

**APPENDIX D**

**PUBLIC MEETING TRANSCRIPTS**

## Public Meeting Transcripts

This appendix contains the official transcripts from the public meetings held on May 12, May 14, and June 20, 2001 for the purpose of commenting on the Proposed Plan for OU-2. The transcripts were reviewed and several corrections were noted to the official transcripts. The corrections pertaining to each public meeting are as follows:

### Court Reporter #1, Vickie Blair: Public Meeting held May 12, 2001

NUMBER	PAGE	LOCATION	CORRECTION
1	5	Line 1,5,and 6	“NAFAC” should be “NAVFAC”
2	7	Line 18	“vado zone” should be “vadose zone”
3	9	Line 24	“remediate” should be “remedial”
4	10	Line 8	“vado zone” should be “vadose zone”
5	25	Line 13	“gasses” should be “gases”

### Court Reporter #2, Leslie MacNeil: Public Meeting held May 12, 2001

NUMBER	PAGE	LOCATION	CORRECTION
1	5	Line 11,14,and 15	“NAVFEK” should be “NAVFAC”
2	10	Line 9	“arroyo” should be “Arroyo”
3	18	Line 11	“you” should be “up”
4	27	Line 3	“been” should be “then”
5	36	Line 10	“THE FLOOR” should be “MS. TUTT”

**Court Reporter #1, Vickie Blair: Public Meeting held May 14, 2001**

<b>NUMBER</b>	<b>PAGE</b>	<b>LOCATION</b>	<b>CORRECTION</b>
1	5	Line 2,5,and 7	“NAFAC” should be “NAVFAC”
2	8	Line 13	“NASA/JPL” should be “NASA-JPL”
3	9	Line 7	“sound” should be “found”
4	9	Line 13	“remedial investigation feasibility study” should be “remedial investigation/feasibility study”
5	10	Line 17	“faculties” should be “facilities”
6	13	Line 5	“Faculties” should be “Facilities”
7	19	Line 1	“our on” should be “on our”

**Court Reporter #2, Leslie MacNeil: Public Meeting held May 14, 2001**

<b>NUMBER</b>	<b>PAGE</b>	<b>LOCATION</b>	<b>CORRECTION</b>
1	5	Line 9,12,and 13	“NAVFEK” should be “NAVFAC”
2	7	Line 15	Replace “standard” with “state”
3	8	Line 23	“won’t” should be “want to”
4	9	Line 18	“arroyo” should be “Arroyo”
5	13	Line 6	“random” should be “ran the”

**Court Reporter, Vickie Blair: Public Meeting held June 20, 2001**

<b>NUMBER</b>	<b>PAGE</b>	<b>LOCATION</b>	<b>CORRECTION</b>
1	5	Line 14, 17, and 19	“NAFAC” should be “NAVFAC”
2	8	Line 9	“congress” should be capitalized
3	10	Line 16	“depositories” should be “repositories”
4	11	Line 25	“1,1, -cichloroethene” should be “1,1,-dichloroethene”
5	19	Line 16	“private road” should be capitalized
6	19	Line 17	“south gate” should be capitalized
7	21	Line 7	“taking” should be “talking”
8	21	Line 13	“immediately” should be “immediatly”
9	26	Line 3	“depositories” should be “repositories”
10	28	Line 21	“Cynthis”, I believe her name was Cynthia.
11	30	Line 3	“RPN” should be “RPM”
12	30	Line 3	“RPN” should be “RPM”
13	30	Line 20	Insert to read: “vapor samples”
14	32	Line 24	“rain basin” may be “Raymond Basin”
15	33	Line 4	“rain basin” may be “Raymond Basin”
16	34	Line 24-25	“responses in the summary” should be “responsiveness summary”
17	37	Line 10	“air circulating” should be “soil vapor
18	37	Line 22	“Britta” should be “Brita”
19	38	Line 11	“Force Wheeler” should be “Foster
20	38	Line 21	“Geofund” should be “Geofon”
21	39	Line 8	“Geofund” should be “Geofon”
22	39	Line 23	“Geofund” should be “Geofon”

<b>NUMBER</b>	<b>PAGE</b>	<b>LOCATION</b>	<b>CORRECTION</b>
23	40	Line 2,3, 10, 16	“Patel” should be “Battelle”
24	40	Line 5	[unintelligible] should be “Proposed”
25	40	Line 13, 19	“Geofund” should be “Geofon”
26	57	Line 11	“response [unintelligible]” should read “responsiveness summary”
27	57	Line 22-23	“response to summary” should be “responsiveness summary”
28	58	Line 2	“Mr. Compton” should be “Ms. Compton”
29	58	Line 8	“Response in the summary” should be “responsiveness summary”
30	64	Line 8	“hearing” should be “meeting”
31	64	Line 15	“response summary” should be “responsiveness summary”
32	65	Line 1	“information depositories” should be “information respositories”
33	67	Line 6, 8	“information depositories” should be “information respositorie

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PUBLIC MEETING AND PUBLIC COMMENT PERIOD

JET PROPULSION LABORATORY

PASADENA, CALIFORNIA

SATURDAY, MAY 12, 2001

1:00 P.M. to 4:00 P.M.

Reported by:

Vickie Blair

C.S.R. No. 8940, RPR-CRR

1 PASADENA, CALIFORNIA; SATURDAY, MAY 12, 2001  
2 1:00 P.M.  
3 ---000---

5 MR. SAUNDERS: Good afternoon. Welcome to the Jet  
6 Propulsion Laboratory. Thank you for taking the time to  
7 attend this meeting on a Saturday afternoon.

8 My name is Lee Saunders. I'm an  
9 environmental public affairs officer for the U.S. Navy and  
10 your facilitator for today's meeting about the proposed  
11 plan to select a remedy to clean up soils at the National  
12 Aeronautics and Space Administration, Jet Propulsion  
13 Laboratory, located here in Pasadena.

14 Prior to this meeting, you had the  
15 opportunity to speak to NASA, federal, and other local  
16 leading regulatory agency representatives on a one-to-one  
17 basis about the proposed cleanup actions. During this  
18 portion of the meeting, you, the community, can provide  
19 questions and comments to these representatives and their  
20 agencies on the proposed plan. These comments and  
21 questions will be included in a meeting transcript and  
22 become part of the final decision made for soil cleanup at  
23 JPL.

24 Representing the agencies responsible for  
25 the cleanup and talking to you about the proposed plan and

1 to write down your questions during the presentations in  
2 case you have some questions that you develop and you just  
3 feel you can't wait until the time comes. But that will  
4 help you keep track of what those questions are.

5 To ensure that everyone that wishes to make  
6 a comment or ask a question has a fair and equal  
7 opportunity to do so, we ask that you limit your comments  
8 or questions to two minutes. At the end of this time,  
9 please take your seat. If you have not finished your  
10 remarks, you may continue for another three-minute period  
11 after we've heard from all the other speakers.

12 We have a court reporter -- actually, we  
13 have two court reporters here today, so we ask you to  
14 please state your first and last name and spell your last  
15 name before you begin your comments or questions.

16 If you do not wish to provide verbal  
17 comments or questions, you may also submit your comments  
18 and questions in writing. There are comment sheets that I  
19 just mentioned a moment ago available on the tables in the  
20 back for those of you in the audience who would prefer not  
21 to give your input or comments verbally at this meeting.

22 For those of you wondering why the U.S. Navy  
23 is involved with the environmental cleanup of a NASA  
24 facility, the explanation is fairly simple. In 1999, NASA  
25 and the Naval Facilities Engineering Command, who I work

1 its remedial alternatives are agency representatives who  
2 will each introduce themselves starting from my left here.

3 MR. ROBLES: Peter Robles from NASA.

4 MR. ZUROMSKI: Richard Zuromski from the Naval  
5 Facilities Engineering Command.

6 MR. GEBERT: Richard Gebert from the State of  
7 California Department of Toxic Substances Control.

8 MR. RIPPERDA: I'm Mark Ripperda from the U.S. EPA.

9 MR. YOUNG: I'm David Young from the Los Angeles  
10 Regional Quality Control Board.

11 MR. SAUNDERS: All these representatives are what  
12 we call remedial project managers that are responsible in  
13 one way or form in the cleanup of this particular site.

14 Ground rules. I want to talk about ground  
15 rules for today's meeting, which are as follows: This  
16 afternoon's format will consist of presentations by  
17 representatives about the proposed plan and remedial  
18 alternatives, followed by a formal comment session where  
19 you, the community, can provide us with your comments and  
20 questions.

21 I'm going to ask you to please hold your  
22 questions until the presentations have been completed.  
23 Once we've heard from all the presenters, we will open the  
24 floor for questions and comments. You may want to use the  
25 sheets of paper that were distributed, the comment sheets,

1 for, who are commonly known by the acronym NAFAC, reached a  
2 memorandum of agreement establishing roles and  
3 responsibilities that state that NASA may procure  
4 environmental engineering and consultancy services from  
5 NAFAC and its subordinate commands.

6 In late 1999, NAFAC remained heavily  
7 involved in providing environmental services to NASA JPL.  
8 Peter Robles, our regional project manager from NASA, is  
9 our first presenter.

10 Peter.

11 MR. ROBLES: Good afternoon.

12 The first thing we want to talk about is our  
13 presentation. What we are going to present this afternoon  
14 is a site description, regulatory framework, site  
15 assessment and investigative activities, and our remedial  
16 activity and proposed remediation alternatives.

17 In other words, we're going to go and follow  
18 along what the booths in the back are in sequence so that  
19 you can get a feel for the total history of this site.

20 There it is. Site description. The site  
21 has been active since the late '30s to early '40s. It was  
22 part of a project out of Cal Tech. The Army Ordnance took  
23 over the site in the '40s and became the owner of the site,  
24 and work was done here for the Army Ordnance service,  
25 particularly during the World War II era.

1 At that time during the '40s and '50s, the  
 2 proper and acceptable way of disposing of chemicals was  
 3 done through what we call seepage pits. Seepage pits are  
 4 no more than bricks without the binding between them so  
 5 that things can seep out into the ground through them. At  
 6 that time, it was accepted. Most of that was working on  
 7 propulsion systems to support jet aircraft -- we call JATO,  
 8 jet assist to take-off rockets. Also reverse engineering  
 9 of V-II rockets from World War II and further on.  
 10 During the late '50s, early '60s, the Army  
 11 Ordnance was working in negotiating with NASA, and NASA  
 12 took over the site in 1959, 1960, at which time what we did  
 13 was we replaced the seepage pits with a sewer system so,  
 14 therefore, we could stop that type of activity.  
 15 Up until that time, there was not a problem  
 16 with the ground or soils in the area. But in '92 was when  
 17 the concern came about, and we were placed on the national  
 18 priorities list by EPA. And at that time that made us a  
 19 SuperFund site, which is the process that we have been  
 20 talking about these last couple of hours with you. That  
 21 process started in October of '92. We signed a federal  
 22 facility agreement, and the process started for us to  
 23 investigate the site.  
 24 Current activities right now is that all of  
 25 our operations meet federal and state and local

1 regulations. And, by the way, I was told by our people to  
 2 say this, that almost all, very small percentile, is ever  
 3 sent through disposal. We recycle and destroy as much as  
 4 we can here. And the fact is, this facility is the best in  
 5 NASA for recycling materials and chemicals that are used  
 6 here. And we do a lot of research here. But we meet all  
 7 federal, state, and local requirements, so current  
 8 operations is not a concern. We're talking about past  
 9 acceptable practices that we are trying to remediate.  
 10 Here is a site description of what we're  
 11 talking about, and here's the gist of the problem. Because  
 12 of the seepage pits and the stuff that was put in there,  
 13 they slowly -- and it takes years to migrate through the  
 14 soils and to reach the water table.  
 15 Our biggest concern is between 50 feet below  
 16 the surface all the way down to 200 feet. And the main  
 17 purpose of our discussion today is to talk about  
 18 remediating what we call Operable Unit 2 vado zone. "Vado  
 19 zone" is an engineering term for just the soils between the  
 20 surface to the water table. We want to remove this source  
 21 so that it stops migrating and impacting the environment.  
 22 And that's what our focus is today, about minimizing that,  
 23 removing that, and we have certain technologies that we  
 24 have tried.  
 25 NASA will address the groundwater issue in

1 the future. We plan another meeting like this next year to  
 2 talk about remediating groundwater Operable Unit 1 and 3;  
 3 but for today, we want to focus on the soils.  
 4 And now I would like to turn this over to our  
 5 regulatory framework speaker, which is --  
 6 MR. RIPPERDA: Thanks, Peter.  
 7 I'm Mark Ripperda from EPA, and I'm kind of  
 8 speaking for all the regulators, for Richard and David who  
 9 are here from the State of California.  
 10 But first I'd just like to ask that all of  
 11 you from the public go home and tell your friends, tell 10  
 12 friends each, how much fun this is, how much you learned,  
 13 and tell them that they have to come back on Monday night.  
 14 So what does it mean to be a SuperFund site,  
 15 and for that matter what is SuperFund? Congress, about 20  
 16 years ago, passed a law that put a tax on the chemical  
 17 industry, and that money from the chemical industry all  
 18 went into a trust fund that's called the SuperFund that EPA  
 19 is authorized to use to spend to clean up abandoned  
 20 hazardous waste sites. That same law also gave EPA the  
 21 authority to go after existing facilities such as NASA JPL  
 22 that have had releases that need to be cleaned up.  
 23 But before you become a SuperFund site, you  
 24 have to go through a rank process. EPA evaluates how bad  
 25 the site is, how bad the potential risk might be. And if

1 you score high enough, you're put on the national  
 2 priorities list, which means you're a SuperFund site. And  
 3 right now there's about 2000 or so SuperFund sites.  
 4 So after the discovery of the release, and  
 5 for NASA JPL, that meant that the City of Pasadena found  
 6 chemicals in their drinking water wells -- I'm not sure  
 7 which way is east and west here -- over this way. Right  
 8 across the Arroyo, City of Pasadena had some drinking water  
 9 wells, and they found levels of chemicals in there that  
 10 were high enough that they needed to put a treatment system  
 11 on them. At that time, all that information is turned in  
 12 to EPA; we rank it and say, "Okay, this needs to be a  
 13 SuperFund site."  
 14 But the first thing that happened is that as  
 15 soon as the City of Pasadena found those chemicals, they  
 16 put treatment systems in. NASA had to reimburse the City  
 17 for that, and then NASA needs to start looking at their  
 18 site and determine where those chemicals came from, how  
 19 much there might be, and how best to clean it up so the  
 20 groundwater in the future is not getting either more  
 21 contaminated; and, in fact, we can start to clean up the  
 22 groundwater itself.  
 23 So to do that we do what is called a  
 24 remediate investigation and feasibility study. That means  
 25 we look through all the records, what kind of chemicals are

1 used on-site. NASA drilled bore holes all over the site.  
 2 They drilled monitoring wells to take samples of  
 3 groundwater both on-site and off-site. They sampled  
 4 drinking water wells from all over the area to try to  
 5 determine the extent of the problem and to design a way to  
 6 best clean it up.

7 And that brings us to about where we are now  
 8 for the vado zone soils. So NASA JPL have completed the  
 9 investigation of the soil zone, and they're making a  
 10 proposed plan to you, to the public, saying that, you know,  
 11 "We think we understand the problem. We think we know the  
 12 best way to clean it up, and what do you think?" You know,  
 13 both "What do you think of what we've done, and what do you  
 14 think of what we," NASA, not me, EPA, "is saying on how to  
 15 clean it up?"

16 So if you do have any, not just questions,  
 17 but if you have any comments on what they're proposing,  
 18 please make those either today or after the meeting in  
 19 writing. Let NASA know what you think.

20 At that point, NASA needs to respond to all  
 21 those comments. They'll do a written response that gets  
 22 sent out to the public; it gets sent to the regulators.  
 23 State of California people, and we at EPA review NASA's  
 24 response and say either, "Yeah, you did a good job  
 25 responding or not."

1 And if everybody agrees that this is the  
 2 best way to go, then they'll do an actual legal document  
 3 called a "Record of Decision" where they say, "This is what  
 4 we're selecting to do."

5 And then from there, they actually design  
 6 the system. Right now they have a rough idea -- you know,  
 7 if you've been talking to us back there, you know they're  
 8 planning to put in about five bore holes. That's not set  
 9 in stone; that's an estimation of what we think would be  
 10 best. But actual -- after public comments are received and  
 11 the decision of record is signed, then the contractors will  
 12 do a more detailed study. And it will probably be five  
 13 bore holes plus or minus a little bit, but they'll do the  
 14 actual details of the design.

15 And after the soils are cleaned up, there  
 16 will still be long-term monitoring to make sure that the  
 17 remedy actually worked. And all of this is separate from  
 18 the groundwater system, which, as Peter said, will be  
 19 addressed in kind of six months to a year. There will be  
 20 another meeting with another proposed plan on how NASA  
 21 plans to clean up the groundwater.

22 And kind of like I already said, the whole  
 23 point of this is just to get the public involved. So  
 24 please tell your friends to come, tell people you live near  
 25 what's going on, and, you know, give us any comments or

1 concerns you might have.

2 MR. ROBLES: Tell them about the cookies.

3 MR. RIPPERDA: And eat that table full of cookies.  
 4 Richard.

5 MR. ZUROMSKI: Thank you, Mark.

6 Hi. I think I've talked to some of you. My  
 7 name is Richard Zuromski. I'm with the Naval Facilities  
 8 Engineering Command, and I'm here today to talk to you  
 9 about the site assessment and investigation activities that  
 10 have been done here at JPL, and also what we're proposing  
 11 as a remedy for JPL OU-2.

12 First I'll start out with the remedial  
 13 investigation. From 1994 through 1998, JPL conducted the  
 14 remedial investigation in over nine sampling events,  
 15 different sampling events. They looked at 45 soil vapor  
 16 wells, 35 soil borings, and three test pits. Now, they've  
 17 also, at the end of that remedial investigation,  
 18 established 37 permanent monitoring points for soil vapor  
 19 that we monitor on a quarterly basis. So we are continuing  
 20 to monitor the extent of VOCs in the soil to date on a  
 21 quarterly basis.

22 The samples that we took during the remedial  
 23 investigation identified the extent to which the chemicals  
 24 were found in the soils. The results showed that there  
 25 were elevated levels of four different chemicals in the

1 soil vapor. These four chemicals were carbon  
 2 tetrachloride, trichloroethene, Freon 113, and  
 3 1,1-dichloroethene. These chemicals are chemicals that are  
 4 used as cleaning solvents. When we used to test the old  
 5 rocket motors here back, as Peter was saying, back in the  
 6 '30s, '40s, and '50s they used to clean out the rocket  
 7 motors with these solvents, and that's how they came into  
 8 the ground here at OU-2.

9 Secondly, I want to talk to you today about  
 10 the OU-2 risk assessment. The human health risk assessment  
 11 found that there were no risks above regulatory thresholds  
 12 from exposure to humans to soils or soil vapor. Now, as  
 13 Peter mentioned earlier, the main reason is that these  
 14 chemicals are more than 50 feet below the ground surface  
 15 where we are today, so it's really very, very unlikely that  
 16 any of you will come in contact with those chemicals.

17 However, also, as Peter and Mark mentioned,  
 18 there is a risk that these chemicals will continue to  
 19 migrate. They've already migrated 50 to 200 feet down, and  
 20 they will continue to migrate to the groundwater, and that  
 21 is the purpose of the remedy that we're proposing here.

22 Now, we are currently studying how we're  
 23 going to remove the VOCs from the groundwater. And, as  
 24 mentioned earlier, that's going to be the subject of  
 25 another public meeting almost exactly like this in the near

1 future.  
 2 However, in the meantime, again, to  
 3 reiterate what Peter said, there isn't a risk from the  
 4 chemicals in the groundwater because your water purveyors  
 5 or the individuals who have to deliver the water to you  
 6 have to meet very strict regulatory requirements. But the  
 7 focus of today's meeting is looking at how we can remove  
 8 what we're calling source removal. It is how can we remove  
 9 the chemicals that are in the soil that may potentially  
 10 continue to migrate into the groundwater. And that's what  
 11 we're looking at today.

12 Now, this graphic shows the extent to which  
 13 VOCs at any level, whether that was a very, very small  
 14 level or a high level were found at JPL during the remedial  
 15 investigation. Now, to date -- I don't know how many of  
 16 you had a chance to look back at our table back here, but  
 17 the size of this area is smaller to date; and so if you are  
 18 interested, please take a look. But this was during the  
 19 1994 through the 1998 remedial investigation. The highest  
 20 levels -- like I said, this is the extent of all levels  
 21 that we found during our remedial investigation; however,  
 22 the highest levels that we found were here in the north  
 23 central part of the site. And that's where most of the lab  
 24 activities were taking place at the time.

25 Now, based on the results of what we did in

1 viable alternatives for cleaning up the site.  
 2 The first is no further action. This is a  
 3 default that is used to compare all other technologies to.  
 4 It would involve maintaining our quarterly soil vapor  
 5 monitoring program and any possible natural degradation of  
 6 the chemicals in the soil and the soil vapors.

7 The second is soil vapor extraction with  
 8 granular activated carbon treatment. Now, this technology  
 9 would involve placing up to five soil vapor extraction  
 10 wells and five extraction systems or treatment systems, and  
 11 also continuing the ongoing quarterly soil vapor monitoring  
 12 program here at JPL.

13 To help us evaluate the technologies and the  
 14 alternatives, we conducted a pilot study of the soil vapor  
 15 extraction technology at JPL starting in 1998. Again, some  
 16 of the results from our pilot study are available at the  
 17 tables in the back, but what it showed in over 14 months of  
 18 operation, we removed over 200 pounds of these chemicals  
 19 from the soils. Now, it was so effective during our pilot  
 20 study that we do continue to operate the pilot study to  
 21 date, and it does continue to remove the chemicals from the  
 22 soil vapor to date.

23 Now, this is a conceptual drawing of how  
 24 soil vapor extraction works. Now, let me point out some of  
 25 the details of this diagram. It's fairly simplified, but

1 the soil investigation and the remedial investigation and  
 2 also our continued quarterly monitoring program for soil  
 3 vapor, we have found that, as I said, the VOC vapor plume  
 4 has not migrated in soil vapor off the site. This is about  
 5 the limit. It's about 45 acres here on the site in soil  
 6 vapor, so it hasn't gotten any bigger than this.

