyzed the samples and got numbers in the
 6 the samples. I can explain that.
 7 MIKE ROSEN: We need to move on to the public
 8 discussion now.
 9 TAMI LIME DATARSEN: I do need to say one thing
 10 before we leave.
 11 I was sitting in the audience and
 12 listening to all of this. I would be very confused.
 13 (Laughter) We as regulatory agencies are very busy
 14 and technical issues. Dr. Tardiff did the same. He didn't
 15 we leave tonight. I just want to make sure that
 16 anybody understands that we have been working with
 17 Dr. Tardiff. I appreciate his effort. He highlighted
 18 some things that we didn't highlight which are
 19 potential concerns for perchlorate. He mentioned the
 20 handling of the water and other things. And
 21 really, what it boils down to is what are the concerns
 22 and what are the mitigation pathways? How has the
 23 perchlorate migrated? And as you have heard tonight
 24 there are different mitigation
 25 so the bottom line is we are going to continue

1 information. And we understand what that is, and we
2 will use that appropriately.

3 ARLENE KABEL: John, I need to clarify, though,
4 that the League for Radiological Monitoring of Ground
5 Water, including the appropriate analytical procedure
6 and sampling procedure is going to be with DHS. We have
7 responsibility for the soil investigation here. So when
8 John speaks, he is speaking about -- he is aware of the
9 issues. But I just want to be clear that we are not the
10 lead nor do we have that jurisdiction over the ground
11 water sampling.

12 JOHN BEACH: Thank you.

13 SPEAKER: I understand. But if Greg Dempsey of the
14 EPA criticizes this as skewing the tests, would
15 DHS concur with his opinion or not?

16 ARLENE KABEL: I don't know anything about Greg's
17 thinking. I don't know.

18 SPEAKER: He said it at a quarterly meeting of this
19 Workgroup.

20 ROBERT GREGER: We would have to take a look at
21 those water samples you are talking about and what the
22 nuclides are because some nuclides will stay in the
23 water, so decanting will make no difference whatsoever.
24 Other radionuclides will be in sediments. And in those
25 situations, then you obviously want to deal with the

1 below where that perchlorate -- where the perchlorate
2 has been identified in the soil, and follow it down that
3 way. So we're interested in following up.

4 SPEAKER: There are a lot of streams that come
5 through the area on an old ranch right off of Roscoe,
6 and I wonder if that is coming down from Santa Susana.

7 GERARD ABRAMS: We would have to look at a
8 topographic map to see where that might be coming from.
9 We really want to spend a lot of time focusing on source
10 areas at Rocketdyne because we really think it's
11 important to, you know, continue with that work. We
12 spent a lot of time collecting samples down in
13 Simi Valley. We will continue to work with the Water
14 Board to do that. But there is a lot of fundamental
15 work that we need to continue to do at Rocketdyne also.

16 SPEAKER: Well, it looks like it's pretty easy to
17 test the wells if you just go to the gas stations; is
18 that correct?

19 GERARD ABRAMS: Well, yeah. You know, you have to
20 gain access to the monitoring wells, you know, you have
21 to bring the sampling equipment out there. You have to
22 decontaminate it properly, collect the samples and have
23 them analyzed.

24 SPEAKER: Do you have more to say about that at the
25 next meeting?

1 sediment. So it's very specific to what radionuclides
2 you're finding.

3 SPEAKER: When will the public and media know what
4 the decision on the type of testing will be? Will there
5 be a document that will specifically point out if there
6 is this type of technique in testing?

7 ROBERT GREGER: As I say, it's going to depend upon
8 the radionuclides that you've got.

9 If we could talk a little bit afterwards
10 because I'm not familiar with your -- what particular
11 samples you're talking about.

12 SPEAKER: Okay. Thank you very much.

13 SPEAKER: I would like to ask Gerard if there are
14 any plans to test the wells in the east side of
15 Rocketdyne. I know you said that you don't believe
16 there is any water flow towards the
17 Chatsworth Reservoir, but are you planning to test the
18 wells in the gas stations in our neighborhoods?

19 GERARD ABRAMS: Not right now. But that east area
20 is where the perchlorate is -- where we know the
21 perchlorate is on Rocketdyne, is an area that we are
22 very actively looking at. And so that will involve
23 installing -- expanding some of our shallow ground water
24 work more over in that area.