7 And, again, I encourage you to take a look  
 8 after the formal presentation at some of the other  
 9 documents we have in the back that would show you some of  
 10 the more current conditions.

11 Now, like I said, based on the analysis of  
 12 the remedial -- during the remedial investigation, the  
 13 remedial objective for OU-2 is to prevent VOCs from  
 14 migrating to the groundwater. That's our objective here.

15 To meet this objective, we looked at several  
 16 alternatives, and these were investigated in what Mark  
 17 called earlier the feasibility study. Of these  
 18 alternatives, two were selected for a very detailed  
 19 evaluation, as mentioned in the proposed plan that was sent  
 20 out. Others were looked at and, for example, just weren't  
 21 found to be feasible. For example, it would be very  
 22 unfeasible to try to dig out soils underneath all the  
 23 buildings here at JPL where the soils are more than 50 feet  
 24 below the buildings here on-site. So we wanted to look at  
 25 two alternatives in detail that we wanted to make sure were

1 it does give you a good picture of how soil vapor  
 2 extraction works.

3 First, here, this is the past seepage pits  
 4 that were used back, as Peter said, back in the '30s and  
 5 '40s that released VOCs into the soil and soil vapor.  
 6 These VOCs are basically -- it's like a vacuum. The soil  
 7 vapor extraction is like a vacuum that sucks these soil  
 8 vapors, the chemicals, into this extraction well, right  
 9 here, and extracts the vapors in a gaseous phase to the  
 10 surface through this little pump. The pump then sends the  
 11 chemicals into the vapor treatment system. Now, the vapor  
 12 treatment system consists of granular activated carbon.  
 13 What it does is -- actually, it's like charcoal. What it  
 14 does is when the vapors with the chemicals go through the  
 15 carbon, they bind to the carbon and they stay permanently  
 16 in the carbon and clean air is released from the system.  
 17 So, basically, all of the chemicals that are sucked from  
 18 the ground through the system remain in the vapor treatment  
 19 system and are permanently removed from the soil vapor.

20 So based on our analysis, based on the  
 21 remediation investigation, based on our soil vapor  
 22 extraction pilot study, alternative one was not chosen  
 23 because it just doesn't prevent the migration of VOCs to  
 24 the groundwater. Therefore, the proposed alternative for  
 25 OU-2 is soil vapor extraction. Soil vapor extraction would

1 be used to reduce the source of the chemicals in the soil  
2 vapor so that they do not migrate to groundwater. It would  
3 permanently remove them from the soil vapor to the system.

4 Soil vapor extraction works very well for  
5 several reasons.

6 First, number one, it permanently removes  
7 the VOCs from the soil vapor.

8 Number two, it works very well in the types  
9 of geology and soil that we have here at JPL, and that was  
10 shown during our pilot study.

11 Third, it protects the groundwater from  
12 further migration of these chemicals through the soils.

13 Fourth, the treatment period is relatively  
14 short, probably from one to five years, operating these  
15 types of systems.

16 And, finally, because of these advantages,  
17 and because soil vapor extraction has been so successful,  
18 not only here in our pilot study, but at sites all over the  
19 country, it's given the name "a presumptive remedy" by the  
20 United States EPA. What a presumptive remedy is, it's the  
21 most effective technology for conditions similar to JPL as  
22 was seen at sites tested throughout the country. And  
23 that's another main reason why we're proposing soil vapor  
24 extraction for OU-2.

25 Based on the pilot study data, based on the

1 alternative, but it's just continuing not to do something.

2 If I'm wrong about that, I'd like to be corrected.

3 And so alternative two is to pursue the soil  
4 vapor extraction. And it's interesting. I appreciate the  
5 description that was given today. I wonder if some folks  
6 from either the Navy or maybe someone -- the fellow from  
7 the EPA could tell us more about some other alternatives  
8 that were considered for this.

9 Also, my other comment is that I just  
10 received the notice, an invitation to this meeting, today,  
11 May 12th. And the meeting -- I just received it in the  
12 mail today, May 12th, from the post office in my mailbox  
13 here in Altadena, and today the meeting is also May 12th.  
14 So I'd like to comment that this is not soon enough before  
15 the meeting to be able to get people over here and tell  
16 people about what an interesting meeting this is. I think  
17 that if we would have known about it a little more in  
18 advance, it would have helped --

19 MR. SAUNDERS: Thirty seconds.

20 MS. TUTT: Thank you.

21 -- it would have helped to get more  
22 interested community members out to the meeting. So I just  
23 wanted to just pass that along. I would think that at  
24 least 10 days would be the minimum that you would let us  
25 know in advance of the meeting.

1 results of the remedial investigation and ongoing quarterly  
2 monitoring, we are proposing soil vapor extraction as the  
3 proposed alternative for JPL OU-2.

4 Lee.

5 MR. SAUNDERS: Thank you, Richard.

6 We're now going to go into the comment  
7 phase, comment and question phase, of this meeting. As a  
8 quick reminder: To ensure that all participants' comments  
9 or questions receive equal treatment, please limit your  
10 comments and questions to two minutes. We also ask you to  
11 please state your first and last name and spell your last  
12 name for the court reporters.

13 Thank you.

14 Do we have any speakers that would like to  
15 comment or ask any questions? Please step up to the mike.  
16 Don't be shy. Any questions or comments that you want to  
17 submit to the court reporters in writing?

18 Yes, ma'am. Would you step up to the mike,  
19 please.

20 MS. TUTT: My name is Elaine Susan Tutt, and my  
21 last name is T- as in Thomas -u-t-t as in Tom. And I'm a  
22 resident of Altadena, and I also work here at JPL.

23 Yeah. What I would like to ask is for the  
24 alternatives. There's alternative one and alternative two,  
25 and it seems like alternative one is not really an

1 Thank you.

2 MR. RIPPERDA: I'll say something from the EPA's  
3 perspective on your question on alternatives, and I also  
4 agree with you about the short notice. That's inexcusable  
5 on our part, on NASA's part. You know, I'm not sure why it  
6 happened that way. It wasn't supposed to. These things  
7 were supposed to be mailed out about 10 days ago. So we  
8 screwed up, and I have to take responsibility for that,  
9 too, because I'm supposed to be overseeing what NASA's  
10 doing to make sure they do it right.

11 But back to the alternatives.

12 It does look like, you know, NASA is not  
13 giving anybody very much choice. They're giving you  
14 alternative one and alternative two, and alternative one is  
15 essentially do nothing. But in a -- we talked about this,  
16 actually, before the meeting, saying, "Wow, you know, we're  
17 not giving people much choice here." But it's what Richard  
18 said about a presumptive remedy.

19 In a case like this, soil vapor extraction  
20 has been used at thousands of sites around the country.  
21 It's been the one and only technology that's proven to work  
22 consistently at sites like this.

23 You know, there are other things you can  
24 do. You can dig up the whole site, but EPA doesn't require  
25 a facility to investigate, you know, obviously ridiculous

1 choices such as digging up the entire site.  
 2 But there's other things you can do like  
 3 injecting steam to make it be cleaned up faster. That  
 4 would be called an innovative technology. But we don't  
 5 really require that a facility look at things like that  
 6 that would cost so much more when an off-the-shelf  
 7 technology works so well and relatively quickly.

8 So even though it looks like there's really  
 9 not much choice here, it's because NASA is following the  
 10 process that's kind of set in law by Congress that they're  
 11 supposed to look at alternatives, but we've been doing this  
 12 long enough that the alternatives that it boils down to in  
 13 some cases are very few, or, in this case, only one real  
 14 alternative.

15 Congress makes us look at "no further  
 16 action" just as a baseline to make sure we're not out there  
 17 spending money willy-nilly. And other than that, the way  
 18 the law was written by Congress, you know, we're supposed  
 19 to look at viable alternatives. And, in this case, we have  
 20 enough experience to know that soil vapor extraction is  
 21 actually the only viable alternative. But we're still  
 22 supposed to do it in this way where we go to the public  
 23 with our various alternatives that NASA is proposing. We  
 24 haven't changed the process even though we've learned  
 25 enough to know that there actually is only one real

1 We have meetings quarterly, and we will  
 2 discuss this, and we will have information meetings in the  
 3 future because we still need your inputs. So as we go on,  
 4 hopefully we'll find some technology with the silver bullet  
 5 that will clean everything up, we hope, some day. But  
 6 until now we have to use what we've got.

7 MR. ZUROMSKI: I just want to make two quick  
 8 comments just to clarify what Peter said, as well.

9 It's true that every five years we do what  
 10 is called a five-year review once we sign the legal  
 11 document that Mark talked about called the ROD, the record  
 12 of decision. So every five years, we do review what we've  
 13 done and, again, see if we're doing the right thing.

14 And, secondly, as I think was mentioned  
 15 today, this is the proposed alternative, as well. The  
 16 opportunity here is that we are presenting, though limited,  
 17 but what we think is the best alternative. We do encourage  
 18 your comments as to what you think, if this is the best  
 19 alternative. And that's why this part of the process  
 20 involves public comment.

21 So thank you.

22 MR. SAUNDERS: Any other comments?

23 MR. ROBLES: Just a couple of comments I wanted to  
 24 make was we did mail these out on Tuesday, May 8th.  
 25 Obviously, it wasn't enough time, so we'll definitely make

1 alternative here.

2 So I don't know if NASA wants to say  
 3 anything.

4 MR. ROBLES: Just because it's SVE now doesn't mean  
 5 that if, in the future, new technology comes in that we  
 6 find better that we won't revisit this. This is not like  
 7 cast in stone right now. So I want to assure the public  
 8 that as technologies develop, we are required through the  
 9 process to periodically review what we're doing, and if we  
 10 see something better, and if an issue comes up that we want  
 11 to augment the SVE with another technology that has  
 12 appeared to be better, that's what we do.

13 So as the technology improves, one of the  
 14 things -- I've been in this business 30 years. One of the  
 15 things that amazes me is that the regulations are always  
 16 set forth before the technology catches up. But as  
 17 technology improves, we in the environmental community can  
 18 say, "Okay, look, this new technology might be better than  
 19 be SVE, so let's replace it or let's augment."

20 So don't think that this is it. We're only  
 21 going to do SVE, and that's it; we've lost the  
 22 opportunity. We are required through the process, and Mark  
 23 is always on my case about this, is to make sure that the  
 24 technology matches what we need to do. And so we're going  
 25 to revisit this. It's not cast in stone.

1 sure that we mail these farther in advance to get them out  
 2 to you in plenty of time to plan to attend the meeting.

3 And one other comment, as Richard was  
 4 basically saying, is the purpose of this meeting is that  
 5 you can come here and provide some alternatives that you  
 6 feel might be useful to add into the record that we could  
 7 consider in the future.

8 Are there any other comments or questions  
 9 from the public?

10 MS. BLAIR: I have one, yes.

11 My name is Susan Blair, B-l-a-i-r. I'm also  
 12 an Altadena resident. Mine's a curiosity question. Once  
 13 the gasses come up through the pipe into the chamber where  
 14 the carbon is and it absorbs the chemical, what happens to  
 15 those carbons?

16 MR. ZUROMSKI: What happens is once the carbon  
 17 becomes full of all the different chemicals that we are  
 18 pulling from the soil vapors, we have to, as Peter stated  
 19 earlier, in accordance with all the state and local and  
 20 federal regulatory requirements, take that carbon canister,  
 21 remove it, and then it's either recycled or incinerated or  
 22 somehow disposed of in a very legal manner off-site. And  
 23 then we then replace the carbon with brand-new carbon and  
 24 it continues the process again.

25 MS. BLAIR: Thank you.

1 MR. SAUNDERS: Do we have any other questions from  
2 the public?

3 Go ahead, ma'am.

4 MS. COMPTON: Cynthia Compton, C-o-m-p-t-o-n. I'm  
5 an employee of JPL and interested community member. I have  
6 a few questions, so I'll just plow through them in my two  
7 minutes.

8 You said that in the '50s to the early '60s,  
9 a sewer system replaced the seepage pits. Does that mean  
10 the chemicals are now going into the sewer system, and  
11 where do they go from there?

12 Other questions I have are: Is there a  
13 record of what other alternatives were considered other  
14 than these one and two, and where can we read or find out  
15 about that?

16 And it says the pilot system has removed 200  
17 pounds of VOCs. Out of how many is predicted or known to  
18 be at the site?

19 It says that -- I think what I'm hearing is  
20 that the VOCs are in the vapor or the pockets of the soil,  
21 so what about the soil itself, involving the VOCs in the  
22 soil particles, and once you remove it from the vapor, does  
23 it now migrate from the soil particles back into the vapors  
24 afterwards?

25 And I also agree with the short notice to

1 saying, "This is a storm water drain. This is sanitary  
2 sewer." We don't want chemicals going down there. That's  
3 part of our regulation. We have a whole office on-site to  
4 manage that. So that's not going down there. That's one  
5 of the reasons.

6 The second -- well, I'll answer your last  
7 item on the notices. There are repositories in the local  
8 area, the libraries, that you can get these documents, and  
9 there is on the record when we sent the notice. We do  
10 apologize. We had a little snafu. We had sent 4,732  
11 mailers. Now, I have received some phone calls that people  
12 did receive them by Monday and Tuesday of this week, but  
13 there was a slight mix-up where you might have been the  
14 ones that didn't get it until later. We did send the  
15 E-mail out -- I don't know what happened. Well, we want to  
16 send it earlier, so that's a good comment. We're going to  
17 have to notice -- I think we're going to really have to  
18 send them more than 10 days earlier to make sure that the  
19 mail -- because there were some problems with some of the  
20 post offices in sending this stuff out, so we want to make  
21 sure it does.

22 We also put it in the paper. We put it in  
23 the four local papers and "L.A. Times." But I also notice  
24 that some people didn't see that, so we have to agument in  
25 the future -- so we have to be creative about which way --

1 the public, and that's why there are -- in my opinion, are  
2 not adequate representation from the community here. I got  
3 the E-mail notice on Wednesday, and didn't really see it  
4 until Friday, about six P.M. on Friday. And I would like  
5 to know: Is there some kind of record of when notices are  
6 sent out to the public and where they're at?

7 And the other thing is, I think I was  
8 talking to Richard about who these notices are sent to in a  
9 half-a-mile radius from the site. What about -- I  
10 understand sending it another half a mile to get more  
11 public is maybe too many -- you know, too costly, but what  
12 about sending the notice to the customers of the water  
13 companies that are involved?

14 MR. SAUNDERS: Time. Thank you.

15 Your questions are involved, and we'll  
16 address them one at a time.

17 MR. ROBLES: Good questions.

18 On the first one is we do not send chemicals  
19 down the sewer system. What happens is we try to recycle  
20 them. They're usually used up in the processes. If we  
21 can't recycle them, we try to destroy them in some form or  
22 fashion. The regulations try to minimize sending stuff  
23 down the sanitary sewer. Very particular about that.

24 I don't know if you've seen around the lab  
25 these circles with the ducks on them because they're

1 do you guys listen to radio? Might that be a better way?  
2 I'm just asking because we're trying to get more items out,  
3 and that's why we have two meetings. So if you could tell  
4 the public, you know, I apologize, come out Monday. I  
5 would love to see a hundred people here or more. But we  
6 have sent 4,732 of these mailers plus the 6,000 JPLers who  
7 were contacted.

8 MR. ZUROMSKI: I think I'm going to address the  
9 other two of them. I think Peter covered a lot of yours.

10 The first, if you do want to see the other  
11 types of technologies that were evaluated, that is in the  
12 feasibility study and that is available at all of the  
13 document repositories. And that shows you the detailed  
14 analysis, like I talked to you about earlier, that we go  
15 through to evaluate technologies. It will show when  
16 certain things were dropped out and when certain things  
17 were retained. And it's very detailed. It's about three,  
18 four inches thick, but it's very easy to look at. So feel  
19 free; it's at all the document repositories.

20 The second question I think that I'm going  
21 to answer is the amount of chemicals that are in the soil  
22 vapor and how they move around.

23 There are different ways to technically  
24 estimate how much is in the soil vapor. I can't get into  
25 every little detail of how that is done. Again, that is in

1 the feasibility study, as well. But there is an estimate  
2 of somewhere between three to five thousand pounds, 5,000  
3 being the maximum that we believe could be in the soil  
4 vapors, and that also includes what would be in the soils.

5 When we say "soil vapors," since they are  
6 volatile organic compounds, they tend to be in a vapor  
7 state, and so that is why we are removing soil vapors,  
8 versus soils themselves.

9 MR. RIPPERDA: I'll add a little bit to that.  
10 That's actually a great question about soil vapor versus  
11 soil, and what Richard said is right, but I'm just going to  
12 add a little bit.

13 So we estimate, or NASA estimates, that  
14 there's up to about 5,000 pounds total of these things, and  
15 that's total in the soils, absorbed in the soils and in the  
16 soil vapor. When it's located like it is, 50 to 200 feet  
17 below the surface, you actually have to drill a well, a  
18 bore hole, to get down to it. And the act of drilling that  
19 bore and taking your sample, you can't -- it drives the  
20 VOCs out of that piece of soil. So you can't just take a  
21 sample of the soil and analyze how much in the soil. It's  
22 just not very effective.

23 So what we do instead is we measure what's  
24 in the soil vapor, and that's very easy. You drill your  
25 same bore hole, and that sucks some air in, and that

1 want it to volatilize that material because it's a volatile  
2 organic. So you want to draw it out. So you constantly  
3 are pulling pressure and putting a vacuum on it to suck it  
4 up. Eventually there should be no particles left there.

5 I'd say no because any system cannot be 100  
6 percent clean. You can't get the last molecule out. What  
7 you're trying to do is get as low as possible until the  
8 technology doesn't work anymore, and then you wait for  
9 another technology. You say, "Hey, we're kind of finished,  
10 and there is no more threat to the groundwater." And  
11 that's what you do on that. It's not an exact science. We  
12 try our best, and that's what we do.

13 And that, like I said -- the document, as  
14 Richard said, is thick. It has everything in there that  
15 you want to know, and if it's not in there, we'll have  
16 informative meetings and we can give you the boring  
17 lecture. Because this is long and to read these documents  
18 right now at -- once we finish this process, sometime in  
19 the future, we're going to have so many documents that you  
20 will not believe. I mean, we generate so much information.  
21 This process requires of the government to do this to make  
22 sure that we make the right decision, and we have to  
23 publish these documents so you the public can read them and  
24 say, "How did you guys make that choice?" That's what we  
25 call the administrative record, and that's why we have that

1 volatilizes it off the soil. So we're being somewhat  
2 legalistic when we're always saying the VOCs in the soil  
3 vapor because that's where we actually measured it, and  
4 that represents how much is actually in the soil. And  
5 there are various equations that you can use based on soil  
6 chemistry with partitioning co-efficients and so forth to  
7 calculate from what you have in the soil vapor back to what  
8 you have in the soil.

9 So just because we always say "soil vapor,"  
10 that doesn't mean we're only looking at the vapor. What we  
11 really care about is what is in the soil and about any  
12 rainwater that might migrate through that soil, deabsorb  
13 it, and carry it down to groundwater.

14 MR. SAUNDERS: Any other feedback from any other  
15 representatives?

16 MR. ROBLES: Did we answer all your questions,  
17 ma'am?

18 MS. TUTT: What about when you remove the VOCs from  
19 the vapors, as more chemicals evaporate out of the soil  
20 into the --

21 MR. ROBLES: Right. That's why you constantly do  
22 that. The question is -- one question that she had asked,  
23 once you remove the particles through the vapor, are there  
24 any particles left on the soil?

25 This is a continuous process because you

1 in the repositories for you.

2 MR. SAUNDERS: I don't know if it was mentioned,  
3 the proposed plan information repositories are located on,  
4 if you want that information, on page six of this, the  
5 different information repositories. The item of record, I  
6 believe, is kept here at JPL.

7 MR. ROBLES: There's three.

8 MR. SAUNDERS: Okay. And, again, what you're  
9 telling us tonight is very useful this evening because we  
10 need this feedback. I believe this is the first time that  
11 you've held a public meeting here, so this is a learning  
12 process for NASA, for all of us. And we appreciate this  
13 feedback that you're giving to us. It will help us make  
14 the meetings better in the future, to communicate  
15 information to the public better.

16 Yes, ma'am.

17 MS. TUTT: The only question that wasn't answered  
18 is: Have you considered sending these public notices to  
19 the customers and the water companies that are impacted?

20 MR. ROBLES: Thank you. We have a representative  
21 here. I'm not going to put him on the spot.

22 We meet with the Raymond Basin Management  
23 Board. We have dialogue. We are meeting with the City of  
24 Pasadena on Monday. The water purveyors know about these  
25 meetings, and we have told them in their board meetings and

1 the word has gotten out that way. We have gone to local  
 2 community meetings like, I think, Northeast Trees and a few  
 3 others. We've told them about this.  
 4 We are looking to expand our mailing list,  
 5 so if you can recommend some groups or people that you want  
 6 to put on the mailing list, please let us know because we  
 7 have no fear of sending as many as it takes so that the  
 8 public -- normally, believe it or not, I've been in this  
 9 business 30 years, and I've only been at one public meeting  
 10 where it was standing room only and that was because the  
 11 government needed to expand a bombing range. You know how  
 12 controversial that was. But most of the time people get  
 13 their information through the newsletter or they call up or  
 14 they go to the repositories. But if you have any  
 15 suggestions of people that you want on the mailing list or  
 16 groups, please let us know. But this information has  
 17 gotten out to the purveyors of water.  
 18 MR. SAUNDERS: I believe what you're referring to  
 19 is like when --  
 20 MR. ROBLES: Oh, the customers? You mean the water  
 21 customers?  
 22 MS. TUTT: You and me that are drinking water and  
 23 paying the purveyor to send water to our houses.  
 24 MR. ROBLES: So you're asking should we send this  
 25 to all the people who get the water?

1 MS. TUTT: All the customers who live within a  
 2 half-mile radius.  
 3 MR. ROBLES: That's a good point.  
 4 MR. SAUNDERS: I think the point you may also be  
 5 making, and I may be wrong about this, but when utilities,  
 6 they have public hearings and such, they usually include a  
 7 public notice in their mail-out in the billing. Of course,  
 8 that is their mailing; it's not ours. So we would have to  
 9 approach a utility to do that. Whether they would do it  
 10 for free or charge us, I don't know, but that's something  
 11 we would have to discuss with the utility.  
 12 UNIDENTIFIED SPEAKER: That's a community right to  
 13 know.  
 14 MR. ROBLES: Right. That's a community right to  
 15 know.  
 16 That's a very good suggestion that when  
 17 we're going to talk about groundwater, a good thing to do  
 18 might be to go and talk to the purveyors and see if we  
 19 should send those notice -- that's a good point. Thank  
 20 you.  
 21 MRS. BLAIR: The Lincoln Avenue Water Company,  
 22 every member of the Lincoln Avenue Water Company is a  
 23 shareholder, so they have the right to know that.  
 24 MR. ROBLES: That's right. That's a good point.  
 25 Thank you. I didn't think about that. That's good.

1 Particularly when we're talking about groundwater. Good  
 2 suggestion.  
 3 MR. SAUNDERS: Did we answer all your questions?  
 4 Was there anything else that we skipped over?  
 5 MS. TUTT: Record of public notices, is that in the  
 6 repositories or only here at JPL?  
 7 MR. SAUNDERS: That type of information is put in  
 8 the information repository. Public notice for the meeting  
 9 would be put in there.  
 10 Any other questions or comments from the  
 11 public? We welcome this opportunity to hear from you.  
 12 Anyone else?  
 13 Well, there is another opportunity if you  
 14 think of further questions that you'd like to ask. We are  
 15 having another public meeting on Monday night, and that  
 16 information is also in that proposed plan fact sheet and  
 17 the times. And the public comment period is continuing  
 18 on.  
 19 Again, I want to thank you for attending. I  
 20 encourage you to review and comment on the proposed plan.  
 21 Final decisions regarding cleanup will be made after your  
 22 public comments have been received and considered.  
 23 The public comment period started on May 7th  
 24 and runs through June 11th, 2001. If requested, NASA may  
 25 consider extending the public comment period. Written

1 comments, and request for extension of the comment period  
 2 should be mailed or E-mailed to Peter Robles, and his  
 3 address is in the fact sheet, and it's also up here on the  
 4 slide here.  
 5 If there's nothing else, no other comments,  
 6 any last statements from our representatives up here, I  
 7 thank you for attending this afternoon and have a good  
 8 evening.  
 9 Oh, yes. And there will continue to be the  
 10 representatives here who will be available after the  
 11 meeting if you want to do follow-ups or ask any further  
 12 questions. And, again, if you think of a question after  
 13 we've officially closed this meeting, feel free to write it  
 14 out on the comment sheet and submit it to our court  
 15 reporters and such so they can include it in the public  
 16 record.  
 17 Thank you.  
 18 (Whereupon, at 4:00 P.M., the HEARING was  
 19 adjourned.)  
 20 ---000---  
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 22  
 23  
 24  
 25

1 STATE OF CALIFORNIA        )  
2                                    ) ss

3 COUNTY OF LOS ANGELES        )

4        I, Vickie Blair, Certified Shorthand Reporter,  
5 number 8940, RPR-CRR, for the State of California, do  
6 hereby certify;

7        That the foregoing transcript is a true record  
8 of the proceedings.

9        I hereby certify that I am not interested in  
10 the event of the action.

11        IN WITNESS WHEREOF, I have subscribed my name  
12 this 4th day of June, 2001.

13  
14                    -----  
15                    Certified Shorthand Reporter for  
16                    the State of California

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PUBLIC MEETING AND PUBLIC COMMENT PERIOD  
SATURDAY, MAY 12, 2001  
1:00 P.M.

VON KARMAN AUDITORIUM  
NASA JET PROPULSION LABORATORY  
4800 OAK GROVE DRIVE  
PASADENA, CALIFORNIA

1 PASADENA, CALIFORNIA  
2 SATURDAY, MAY 12, 2001; 1:00 P.M.

3  
4 MR. SAUNDERS: Good afternoon.  
5 Welcome to the Jet Propulsion Laboratory. Thank you  
6 for taking the time to attend this meeting on a  
7 Saturday afternoon.

8 My name is Lee Saunders. I'm an  
9 environmental public affairs officer for the U.S.  
10 Navy and your facilitator for today's meeting about  
11 the proposed plan to select a remedy to clean up  
12 soils at the National Aeronautics and Space  
13 Administration Jet Propulsion Laboratory, located  
14 here in Pasadena.

15 Prior to this meeting you had the  
16 opportunity speak to NASA, federal and other local  
17 regulatory agency representatives on a one-on-one  
18 basis about the proposed cleanup actions. During  
19 this portion of the meeting you, the community, can  
20 provide questions and comments to these  
21 representatives and their agencies on the proposed  
22 plan. These comments and questions will be included  
23 in a meeting transcript and become part of the final  
24 decision made for soil cleanup at JPL.

25 Representing the agencies responsible

1 I'm going to ask you to please hold  
2 your questions until the presentations have been  
3 completed. Once we've heard from all the presenters  
4 we will open the floor for questions and comments.  
5 You may want to use the sheets of paper that were  
6 distributed, comments sheets, to write down your  
7 questions during the presentation, in case you have  
8 some questions that you develop and you just feel  
9 you can't wait until the time comes, but that will  
10 help you keep track of what those questions are.

11 To ensure that everyone that wishes to  
12 make a comment or ask a question has a fair and  
13 equal opportunity do so, we ask that you limit your  
14 comments or questions to two minutes. At the end of  
15 that time please take your seat. If you have not  
16 finished your remarks, you may continue for another  
17 three-minute period after we've heard from all the  
18 other speakers.

19 We have a court reporter -- actually,  
20 we have two court reporters here today, so we ask  
21 you to please state your first and last name and  
22 spell your last name before you begin your comments  
23 or questions.

24 If you do not wish to provide verbal  
25 comments or questions, you may also submit your

1 for the cleanup and talking to you about the  
2 proposed plan and its remedial alternatives are  
3 agency representatives, who will each introduce  
4 themselves, starting from my left here.

5 MR. ROBLES: Peter Robles from NASA.

6 MR. ZUROMSKI: Richard Zuromski from  
7 the Naval Facilities Engineering Command.

8 MR. GEBERT: Richard Gebert from the  
9 state of California Department of Toxic Substance  
10 Control.

11 MR. RIPPERDA: Mark Ripperda from the  
12 U.S. EPA.

13 MR. YOUNG: David Young from the  
14 Los Angeles Regional Water Quality Control Board.

15 MR. SAUNDERS: And all these  
16 representatives are what we call remedial project  
17 managers that are responsible in one way or form in  
18 the cleanup of this particular site.

19 Ground rules, I want to talk about  
20 ground rules for today's meeting, are as follows:  
21 This afternoon's format will consist of  
22 presentations by our representatives about the  
23 proposed plan and remedial alternatives, followed by  
24 a formal comment session where you, the community,  
25 can provide us with your comments and questions.

1 comments and questions in writing. There are  
2 comments sheets, as I just mentioned a moment ago,  
3 available on the tables in the back for those of you  
4 in the audience that would prefer not to give your  
5 input or comments verbally at this meeting.

6 For those of you wondering why the  
7 U.S. Navy is involved with the environmental cleanup  
8 of a NASA facility, the explanation is fairly  
9 simple. In 1999 NASA and the Naval Facilities  
10 Engineering Command, who I work for, more commonly  
11 known by the acronym NAVFEC, reached a memorandum of  
12 agreement establishing roles and responsibilities  
13 that state that NASA may procure environmental  
14 engineering and consultancy services from NAVFEC and  
15 its subordinate commands. In late 1999 NAVFEC  
16 became heavily involved in providing environmental  
17 services to NASA JPL.

18 Peter Robles, remedial project manager  
19 from NASA, is our first presenter.

20 Peter?

21 MR. ROBLES: Good afternoon. First  
22 thing we want to talk about is our presentation.  
23 What we have -- going to present this afternoon is a  
24 site description, regulatory framework, site  
25 assessment and investigative activities and our

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1 remedial activity and proposed remediation  
2 alternatives. In other words, we're going to go and  
3 follow along what the booths in the back are, in  
4 sequence, so that you can get a feel for the total  
5 history of this site.

6 Site description. The site has been  
7 active since the late '30s to early '40s. It was  
8 part of a project out of Cal Tech. The Army  
9 ordinance took over the site in the '40s and became  
10 the owner of the site and work was done here for the  
11 Army ordinance service, particularly during the  
12 World War II era.

13 At that time during the '40s and '50s,  
14 the proper and acceptable way of disposing of  
15 chemicals was done through what we call seepage  
16 pits. Seepage pits are no more than bricks without  
17 the binding between them, so that things can seep  
18 out into the ground through them. At that time it  
19 was accepted. Most of that was working on  
20 propulsion systems to support jet aircraft, we call  
21 JATO, genesis to take-off rockets, also reverse  
22 engineering of V-II rockets for World War II and  
23 further on.

24 During the late '50s, early '60s the  
25 Army ordinance was working and negotiating with NASA

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1 and NASA took over the site in 1959, 1960, at which  
2 time what we did was we replaced the seepage pits  
3 with a sewer system so, therefore, we could stop  
4 that type of activity. Up until that time there was  
5 not a problem with the ground or soils in the area,  
6 but in '92 was when the concern came about and we  
7 were placed on the national priorities list by EPA.

8 And at that time that made us a  
9 Superfund site, which is what the process that we  
10 have been talking about these last couple of hours  
11 with you. That process started in October of '92,  
12 we signed a federal facility agreement and the  
13 process started for us to investigate the site.

14 Current activities right now is that  
15 all of our operations meet federal and state and  
16 local regulations. And by the way, I was told by  
17 our people to say this, that almost all, very small  
18 percentile is ever sent through disposal. We  
19 recycle and destroy as much as we can. The effect  
20 is, this facility is the best in NASA for recycling  
21 materials and chemicals that are used here. And we  
22 do a lot of research here but we meet all federal,  
23 state and local requirements so current operations  
24 is not a concern. We're talking about past  
25 acceptable practices that we are trying to

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1 remediate.

2 Here is the site description of what  
3 we're talking about and here is the gist of the  
4 problem. Because of the seepage pits and the stuff  
5 that was put in there, they slowly, and it takes  
6 years to migrate through the soils and to reach the  
7 water table.

8 Our biggest concern is between 50 feet  
9 below the surface all the way down to 200 feet, and  
10 the main purpose of our discussion today is to talk  
11 about remediating what we call Operable Unit 2  
12 vadose zone. Vadose zone is an engineering term for  
13 just the soils between the surface to the water  
14 table.

15 We want to remove this source, so that  
16 it stops migrating and impacting the environment.  
17 And that's what our focus is today about, minimizing  
18 that, removing that and we have certain technologies  
19 that we have tried.

20 NASA will address the groundwater  
21 issue. In the future we plan another meeting like  
22 this next year, to talk about remediating  
23 groundwater Operable Unit 1 and 3, but today we want  
24 to focus on the soils.

25 And now I would like to turn this over

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1 to our regulatory framework speaker, which is ...

2 MR. RIPPERDA: Thanks, Peter.

3 I'm Mark Ripperda from EPA and I'm  
4 kind of speaking for all the regulators, for Richard  
5 and David who are here from the state of  
6 California.

7 But first I would just like to ask  
8 that all of you from the public go home, tell your  
9 friends -- tell 10 friends each how fun this is, how  
10 much you learned and tell them that they have to  
11 come back on Monday night.

12 So what does it mean to be a Superfund  
13 site and, for that matter, what's Superfund.  
14 Congress, about 20 years ago, passed a law that put  
15 a tax on the chemical industry, and that money from  
16 the chemical industry all went into a trust fund  
17 that's called the Superfund, that EPA is authorized  
18 to use to spend to clean up abandoned hazardous  
19 waste sites. That same law also gave EPA the  
20 authority to go after existing facilities, such as  
21 NASA JPL, that have had releases that need to be  
22 cleaned up.

23 But before you become a Superfund site  
24 you have to go through a ranking process. EPA  
25 evaluates how bad the site is, how bad the potential

1 risk might be and, if you score high enough, you're  
2 put on the national priorities list, which that  
3 means you're a Superfund site. And right now  
4 there's about 2000 or so Superfund sites.

5 So after the discovery of the release,  
6 and for NASA JPL that meant that the city of  
7 Pasadena found chemicals in their drinking water  
8 wells -- I'm not sure which way is east or west  
9 here -- over this way, right across the arroyo, the  
10 city of Pasadena has some drinking water wells, and  
11 they found levels of chemicals in there that were  
12 high enough that they needed to be -- to put a  
13 treatment system on them. At that time all that  
14 information -- started at EPA, we rank it and we say  
15 okay, this needs to be a Superfund site.

16 But the first thing that happened is,  
17 that as soon as the city of Pasadena found those  
18 chemicals they put treatment systems in, NASA had to  
19 reimburse the city for that, and then NASA needs to  
20 start looking at their site and say -- and determine  
21 where those chemicals came from, how much there  
22 might be and how best to clean it up so that the  
23 groundwater in the future is not getting either more  
24 contaminated -- and in fact we can start to clean up  
25 the groundwater itself.

1 So to do that, we do what's called a  
2 remedial investigation and feasibility study. That  
3 means we look through all the records, what kind of  
4 chemicals are used on-site, drill -- NASA drilled  
5 bore holes all over the site, they drilled  
6 monitoring wells that gets down to the groundwater  
7 both on site and off site, they sampled drinking  
8 water wells from all over the area to try to  
9 determine the extent of the problem and to design a  
10 way to best clean it up. And that brings us to  
11 about where we are now, for the vadose zone soil.

12 So NASA JPL completed the  
13 investigation of the soil zone and they're making a  
14 proposed plan to you, to the public, saying that,  
15 you know, we think we understand the problem, we  
16 think we know the best way to clean it up and what  
17 do you think? Both what do you think of what we've  
18 done and what do you think of what we, NASA, not the  
19 EPA, is saying on how to clean it up.

20 You know, so if you do have any -- not  
21 just questions, but if you have any comments on what  
22 they're proposing, you know, please make those  
23 either today or, after the meeting, in writing. You  
24 know, let NASA know what you think.

25 At that point NASA needs to respond to

1 all those comments. They'll do a written response  
2 that gets sent out to the public, it gets sent to  
3 the regulators, state of California people and, you  
4 know, we at EPA review NASA's response and say  
5 either yeah, you did a good job responding or not.

6 And if everybody agrees that, you  
7 know, this is the best way to go, then they'll do an  
8 actual legal document, called a record of decision,  
9 where they say this is what we're selecting to do  
10 and then, from there, they actually design the  
11 system. Right now they have a rough idea, you  
12 know -- if you've been talking to us back there, you  
13 know that they're planning to put in about five bore  
14 holes. And that's not set in stone, that's, you  
15 know, an estimation of what we think will be best.

16 Actual -- after public comments are  
17 received and the record of decision is signed, then  
18 there are contractors who will do a more detailed  
19 study, and it will probably be about five bore  
20 holes, plus or minus a little bit, but they'll do  
21 the actual details of the design. And after the  
22 soils are cleaned up, there will still be long-term  
23 monitoring to make sure that the remedy actually  
24 worked.

25 And all of this is separate than the

1 groundwater system which, as Peter said, will be  
2 addressed in -- in six months to a year there will  
3 be another meeting, with another proposed plan on  
4 how NASA plans to clean up the groundwater.

5 And -- kind of like I already said,  
6 the whole point of this is just to get the public  
7 involved. So please tell your friends to come, tell  
8 people you live near what's going on and, you know,  
9 give us any comments or concerns you might have.

10 MR. ZUROMSKI: Tell them about the  
11 cookies.

12 MR. RIPPERDA: And eat the tablefull  
13 of cookies.

14 MR. ZUROMSKI: Thank you, Mark.

15 I think I talked to some of you. My  
16 name is Richard Zuromski, with the Naval Facilities  
17 Engineering Command, and I'm here today to talk to  
18 you about the site assessment and investigation  
19 activities that have been done here at JPL and,  
20 also, what we're proposing as a remedy for JPL  
21 OU-2.

22 First I'll start out with the remedial  
23 investigation. From 1994 through 1998 JPL conducted  
24 a remedial investigation in over nine sampling  
25 events, different sampling events. They looked at

1 45 soil vapor wells, 35 soil borings and three test  
 2 pits. Now, they also, at the end of that remedial  
 3 investigation, established 37 permanent monitoring  
 4 points for soil vapor, that we monitor on a  
 5 quarterly basis. So we are continuing to monitor  
 6 the extent of VOCs in the soil to date, on a  
 7 quarterly basis.

8 The samples that we took during the  
 9 remedial investigation identify the extent to which  
 10 the chemicals were found in the soils. The results  
 11 showed that there were elevated levels of four  
 12 different chemicals in the soil vapor. These four  
 13 chemicals were carbon tetrachloride,  
 14 trichloroethene, Freon 113 and  
 15 1,2-dichloroethylene. These chemicals are chemicals  
 16 that are used as cleaning solvents when they used to  
 17 test the old rocket motors here, back -- as Peter  
 18 was saying, back in the '30s, '40s and '50s they  
 19 used to clean out the rocket motors with these  
 20 solvents, and that's how they came into the ground  
 21 here OU-2.

22 Secondly, I want to talk to you today  
 23 about the OU-2 risk assessment. The human health  
 24 risk assessment found that there were no risks above  
 25 regulatory thresholds from exposure to humans to

1 how can we remove the chemicals that are in the soil  
 2 that may potentially continue to migrate into the  
 3 groundwater, and that's what we're looking at  
 4 today.

5 Now, this graphic shows the extent to  
 6 which VOCs at any level, whether that was a very,  
 7 very small level or a high level, were found at JPL  
 8 during the remedial investigation. Now, to date, I  
 9 don't know how many of you had a chance to look back  
 10 at our table back here, but the size of this area is  
 11 smaller to date. And so if you are interested,  
 12 please, take a look. But this was during the 1994  
 13 through the 1998 remedial investigation.

14 The highest levels -- like I said,  
 15 this is the extent of all levels that we have -- we  
 16 found during our remedial investigation. However,  
 17 the highest levels that we found were here, in the  
 18 north central part of the site. That's where most  
 19 of the lab activities were taking place at the  
 20 time.

21 Now, based on the results of what we  
 22 did in the soil investigation and the remedial  
 23 investigation, and also our continued quarterly  
 24 monitoring program for soil vapor, we have found  
 25 that, as I said, the VOC vapor plume has not

1 soils or soil vapor. Now as Peter mentioned  
 2 earlier, the main reason is that these chemicals are  
 3 more than 50 feet below the ground surface, where we  
 4 are today. So it's really very, very unlikely that  
 5 any of you will come in contact with those  
 6 chemicals.

7 However, also as Peter and Mark  
 8 mentioned, there is a risk that these chemicals will  
 9 continue to migrate, they've already migrated 50 to  
 10 200 feet down and will continue to migrate to the  
 11 groundwater, and that is the purpose of the remedy  
 12 that we're proposing here.

13 Now, we are currently studying how  
 14 we're going to remove the VOCs from the groundwater  
 15 and, as mentioned earlier, that is going to be the  
 16 subject of another public meeting, almost exactly  
 17 like this, in the near future. However, in the  
 18 meantime, again to reiterate what Peter said, there  
 19 isn't a risk from the chemicals in the groundwater  
 20 because your water purveyors, or the individuals who  
 21 have to deliver the water to you, have to meet very  
 22 strict regulatory requirements.

23 But today's -- the focus of today's  
 24 meeting is looking at how we're going to remove what  
 25 we're calling -- we're calling source removal, is

1 migrated in soil vapor off the site. This is about  
 2 the limit, it's about 45 acres here on the site in  
 3 soil vapor. So it hasn't gotten any bigger than  
 4 this.

5 And, again, I encourage you to take a  
 6 look, after the formal presentation, at some of the  
 7 other documents that we have in the back, which will  
 8 show you some of the more current conditions.

9 Now, like I said, based on the  
 10 analysis of the remedial -- during the remedial  
 11 investigation, the remedial objective for OU-2 is to  
 12 prevent VOCs from migrating to the groundwater.  
 13 That's our objective here. To meet this objective,  
 14 we looked at several alternatives and these were  
 15 investigated, what is called -- what Mark called  
 16 earlier the feasibility study. Of these  
 17 alternatives, two were selected for a very detailed  
 18 evaluation, as mentioned in the proposed plan that  
 19 was sent out. Others were looked at and, for  
 20 example -- but just weren't found to be feasible.  
 21 For example, it would be very infeasible to try to  
 22 dig out soils underneath all the buildings here at  
 23 JPL that are more than -- that the soils are more  
 24 than 50 feet below the buildings here on site. So  
 25 we wanted to look at two alternatives that were --

1 in detail, that we wanted to make sure were viable  
2 alternatives for cleaning up the site.

3 The first is no further action. This  
4 is a default that is used to compare all other  
5 technologies to. It would involve maintaining our  
6 quarterly soil vapor monitoring program and any  
7 possible natural degradation of the chemicals in the  
8 soil -- in the soil vapors.

9 The second is soil vapor extraction  
10 with granular activated carbon treatment. Now, this  
11 technology would involve installing you to five soil  
12 vapor extraction wells and five extraction systems  
13 or treatment systems, and also continuing the  
14 ongoing quarterly soil vapor monitoring program here  
15 at JPL.

16 To help us evaluate the technologies  
17 and the alternatives, we conducted a pilot study of  
18 the soil vapor extraction technology at JPL,  
19 starting in 1998. Again, some of the results from  
20 our pilot study are available at the tables in the  
21 back. But what it showed, in over 14 months of  
22 operation, we removed over 200 pounds of these  
23 chemicals from the soil.

24 Now, it was so effective during our  
25 pilot study, that we have -- we do continue to

1 operate the pilot study to date, and it does  
2 continue to remove the chemicals from the soil vapor  
3 to date.