25 Also, we want to go down some of the drainage

1 GERARD ABRAMS: We are not at this point going to
2 go down into Chatsworth and sample wells down there. We
3 are going to start -- we are going to continue following
4 up on the source area for perchlorate at Rocketdyne.
5 And if it looks like there is contaminants on site, we
6 will follow them in that direction.

7 SPEAKER: Okay. Thank you.

8 PAULINE BATARSEH: I want to add that we are going
9 to be working with the Water Board on this, and we would
10 consider your comments on this effort.

11 SPEAKER: My name is David Plotkin. I live in
12 Simi Valley. My question would be I hear that we had
13 environmental impact studies done on plants, et cetera,
14 throughout the -- in some parts of the valley. I know
15 that a lot of people are getting sick in Simi Valley
16 with pretty rare diseases. While we are deciding where
17 these leakages are occurring and how they are flowing
18 through the soils and systems, is there any group out
19 there that is medically looking at human life?

20 MIKE LOPEZ: Well, I think the ATSDR has hired
21 Eastern Research Group, and UCLA is a subcontractor that
22 has started to look into the community health studies
23 aspects of it.

24 SPEAKER: Started?

25 MIKE LOPEZ: I'm sorry. I don't follow it that

1 in comparison. And we understand what that is, and we
 2 will use that information.
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1 below where that pertains -- where the pertains
 2 has been identified in the soil, and follow it down that
 3 way -- so we're interested in following up.
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1 closely, but I think it's in the feasibility study
2 phase.

3 SPEAKER: Well, I'm looking for a study that's
4 medically performed on, like, a reconciliation of
5 medical and the history of people in Simi Valley, and
6 maybe Chatsworth, as well, those types of valleys. Are
7 we living in a hot spot? Do we know how many people are
8 affected by these chemicals that are coming down
9 regardless of where it's coming from?

10 JONATHAN PARFREY: The answer is that we don't
11 know. And to do an epidemiological study not on a
12 stable population but a very mobile population that
13 would live in these areas is something that is very,
14 very difficult to design and that's what Mr. Lopez is
15 referring to is that there is some funding right now
16 that is trying to see if there can be a study and design
17 the study to try to get some significant data from
18 people who have lived in these communities.

19 There have been two studies done on people who
20 worked at the Rocketdyne facility. And those two
21 studies were performed by the UCLA School of Public
22 Health and they are available. Now, one can make
23 deductions, conceivably, from those studies. But to
24 really -- there's anecdotal information about people who
25 have come down with diseases, but you can't necessarily

1 for has not been honored and that's where it sits at
2 this time.

3 SPEAKER: When was the promise made?

4 SHELDON PLOTKIN: Before the -- when the advisory
5 panel was initially set up, I don't know what year it
6 was. But we sat down and negotiated in Richard Katz'
7 office, and we negotiated who would be on this advisory
8 panel and playing games, really, with Department of
9 Health, DHS, and as to how the panel would be structured
10 and how many people would be on it and from which group,
11 et cetera. And we finally wound up with I guess it's 12
12 people on the advisory panel.

13 And then we also agreed at that time that the
14 studies would be done -- and the reason for doing the
15 workers first is that is easier. There are records, et
16 cetera. And for the radiation, they have got the film
17 batches.

18 Then we ran into, for those of you that
19 remember the historical -- then we ran into a little bit
20 of a problem with the chemical exposure, the derailed
21 employee, et cetera, losing the record, et cetera. But
22 UCLA managed to do that work in a different way.
23 They're very clever doing epidemiology studies.

24 And the end result was that the workers were
25 damaged by the exposure to the accidents and the results

1 then say from the anecdotal information that there is
2 statistically provable data regarding harms from
3 Rocketdyne. But these two studies are available, and I
4 would be more than happy to forward them to you.

5 SPEAKER: Yeah. Those are great, fantastic that
6 they are being done on the people that worked in the
7 area, but I'm talking about people living in this
8 community.

9 What is being done to protect them regardless
10 of where these chemicals are coming from?

11 SHELDON PLOTKIN: One answer to your question is we
12 have got a problem. The problem was that when the
13 studies were done on the Rocketdyne workers, we were
14 promised that if the studies showed that the Rocketdyne
15 workers were harmed by the accidents that occurred at
16 the site, if that's what the study showed, that then a
17 similar type of study under the same type of -- with an
18 independent advisory panel would be done of the
19 community. That has been stopped, and a government
20 agency has been brought in that's going to do the study,
21 and, again, cutting out this advisory panel altogether.
22 And an arrangement -- they did hire UCLA, and there's
23 some arrangements for doing some kind of a study through
24 that. But the promise that was made originally and what
25 the advisory -- this epidemiology advisory panel set up

1 of the accidents. And -- but then we were stopped from
2 going ahead and --

3 SPEAKER: By who?

4 SHELDON PLOTKIN: Well, first of all they said
5 there was no money, you can't have any money. So the
6 senator from Simi, Cathy Wright, sparked an
7 appropriation of something like \$135,000 out of the
8 state legislature to fund the advisory panel. Then it
9 got tied up in one of the State agencies and they
10 couldn't release the money for some reason for a long
11 period of time.