4 Now, this is a conceptual drawing of  
5 how soil vapor extraction works. Now, let me point  
6 out some of the details of this diagram. It is  
7 fairly simplified but it does give you a good  
8 picture of how soil vapor extraction works.

9 First, here, this is from -- these are  
10 the past seepage pits that were used back -- as  
11 Peter said, back in the '30s and '40s that released  
12 VOCs into the soil and soil vapor. These VOCs are  
13 basically -- it's like a vacuum. The soil vapor  
14 extraction system is like a vacuum that sucks these  
15 soil vapor, the chemicals, into this extraction  
16 well, right here, and extracts the vapors, in a  
17 gaseous phase, to the surface through this little  
18 pump. The pump then sends the chemicals into the  
19 vapor treatment system.

20 Now, the vapor treatment system  
21 consists of granulated activated carbon. What it  
22 does, it's -- actually, it is like charcoal. What  
23 it does is, when the vapors, with the chemicals, go  
24 through the carbon, they bind to the carbon and they  
25 stay permanently in the carbon and clean air is

1 released from the system. So, basically, all of the  
2 chemicals that are sucked from the ground through  
3 the system remain in the vapor treatment system and  
4 are permanently removed from the soil vapor.

5 So, based on our analysis, based on  
6 the remedial investigation, based on our soil vapor  
7 extraction pilot study, Alternative 1 was not chosen  
8 because it just doesn't prevent the migration of  
9 VOCs to the groundwater. Therefore, the proposed  
10 alternative for OU-2 is soil vapor extraction.

11 Soil vapor extraction will be used to  
12 reduce the source of the chemicals in the soil  
13 vapor, so that they do not migrate to groundwater.  
14 It would permanently remove them from the soil  
15 vapor, through the system.

16 VOC -- excuse me. Soil vapor  
17 extraction works very well for several reasons.  
18 First, number one, it permanently removes the VOCs  
19 from the soil vapor.

20 Number two, it works very well in the  
21 types of geology and soil that we have here at JPL,  
22 and that was shown during our pilot study.

23 Third, it protects the groundwater  
24 from further migration of these chemicals through  
25 the soils.

1 Fourth, the treatment period is  
2 relatively short, probably from one to five years,  
3 operating these types of systems.

4 And, finally, because of these  
5 advantages and because soil vapor extraction has  
6 been so successful not only here in our pilot study  
7 but at sites all over the country, it's given the  
8 name "a presumptive remedy" by the United States  
9 Environmental Protection Agency. What a presumptive  
10 remedy is, it's the most effective technology for  
11 conditions similar to JPL as was seen at sites  
12 tested throughout the country. And that's another  
13 main reason why we're proposing soil vapor  
14 extraction for OU-2.

15 Based on the pilot study data, based  
16 on the results of the remedial investigation and  
17 ongoing quarterly monitoring, we are proposing soil  
18 vapor extraction as the proposed alternative for JPL  
19 OU-2.

20 Lee?

21 MR. SAUNDERS: Thank you, Richard.

22 We're now going to go into the comment  
23 phase, comment and question phase of this meeting.  
24 As a quick reminder, to ensure that all  
25 participants' comments or questions are received --

1 receive equal treatment, please limit your comments  
2 and questions to two minutes. We also ask you to  
3 please state your first and last name and spell your  
4 last name for the court reporters.

5 Thank you.

6 Do we have any speakers that would  
7 like to comment or ask any questions? Please step  
8 up to the mike.

9 Don't be shy.

10 Any questions or comments that you  
11 want to submit to the court reporters in writing?

12 Yes, ma'am. Would you step up to the  
13 mike, please.

14 MS. TUTT: My name is Elaine Suzanne  
15 Tutt and my last name is T- as in Thomas -u-t-t as  
16 in Tom, and I'm a resident of Altadena, and I also  
17 work here at JPL.

18 Yeah. What I would like to ask is for  
19 the alternatives, there's alternative one and  
20 alternative two, and it seems like alternative one  
21 is not really an alternative but it's just  
22 continuing not to do something. If I'm wrong about  
23 that I'd like to be corrected. And so alternative  
24 two is to pursue the soil vapor extraction.

25 And it -- it's interesting. I

1 Thank you.

2 MR. RIPPERDA: I'll say something from  
3 EPA's perspective on your question on alternatives.  
4 And I also -- I agree with you about the short  
5 notice. That's inexcusable on our part, on NASA's  
6 part. I'm not sure why it happened that way, it  
7 wasn't supposed to. These things were supposed to  
8 be mailed out more than 10 days ago. So we screwed  
9 up, and I have to take responsibility for that, too,  
10 because I'm supposed to be overseeing what NASA's  
11 doing to make sure they do it right.

12 But back to the alternatives.

13 It does look like, you know, NASA is  
14 not giving anybody very much choice. They're giving  
15 you alternative one and alternative two, and  
16 alternative one is essentially do nothing. But in  
17 a -- we talked about this, actually, before the  
18 meeting, saying, "Wow, you know, we're not giving  
19 people much choice here." But it's what Richard  
20 said about a presumptive remedy.

21 In a case like this, soil vapor  
22 extraction has been used at thousands of sites  
23 around the country. It's been the one and only  
24 technology that's proven to work consistently at  
25 sites like this.

1 appreciate the description that was given today. I  
2 wonder if some folks from either the Navy or maybe  
3 someone -- the fellow from the EPA could tell us  
4 more about some other alternatives that were  
5 considered for this.

6 Also, my other comment is, that I just  
7 received the notice, an invitation to this meeting,  
8 today, May 12, and the meeting -- I just received it  
9 in the mail today, May 12, from the post office in  
10 mail box here in Altadena, and today -- the meeting  
11 is also May 12. So I'd like to comment that this is  
12 not soon enough before the meeting to be able to get  
13 people over here and tell people about what an  
14 interesting meeting this is.

15 I think that if we would have known  
16 about it a little more in advance, it would have  
17 helped.

18 MR. SAUNDERS: 30 seconds.

19 THE FLOOR: Thank you.

20 It would have helped to get more  
21 interested community members out to the meeting. So  
22 I just wanted to just pass that along. I would  
23 think that at least 10 days would be the minimum  
24 that you would let us know in advance of the  
25 meeting.

1 You know, there's other things you can  
2 do. You can dig up the whole site, but EPA doesn't  
3 require a facility to investigate obviously  
4 ridiculous choices, such as digging up the entire  
5 site.

6 But there's other things that you can  
7 do, like injecting steam to make it be cleaned up  
8 faster. That would be called innovative  
9 technology. But we don't really require that a  
10 facility look at things like that, that would cost  
11 so much more, when an off-the-shelf technology works  
12 so well and relatively quickly.

13 So even though it looks like there's  
14 not really much choice here, it's because NASA is  
15 following the process that's set in law by Congress  
16 that they're supposed to look at alternatives, but  
17 we've been doing this long enough that the  
18 alternatives boil down to, in some cases, some very  
19 few or, in this case, only one real alternative.

20 Congress makes us look at no further  
21 action just as a baseline, to make sure we're not  
22 out there spending money willy-nilly. And other  
23 than that, the way the law is written by Congress,  
24 we're supposed to look at viable alternatives.

25 And in this case, we have enough

1 experience to know that soil vapor extraction is  
2 actually the only viable alternative. But we're  
3 still supposed to do it in this way when we go to  
4 public with our various alternatives that NASA is  
5 proposing.

6 We haven't changed the process, even  
7 though we've learned enough to know that there  
8 actually is only one real alternative here.

9 So I don't know if NASA wants to say  
10 anything.

11 MR. ROBLES: Just because it's SVE now  
12 doesn't mean that if, in the future, new technology  
13 comes in that we find better that we won't revisit  
14 this. This is not like cast in stone right now.

15 So I want to assure the public that as  
16 technologies develop, we are required through the  
17 process to periodically review what we're doing and,  
18 if we see some thing better, and if an issue comes  
19 up that we want to augment the SVE with another  
20 technology that has appeared to be better, that's  
21 what we do.

22 So as the technology improves, one of  
23 the things -- I've been in this business for 30  
24 years. One of the things that amazes me is the  
25 regulations are always set forth before the

1 do review what we've done and, again, see if we're  
2 doing the right thing.

3 And, secondly, as I think was  
4 mentioned today, this is the proposed alternative,  
5 as well. The opportunity here is that we are  
6 presenting, though limited, but what we think is the  
7 best tentative, we do encourage your comments as to  
8 what you think if this is the best alternative. And  
9 that's why this part of the process involves public  
10 comment.

11 So thank you.

12 MR. SAUNDERS: Any other comments?

13 And just a couple of comments I wanted  
14 to make was, we did mail these out on Tuesday,  
15 May 8. Obviously, it wasn't enough time, so we'll  
16 definitely make sure that we mail these farther in  
17 advance, to get out to you in plenty of time to plan  
18 to attend the meeting.

19 And one other comment, as Richard is  
20 basically saying, is the purpose of this meeting is  
21 you can come here and provide some alternatives that  
22 you feel might be useful to add into the record,  
23 that we can consider in the future.

24 Are there any other comments or  
25 questions from the public?

1 technology catches up. But as technology improves,  
2 we in the environment community can say, "Okay,  
3 look, this new technology might be better been SVE,  
4 so let's replace or let's augment."

5 So don't think that this is it. We're  
6 only going to do SVE and that's it, we've lost the  
7 opportunity. We're required through the process,  
8 and Mark is always on my case about this, is to make  
9 sure that the technology matches what we need to  
10 do. And so we're going to revisit this. This is  
11 not cast in stone.

12 We have meetings quarterly and we will  
13 discuss this, and we will have information meetings  
14 in the future because we still need your inputs. So  
15 as we go on, hopefully we'll find some technology  
16 with the silver bullet that will clean everything  
17 up. We hope. Some day. But until now we have to  
18 use what we've got.

19 MR. ZUROMSKI: I just want to make two  
20 quick comments just to clarify what Peter said, as  
21 well.

22 It's true that every five years we do  
23 what is called a five-year review once we sign the  
24 legal document that Mark talked about called the  
25 ROD, the record of decision. So every five years we

1 Yes.

2 MS. BLAIR: My name is Susan Blair,  
3 B-l-a-i-r. I'm also an Altadena resident. Mine's a  
4 curiosity question. Once the gases come up through  
5 the pipe into the chamber where the carbon is and it  
6 absorbs the chemical, what happens to those  
7 carbons?

8 MR. ZUROMSKI: What happens is, once  
9 the carbon becomes full of all the different  
10 chemicals that we are pulling from the soil vapors,  
11 we have to, as Peter stated earlier, in accordance  
12 with all the state, local and federal regulatory  
13 requirements, take that carbon canister, remove it,  
14 and then it's either recycled or incinerated or  
15 somehow disposed of in a very legal manner  
16 off-site. And then we then replace the carbon with  
17 brand new carbon and it continues the process  
18 again.

19 MS. BLAIR: Thank you.

20 MR. SAUNDERS: Do we have any other  
21 comments or questions from the public?

22 Yes, ma'am.

23 MS. COMPTON: Cynthia Compton,  
24 C-o-m-p-t-o-n. I'm an employee of JPL and  
25 interested community member. I have a few

1 questions, so I'll just plow through them in my two  
2 minutes.

3 You said that in the '50s to the  
4 early '60s a sewer system replaced the seepage  
5 pits. Does that mean the chemicals are now going  
6 into the sewer system, and where do they go from  
7 there?

8 Other questions I have are: Is there  
9 a record of what other alternatives were considered  
10 other than these one and two, and where can we read  
11 or find out about that?

12 And it says the pilot system has  
13 removed 200 pounds of VOCs. Out of how many is  
14 predicted or known to be at the site?

15 It says the -- I think the -- what I'm  
16 hearing is that the VOCs are in the vapor or the  
17 pockets of the soil. So what about the soil itself,  
18 and all the VOCs in the soil particles, and, you  
19 know, once you remove it from the vapors does it now  
20 migrate from the soil particles back into the vapors  
21 afterwards?

22 And I also agree with the short notice  
23 to the public, and that's why there, in my opinion,  
24 are not adequate representation from the community  
25 here. I got the e-mail notice on Wednesday and

1 I don't know if you've seen around the  
2 lab these circles with the ducks on it because  
3 they're saying this is a storm water drain, this is  
4 sanitary sewer. We don't want chemicals going down  
5 there. That's part of our regulation. We have a  
6 whole office on-site to manage that. So that's not  
7 going down there. That's one of the reasons.

8 The second -- well, I'll answer your  
9 last item on the notices. There is repositories in  
10 the local area, the libraries, that you can get  
11 these documents, and there is on the record of when  
12 we sent the notice. And we apologize. We had a  
13 little SNAFU. But we had sent 4,732 mailers.

14 Now, I have received some phone calls  
15 that people did receive them by Monday and Tuesday  
16 of this week, but there was a slight mix-up where  
17 you might have been the ones that didn't get it  
18 until later. We did send the e-mail out -- I don't  
19 know what happened. Well, we want to send it  
20 earlier, so that's a good comment. We're going to  
21 have to notice -- I think we're going to have to  
22 send them more than 10 days earlier, to make sure  
23 that the mail -- because there was some problems  
24 with some of the post offices in sending this stuff  
25 out, so we want to make sure it does.

1 didn't really see it until Friday, about 6 p.m. on  
2 Friday. And I would like to know: Is there some  
3 kind of record of when notices are sent out to the  
4 public and where they're at.

5 And the other thing is, I think I was  
6 talking to Richard about who these notices are sent  
7 to in a half a mile radius from the site. What  
8 about -- I understand sending it another half a mile  
9 to get more public is maybe too many -- you know,  
10 too costly, but what about sending the notice to the  
11 customers --

12 MR. SAUNDERS: Time.

13 MS. COMPTON: -- of the water  
14 companies that are involved?

15 MR. SAUNDERS: Thank you.

16 Quite a few questions, and we'll try  
17 to address those one at a time.

18 MR. ROBLES: Good questions.

19 On the first one is, we do not send  
20 chemicals down the sewer system. What happens is we  
21 try to recycle them. They're usually used up in the  
22 processes. If we can't recycle them, we try to  
23 destroy them in some form of fashion. The  
24 regulations try to minimize sending stuff down the  
25 sanitary sewer. We're very particular about that.

1 We also put it in the paper. We put  
2 it in the four local papers and L.A. Times. But I  
3 also notice that some people didn't see that, so we  
4 might have to augment in the future. So we have to  
5 be creative about which way -- do you guys listen to  
6 radio? Or -- might that be a better way? I'm just  
7 asking. Because we're trying to get more items out,  
8 and that's why we have two meetings.

9 So if you could tell the public. You  
10 know, I apologize. Come out Monday. I would love  
11 to see 100 people here, or more. But we have sent  
12 4,732 of mailers, plus the 6,000 JPLers who were  
13 contacted.

14 Okay?

15 MR. ZUROMSKI: I think I'm going to  
16 address the other two of them. I think Peter  
17 covered lot of yours.

18 The first is, if you do want to see  
19 the other types of technologies that were evaluated,  
20 that is in the feasibility study and that is  
21 available at all of the document repositories. And  
22 that shows you the detailed analysis, like I talked  
23 to you about earlier, that we go through to evaluate  
24 the technologies. And it will show when certain  
25 things were dropped out and when certain things were

1 retained. And it is very detailed, it is about  
2 three -- three inches, four inches thick, but it is  
3 very easy to look at. So feel free, it's at all the  
4 document repositories.

5 The second question I think I'm going  
6 to answer is, the amount of chemicals that are in  
7 the soil vapor and how they move around.

8 There are different ways to --  
9 technically, to estimate how much is in the soil  
10 vapor. I can't get into every little detail of how  
11 that is done. Again, that is in the feasibility  
12 study as well. But there is an estimate of  
13 somewhere between three to five thousand pounds,  
14 5,000 being the maximum that we believe could be in  
15 the soil vapors, and that also includes what would  
16 be in the soils.

17 When we say "soil vapors," since they  
18 are volatile organic compounds they tend to be in a  
19 vapor state, and so that is why we are removing soil  
20 vapors by soils themselves.

21 Anybody?

22 MR. RIPPERDA: I'll add a little bit  
23 to that. That's actually a great question about  
24 soil vapor versus soil, and what Richard said is  
25 right, but I'm just going to add a little bit.

1 We estimate, or NASA estimates, that  
2 there's up to about 5,000 pounds total of these  
3 things, and that's total in the soils, absorbed in  
4 the soils and in the soil vapor.

5 When it's located like it is, 50 to  
6 200 feet below the surface, you actually have to  
7 drill a well, a bore hole, to get down to it. And  
8 the act of drilling that bore hole and taking your  
9 sample, you can't -- it drives the VOCs out of that  
10 piece of soil. So you can't just take a sample of  
11 the soil and analyze how much is in the soil. It's  
12 just not very effective. So what we do instead is,  
13 we measure what's in the soil vapor. It's very  
14 easy. You drill your same bore hole, suck some air  
15 in, and that volatilizes it off the soil.

16 So we're being somewhat legalistic  
17 when we're always saying the VOCs in the soil vapor,  
18 because that's where we actually measured it, and  
19 that represents how much is actually in the soil.  
20 And there's various equations that you can use,  
21 based on the soil chemistry with partitioning  
22 coefficients and things like that, to calculate from  
23 what you have in the soil vapor back to what's in  
24 the soil.

25 So just because we always say "soil

1 vapor," that doesn't mean we're only looking at the  
2 vapor. What we really care about is what's in the  
3 soil and about any rainwater that might migrate  
4 through that soil, deabsorb it, and carry it down to  
5 groundwater.

6 MR. SAUNDERS: Any other feedback from  
7 our representatives?

8 MR. ROBLES: Did we answer all your  
9 questions, ma'am.

10 THE FLOOR: What about when you remove  
11 the VOCs from the vapors, as more  
12 chemicals evaporate out of the soil into the --

13 MR. ROBLES: Right. That's why you  
14 constantly do that. The question is -- there was  
15 one question that she had asked, once you remove the  
16 particles through the vapor, are there any particles  
17 left on the soil.

18 This is a continuous process because  
19 you want it to volatilize that material because it's  
20 a volatile organic. So you want to draw it out. So  
21 you constantly are pulling pressure and putting a  
22 vacuum on it to suck it up. Eventually there should  
23 be no particles left there.

24 I'd say no, because any system cannot  
25 100 percent clean. You can't get the last molecule

1 out. What you're trying to do is get as low as  
2 possible until the technology doesn't work anymore.  
3 And then you wait for another technology, where you  
4 say, "Hey, we're kind of finished, and there is no  
5 more threat to the groundwater." And that's what  
6 you do on it. It's not an exact science, we try our  
7 best, and that's what we do.

8 And that, like I said, the document,  
9 as Richard said, is thick. It has everything in  
10 there that you want to know. And if it's not in  
11 there, we'll have informative meetings and we can  
12 give you the boring lecture. Because this is --  
13 it's long. And to read these documents right now,  
14 at -- once we finish this process, sometime in the  
15 future, we're going to have so much documents that  
16 you will not believe. I mean, we generate so much  
17 information. This process requires of the  
18 government to do this, to make sure that we make the  
19 right decision. And we have to publish these  
20 documents so you, the public, can read them and say,  
21 "How did you guys make that choice?" That's what  
22 we call the administrative record, and that's why we  
23 have that in the repositories for you.

24 MR. SAUNDERS: I don't know if it was  
25 mentioned, in the proposed plan, the information

1 repositories are located on, if you want that  
2 information, on page 6 of the proposed plan. That's  
3 the different information repositories.

4 The item of record, I believe, is kept  
5 here? At JPL?

6 MR. ROBLES: There's three.

7 MR. SAUNDERS: Okay.

8 And, again, what you're telling us  
9 tonight is very useful, this evening, because we  
10 need this feedback. I believe this is the first  
11 time that you've held a public meeting here, so this  
12 is a learning process for NASA, for all of us, and  
13 we appreciate this feedback that you're giving to  
14 us. It will help us make meetings better in the  
15 future, to communicate information to the public  
16 better.

17 Yes, ma'am.

18 MS. COMPTON: The only question that  
19 wasn't answered is have you considered sending these  
20 public notices to the customers of the water  
21 companies that are impacted.

22 MR. ROBLES: Thank you.

23 We have a representative here. I'm  
24 not going to put him on the spot.

25 We meet with the Raymond Basin

1 referring to is like when --

2 MR. ROBLES: Oh, the customers? You  
3 mean the water customers?

4 MS. COMPTON: You and me that are  
5 drinking the water and paying the purveyor to send  
6 water to our houses.

7 MR. ROBLES: Oh, so you're asking  
8 should we send these to all the people that get the  
9 water.

10 MS. COMPTON: All the customers who  
11 live within a half mile radius.

12 MR. ROBLES: That's a good point.

13 MR. SAUNDERS: I think, also, the  
14 point you may be making, and I may be wrong about  
15 this, but when utilities have public hearings and  
16 such, they usually include a public notice in their  
17 mail-out, in the billing. And, of course, that is  
18 their mailing, it's not ours. So we would have to  
19 approach a utility to do that. Whether they would  
20 do it for free or charge us, I don't know, but  
21 that's something we would have to discuss with the  
22 appropriate utility.

23 MR. ROBLES: Right. That's a  
24 community right to know.

25 That's a very good suggestion, that

1 Management Board. We have dialogue. We are meeting  
2 with the city of Pasadena on Monday. The water  
3 purveyors know about these meetings, and we have  
4 told them in their board meetings and the word has  
5 gotten out that way. We have gone to local  
6 communities like, I think, Northeast Trees and a few  
7 others. We've told them about this.

8 We are looking to expand our mailing  
9 list. So if you can recommend some groups or people  
10 that you want to put on the mailing list, please let  
11 us know. Because we have no fear of sending as many  
12 as it takes, so that the public -- normally ,  
13 believe it or not -- I've been in this business 30  
14 years, and I've only been at one public meeting  
15 where it was standing room only, and that was  
16 because there was -- the government needed to expand  
17 a bombing range. You know how controversial that  
18 was. But most of the time people get their  
19 information through the newsletter, or they call up,  
20 or they go to the repositories. But if you have any  
21 suggestions of people that you want on the mailing  
22 list or groups, please let us know. But this  
23 information has gotten out to the purveyors of  
24 water.

25 MR. SAUNDERS: I believe what you're

1 when we're going to talk about groundwater it might  
2 be a good thing is to go and talk to the purveyors  
3 and see if we should send those notice -- that's a  
4 good point. Thank you.

5 MS. BLAIR: The Lincoln Avenue Water  
6 Company, every member of the Lincoln Avenue Water  
7 Company is shareholder, so they have the right to  
8 know that.

9 MR. ROBLES: That's right. That's a  
10 good point. Thank you. I didn't think about that.  
11 That's good. Particularly when we're talking about  
12 groundwater. Good suggestion.

13 MR. SAUNDERS: Right.

14 Did we answer all your questions? Was  
15 there anything else that we skipped over?

16 You had around six questions.

17 MS. COMPTON: Record of public  
18 notices. Is that in the repositories or only here  
19 at JPL?

20 MR. SAUNDERS: That type of  
21 information is put in the information repository.  
22 The public notice for the meeting would be put in  
23 there.

24 Okay. Any other questions or comments  
25 from the public? We welcome this opportunity to

1 hear from you. Anyone else?  
 2 Well, there is another opportunity, if  
 3 you think of further questions that you would like  
 4 to ask. We are having another public meeting on  
 5 Monday night, and that information is also in that  
 6 proposed plan fact sheet, with times. And the  
 7 public comment period is continuing on.  
 8 Again, I want to thank you for  
 9 attending. We encourage you to review and comment  
 10 on the proposed plan. Final decision regarding  
 11 cleanup will be made after your public comments have  
 12 been received and considered.  
 13 The public comment period started on  
 14 May 7 and runs through June 11, 2001. If requested,  
 15 NASA may consider extending the public comment  
 16 period. Written comments and requests for  
 17 extensions of the comment period should be mailed or  
 18 e-mailed to Peter Robles, and his address is in the  
 19 fact sheet and it's also up here on the slide here.  
 20 If there's nothing else, no other  
 21 comments, anything -- any last statements from our  
 22 representatives up here, I thank you for attending  
 23 this afternoon and have a good evening.  
 24 Oh, yes. And there will continue to  
 25 be -- the representatives here will be available

1  
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 3  
 4 CERTIFICATE  
 5  
 6  
 7 I, LESLIE A. MAC NEIL, RPR, CSR  
 8 No. 7187, in and for the State of California, do  
 9 hereby certify:  
 10 That the foregoing \_\_\_-page  
 11 proceedings were taken down by me in shorthand at  
 12 the time and place stated herein, and represent a  
 13 true and correct transcript of the proceedings.  
 14 I further certify that I am not  
 15 interested in the event of the action.  
 16 WITNESS my hand this \_\_\_\_ day of  
 17 \_\_\_\_\_, 2001.  
 18  
 19  
 20  
 21 \_\_\_\_\_  
 22 Certified shorthand  
 23 reporter in and for the  
 24 State of California  
 25

1 after the meeting, if you want to do follow-ups or  
 2 ask any further questions. And, again, if you think  
 3 of a question after we've officially closed this  
 4 meeting, feel free to write it out on a comment  
 5 sheet and submit it to our court reporters and such  
 6 so they can include it in the public record.  
 7 Thank you.  
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PUBLIC MEETING AND PUBLIC COMMENT PERIOD

JET PROPULSION LABORATORY

PASADENA, CALIFORNIA

MONDAY, MAY 14, 2001

6:00 P.M. to 9:00 P.M.

Reported by:

Vickie Blair

C.S.R. No. 8940, RPR-CRR

PASADENA, CALIFORNIA; MONDAY, MAY 14, 2001  
6:00 P.M.  
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MR. SAUNDERS: Good evening.

We're going to start a couple minutes early. Welcome to the Jet Propulsion Laboratory. Thank you for taking the time tonight to attend this meeting.

My name is Lee Saunders. I'm an Environmental Public Affairs Officer for the U.S. Navy and a facilitator for tonight's meeting about the proposed plan to select a remedy to clean up soils at the National Aeronautic Space Administration, Jet Propulsion Laboratory located here in Pasadena.

During this portion of the meeting, you, the community, can provide questions and comments to these representatives and their agencies on the proposed plan.

Excuse me. Let me backtrack just a moment.

Prior to the meeting, you had the opportunity to speak with NASA, federal, and local lead and regulatory agency representatives on a one-to-one basis about the proposed cleanup actions.

During this portion of meeting, you, the community, can provide questions and comments to those representatives and their agencies on the proposed plan.

Once we've heard from all the presenters, we will open the floor for questions and comments. You may want to use the comment sheets that are in the back to write your questions down during the formal comment session while we're waiting for opportunity.

To assure that everyone that wishes to make a comment or ask a question has a fair and equal opportunity to do so, we ask that you limit your questions or comments to two minutes. At the end of that time, please take your seat. If you have not finished your remarks, you may continue for another three-minute period after we have heard from all the other speaks.

We have court reporters -- two of them -- here tonight, so we ask you to please state your first and last name and spell your last name before you begin your comments.

If you do not wish to provide verbal comments or questions, you may also submit your comments and questions in writing. There are comment sheets available on the tables in the back for those of you in the audience who would prefer to submit your input by this method.

For those of you wondering why the U.S. Navy is involved with the environmental cleanup of a NASA facility, the explanation is fairly simple. In 1999, NASA

These comments and questions will be included in a meeting transcript and become part of the final decision for soil cleanup at JPL. Representing the agencies responsible for cleanup and talking to you the proposed plan and its remedial alternatives are agency representatives who will each introduce themselves.

To my left -- do you want to --

MR. ROBLES: Oh, Peter Robles of NASA representing the SuperFund cleanup here.

MR. ZUROMSKI: Hi. I'm Richard Zuromski with the Naval Facilities Engineering Command.

MR. GEBERT: I'm Richard Gebert with the State of California Department of Toxic Substances Control.

MR. RIPPERDA: I'm Mark Ripperda with the United States Environmental Protection Agency.

MR. YOUNG: I'm David Young with the Los Angeles Water Regional Quality Control Board.

MR. SAUNDERS: Ground rules for today's meeting are as follows: This evening's format will consist of presentations by our representatives about the proposed plan and remedial alternatives, followed by a formal comment session where you, the community, can provide us with your comments and questions.

I'm going to ask you to please hold your questions until the presentations have been completed.

and the Naval Facilities Engineering Command, most commonly known by the acronym NAFAC reached a memorandum of agreement establishing roles and responsibilities that state NASA may procure environmental engineering and the consultancy services from NAFAC and its subordinate commands.

In late 1999, NAFAC became heavily involved in providing environmental services to NASA and JPL. Peter Robles, remedial property manager for NASA, is our first presenter.

Peter.

MR. ROBLES: Good evening. What we're going to present today is a site description to give a little history of why this site is on the SuperFund list. Then we're going to have Mark Ripperda talk about regulatory framework, coming up with Richard Zuromski talking about site assessment and investigation activities and the remedial activities and the proposed remedial alternatives for OU-2 soils.

We will, at a later date, talk about groundwater. We'll have another public meeting in the near future. But right now what we're focusing on are the soils underneath JPL and how to remediate the contaminants in the soil to minimize any migration into the groundwater. And that's what we're going to do right now.

1 The site that we call JPL has been active  
2 since the late '30s, early '40s. It was owned by the Army  
3 ordnance, and then it was owned by NASA in '59 to '60 when  
4 we took it over.

5 During the 40s and '50s, seepage pits were  
6 the main method to dispose of waste. At that time, it was  
7 the most accepted practice. It was within the regulations,  
8 no problem at all. We found out later that that was a  
9 mistake, and we had to correct that. In the late '50s  
10 early '60s, we, NASA, started programing to replace these  
11 seepage pits with sewer lines.

12 Now, the indication and a question that came  
13 in on Saturday was "So contaminants are going down the  
14 sewer line." No, they're not. That's a good question.  
15 Very little gets put into landfills. We usually destroy or  
16 recycle the chemicals that we use today, or they are used  
17 up in the operational processes. We do not do that. The  
18 regulatory requirements require us to make sure of that, so  
19 from the standpoint today, we are all within regulations.  
20 But at the time, the main reason why the contaminants got  
21 into the ground soil is because of these seepage pits.

22 In 1992, the site became a SuperFund site.  
23 It was put on the national priorities list, and the EPA  
24 will talk a little bit more about that.

25 We are talking about trying to remediate

1 Operable Unit 2, which is -- as I said, before currently  
2 all operations meet federal, state, and local requirements.  
3 We have a host of regulations that we have to follow, and  
4 so, therefore, we are assured that we're doing what's  
5 right. What we're dealing with is past practices that we  
6 have to take care of.

7 Here is a conceptual model of what we're  
8 talking about. What you have here is a VOC plume, volatile  
9 organic carbons, that have gone through the soils because  
10 of past practices from JPL. The area that we are most  
11 concerned with is 50 feet below the surface to about 200  
12 feet, which is the groundwater zone that we're talking  
13 about.

14 In the soils, we're talking about  
15 chlorinated solvents, and when we say "vadose zone," we  
16 mean in a vapor state in the soil. NASA wants to address  
17 this issue tonight, and we will be addressing groundwater  
18 in the future.

19 Now we'll have the EPA talk about regulatory  
20 framework.

21 MR. ZUROMSKI: I just want to ask the court  
22 reporters really quick, can you hear me okay without having  
23 to use the microphone? Okay. Mark and I are going to try  
24 to do ours without the microphone then.

25 MR. RIPPERDA: That way I can stand out of the

1 light.

2 So what's it mean to be a SuperFund site,  
3 and for that matter, what's -- oh, I got a toy.

4 What's it mean to be a SuperFund site? For  
5 that matter, what's SuperFund? About 20 years ago,  
6 Congress passed a law, it's called CERCLA, and I'll talk  
7 about what the acronym means, that authorize a tax on the  
8 chemical industry. And that tax all went into a trust  
9 fund, which is called the SuperFund, which EPA can spend to  
10 clean up abandoned hazardous waste sites.

11 That same law passed by Congress also gave  
12 EPA the authority to go to existing, ongoing sites such as  
13 NASA/JPL that have contamination that might pose a serious  
14 threat to public health, and we have the authority to force  
15 them to clean it up.

16 In order for us to use that authority, we  
17 have to rank how bad the potential hazard might be, and if  
18 it scores high enough, the site is put on a national  
19 priorities list also called an NPL. And like Peter said,  
20 that happened with NASA/JPL in 1992.

21 So what was it that first got NASA/JPL on  
22 the national priorities list? In the late, very late '80s,  
23 the City of Pasadena found some chemicals in their drinking  
24 water wells right here across the Arroyo just through their  
25 standard compliance testing that they have to do for the

1 State of California. And that's what got us -- all of us  
2 regulators, the State of California, Richard, and David and  
3 myself -- well, actually our predecessors. But that got us  
4 involved looking over their shoulders making sure that  
5 they're doing the cleanup appropriately.

6 Right when the contamination was first  
7 sound, City of Pasadena put treatment systems onto their  
8 wells immediately, which means that anybody who is drinking  
9 the water was protected right from the beginning.

10 But to cleanup the actual release, to  
11 cleanup all the aquifer and the source here on the site is  
12 a long, lengthy process. And the majority of that process  
13 is called the remedial investigation feasibility study.  
14 Which means they have to go out drill bore holes all over  
15 the site, take soil samples, soil vapor samples. They have  
16 to put in monitoring wells, take groundwater samples both  
17 on the site, they also went out into the neighborhoods put  
18 monitoring wells out there, and sampled them. They also  
19 worked with the water purveyors to look at their water  
20 analyses. And with all of that, they figured out where the  
21 contamination is now, where it came from originally, and  
22 they go through the process of deciding how best to clean  
23 it up.

24 Usually you clean up groundwater  
25 contamination by looking at the source where the

1 contamination is coming from and at the aquifer itself in  
 2 two separate stages because you're using a different  
 3 physical mechanisms to cleanup the two. So what they're  
 4 working on now, and what this whole meeting is about, is  
 5 the actual cleanup of the source here on the site. So As  
 6 Peter said to keep it from going into the water, which  
 7 means that ultimately the water can be cleaned up faster.

8         So in the feasibility study, they look at  
 9 various alternatives on how best to clean something up.  
 10 And in some cases, such as here at JPL, there's only one  
 11 real option. I don't know if you've read the proposed  
 12 plan, but it looks like you were given two choices, do  
 13 nothing or do what NASA wants to do. And that may look  
 14 like you don't really have a choice, but Congress says that  
 15 we also have to look at the do-nothing alternative because  
 16 they don't want EPA out there spending money willy-nilly  
 17 making faculties and industries spending money if doing  
 18 nothing might work. I don't know why they don't trust us  
 19 to be good stewards of public money, but they don't.

20         So in this case they had to look at the  
 21 do-nothing alternative. And the other alternative that  
 22 they show to you in the proposed plan which is called vapor  
 23 extraction system is something that EPA has found over the  
 24 20 years we've been doing SuperFund cleanups to be the one  
 25 system that really works in a case like this where you got

1 all the organic compounds in the soil deep beneath the  
 2 site. You can't really dig up a site. You know, one  
 3 alternative might be dig up the whole site, take the soil  
 4 away. But, obviously, you can't do that here because you'd  
 5 be digging up all of JPL.

6         There are some other technologies such as  
 7 heating the soil with large electrical current, actually  
 8 what is called vitrify it. So you turn it into one solid  
 9 lump. You melt the soil. And you can't do that here.

10         So technologies like that which exist but  
 11 they don't really make sense for a site, we, the  
 12 government, don't make NASA do a detailed evaluation of.  
 13 So we essentially cut right to the chase is that what we're  
 14 proposing the one and only system that really works best  
 15 now. There might be something else that comes along in the  
 16 future, but for now, this is what makes sense.

17         So once they select a remedy, they have to  
 18 do a legal document, which is called a record of decision.  
 19 Before you get to that point -- I forgot the most important  
 20 part, the yellow box, where we are now. We have to go out  
 21 to the public and say, "This is what we're proposing. What  
 22 do you think?"

23         So you can comment both on, you know, their  
 24 selection of a remedy, but you can also make whatever  
 25 comments you want on, you know, how they ran the process,

1 how well they've involved the public. If you think they've  
 2 been hiding things from you or whatever, which they  
 3 haven't, but anything you might think, you can make comment  
 4 on that. It doesn't just have to be on their remedy.

5         They then have to respond to your comments.  
 6 They have to check with the regulators, make sure that the  
 7 State of California and EPA is happy with how they've  
 8 responded to the public. And, at that point, if we're all  
 9 happy with each other, they do the record of decision, and  
 10 then they go on to the remedy implementation. And  
 11 eventually, if a site gets completely cleaned up, they're  
 12 no longer a SuperFund site. They get delisted from the  
 13 national priorities list.

14         But even if that happens, there's still  
 15 always going to be long-term monitoring and review of what  
 16 the situation is here at JPL.

17         This is just kind of what we've already  
 18 said. This is a chance for you to ask us questions, and  
 19 also make comments on what you think about both the remedy  
 20 and the process, you know, everything that's going on right  
 21 now.

22         You can always call Peter. Peter's name and  
 23 number is in the documentation you got. I don't think my  
 24 phone number is there, but -- it is? Good. And you can  
 25 also feel free to call me, and I'll even say feel free to

1 call the State of California guys if you feel like you're  
 2 not getting appropriate responses from NASA.

3         MR. ZUROMSKI: Thank you, Mark.

4         Hi. My name is Richard Zuromski. I'm with  
 5 the Naval Facilities Engineering Command, and, as Lee  
 6 described earlier, I'm here to assist NASA in their cleanup  
 7 efforts here at JPL.

8         From 1994 through 1998, JPL conducted what's  
 9 called the remedial investigation, as Mark described  
 10 earlier. During the remediation investigation, in over  
 11 nine different sampling events, JPL took 45 soil vapor  
 12 wells, 35 soil borings, and three test pits throughout the  
 13 site to investigate where the chemicals may be found in  
 14 what we're calling Operable Unit 2. Further, over 37 -- or  
 15 37 of those points were turned into permanent monitoring,  
 16 soil vapor monitoring points that is we must now monitor on  
 17 a regular basis to see how the contaminants are moving, or  
 18 not moving, in this case, within the subsurface.

19         Now, during the remedial investigation, the  
 20 samples identified the extent to which the chemicals were  
 21 in the soil, and the results showed that there were  
 22 elevated levels of four different volatile organic  
 23 compounds. They were carbon tetrachloride, trichloroethene,  
 24 Freon 113, and 1,1-dichloroethene.

25         Now, these chemicals were used back, as

1 Peter described earlier, in the '30s, '40s, and '50s to  
2 clean out the inside of rocket motors that they were  
3 testing back in those days, which they don't use here  
4 anymore. And that's where the chemicals came from that are  
5 now in OU-2.

6 The OU-2 risk assessment, the human health  
7 assessment, determined that there were no risks above  
8 regulatory thresholds from exposure to soils or soil  
9 vapor.

10 Now, the primary reason that this risk was  
11 so low was the fact that, as Peter described earlier, these  
12 chemicals are now more than 50 feet below the ground  
13 surface. So exposure to humans is very much unlikely.

14 However, there is a risk that these  
15 chemicals will continue to migrate through the soils and  
16 eventually reach the groundwater, and that's the purpose of  
17 the remedy that we're talking about here today, is to make  
18 sure that those chemicals do not enter the groundwater and  
19 pose a further problem in the groundwater.

20 Now, we are currently studying how to remove  
21 these chemicals from groundwater. And that is going to be  
22 the subject of a meeting very similar to this probably  
23 within a year from now. However, the groundwater and the  
24 risk from chemicals in the groundwater, there's no risk  
25 because the water purveyors, or those people who deliver

1 they migrate to the groundwater.

2 To meet this objective, kind of as Mark  
3 talked about earlier, JPL evaluated several alternatives to  
4 remove the chemicals. And of those alternatives, two were  
5 selected for very detailed evaluation. And if you look in  
6 your proposed plan, I think it's on the third or fourth  
7 page, there's a list of nine criteria that we have to go  
8 through when evaluating each technology in detail.

9 The first is called no further action. As  
10 Mark talked about earlier, this is a baseline that all  
11 other technologies are compared to. Now, at this site, no  
12 further action would entail continuing a regular soil vapor  
13 monitoring program to see how the contaminants are behaving  
14 in the subsurface.

15 The second, and the proposed alternative,  
16 for OU-2 is soil vapor extraction with granular activated  
17 carbon treatment and also the continuation of our regular  
18 monitoring program. To help evaluate these two  
19 alternatives, JPL conducted a pilot test of the soil vapor  
20 extraction technology. And this started back in 1998. In  
21 over 14 months of operation of this pilot test, we removed  
22 roughly 200 pounds of VOCs, of these chemicals, out of  
23 roughly up to a maximum of 5,000 pounds that are throughout  
24 the site. But within this area, we removed 200 pounds of  
25 chemicals from the subsurface.

1 the water to the public, have to meet very, very strict  
2 regulatory requirements. So today's meeting is focused on  
3 removing this source of contaminants, what we call source  
4 reduction, from the soils before they reach the  
5 groundwater. And that's the purpose of our meeting here  
6 today.

7 Now, this graphic shows the extent to which  
8 any level of a volatile organic compound was detected here  
9 at the site during the remedial investigation. Now, the  
10 hottest or most -- the highest levels of these chemicals  
11 were found in the north central part of the site, right up  
12 here where most of the laboratory activities took place.  
13 And that's where we focused a lot of our efforts to date  
14 doing some pilot studies which I'll talk about in just a  
15 moment.

16 Now, based on the results of the remedial  
17 investigation and our ongoing monitoring program of the  
18 soil vapor, we have found that the soil vapor and the  
19 chemicals in the soil vapor have not migrated off the JPL  
20 site boundary; but it does encompass roughly 45 acres on  
21 the site.

22 So based on the analysis in the remedial  
23 investigation and also the continuing monitoring we do here  
24 at the site, the remedial objective for Operable Unit 2 is  
25 to remove the chemicals, the VOCs from the soils before

1 Now, this was so successful, this system is  
2 currently still operating here at the site, and then the  
3 pilot study does go on and will continue throughout the  
4 proposed plan stage and all the way through the record of  
5 decision stage until we decide the final, full-scale size  
6 of the technology that we'll put here at the site.

7 This is a conceptual diagram of how soil  
8 vapor extraction works. First you have here, as Peter  
9 described earlier, the seepage pits which are no longer  
10 existing here at the site. But this is where the chemicals  
11 came from, and then the VOCs, chemicals, became deposited  
12 here in the soil.

13 Now, soil vapor extraction is fairly simple.  
14 What we do is we apply a very strong vacuum, just like your  
15 vacuum cleaner, to suck these VOCs, these chemicals, right  
16 out of the soils and the soil vapor into this vapor  
17 extraction well right here.

18 Now, these vapors are -- since we're talking  
19 about volatile organic compound, the compound become in a  
20 vapor phase when we pull a vacuum on the soils and the soil  
21 vapor. So what you're extracting here is air and chemicals  
22 in vapor, which comes above the surface through this pump  
23 into a vapor treatment system.

24 The vapor extraction system consists of  
25 granular activated carbon. What it does is it captures the

1 chemicals and holds them within the vapor treatment system,  
 2 and then clean air is released from the system. What  
 3 happens every three to six months, depending on how much  
 4 chemicals we're removing from the system, we have to take  
 5 those carbon filters that are inside this vapor treatment  
 6 system and take them to either a recycling facility or  
 7 dispose of them in some type of legal, regulatory manner.  
 8 And then we take a new carbon treatment system and replace  
 9 it and continue the vapor extraction phase. And that's  
 10 generally how the vapor extraction system works.

11 So, based on our analysis, alternative one  
 12 does not meet our remedial objective of keeping the  
 13 chemicals from migrating to the groundwater; therefore,  
 14 we're proposing soil vapor extraction as our proposed  
 15 remedy.

16 There are several reasons why we're choosing  
 17 soil vapor extraction from our proposed remedy.

18 First, it permanently removes the chemicals  
 19 from the soil and soil vapor.

20 Secondly, it protects the groundwater from  
 21 further migration of the VOCs.

22 Third, it's fairly simple to operate and  
 23 fairly inexpensive to implement.

24 Fourth, the treatment period is relatively  
 25 short, probably from one to five years, depending on how

1 effective the system is here at the site. But based our on  
 2 pilot-scale results, it should have been very expected that  
 3 the cleanup should not take very long.