12 Finally, the money is released. And about
13 that time, the things are set up not to use the advisory
14 panel and not to go ahead the way it was planned
15 originally, again saying there's insufficient money to
16 pay for the independent epidemiologists to do the work as
17 they did with the -- with the radioactive material and
18 the chemical material. I can't relate to you all of the
19 different details of the whole thing, but at the moment
20 we are kind of stopped. And the advisory panel is still
21 trying to do something, but just doesn't have the
22 resources. And that's the way it is.

23 SPEAKER: One last quick question. It doesn't
24 sound like we are dealing with an interest in human life
25 here at this meeting. I would plead with the newspapers

1 for has not been done and that's where it sits in
 2 this time.
 3 SPEAKER: When was the funding made?
 4 SHELDON BLOKIN: Before the -- when the report
 5 panel was initially set up I don't know what year it
 6 was. But we set down and negotiated in Richard Kohn's
 7 office and we negotiated who would be on this and who
 8 panel and playing games really with Department of
 9 Health, DHS, and as to how the panel would be structured
 10 and how many people would be on it and from which groups
 11 to come. And we finally wound up with I guess the 11
 12 people on the advisory panel.
 13 And then we also agreed at that time that the
 14 studies would be done -- and the reason for doing the
 15 workers first is that is easier. There are records of
 16 cases. And for the validation, they have got the data
 17 patches.
 18 Then we ran into, for those of you that
 19 remember the situation -- then we ran into a little bit
 20 of a problem with the chemical company, the chemical
 21 employer, et cetera, losing the records, et cetera. But
 22 UCLA managed to do that work in a different way.
 23 There's very clever doing epidemiology studies.
 24 And the end result was that the workers were
 25 damaged by the exposure to the accident and the result

1 of the accident. And -- but then we were stopped from
 2 going ahead and --
 3 SPEAKER: By who?
 4 SHELDON BLOKIN: Well, first of all they said
 5 there was no money, and they had money. So they
 6 sent me from Simk, Cahn Wright, started an
 7 application of something like \$150,000 out of the
 8 state legislature to fund the advisory panel. Then it
 9 got tied up in one of the State agencies and they
 10 couldn't release the money for some reason for a long
 11 period of time.
 12 Finally, the money is released. And about
 13 that time, the things were set up not to use the advisory
 14 panel and not to go ahead the way it was planned.
 15 Originally, again saying there's insufficient money to
 16 pay for the independent epidemiologist to do his work as
 17 they did with the -- with the radioactive material and
 18 the chemical material. I can't come to you all of the
 19 different details of the whole thing, but at the moment
 20 we are kind of stopped. And the advisory panel is still
 21 trying to do something, but they don't have the
 22 resources. And that's the way it is.
 23 SPEAKER: One last quick question. It doesn't
 24 sound like we are dealing with an interest in hearing the
 25 here at this meeting. I would plead with the newspaper

1 obviously, but I think it's in the feasibility study
 2 phase.
 3 SPEAKER: Well, I'm looking for a study that's
 4 methodologically performed or, like, a reconstruction of
 5 method, and the history of people in San Valley and
 6 major communities, as well, those types of villages. Are
 7 we looking in a hot spot? Do we know how many people are
 8 affected by these chemicals that are coming down
 9 regardless of what the coming from?
 10 JONATHAN BARKLEY: The answer is that we don't
 11 know. And to do an epidemiological study, not on a
 12 single population but a very mobile population that
 13 works in these areas is something that is very
 14 very difficult to design and that's what the experts
 15 referring to is that there is some funding right now
 16 that is trying to see if there can be a study and design
 17 that is going to try to get some significant data from
 18 people who have lived in these communities.
 19 There have been two studies done on people who
 20 worked at the Westinghouse facility. And those two
 21 studies were performed by the UCI School of Public
 22 Health and they are available. Now one can make
 23 deductions, conceivably, from these studies. But to
 24 really -- there's anecdotal information about people who
 25 have come down with diseases, but you can't necessarily