4 And, finally, because this soil vapor  
 5 extraction technology has all those qualities of being very  
 6 effective in the type of soils here at JPL, in being very  
 7 effective in removing this type of chemical from the soil,  
 8 EPA says that this is what is called a presumptive remedy  
 9 where basically this is the best technology that you can  
 10 use at hundreds of other sites, including here at JPL,  
 11 throughout the country. And so we call it what is deemed a  
 12 presumptive remedy.

13 So based on our pilot study, and based on  
 14 our ongoing analysis of the site, NASA proposes soil vapor  
 15 extraction as the proposed remedy for OU-2.

16 MR. SAUNDERS: Thank you, Richard.

17 We are now available for comments and  
 18 questions from you, the public. As a quick reminder to  
 19 ensure that all participants providing comments or  
 20 questions provide equal treatment, please limit your  
 21 comments or questions to two minutes. We also ask you to  
 22 please state your first and last name, and spell your last  
 23 name for the court reporters.

24 Thank you.

25 Now, do we have any questions or comments

1 from the public? Please feel free to come up to the mike,  
 2 and, again, state your first and last name and spell the  
 3 last name for the reporters, court reporters.

4 Thank you, sir.

5 MR. STORK: My name is Edward Stork, and my last  
 6 name is spelled S-t-o-r-k. And I actually am the president  
 7 of the Rose Bowl Riders, which is right next door. And so  
 8 I was interested to hear that the chemicals are apparently  
 9 only within the boundaries of JPL; correct? Can you tell  
 10 me where the soil vapor extraction wells will actually be  
 11 located?

12 MR. ZUROMSKI: Sure. I can tell you that at this  
 13 point in time, the one location that we are currently  
 14 operating the soil vapor extraction is right where I was  
 15 pointing at the highest levels of the chemicals that we  
 16 found in the site.

17 The other wells -- what we're doing right  
 18 now is we're doing continuing monitoring of the soil vapor  
 19 levels at the site, and that actually -- I think Mark  
 20 described the remedial design phase that occurs after we  
 21 sign our record of decision where we actually look, at that  
 22 point in time, where the highest levels of the chemicals  
 23 are and then we place the wells.

24 So, no, we don't know exactly where they  
 25 would be right now; but we would focus on where the highest

1 levels of the chemicals are.

2 MR. RIPPERDA: But the level of contamination as  
 3 you move south -- you're here from the riding stables;  
 4 right?

5 MR. STORK: Yeah, just below here, yeah.

6 MR. RIPPERDA: As he said, the highest level of  
 7 contaminants -- and can you put that back up. But the  
 8 highest level of contaminants are up in the northern part,  
 9 and in itself, it's negligible.

10 MR. ZUROMSKI: Right. About there where my light  
 11 is shining is where the current vapor extraction pilot  
 12 study is operating, and that's where the highest levels of  
 13 the chemicals were found.

14 MR. STORK: Just out of curiosity, how much area  
 15 does one of these vapor extraction wells take up when you  
 16 install it?

17 MR. ZUROMSKI: The actual well itself is usually  
 18 probably from four to six inches just for the well itself;  
 19 however, the radius of influence from the vacuum at the  
 20 site can be anywhere from four to eight, seven or eight  
 21 hundred feet from the center of the well.

22 MR. STORK: Thank you.

23 MR. ROBLES: The size of the site, you also want to  
 24 know how big is that. It's about 45 acres. That yellow  
 25 spot. None of the wells that we're talking about for soil

1 vapor will be off-site. It's all on-site because that's  
2 where all the soils are at.

3 But understand also, everybody, that we  
4 revisit this periodically. Every five years we go back and  
5 revisit so we make sure we're doing the right thing with  
6 the regulators.

7 Any other questions?

8 MR. RIPPERDA: Also something about --

9 MR. ROBLES: Because of the comments on Saturday, I  
10 want to thank the young lady, we are planning to have a  
11 third meeting. And we want to have it in Altadena. And  
12 what we want to do is probably -- we're trying to set it up  
13 ahead -- I haven't talked to anybody over there -- we'll  
14 probably host it in the middle of June so that we can make  
15 sure that the whole community has a chance.

16 I didn't know this, and this is one of the  
17 reasons why we have public meetings, is that the folks in  
18 Altadena can't make it over here at night because there's  
19 no bus service. So we want to know if there are any  
20 concerns out there.

21 So if you get another proposed plan in the  
22 mail, please don't get angry at us. We're just announcing  
23 that we're going to have a third meeting in Altadena so we  
24 can make sure we have the public comments in there. We  
25 want to solicit comments. We want to make sure that the

1 public is comfortable with this. They might have better  
2 suggestions, so that's what we're going to shoot for. So I  
3 want to thank the lady on Saturday, that was a good comment  
4 that we had.

5 And we have talked to some water purveyors,  
6 and they're willing to put it in their billing. So we're  
7 going to work on that.

8 MR. SAUNDERS: All right. Quick feedback from  
9 Saturday's meeting.

10 What other questions do we have, comments?  
11 Please feel free to come up to the mike and express your  
12 feelings your opinions, your comments, your questions at  
13 this time.

14 MR. CLAIRDAY: Good evening. John Clairday, with  
15 the -- and the last name spelled C-l-a-i-r-d-a-y. I'm a  
16 board member with the Lincoln Avenue Water Company, which  
17 is a neighbor, right next door. We appreciate the  
18 opportunity to come over here for this meeting.

19 Just one statement, and then one question,  
20 as well. And I don't think this is inconsistent with what  
21 Mr. Robles said, but we already do have a groundwater  
22 problem, and I think that's been recognized. But just  
23 wanted to emphasize that since it's an area that we're  
24 interested in.

25 And then a second one, I'm wondering about

1 the effectiveness of this extraction program. Is it a  
2 hundred percent effective? How do you know how well you're  
3 doing, and does the testing continue throughout that term?

4 And, also, if it's not a hundred percent effective, does  
5 that mean that a certain percentage will ultimately reach  
6 groundwater and continue to contaminate it?

7 MR. ZUROMSKI: I'll answer your question.

8 First of all, every technology that we  
9 attempt, we choose because it is the most effective.  
10 Hundred percent effective, I don't think we could  
11 guarantee. But it is the most effective technology for the  
12 types of chemicals at the site and for the types of soils  
13 that we have at the site.

14 Now, what we do to ensure that that is the  
15 most effective technology for the site is, number one, we  
16 conduct a regular monitoring program of the soil vapor  
17 around the site to see -- and to actually watch, we've  
18 actually seen some of the data is in the back of the room,  
19 you can watch the chemicals that have been removed slowly  
20 disappear from the soil. And we do that on a very regular  
21 basis. And during our pilot study, we actually did it  
22 monthly to see what the effect of the system is on the  
23 chemicals in the soil.

24 Now, what we do for the long term is once  
25 we've signed our record of decision, and once we've

1 installed the system throughout the site, we do -- again,  
2 we have a regular monitoring program to see how effective  
3 it is. And then at least every five years, we do what is  
4 called a five-year review where the regulatory agencies,  
5 NASA, sits down, looks at the results, how well the  
6 technology is looking. Looks at new possible innovative  
7 technologies, if the technology we've chosen was not as  
8 effective as we thought it would be, and basically says,  
9 "Are we still doing the best thing that we can do to remove  
10 the chemicals from the environment?"

11 And that's generally how we monitor how  
12 effective the technology is over the long term.

13 Now, if you look in the back of the room, we  
14 have an estimate, I think. I can't read from here, but it  
15 looks like it's a little over \$3 million. That's a present  
16 value cost of what it will take to operate the system from  
17 our estimate one to five years and then monitor for another  
18 25 years after that. So we do continuously monitor this  
19 throughout the entire period to make sure that what we've  
20 done is the best thing for the site.

21 As far as a level that we remove the  
22 chemicals to, that level is determined during the record of  
23 decision where we, as Mark said, we all sit down and agree  
24 to a level that we will clean the site to. And that's  
25 based on all the regulatory requirements that we're

1 required to meet.

2 MR. RIPPERDA: And on an ongoing -- you know, the  
3 groundwater that they're also responsible for so over time  
4 whatever the recommended decision for the groundwater  
5 remedy has, that will include monitoring and clean up of  
6 the aquifer. So they're removing the source to protect it  
7 from going into the aquifer in the future, but for the  
8 contaminants that have already gotten into the groundwater,  
9 NASA will, of course, still be responsible for that in the  
10 future.

11 MR. SAUNDERS: Thank you.

12 Any other questions, comments? Please feel  
13 free to take this opportunity.

14 Thank you.

15 MS. COMPTON: My name is Cynthia Compton,  
16 C-o-m-p-t-o-n. I'll try to be easier on you. I gave a lot  
17 of comments on Saturday, and I appreciate your response to  
18 my comments.

19 My first comment is that two minutes is not  
20 enough time for my questions and my comments.

21 MR. RIPPERDA: Can we give her a little extension?

22 MR. SAUNDERS: Well, again, we can get her more  
23 time after the other folks have responded, she can come  
24 back up again.

25 MS. COMPTON: There you go. Quickly, I know that

1 next meeting, has right in the text of the E-mail that this  
2 is a public meeting and when and where it will be.

3 Oh, and he wants me to talk about soil  
4 particles, also.

5 MS. COMPTON: He's already tried of me.

6 MR. RIPPERDA: Yeah. So her question pertains to  
7 the fact that in the slides it almost always says "soil  
8 vapor." It didn't say "VOCs in the soil"; It always said,  
9 "Soil vapor." And that's because the actual measurements  
10 we take are of the soil vapor.

11 When the contaminants are 50 feet, a hundred  
12 feet below the surface, you actually have to drill a bore  
13 hole to get down to it, and the act of drilling that bore  
14 hole, the heat and the air that you have to inject to bring  
15 the cuttings, the dirt, back up out of the hole, basically  
16 blow away all the VOCs that you're trying to sample for.  
17 So you can't take a soil very well from a hundred feet deep  
18 and analyze that soil for how much contamination it has in  
19 it.

20 So instead what you do is you drill your  
21 bore hole, and let it sit for a few weeks, reach  
22 equilibrium, and then suck some air out. And because the  
23 VOCs are attached to the soil particles and all the soil  
24 around your bore hole, they evaporate naturally. And then  
25 they'll fill the bore hole when you suck the air out you

1 there was some testing done in building 107 in the basement  
2 for the air atmosphere, and I wonder if that has turned  
3 into one of the 37 permanent test points.

4 Another question I have is: I'm interested  
5 in a record of the public notices that were sent out in the  
6 newspapers and the mailings. And I'm still having a little  
7 trouble distinguishing the difference between contamination  
8 in particles of soil versus contamination in the vapors,  
9 and if maybe we could clarify that a little bit with me.

10 And the other thing is my same comments I  
11 made Saturday, I think we, the public, deserve a little bit  
12 earlier notice, and thank you for offering another  
13 meeting. I'm going to put that in my official comments,  
14 but a little earlier notice and something to the JPL  
15 employees that says public meeting may be in the subject  
16 title.

17 MR. RIPPERDA: I'm going to say one thing to the  
18 last thing that Cindy said. She showed me a copy of the  
19 E-mail that went out, and I don't know how many JPL  
20 employees are here, but the actual E-mail didn't say  
21 anything about the meeting. It just said, "The proposed  
22 plan is available at a website," and she had a great  
23 comment that the actual E-mail needs to announce when and  
24 where the meetings are. So we'll make sure that NASA, in  
25 the E-mail that goes out in the next week or two for the

1 see, "Oh, we have VOCs in the air that we're sucking out,"  
2 so therefore we know that the VOCs in the soil in this  
3 location.

4 So you can do kind of rough correlations  
5 between the amount that's in the soil vapor you're  
6 measuring to what actually in the soil.

7 So it's just the physics of not being able  
8 to measure the actual particles in the soil; we have to do  
9 a correlation between the soil vapor and the soil. So  
10 we're always going to talk about soil vapor, even though  
11 what we're really concerned about is what is attached to  
12 the soil because what gets attached to the soil is what  
13 gets dissolved in rainwater, and ultimately brings it on  
14 the drinking water aquifer.

15 MS. COMPTON: But you're talking about cleaning --

16 MR. RIPPERDA: But when we're sucking, we're  
17 sucking the vapor out, but as we suck the vapor out, the  
18 particles of the chemicals that are attached to the soil  
19 are always evaporating. As we suck more air, more  
20 particles evaporate out of the soil, and relatively  
21 quickly, you suck those particles of contamination out.

22 MR. ROBLES: You asked about the building. We're  
23 not familiar with that, and I know --

24 MR. RIPPERDA: You have to talk louder in your  
25 answer for the court reporter.

1 MR. ROBLES: Which building are you in?  
 2 THE WITNESS: Building 107.  
 3 MR. ROBLES: 107. It must be in our proposed plan.  
 4 I don't remember it exactly. I can get back to you with  
 5 that information.  
 6 MR. ZUROMSKI: We'll have to respond to that.  
 7 MR. ROBLES: Yeah, we'll have to respond to you.  
 8 Again, I appreciate that. It's not familiar to me after  
 9 looking at the document. I'll have to research it and get  
 10 back to you.  
 11 MR. SAUNDERS: Thank you.  
 12 What other questions, comments, do we have?  
 13 I'm sure there are plenty of other folks out there that  
 14 have some feedback for us. Please feel free to come up to  
 15 the mike and provide your comments, questions.  
 16 If there's no other comments or questions,  
 17 ma'am, if you'd like to come back up and get your next  
 18 three minutes in, you're welcome to come up at this time.  
 19 MS. COMPTON: I'm okay.  
 20 MR. SAUNDERS: Well, if there are no other  
 21 questions or comments, we're going to wrap this up in a  
 22 moment.  
 23 I want to thank you for attending. We  
 24 encourage you to review and comment on the proposed plan,  
 25 and there are copies on the back table of the proposed

1 plan.  
 2 Final decisions regarding cleanup will be  
 3 made after public comments have been received and  
 4 considered. The public comment period started May 7 and  
 5 runs through June 11. Keep in mind the comments and  
 6 questions asked tonight, as well as responses, not only the  
 7 ones given here but further, more in-depth responsive  
 8 answers to your comments and questions included in a  
 9 responsiveness summary which will be included with a RoD  
 10 into the admin record.  
 11 Yes.  
 12 MR. ZUROMSKI: The comment period will be extended  
 13 in accordance with the new meeting.  
 14 MR. ROBLES: Okay. We're going to extend the  
 15 comment period, all right.  
 16 MR. ROBLES: We've extended the comment period past  
 17 the third meeting so, therefore, it's fair for everyone.  
 18 MR. SAUNDERS: So instead of waiting for the public  
 19 to request an extension, we've already extended the comment  
 20 period at this time.  
 21 Do we have a date as of yet?  
 22 MR. ROBLES: That will be in the mail.  
 23 MR. SAUNDERS: It will be in the information sent  
 24 out to the public as to how long the comment period has  
 25 been extended.

1 And if you could put that slide back up.  
 2 It's already been mentioned, if there are any further  
 3 comments, questions, the last slide has Peter's address.  
 4 Feel free to send your comments, your questions, mail them,  
 5 E-mail them, to Richard at this address. It's also  
 6 included in the proposed plan fact sheet.  
 7 MR. ROBLES: Peter.  
 8 MR. SAUNDERS: And we look forward to any further  
 9 feedback you may have at this time. And before we close, I  
 10 will give you one other chance if there are any comments or  
 11 questions.  
 12 If not, thank you for coming and have a good  
 13 evening.  
 14 (Whereupon, at 9:00 P.M., the HEARING was  
 15 adjourned.)  
 16 ---000---  
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1 STATE OF CALIFORNIA )  
 2 ) ss  
 3 COUNTY OF LOS ANGELES )  
 4 I, Vickie Blair, Certified Shorthand Reporter,  
 5 number 8940, RPR-CRR, for the State of California, do  
 6 hereby certify;  
 7 That the foregoing transcript is a true record  
 8 of the proceedings.  
 9 I hereby certify that I am not interested in  
 10 the event of the action.  
 11 IN WITNESS WHEREOF, I have subscribed my name  
 12 this 4th day of June, 2001.  
 13  
 14 -----  
 15 Certified Shorthand Reporter for  
 16 the State of California  
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PUBLIC MEETING AND PUBLIC COMMENT PERIOD  
MONDAY, MAY 14, 2001  
6:00 P.M.

NASA JET PROPULSION LABORATORY  
4800 OAK GROVE DRIVE  
PASADENA, CALIFORNIA

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1 PASADENA, CALIFORNIA  
 2 MONDAY, MAY 14, 2001; 6:00 P.M.  
 3  
 4 MR. SAUNDERS: Good evening. We're  
 5 going to start a couple minutes early. Welcome to  
 6 the Jet Propulsion Laboratory. Thank you for taking  
 7 the time tonight for attending this meeting.  
 8 My name is Lee Saunders. I am an  
 9 environmental public affairs officer for the U.S.  
 10 Navy and the facilitator for tonight's meeting about  
 11 the proposed plan to select a remedy to clean up  
 12 soils at the National Aeronautics Space  
 13 Administration Jet Propulsion Laboratory, located  
 14 here in Pasadena.  
 15 During this portion of the meeting  
 16 you, the community, can provide questions and  
 17 comments to these representatives and their agencies  
 18 on the proposed plan.  
 19 Excuse me. Let me backtrack just a  
 20 moment. Prior to the meeting you had the  
 21 opportunity to speak with NASA federal and local  
 22 lead and regulatory agency representatives on a  
 23 one-to-one basis about the proposed cleanup  
 24 actions. During this portion of the meeting you,  
 25 the community, can provide questions and comments to

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1 these representatives and their agencies on the  
 2 proposed plan. These comments and questions will be  
 3 included in a meeting transcript and become part of  
 4 the final decision for soil cleanup at JPL.  
 5 Representing the agencies responsible  
 6 for cleanup and talking to you about the proposed  
 7 plan and its remedial alternatives are agency  
 8 representatives, who will each introduce  
 9 themselves. To my left ...  
 10 MR. ROBLES: Peter Robles, of NASA,  
 11 representing the Superfund cleanup group.  
 12 MR. ZUROMSKI: Hi. I'm Richard  
 13 Zuromski from the Naval Facilities Engineering  
 14 Command.  
 15 MR. GEBERT: I'm Richard Gebert, with  
 16 the state of California Department of Toxic.  
 17 MR. RIPPERDA: And I'm Mark Ripperda,  
 18 with the United States Environmental Protection  
 19 Agency.  
 20 MR. YOUNG: Hi. David Young, with the  
 21 Los Angeles Regional Water Quality Control Board.  
 22 MR. SAUNDERS: Ground rules for  
 23 today's meeting are as follows: This evening's  
 24 format will consist of presentations by our  
 25 representatives about the proposed plan and remedial

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1 alternatives, followed by a formal comment session  
 2 where you, the community, can provide us with your  
 3 comments and questions.  
 4 I'm going to ask you to please hold  
 5 your questions until the presentations have been  
 6 completed. Once we've heard from all  
 7 representatives, we will open the floor for  
 8 questions and comments. You may want to use the  
 9 comment sheets that are in the back, to write your  
 10 questions down during the formal comment session,  
 11 while we're waiting for that opportunity.  
 12 To ensure that everyone that wishes to  
 13 make a comment or ask a question has a fair and  
 14 equal opportunity do so, we ask that you limit your  
 15 comments or questions to two minutes. At the end of  
 16 that time, please take your seat. If you have not  
 17 finished your remarks, you may continue for another  
 18 three-minute period after we've heard from all the  
 19 other speakers.  
 20 We have court reporters, two of them,  
 21 here tonight. So we ask you to please state your  
 22 first and last name and spell your last name before  
 23 you begin your comments. If you do not wish to  
 24 provide verbal comments or questions, you may also  
 25 submit your comments and questions in writing.

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1 There are comment sheets available on the tables in  
 2 the back, for those of you in the audience that  
 3 would prefer to submit your input by this method.  
 4 For those of you wondering why the  
 5 U.S. Navy is involved with the environmental cleanup  
 6 of a NASA facility, the explanation is fairly  
 7 simple. In 1999 NASA and the Naval Facilities  
 8 Engineering Command, more commonly known by the  
 9 acronym NAVFEC, reached a memorandum of agreement  
 10 establishing roles and responsibilities that state  
 11 NASA may procure environmental engineering and  
 12 consultancy services from NAVFEC and its subordinate  
 13 commands. In late 1999 NAVFEC became heavily  
 14 involved in providing environmental services to  
 15 NASA-JPL.  
 16 Peter Robles, remedial project manager  
 17 from NASA, is our first presenter.  
 18 Peter?  
 19 MR. ROBLES: Good evening.  
 20 What we're going to present today is a  
 21 site description, give a little history of why this  
 22 site is on the Superfund list, then we're going to  
 23 have Mark Ripperda talk about regulatory framework,  
 24 coming up with Richard Zuromski talking about site  
 25 assessment and investigation activities and the

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1 remedial activities and the proposed remedial  
2 alternatives for OU-2 soils.  
3 We will, at a later date, talk about  
4 groundwater. We'll have another public meeting in  
5 the near future. But right now what we're focusing  
6 on is the soils underneath JPL and how to remediate  
7 the contaminants in the soil, to minimize any  
8 migration into the groundwater. And that's what  
9 we're going to do right now.  
10 The site that we call JPL has been  
11 active since the late '30s, early '40s. It was  
12 owned by the Army Ordinance, and then it was owned  
13 by NASA in '59 to '60, when we took it over.  
14 During the '40s and 50s seepage pits  
15 were the main method to dispose of waste. At that  
16 time it was the most accepted practice. It was  
17 within the regulations, no problem at all. We found  
18 out later that that was a mistake and we had to  
19 correct that. In the late '50s, early '60s we,  
20 NASA, started programming to replace these seepage  
21 pits with sewer lines.  
22 Now, in the cas- -- in the question  
23 that came in on Saturday was: So contaminants are  
24 going down the sewer line. No, they're not. That's  
25 a good question. Very little gets put into

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1 landfills. We usually destroy or recycle the  
2 chemicals that we use today, or they are used up in  
3 the operational processes. We do not do that.  
4 Regulatory requirements require us to make sure of  
5 that. So from the standpoint today, we are all  
6 within regulations. But at the time, the main  
7 reason why the contaminants got into the ground soil  
8 is because of these seepage pits.  
9 In 1992 the site became a Superfund  
10 site. It was put on the national priorities list,  
11 and the EPA will talk a little more about that. We  
12 are talking about trying to remediate Operable Unit  
13 2, which is the soils.  
14 As I said before, currently all  
15 operations meet federal, standard, local  
16 requirements. We have a host of regulations that we  
17 have to follow and so, therefore, we are assured  
18 that we're doing what's right. What we're dealing  
19 with is past practices that we have to take care  
20 of.  
21 Here is a conceptual model of what  
22 we're talking about. What you have here is a VOC  
23 plume, volatile organic carbons, that have gone  
24 through the soils because of past practices from  
25 JPL. The area that we're most concerned with is 50

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1 feet below the surface to about 200 feet, which is  
2 the groundwater zone that we're talking about.  
3 In the soils we're talking about  
4 chlorinated solvents, and when we say "vadose zone"  
5 we mean in the vapors stayed in the soil. NASA  
6 wants to address this issue tonight. We will be  
7 addressing groundwater in the future.  
8 Now we'll have the EPA talk about  
9 regulatory framework.  
10 MR. ZUROMSKI: I just want to ask the  
11 court reporters really quick: Can you hear me okay  
12 without having to use the microphone?  
13 Okay. We're going to try -- Mark and  
14 I are going to try to do ours without the  
15 microphone.  
16 MR. RIPPERDA: So I can stand out of  
17 the light.  
18 So what's it mean to be a Superfund  
19 site and, for that matter, what's -- cool. I get a  
20 toy. What's it mean to be a Superfund site. For  
21 that matter, what's Superfund.  
22 About 20 years ago Congress passed a  
23 law, it's called CERCLA, I won't talk about what the  
24 acronym means, that authorized a tax on the chemical  
25 industry, and that tax all went into a trust fund

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1 which is called the Superfund, which EPA can spend  
2 to clean up abandoned hazardous waste sites. That  
3 same law passed by Congress also gave EPA the  
4 authority to go to existing, ongoing sites such as  
5 NASA-JPL that have contamination that might pose a  
6 serious threat to public health.  
7 And we have the authority to force  
8 them to clean it up. In order for us to use that  
9 authority, we have to rank how bad the potential  
10 hazard might be. If it scores high enough, the  
11 site's put on a national priorities list, also  
12 called the NPL. And, like Peter said, that happened  
13 with NASA-JPL in 1992.  
14 So what was it that first got NASA-JPL  
15 on the national priorities list? In the late, very  
16 late '80s the city of Pasadena found some chemicals  
17 in their drinking water wells, right here across the  
18 arroyo, just through their standard compliance  
19 testing that they have to do with the state of  
20 California, and that's what got all of us  
21 regulators, the state of California, Richard and  
22 David and myself -- well, actually, our  
23 predecessors, but that got us involved looking over  
24 their shoulders, making sure that they're doing the  
25 cleanup appropriately.

1 Right when the contamination was first  
2 found, the city of Pasadena put treatment systems on  
3 their wells immediately, which means that anybody  
4 who is drinking the water was protected right from  
5 the beginning. But to clean up the actual release,  
6 to clean up both the aquifer and the source here on  
7 site is a long, lengthy process.

8 And that -- the majority of that  
9 process is called the remedial investigation and  
10 feasibility study, which means that they have to go  
11 out, drill bore holes all over the site, take soil  
12 samples, soil vapor samples, that included  
13 monitoring wells, take groundwater samples, both on  
14 the site -- they also went out into the  
15 neighborhoods, put monitoring wells out there,  
16 sampled them. They also worked with the water  
17 purveyors, to look at their water analyses. And  
18 with all of that, they figured out where the  
19 contamination is now, where it came from originally,  
20 and they go through a process of deciding how best  
21 to clean it up.

22 You usually clean up groundwater  
23 contamination by looking at the source, where the  
24 contamination is coming from, and at the aquifer  
25 itself in two separate stages because you're using

1 found, over the 20 years that we've been doing  
2 Superfund cleanups, to be the one system that really  
3 works in a case like this, where you've got volatile  
4 organic compounds in the soil deep beneath the  
5 site. You can't really dig up the site. You know,  
6 one alternative might be dig up the whole site, take  
7 the soil away. But, obviously, you can't do that  
8 here because you'll be digging up all of JPL.

9 There's some other technologies, such  
10 as heating the soil with large electrical currents  
11 to actually -- what's called vitrify it, so you turn  
12 it into one solid lump, you melt the soil, and you  
13 can't do that here. So technology like that, which  
14 exists but they don't really make sense for a site,  
15 you know, we, the government, don't make NASA do a  
16 detailed evaluation of.

17 So they essentially cut right to the  
18 chase and said, "What we're proposing is the one and  
19 only system that really works best now. There might  
20 be something else that comes along in the future,  
21 but for now this is what makes sense."

22 So once they select a remedy, they  
23 have to do a legal document which is called a record  
24 of decision. Before you get to that point -- I  
25 forgot the most important part. The yellow box,

1 different physical mechanisms to clean up the two.  
2 And so what they're working on now and what this  
3 whole meeting about is the actual cleaning up of the  
4 source here on site, as Peter says, to keep it from  
5 going into the water, which means that ultimately  
6 the water can be cleaned up faster.

7 So in the feasibility study, they look  
8 at various alternatives on how best to clean  
9 something up. And in some cases, such as here at  
10 JPL, there is only one real option. I don't know if  
11 you've read the proposed plan, but it looks like you  
12 were given two choices: Do nothing or do what NASA  
13 wants to do.

14 And that may look like you don't  
15 really have a choice, but Congress said that we  
16 always have to look at the do nothing alternative  
17 because they didn't want EPA out there spending  
18 money willy-nilly, making facilities and industry  
19 spending money if doing nothing might work. I don't  
20 know why they didn't trust us to be good stewards of  
21 public money, but they didn't. So in this case,  
22 they had to look at the do nothing alternative.

23 And the other alternative that they've  
24 shown to you in the proposed plan, which is called  
25 soil vapor extraction, is something that EPA has

1 where we are now, they have to go out to the public  
2 and say, "This is what we are proposing. What do  
3 you think?" So you can comment both on, you know,  
4 their selection of a remedy, but you can also make  
5 whatever comments you want on, you know, how they  
6 random process, how well they've involved the  
7 public, if you think they've been hiding things from  
8 you or whatever, which they haven't, but anything  
9 you might think, you can make comments on now. It  
10 doesn't just have to be on their remedy.

11 They then have to respond to your  
12 comments, they have to check with the regulators,  
13 make sure that the state of California and EPA is  
14 happy with how they've responded to the public. And  
15 at that point, if we're all happy with each other,  
16 they do the record of decision, and then they go on  
17 for the remedy implementation.

18 And eventually, if the site gets  
19 completely cleaned up, there's no longer a Superfund  
20 site, you get delisted from the national priorities  
21 list. But even if that happens, there's still  
22 always going to be long-term monitoring and review  
23 of what the situation is here at JPL.

24 And, you know, this is just kind of  
25 what we've already said. This is a chance for you

1 to ask us questions, and also make comments on what  
 2 you think about both the remedy and the process, you  
 3 know, everything that's going on right now. You can  
 4 always call Peter. Peter's name and number is in  
 5 the documentation you got. I don't think my phone  
 6 number is there but -- it is. Good. You can also  
 7 feel free to call me. And I'll even say feel free  
 8 to call the state of California guys, if you feel  
 9 like you're not getting responses from NASA.

10 MR. ZUROMSKI: Thank you, Mark.

11 Hi. My name is Richard Zuromski. I'm  
 12 with the Naval Facilities Engineering Command and,  
 13 as Lee described earlier, I'm here to assist NASA in  
 14 their cleanup efforts here at JPL.

15 In 19- -- from 1994 through 1998 JPL  
 16 conducted what's called a remedial investigation, as  
 17 Mark described earlier. During the remedial  
 18 investigation, over nine different sampling events,  
 19 JPL took 45 soil vapor wells, 35 soil borings and  
 20 three test pits throughout the site to investigate  
 21 where the chemicals may be found in what we're  
 22 calling Operable Unit 2. Further, over 37 -- or 37  
 23 of those points were turned into permanent  
 24 monitoring -- soil vapor monitoring points that we  
 25 now monitor on a regular basis, to see how the

1 soils and eventually reach the groundwater. And  
 2 that's the purpose of the remedy that we're talking  
 3 about here today, is to make sure that those  
 4 chemicals do not enter the groundwater and pose a  
 5 further problem in groundwater.

6 Now, we are currently studying how to  
 7 remove these chemicals from groundwater. And that's  
 8 going to be the subject of a meeting very similar to  
 9 this, probably within a year from now. However, the  
 10 groundwater and the risks from chemicals in the  
 11 groundwater, there's no risk because the water  
 12 purveyors, or those people who deliver the water to  
 13 the public, have to meet very, very strict  
 14 regulatory requirements. So today's meeting is  
 15 focused on removing this source of contaminants,  
 16 what we call source reduction, from the soils before  
 17 they reach the groundwater. And that's the purpose  
 18 of our meeting today.

19 Now, this graphic shows the extent to  
 20 which any level of a volatile organic compound was  
 21 detected here at the site during the remedial  
 22 investigation. Now, the hottest or most -- the  
 23 highest levels of these chemicals were found in the  
 24 north central part of the site, right up here, where  
 25 most of the laboratory activities took place. And

1 contaminants are moving, or not moving in this case,  
 2 within the subsurface.

3 Now, during the remedial  
 4 investigation, samples identified the extent to  
 5 which the chemicals were in the soil, and the  
 6 results showed that there were elevated levels of  
 7 four different volatile organic compounds. They  
 8 were carbon tetrachloride, trichloroethene,  
 9 Freon 113 and 1,1-dichloroethene.

10 Now, these were -- these chemicals  
 11 were used back, as Peter described earlier, in  
 12 the '30s, '40s and '50s to clean out the inside of  
 13 rocket motors that they were testing back in those  
 14 days, which they don't use here any more, and that's  
 15 where the chemicals came from that are now in OU-2.  
 16 OU-2 risk assessment, the human health risk  
 17 assessment, determined that there were no risks  
 18 above regulatory thresholds from exposure to soils  
 19 or soil vapor.

20 Now, the primary reason that this risk  
 21 was so low was the fact that, as Peter described  
 22 earlier, these chemicals are now more than 50 feet  
 23 below the ground surface. So exposure to humans is  
 24 very much unlikely. However, there is a risk that  
 25 these chemicals will continue to migrate through the

1 that's where we focused a lot of our efforts to date  
 2 doing some pilot studies, which I'll talk about in  
 3 just a moment.

4 Now, based on the results of the  
 5 remedial investigation and our ongoing monitoring  
 6 program of the soil vapor, we have found that the  
 7 soil vapor and the chemicals in the soil vapor have  
 8 not migrated off the JPL site boundary but it does  
 9 encompass roughly 45 acres on the site.

10 So based on the analysis, and the  
 11 remedial investigation, and also the continuing  
 12 monitoring we do here at the site, the remedial  
 13 objective for Operable Unit 2 is to remove the  
 14 chemicals or the VOCs from the soils before they  
 15 migrate to the groundwater.

16 To meet this objective, kind of as  
 17 Mark had talked about earlier, JPL evaluated several  
 18 alternatives to remove the chemicals. And of those  
 19 alternatives, two were selected for a very detailed  
 20 evaluation. If you look in your proposed plan, I  
 21 think it's on the third or fourth page, there's a  
 22 list of nine criteria that we have to go through  
 23 when evaluating each technology in detail.

24 The first is called no further  
 25 action. As Mark talked about earlier, this is a

1 baseline that all other technologies are compared  
2 to. Now, at this site no further action would  
3 entail continuing our regular soil vapor monitoring  
4 program, to see how the contaminants are behaving in  
5 the subsurface.

6 The second, and the proposed  
7 alternative for OU-2, is soil vapor extraction with  
8 granular activated carbon treatment and, also, the  
9 continuation of our regular monitoring program.

10 To help evaluate these two  
11 alternatives, JPL conducted a pilot test of the soil  
12 vapor extraction technology, and this started back  
13 in 1998. In over 14 months of operation of this  
14 pilot test, we removed roughly 200 pounds of VOCs,  
15 these chemicals, out of roughly up to a maximum of  
16 5,000 pounds that are throughout the site. But  
17 within this area, we removed 200 pounds of chemicals  
18 from the subsurface.

19 Now, this was so successful, this  
20 system is currently still operating here at the site  
21 and the pilot study does go on and will continue  
22 throughout the proposed plan stage, all the way  
23 through the record of decision stage, until we  
24 decide the final full scale size of the technology  
25 that we'll put here at the site.

1 carbon filters that are inside this vapor treatment  
2 system and take them to either a recycling facility  
3 or dispose of them in some recon- -- some type of  
4 legal, regulatory manner. And then we take a new  
5 carbon treatment system, and replace it, and  
6 continue the vapor extraction phase. That's  
7 generally how the soil vapor extraction works.

8 So based on our analysis, alternative  
9 one does not meet our remedial objective of keeping  
10 the chemicals from migrating to the groundwater.  
11 Therefore, we're proposing soil vapor extraction as  
12 our proposed remedy. There are several reasons why  
13 we're choosing soil vapor extraction for our  
14 proposed remedy.

15 First, it permanently removes the  
16 chemicals from the soil and the soil vapor.

17 Secondly, it protects the groundwater  
18 from further migration of the VOCs.

19 Third, it's fairly simple to operate  
20 and fairly inexpensive to implement.

21 Fourth, the treatment period is  
22 relatively short, probably from one to five years  
23 depending on how effective the system is here at the  
24 site. But based on our pilot site scale results, it  
25 should be very exact and the cleanup should not take

1 This is a conceptual diagram of how  
2 soil extraction works. First, you have here, as  
3 Peter described earlier, the seepage pits, which are  
4 no longer existing here at the site. But this is  
5 where the chemicals came from, and then the VOCs,  
6 chemicals, became deposited here in the soil.

7 Now, soil vapor extraction's fairly  
8 simple. What we do is, we apply a very strong  
9 vacuum, just like your vacuum cleaner, to suck these  
10 VOCs, these chemicals, right out of the soils and  
11 the soil vapor into this vapor extraction well,  
12 right here. Now, these vapors are -- since we're  
13 talking about volatile organic compounds, the  
14 compounds become, in a vapor phase, when we pull a  
15 vacuum on the soils and soil vapor. So what you're  
16 extracting here is air and chemicals in vapor, which  
17 comes above the surface through this pump, into a  
18 vapor treatment system. And the vapor treatment  
19 system consists of granular activated carbon. What  
20 it does, is it captures the chemicals and holds them  
21 within the vapor treatment system, and then clean  
22 air is released from the system.

23 What happens every three to six  
24 months, depending on how much chemical we're  
25 removing from the system, we have to take those

1 very long.

2 And, finally, because this soil vapor  
3 extraction technology has all those qualities, being  
4 very effective in the types of soils here at JPL and  
5 being very effective in removing this type of  
6 chemical from the soil, EPA says that this is what  
7 is called a presumptive remedy. Or basically, this  
8 is the best technology that you can use at hundreds  
9 of other sites, including here at JPL, throughout  
10 the country. And so we call it what is -- what's  
11 deemed to be a presumptive remedy.

12 So based on our pilot study and based  
13 on our ongoing analysis of the site, NASA proposes  
14 soil vapor extraction as the proposed remedy for  
15 OU-2.

16 MR. SAUNDERS: Thank you, Richard.

17 We are now available for comments and  
18 questions from you, the public.

19 As a quick reminder, to ensure that  
20 all participants providing comments or questions  
21 receive equal treatment, please limit your comments  
22 or questions to two minutes. We also ask you to  
23 please state your first and last name, and spell  
24 your last name for the court reporters. Thank you.

25 Do we have any questions or comments

1 from the public? Please feel free to come up to the  
2 mike and, again, state your first and last name and  
3 spell the last name for the reporters -- court  
4 reporters.

5 MR. ROBLES: Somebody ask a question,  
6 please.

7 MR. SAUNDERS: Well, we have some  
8 comments from the public.

9 Thank you, sir.

10 MR. ZUROMSKI: Thank you.

11 MR. STORK: My name is Edward Stork,  
12 and my last name is spelled S-t-o-r-k, and I  
13 actually am the president of the Rose Bowl Riders,  
14 which is right next door. And so I was interested  
15 to hear that the chemicals are apparently only  
16 within the boundaries of JPL, correct?

17 Can you tell me where the soil vapor  
18 extraction wells will actually be located?

19 MR. ZUROMSKI: We -- I can tell you  
20 that at this point in time the one location that we  
21 are currently operating the soil vapor extraction is  
22 right where I was pointing, at the highest levels of  
23 the chemicals that we found on the site.

24 The other wells -- what we're doing  
25 right now is we're doing continuing monitoring of

1 MR. ZUROMSKI: Right.

2 MR. STORK: Okay.

3 MR. ZUROMSKI: Right up here's  
4 where -- right about there, where my light's  
5 shining?

6 MR. STORK: Uh-huh.

7 MR. ZUROMSKI: Is where the current  
8 vapor extraction pilot study's operating. And  
9 that's where the highest levels of the chemicals  
10 were found on the site.

11 MR. STORK: And just out of curiosity,  
12 how much area does one of these vapor extraction  
13 wells take up, when you install it?

14 MR. ZUROMSKI: The actual well itself  
15 is usually probably from four to six inches, just  
16 for the well itself. However, the radius of  
17 influence from the vacuum at the site can be  
18 anywhere from four to eight -- seven or eight  
19 hundred feet from the center of the well.

20 MR. STORK: Thank you.

21 (Inaudible.)

22 MR. ROBLES: The site -- the size of  
23 the site, they also want to know how big is that.  
24 It's about 45?

25 MR. ZUROMSKI: 45 acres.

1 the soil vapor levels at the site. And that,  
2 actually -- I think Mark described the remedial  
3 design phase that occurs after we sign our record of  
4 decision, where we actually look -- where we  
5 actually look, at that point in time, where the  
6 highest levels of the chemicals are and then we  
7 place the well.

8 So, no, we don't know exactly where  
9 they would be right now, but we would focus on where  
10 the highest levels of the chemicals were.

11 MR. RIPPERDA: But the level of  
12 contamination as you move south -- you're here from  
13 the riding stables, right?

14 MR. STORK: Right. Just below here,  
15 yeah.

16 MR. RIPPERDA: As he said, the highest  
17 level of contaminants -- can you put --

18 MR. ZUROMSKI: Sure.

19 MR. RIPPERDA: You might want to put  
20 the example up.

21 The highest level of contaminants are  
22 up in the northern part.

23 MR. STORK: Right.

24 MR. RIPPERDA: And as you move south,  
25 it's negligible to undetectable.

1 MR. ROBLES: 45 acres. That yellow  
2 spot.

3 MS. COMPTON: You said none of the  
4 wells --

5 MR. ROBLES: Yes. None of the wells  
6 that we're talking about the soil vapor will be  
7 off-site, it's all on-site because that's where all  
8 the soils are at.

9 But understand also, everybody, that  
10 we revisit this periodically. Every five years we  
11 go back and revisit, so that we make sure that we're  
12 doing the right thing with the regulators.

13 Any other questions?

14 (Inaudible.)

15 Oh, because of the comments on  
16 Saturday -- I thank the lady -- we are planning to  
17 have a third meeting. And we want to have it in  
18 Altadena. And what we want to do is probably --  
19 we're trying to set it up, I haven't talked to  
20 anybody over there. We'll probably host it in the  
21 middle of June, so that we can make sure that the  
22 whole community has a chance. I didn't know this,  
23 and that was one of the things why we have public  
24 meetings, is that the folks in Altadena can't make  
25 it over here at night because there is no bus

1 service. So we want to know if there's any concerns  
2 out there.

3 So if you get another proposed plan in  
4 the mail, please don't get angry at us. We're just  
5 announcing that we're going to have a third meeting  
6 in Altadena so that we can make sure that we have  
7 the public comments in there. We want to solicit  
8 comments. We want to make sure that the public is  
9 comfortable with this. We might have better  
10 suggestions and that's what we want to shoot for.

11 So we want to thank the lady on  
12 Saturday, that was a good comment that we had. And  
13 we have talked to some of the purveyors, and they're  
14 willing to put it in their billings. We're going to  
15 work on that, as well.

16 MR. SAUNDERS: All right. Quick  
17 feedback from Saturday's meeting.

18 What other questions do we have?  
19 Comments. Feel free to come on up to the mike and  
20 express your opinions, your comments, your questions  
21 at this time.

22 MR. CLAIRDAY: Good evening. John  
23 Clairday with the -- and the last name is spelled  
24 C-l-a-i-r-d-a-y. I'm a board member with the  
25 Lincoln Avenue Water Company, which is a neighbor,

1 the site and for the types of soils that we have at  
2 the site.

3 Now, what we do to ensure that that is  
4 the most effective technology for the site is,  
5 No. 1, we conduct a regular monitoring program of  
6 the soil vapor around the site, to see and actually  
7 watch, we've actually seen -- some of the data is in  
8 the back of the room. You can watch the chemicals  
9 that have been removed slowly disappear from the  
10 soil, and we do that on a very regular basis. And  
11 during our pilot study, we actually did it monthly  
12 to see what the effect of the system is on the  
13 chemicals in the soil.

14 Now, what we do for the long-term is  
15 once we've signed our record of decision and once we  
16 install the system throughout the site, we do --  
17 again, we have a regular monitoring program to see  
18 how effective it is, and then at least every --  
19 just -- every five years we do what is called a  
20 five-year review, where the regulatory agencies,  
21 NASA, sits down, looks at the results, how well the  
22 technology is looking, looks at new, possible  
23 innovative technologies if the technology we've  
24 chosen was not as effective as we thought it would  
25 be, and basically says, "Are we still doing the best

1 right next door. We appreciate the opportunity to  
2 come over here and -- for this meeting.