1 then say from the anecdotal information that there is
 2 a statistically proven data regarding human health
 3 problems. But these two studies are available and I
 4 would be more than happy to forward them to you.
 5 SPEAKER: Yeah. These are good. I'm glad that
 6 they are being done on the people that worked in the
 7 area, but I'm talking about people living in this
 8 community.
 9 What is being done to protect them regarding
 10 of where these chemicals are coming from?
 11 SHELDON BLOKIN: One answer to your question is we
 12 have got a problem. The problem was that when the
 13 studies were done on the Rockledge workers, we were
 14 convinced that if the studies showed that the Rockledge
 15 workers were harmed by the solutions that occurred at
 16 the site, that's what the study showed, that there's
 17 similar type of study under the same type of -- with an
 18 independent advisory panel would be done of the
 19 community. That has been stopped, and a government
 20 agency has been brought in that's going to do the study.
 21 And, of the setting up the advisory panel, et cetera.
 22 And on management -- they did have UCLA, and there's
 23 some management for going some kind of a study, et cetera.
 24 But the promise that was made originally and what
 25 the advisory -- the epidemiology advisory panel set up

1 that are here today that they -- if they could get a
2 general hand count of the citizens that are coming down
3 with this oddity of diseases that we haven't seen in
4 years. I have known a lot of people myself that are
5 coming down with Graves' disease, and that hasn't been
6 heard of, and these people are in their 30s. I would
7 like to see a general hand count, just people phone into
8 the newspapers to -- just get a general hand count to
9 see what's going on to see if we have a hot spot and
10 maybe attack it from a different angle.

11 Right now I see a lot of discontent, a lot of
12 misinformation, and people not sharing information prior
13 to this meeting. And that's just observing this meeting
14 as an outsider. I really don't have much to say about
15 any individual, but I see a lot of information being
16 kept from certain groups and that's unacceptable. We
17 should work together.

18 LARRY BOWERMAN: I just want to provide a little
19 more perspective on this question of possible community
20 health impacts.

21 In 1999, the Agency for Toxic Substances and
22 Disease Registry was asked to come in and take a look at
23 this site to make an assessment about whether they
24 thought it was significantly impacting the people in the
25 community -- in the surrounding communities. In

1 LARRY BOWERMAN: I understand you're concerned
2 about this. And one of the follow-up recommendations --
3 you asked about whether if anybody was going to look at
4 systemically whether there were health effects. And one
5 of the recommendations was that some additional looks at
6 the cancer registry data be made. And I think, as Mike
7 indicated, a contractor was hired, ERG, to follow up on
8 these recommendations, and they have been working on
9 this since I believe sometime in about the middle of the
10 year 2000. The results of their follow-up work were
11 supposed to be available sometime next year I believe
12 And once those results are available, we intend to have
13 them come back and report on those results.

14 SPEAKER: I still find it unacceptable on the
15 record. We are talking about a hundred thousand people.

16 VICKI ROSEN: And I would just like to ask a
17 question.

18 Isn't it likely that there might be many
19 sources of contamination throughout the valley that we
20 haven't even looked into just as a matter of trying to
21 look at everything that might be affecting everybody?
22 And not to lessen any impact from the site, but aren't
23 there possibly multiple sources of contamination?

24 I see somebody else with a question also.

25 SPEAKER: Yeah. Haven't many efforts been made,

1 December 1999, they issued a draft report which said
2 that the SSFL is not an apparent public health hazard to
3 the surrounding communities because people have not been
4 and are not currently being exposed to chemicals and
5 radionuclides from the site that are likely to result in
6 adverse health effects. They also recognize that this
7 was a preliminary report based on just the available
8 information, and they had some follow-up
9 recommendations. And some of those follow-up
10 recommendations --

11 SPEAKER: Quit fooling yourself, fool

12 SHELDON PLOTKIN: Larry, in all fairness, that
13 presentation was absolutely clobbered in these meetings
14 by the citizens of this community. The result of those
15 studies are completely bogus, and the presenter of that
16 material was practically run out of the room by the
17 citizens that live here.

18 LARRY BOWERMAN: Well, I'm just trying to
19 communicate.

20 SPEAKER: I would be totally embarrassed if I were
21 you right now saying that there were a lot of people in
22 this community with diseases that are very rare and I
23 don't know what they're -- where the study came from,
24 but let's get a hand count in the city because we have a
25 problem.

1 though, to avoid looking into the community?

2 But my comments are actually on something
3 else. The Ahmanson Ranch perchlorate finding, it sounds
4 like between the DTSC and you, sirs, that the -- that it
5 is not in agreement as far as what the sources of
6 perchlorate in the Simi Valley side because of this
7 drainage issue

8 But on the Ahmanson finding of 28 parts per
9 billion, which is seven times the current level, which
10 is going down now, what can we say about that? The
11 Ahmanson people are actually saying that it's naturally
12 occurring. And I don't think we can explain it away by
13 fireworks or fertilizer because it's undeveloped land
14 Can't we all agree that there really is no other source
15 in the area that could explain this finding on the
16 Ahmanson Ranch property, which is adjacent to
17 Rocketdyne? Do -- can you agree that that really must
18 come from Rocketdyne since it's right next door? There
19 is no fertilizer, because it was never ever cultural.
20 There were never fireworks, certainly, because there are
21 no people. So what else could it possibly be? Would
22 anyone like to comment on that?

23 GERARD ABRAMS: I don't have a good response,
24 Christine. And, hopefully, you know, with some
25 additional work out there, maybe the issue can be

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22 relationship work on that, maybe the issue can be
 23 clarified. And, hopefully, you know, with some
 24 guidance. And, again, I don't have a good response
 25 to that. So what else could it possibly be? Would
 26 there were never in-network, certainly, because there are
 27 in no barrier, because it was never even entered
 28 come from RocketHub since it's right next door. There
 29 RocketHub? Do -- can you agree that that really must
 30 Wisconsin ranch property, which is adjacent to
 31 in the area that could explain this finding on the
 32 that we'll give the same really is no other source
 33 occurred or further because it's undisturbed land
 34 occurring. And I don't think we can explain it any by
 35 Wisconsin people are actually saying that it's naturally
 36 is going down now, what can we say about that? It's
 37 different, which is seven times the current level, which
 38 that on the Wisconsin finding of 28 parts per
 39 drainage years
 40 deposits in the Gulf Valley site because of this
 41 kind of movement as far as the source of
 42 like between the DSO and you say that the -- that it
 43 state. The Wisconsin ranch because the finding it sounds
 44 like my comment is actually on something
 45 though, to avoid looking into the community?

33 AFTER 7:00 PM There's been some
 34 I see somebody else with a question also
 35 there possibly multiple sources of contamination?
 36 And not to lessen any impact from the site, but what
 37 is it saying that might be affecting everything?
 38 amount even looked into just as a matter of trying to
 39 a source of contamination throughout the valley that
 40 that it likely that there might be many
 41 question.
 42 VICKI ROSEN: And I would just like to ask a
 43 record. We're talking about a finding in several people
 44 PERKINS: I still find it unacceptable on the
 45 team come back and report on those results.
 46 And once those results are available, we intend to have
 47 a meeting to be available sometime next year. I believe
 48 year 2004. The results of the follow-up work were
 49 this case, I believe someone is about the middle of the
 50 these recommendations, and they have been working on
 51 indicated, a contractor was hired, ERG, to follow up on
 52 the correct registry data to make. And I think as ERG
 53 of the recommendations was that some additional things
 54 eventually, whether there were health effects. And that
 55 and a lot about whether it makes any sense to have
 56 about this. And one of the follow-up recommendations

28 problem.
 29 but let's get a hand count in the city because we have a
 30 that's been gathering -- since the study came from
 31 that community, with success that are very rare and
 32 you might not say that there were a lot of people in
 33 SPEAKER: I would be totally embarrassed if I was
 34 community.
 35 LARRY BOWBERMAN: Well, I'm just trying to
 36 curious that five feet.
 37 minutes was practically run out of the room by the
 38 studies are completely bogus, and the presenter of the
 39 by the director of the community. The result of that
 40 program was completely obliterated in three months.
 41 SHILOM BLOTNIK: Larry, in all fairness, that
 42 SPEAKER: (but feeling yourself, but)
 43 recommendations. And some of those follow-up
 44 information, and they had some follow-up
 45 a preliminary report based on just the available
 46 data on health effects. I just also recognize that the
 47 responsibilities from the site that are likely to result in
 48 and are not currently being exposed to chemicals and
 49 the surrounding communities because people have not been
 50 for the SEFL is not an apparent public health hazard to
 51 (Speaker 1) they issued a third report which said

52 community -- in the surrounding committee, in
 53 enough it was significantly impacting the people in the
 54 this site to make an assessment about whether that
 55 disease Registry was asked to come in and take a look at
 56 in 1997 the Agency for Toxic Substances and
 57 health impacts.
 58 more perspective on this question of possible community
 59 LARRY BOWBERMAN: I just want to provide a little
 60 think work together.
 61 left from certain groups and that's unacceptable. We
 62 was individual, but I see a lot of information being
 63 as an outsider, I really don't have much to say about
 64 to the meeting. And that's just observing the meeting
 65 maintenance and people are sharing information from
 66 Right now I see a lot of discontent, a lot of
 67 maybe back it from a different angle.
 68 we don't come on in case there have a lot and
 69 the newspaper to -- just get a general hand count to
 70 like to see a general hand count that people phone into
 71 hand off, and those people are in their 30s. I would
 72 coming down with (some) disease, and that doesn't seem
 73 normal. I have known a lot of people in that age
 74 that are here today, that live -- if they could get a
 75 general hand count of the census that are coming down
 76 with this oddity of disease that we have seen in

1 resolved.

2 SPEAKER: You did mention that you were looking at
3 a way to fingerprint the perchlorate. I hope that we
4 can see that in the near future.

5 My other comment is to Mr. Lopez.

6 Earlier there were comments about the
7 radioactive release because of the meltdown of nuclear
8 rods I guess in 1959. And you said that that meltdown
9 was completely contained. And I believe that there is
10 documentation, I think presented by Mr. Hirsch in
11 previous meetings, where the radioactive iodine that
12 should have been contained in that sodium coolant was
13 essentially missing or far reduced from what it should
14 have been had it contained the radioactive nuclides from
15 the accident.

16 Can you comment on that, please?

17 MIKE LOPEZ: I don't remember Mr. Hirsch's
18 presentation. But based on our data from Boeing, it --
19 I won't retreat from my position.

20 SPEAKER: I think that has been said in the past.

21 JOHN BEACH: Excuse me, Mike. Isn't it the case
22 that if it were released into coolant, for example, and
23 contained within the building that it would be
24 considered to be contained as opposed to released in the
25 environment?

1 buildings. The whole thing. And at least some of those
2 buildings were addressed in the EPA's D&D surveys, and
3 we will be talking about those in a later meeting.

4 VICKI ROSEN: Excuse me. I have just been told
5 that the people here at the hotel are asking us to
6 vacate this room so that they can break down the room
7 because we only had the room until 10:00.

8 My suggestion is, so that we can continue this
9 discussion, can we just move out into the hallway and
10 still be able to answer these questions and allow them
11 to come in here and do this. I'm sorry to have to do
12 this but -- we move this way? Let's go ahead and move
13 to this side of the room. Okay.

14 Thank you very much.
15 (Meeting concluded at 10:35 p.m.)
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1 MIKE LOPEZ: Yes.

2 JOHN BEACH: So there is a possibility that it
3 escaped from where it was to someplace else in the
4 building but it was not released to the environment.

5 SPEAKER: And also, I think we never got any
6 clarification of the red buildings versus the green
7 buildings. And are they considered to be actually clean
8 by everyone here? The buildings indicated as green on
9 that diagram that was to be followed up, I would like to
10 hear about that. Because if the EPA does not agree that
11 those are actually clean enough to be released for
12 public or unrestricted use, because this is a real issue
13 when we have Ahmanson Ranch building a city right next
14 door. It's very important that we understand that when
15 we have 23,000 tons of dust, or something like that,
16 that is going to go into the air, and we have potential
17 contamination that no one will look at because it's not
18 in the right spot, we have a problem. And we need to
19 understand if that has truly been released for
20 unrestricted use, and that that big red building left,
21 what are we looking at there?

22 JOHN BEACH: The blue buildings will be included in
23 the Area IV soil survey and --

24 SPEAKER: And the green buildings, as well?

25 JOHN BEACH: The green buildings and the red

1 STATE OF CALIFORNIA)
2) ss.
3 COUNTY OF LOS ANGELES)
4
5 I, Mark S. Patterson, CSR Certificate No.
6 12432, for the State of California, hereby certify:
7 I am the person that stenographically
8 recorded the foregoing meeting.
9 The foregoing transcript is a true record of
10 said meeting to the best of my ability.
11
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17 Mark S. Patterson,
18 CSR No. 12432
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JOHN REAR: The green buildings and the red
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