3 Just a coup- -- one statement and then  
4 one question, as well. One -- and I don't think  
5 this is inconsistent with what Mr. Robles said, but  
6 we already do have a groundwater problem, and I  
7 think that's been recognized, but I just wanted to  
8 emphasize that, since it's an area that we're  
9 interested in.

10 And then a second one. I'm wondering  
11 about the effectiveness of this extraction program.  
12 Is it 100 percent effective? How do you know how  
13 well you're doing, and is the testing continue  
14 throughout that term?

15 And then, also, if it's not 100  
16 percent effective, does that mean that a certain  
17 percentage will ultimately reach groundwater and  
18 contaminate it?

19 MR. ZUROMSKI: I'll answer your  
20 question.

21 First of all, every technology that we  
22 attempt, we choose because of -- because it is the  
23 most effective. 100 percent effective, I don't  
24 think we could guarantee, but it is the most  
25 effective technology for the types of chemicals at

1 thing that we can do to remove the chemicals from  
2 the environment?" And that's generally how we  
3 monitor how effective the technology is over the  
4 long-term.

5 Now, if you look the back of the room,  
6 we have an estimate, I think -- I can't quite read  
7 it from here -- but it looks like it's about  
8 three -- little over \$3 million. That's a present  
9 value cost of what it's going to take to operate the  
10 system, from our estimate, one to five years and  
11 then monitor it for 25 years after that. So we do  
12 continuously monitor this throughout the entire  
13 period, to make sure that what we've done was the  
14 best thing for the site.

15 As far as a level that we remove the  
16 chemicals to, that level is determined during the  
17 remedial or -- excuse me -- the record of decision,  
18 where we -- as Mark said, we all sit down and agree  
19 to a level that we will clean the site to. And  
20 that's based on all the regulatory requirements that  
21 we're required to make.

22 MR. RIPPERDA: And on an ongoing --  
23 you know, the groundwater, you know, they're also  
24 responsible for. So over time, you know, whatever  
25 the record of decision for the groundwater remedy

1 has, that will include monitoring and clean up of  
2 the aquifer. So they're removing the source to  
3 protect it from going into the aquifer in the  
4 future.

5 But for the contaminants that have  
6 already gotten into the groundwater NASA will, of  
7 course, still be responsible for that in the  
8 future.

9 MR. SAUNDERS: Thank you.

10 Any other questions, comments? Please  
11 feel free to take this opportunity.

12 Thank you.

13 MS. COMPTON: My name is Cynthia  
14 Compton, C-o-m-p-t-o-n. I'll try to be easier on  
15 you. I gave you lot of comments Saturday and I  
16 appreciate your response to my comments.

17 My first comment is that two minutes  
18 is not enough time for my questions and my comments.

19 MR. ZUROMSKI: Can we give her a  
20 little extension?

21 MR. SAUNDERS: Well, again, she can --  
22 we can give her more time after the other folks have  
23 responded --

24 MS. COMPTON: There you go.

25 MR. SAUNDERS: -- she can come back

1 employees are here, but the actual e-mail didn't say  
2 anything about the meeting, it just said the  
3 proposed plan is available at a web site. And she  
4 had a great comment that the actual e-mail needs to  
5 announce when and where the meetings are. So we'll  
6 make sure that NASA -- any e-mail that goes out in  
7 the next week or two for the next meeting has right  
8 in the text of the e-mail that this is a public  
9 meeting, when and where it will meet.

10 And he wants me to talk about soil  
11 particles, also. (Laughter.)

12 MS. COMPTON: He's already responded.

13 MR. RIPPERDA: Yeah.

14 So her question pertains to the fact  
15 that in the slides it almost always said "soil  
16 vapor," it didn't say "VOCs in the soil," it always  
17 said "soil vapor," and that's because the actual  
18 measurements we take are of the soil vapor.

19 When the contaminants are 50 feet, 100  
20 feet below the surface, you actually have to drill a  
21 bore hole to get down to it. And the act of  
22 drilling that bore hole, the heat and the air that  
23 you have to inject, bring the cuttings, the dirt  
24 back up out of the hole, basically blow away all the  
25 VOCs that you're trying to sample for. So you can't

1 for three minutes.

2 MS. COMPTON: Okay.

3 Quickly. I know that there was some  
4 testing done in Building 107, in the basement, for  
5 the air atmosphere, and I wonder if that has turned  
6 into one of the 37 permanent test points.

7 Another question I have is: I'm  
8 interested in a record of the public notices that  
9 were sent out, in the newspapers and mailings, and  
10 I'm still having a little trouble distinguishing the  
11 difference between contamination in the particles of  
12 soil versus contamination in the vapors. And if  
13 maybe you could clarify that a little bit with me.

14 And the other thing is, that my --  
15 same comments I made Saturday. I think we, the  
16 public, deserve a little bit earlier notice -- and  
17 thank you for offering another meeting, I'm going to  
18 put that in my official comments. But a little  
19 earlier notice and something to the JPL employees  
20 that says "Public Meeting," maybe, in the subject  
21 title.

22 MR. RIPPERDA: I'm going to say one  
23 thing to the last thing.

24 She showed me a copy of the e-mail  
25 that went out, and -- I don't know how many JPL

1 take a soil sample very well from 100 feet deep and  
2 analyze that soil for how much contamination it has  
3 in it.

4 So, instead, what you do is you drill  
5 your bore hole and then you let it sit for a few  
6 weeks, reach equilibrium, and then you suck some air  
7 out. And because the VOCs are attached to the soil  
8 particles and all the soil around the bore hole,  
9 they evaporate naturally and they'll fill the bore  
10 hole. And as you suck the air out, you see "Oh,  
11 we've got VOCs in our air that we're sucking out,"  
12 so, therefore, we know that there's VOCs in the soil  
13 of this location. You can do kind of rough  
14 correlations between the amount that's in the soil  
15 vapor you're measuring to what's actually in the  
16 soil.

17 So it's just -- it's the physics of  
18 not being able to measure the actual particles of  
19 soil, we have to do a correlation between the soil  
20 vapor and the soil. So we're always going to talk  
21 about soil vapor, even though what we're really  
22 concerned about is what's attached to the soil.  
23 Because what's attached to the soil is what gets  
24 dissolved in rain water as it infiltrates down.  
25 That's what ultimately brings it to the drinking

1 water aquifer.  
 2 MS. COMPTON: But when you're sucking  
 3 it and cleaning --  
 4 MR. RIPPERDA: Right. So when we're  
 5 sucking, we're sucking the vapor out. But as we  
 6 suck the vapor out, the particles of the chemicals  
 7 that are attached to the soil are always  
 8 evaporating. As we suck more air, more particles  
 9 evaporate off the soil and, relatively quickly, by  
 10 keeping on sucking, you have sucked most of the  
 11 particles of contamination out.  
 12 MR. ROBLES: I mean, you asked about  
 13 the building. I'm not familiar with that. I know  
 14 that samples have been taken.  
 15 MR. RIPPERDA: You have to talk louder  
 16 in your answer, for court reporter.  
 17 MR. ROBLES: Oh. You were saying  
 18 about which building again?  
 19 MS. COMPTON: 107, I think.  
 20 MR. ROBLES: 107. It must be in our  
 21 plan. I don't remember it exactly. I can get back  
 22 to you with that information.  
 23 MR. ZUROMSKI: We'll have to respond  
 24 to that.  
 25 MR. ROBLES: Yeah, we'll have to

1 started May 7 and runs through June 11.  
 2 Keep in mind, the comments and  
 3 questions asked tonight, as well as responses, not  
 4 only the ones given here but, furthermore, in-depth  
 5 responses, answers to your comments and questions  
 6 will be included in a responsiveness summary which  
 7 will be included with the ROD into the annual  
 8 record.  
 9 Yes.  
 10 MR. ZUROMSKI: The time period has  
 11 been extended.  
 12 MR. SAUNDERS: Okay. You're going to  
 13 extend the comment period. All right.  
 14 MR. ROBLES: We're going to extend the  
 15 comment period past the meeting coming up so,  
 16 therefore, it's fair for everybody.  
 17 MR. SAUNDERS: Okay. So instead of  
 18 waiting for the public to request an extension,  
 19 we've already extended the comment period at this  
 20 time.  
 21 Do we have a date as of yet? Or that  
 22 will be --  
 23 MR. ROBLES: It will be in the --  
 24 MR. SAUNDERS: It will be in the  
 25 information sent out to the public, as to how long

1 respond to that.  
 2 MS. COMPTON: I'd appreciate it.  
 3 MR. ROBLES: I don't -- it's not  
 4 familiar to me within the document, so we'll have to  
 5 get back with you.  
 6 MR. SAUNDERS: Thank you.  
 7 What other questions, comments do we  
 8 have? I'm sure there's plenty of other folks out  
 9 there that have some feedback for us. Please feel  
 10 free to come up to the mike and provide your  
 11 comments, questions.  
 12 If there's no other comments or  
 13 questions, ma'am, if you'd like to come back up and  
 14 get your next three minutes in, you're welcome to  
 15 come back up at this time.  
 16 MS. COMPTON: I'm all set.  
 17 MR. SAUNDERS: Okay.  
 18 Well, if there's no other questions or  
 19 comments, we're going to wrap this up in a moment.  
 20 I want to thank you for attending, encourage you to  
 21 review and comment on the proposed plan, and there's  
 22 copies on the back table of the proposed plan.  
 23 The final decision regarding cleanup  
 24 will be made after public comments have been  
 25 received and considered. The public comment period

1 the comment period has been extended.  
 2 And if you could put that slide back  
 3 up?  
 4 As has already been mentioned, if  
 5 there is any further comments, questions, the last  
 6 slide that has Peter's address, feel free to send  
 7 your comments, your questions, mail them, e-mail  
 8 them to Richard at this address. It's also included  
 9 in the proposed plan fact sheet. And we look  
 10 forward to any further feedback that you have may  
 11 have at this time.  
 12 And before we close, I will give you  
 13 one last chance. If there's any other comments or  
 14 questions.  
 15 If not, thank you for coming and have  
 16 a good evening.  
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CERTIFICATE

I, LESLIE A. MAC NEIL, RPR, CSR  
No. 7187, in and for the State of California, do  
hereby certify:

That the foregoing \_\_\_-page  
proceedings were taken down by me in shorthand at  
the time and place stated herein, and represent a  
true and correct transcript of the proceedings.

I further certify that I am not  
interested in the event of the action.

WITNESS my hand this \_\_\_\_ day of  
\_\_\_\_\_, 2001.

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Certified shorthand  
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PUBLIC MEETING AND PUBLIC COMMENT PERIOD  
COMMENTS AND QUESTIONS GIVEN TO COURT REPORTER  
MONDAY, MAY 14, 2001  
8:45 P.M.

NASA JET PROPULSION LABORATORY  
4800 OAK GROVE DRIVE  
PASADENA, CALIFORNIA

PASADENA, CALIFORNIA  
MONDAY, MAY 14, 2001; 8:45 P.M.

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BY TERRI FORMICO:

Is there any intent to do an anonymous survey of LaCanada residents and employees at JPL of incidences of tumors, cancers, unusual cancers, deaths due to cancer over the last 20 years? That's my question.

Also, employees of La Canada, as well. People who have worked here at least 10 years or so.

The survey should be offered to all members of the community, all employees of the community of both JPL and La Canada, not a random or public event to gather data.

CERTIFICATE

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I, LESLIE A. MAC NEIL, RPR, CSR No. 7187, in and for the State of California, do hereby certify:

That the foregoing \_\_\_-page proceedings were taken down by me in shorthand at the time and place stated herein, and represent a true and correct transcript of the proceedings.

I further certify that I am not interested in the event of the action.

WITNESS my hand this \_\_\_\_ day of \_\_\_\_\_, 2001.

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PUBLIC MEETING AND PUBLIC COMMENT PERIOD

ELIOT MIDDLE SCHOOL  
ALTADENA, CALIFORNIA

WEDNESDAY, JUNE 20, 2001  
6:00 P.M. TO 9:00 P.M.

Reported by:

Vickie Blair

C.S.R. No. 8940, RPR-CRR

1 ALTADENA, CALIFORNIA; WEDNESDAY, JUNE 20, 2001  
2 6:00 P.M.  
3 ---000---

5 MR. SAUNDERS: Good evening. Can you hear  
6 me?

7 Welcome to Eliot Middle School. Thank  
8 you for taking the time to attend our meeting this  
9 evening. It's a rather hot evening, as you can tell.  
10 I am going be a little informal and go without my  
11 sports coat this evening, and I invite all of you to  
12 relax. In fact, while I know you all have  
13 comfortable seats back there right now, in order to  
14 get a little more intimate atmosphere, if you don't  
15 mind all moving up a little bit and we'll have a  
16 little bit better contact and dialogue. If everybody  
17 just moves up a little closer, I really would  
18 appreciate that. Plenty of seats to choose from.

19 My name is Lee Saunders. I'm an  
20 Environmental Public Affairs Officer with the U.S.  
21 Navy and a facilitator for tonight's meeting about  
22 the proposed plan to select a remedy to clean up  
23 soils at the National Aeronautic Space  
24 Administration, Jet Propulsion Laboratory, located  
25 nearby here in Pasadena.

1 Prior to this meeting, you had the  
2 opportunity to speak with NASA, federal, local lead  
3 and regulatory agency representatives on a one-to-one  
4 basis about the proposed cleanup actions.

5 During this portion of the meeting,  
6 you, the community, can provide questions and  
7 comments to these representatives and their agencies  
8 on the proposed plan. These comments and questions  
9 will be included in a meeting transcript and become  
10 part of the final decision made for soil cleanup at  
11 JPL. Representing the agencies responsible for the  
12 cleanup and talking to you about the proposed plan  
13 and its remedial alternatives are agency  
14 representatives who will each introduce themselves  
15 starting down here.

16 MR. YOUNG: David Young with the Los Angeles  
17 Regional Water Quality Control Board.

18 MR. RIPPERDA: I'm Mark Ripperda from the  
19 U.S. Environmental Protection Agency.

20 MR. ROBLES: Peter Robles from NASA.

21 MR. ZUROMSKI: Hi. I'm Richard Zuromski with  
22 the Naval Facilities Engineering Command.

23 MR. SAUNDERS: Can everybody hear all of  
24 them? No problems? Okay, good.

25 Ground rules for tonight's meeting are

1 as follows: This evening's format will consist of  
2 presentations by our representatives about the  
3 proposed plan and remedial alternatives, followed by  
4 a formal comment session where you, the community,  
5 can provide us with the comments and questions.

6 I'm going to ask you to please hold  
7 your questions until the presentation has been  
8 completed. Once we've heard from all the presenters,  
9 we will open the floor to questions and comments.  
10 You may want to use the comment sheets that you  
11 picked up in the back while you hear the presentation  
12 to write down your questions so they stay fresh in  
13 your mind.

14 To ensure that everyone that wishes to  
15 make a comment or ask a question has a fair and equal  
16 opportunity to do so, we ask that you limit your  
17 comments and questions to five minutes. At the end  
18 of that time, please take your seat. If you have not  
19 finished your remarks, you may continue for another  
20 five-minute period after we've heard from all the  
21 other speakers.

22 We have a court reporter over here to  
23 my left, your right, this evening; so we ask you to  
24 please state your first and last name and please  
25 spell your last name before you begin your comments

1 for the record.

2 If you do not wish to provide verbal  
3 comments or questions, you may also submit your  
4 comments and questions in writing. These comment  
5 sheets that I mentioned are available on the tables  
6 in the back for those of you in the audience that  
7 would prefer to submit them by this alternate  
8 method.

9 For those of you wondering why the  
10 U.S. Navy is involved with the environmental cleanup  
11 of the NASA facility, the explanation is fairly  
12 simple. In 1999, NASA and the Naval Facilities  
13 Engineering Command, more commonly known by the  
14 acronym NAFAC, reached a memorandum of agreement  
15 establishing the roles and responsibilities that  
16 state NASA may procure environmental engineering and  
17 consulting service from NAFAC and its subordinate  
18 commands.

19 In late 1999, NAFAC became heavily  
20 involved in providing environmental services to NASA  
21 JPL. Peter Robles, remedial project manager for  
22 NASA, is our first presenter.

23 Peter.

24 MR. ROBLES: Good afternoon. I'm Peter  
25 Robles from NASA, and I wanted to just go over the

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1 site description. Here is a list of the participants  
2 with the exception of one person, Richard Gebert with  
3 the State of California Department of Toxic  
4 Substances Control. Everyone else is here.  
5 We are going to do a summary  
6 presentation, and the first thing we want to do is a  
7 site description, so we will go to that.  
8 The site called JPL has been active  
9 since 1939. And it was basically under the auspices  
10 of the Corps of Engineers with the Army, and Cal Tech  
11 was the organization; JPL was operating the site.  
12 In the '40s and '50s, the way that  
13 most disposal was done on-site was through seepage  
14 pits, and this was the accepted practice at the  
15 time. When NASA took over in the late '50s, early  
16 '60s, NASA replaced the seepage pits with sewage  
17 systems, and took out the seepage pits, which we  
18 believe are the main causes of the migration of  
19 chemicals in soils.  
20 In '92, the site was put on the  
21 SuperFund list, and at that time it started with the  
22 SuperFund process, which will be explained a little  
23 later.  
24 Currently, the site meets all of the  
25 federal, state, and local requirements. And I

Page 7

1 reiterate that at the time in the past those methods  
2 were acceptable. We know better now that that was  
3 not the best way to do that. But today, we take care  
4 of our waste. It's usually used up in the process,  
5 basically destroyed in the process, and very little  
6 gets disposed of, so we have regulatory controls on  
7 how we handle our chemicals on the facility.  
8 Now, the site itself, tonight what we  
9 want to talk about is Operable Unit Number 2, which  
10 consists of what we call the vadose zone, which is  
11 from surface level down to about 200 feet just above  
12 the water table. Where our main concern is are the  
13 50 feet to 200 feet under the ground where we have  
14 found chemicals from the past are still there in the  
15 soils. This creates a potential source of future  
16 migration of chemicals into groundwater, and so  
17 tonight we want to focus on how to alleviate the  
18 vadose zone or the soil located in that area.  
19 NASA intends to address in the future  
20 groundwater, hopefully in another year, on what we  
21 want to do with the chemicals that are in the  
22 groundwater. But for tonight we want to work on  
23 OU-2, and get your comments or a recommendation of  
24 what way to deal with this site for cleanup.  
25 And now what we wanted to do is go

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1 through the SuperFund process, and I will turn it  
2 over to EPA, mark Ripperda.  
3 MR. RIPPERDA: Thanks, Peter, and thanks  
4 everybody for coming out tonight.  
5 Peter mentioned that this is a  
6 SuperFund site, and that leads to the question: What  
7 is SuperFund and what does it mean to be a SuperFund  
8 site? A little quick history. Back in the 1980s,  
9 congress passed a law that authorized a tax on the  
10 chemical industry. That money all remains in a trust  
11 fund which is called SuperFund. It's several billion  
12 dollars, and that money can be used by EPA to clean  
13 up toxic sites, and Congress also gave the EPA  
14 authority to oversee existing either government  
15 agencies or private companies that have  
16 contamination.  
17 But EPA will only get involved if the  
18 site goes through a ranking process and it scored  
19 badly enough that it's listed on the national  
20 priorities list, which is just the national list for  
21 all the sites that are SuperFund sites.  
22 So once the site goes through that  
23 process and it becomes a SuperFund site, if it's an  
24 existing site like JPL, they have to go out, take  
25 soil samples, groundwater samples, evaluate how bad

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1 the problem is, what chemicals are there, how the  
2 chemicals got there. We're supposed to interview old  
3 employees and neighbors around the site. And from  
4 that they get a conceptual model, a picture of where  
5 the chemicals are, where they came from, where  
6 they're going to. And that's called the remedial  
7 investigation and a feasibility study portion.  
8 That's what JPL just recently completed. So they  
9 know where the chemicals are; in this case we're  
10 talking about soils.  
11 And the feasibility study, they study  
12 how best to clean it up, and that's called the  
13 adjustment period. And now they're in the proposed  
14 plan and public comment period where they're going to  
15 say, "This is what we think the problem is, this is  
16 what we're going to do about it, and what do you  
17 think?"  
18 So from there, they go to the Record  
19 of Decision, to the actual legal document, after  
20 public comments have been received or responded to.  
21 Then the regulators, such as the State of California  
22 Regional Water Quality Control Board, the State of  
23 California Department of Toxic Substances Control,  
24 and EPA, these are the three regulatory agencies. If  
25 we all buy off on the proposed plan, they do the

1 Record of Decision, then go on to the remedy  
2 implementation.  
3 We won't even talk about the agency  
4 standards. That's after the site is cleaned up, and  
5 that's years from now. But even if the site does get  
6 completely cleaned and delisted from the SuperFund  
7 list, there still has to be long-term monitoring and  
8 review. So in a case like this, you can't call it  
9 perpetuity, but they would be required to monitor the  
10 water for almost forever.

11 So in this process, the public -- we  
12 like to see the public involved as much as possible.  
13 So in things like this we're going to try to do a  
14 better job in the future of getting information out  
15 more regularly, making sure that documents are all in  
16 the local libraries and depositories so you can  
17 actually look for yourself to see what JPL, what NASA  
18 is doing. But tonight we would just love if you have  
19 any questions or comments, and either do it at the  
20 microphone or write something down, write something  
21 afterwards, if you want, but let us know what you  
22 think.

23 MR. ZUROMSKI: Hi. My name is Richard  
24 Zuromski. I'm with the Naval Facilities Engineering  
25 Command, and I'm going to talk to you tonight about

1 and Freon 113. Some of these compounds, especially  
2 carbon tetrachloride, were used to clean, as Peter  
3 mentioned earlier, the inside of rocket motors back  
4 in the '30s, '40s, and '50s, a lot of the work that  
5 they used to do here at JPL. However, that work does  
6 not happen here at JPL anymore.

7 Part of the risk assessment was a  
8 human health risk assessment that showed that there  
9 were no risks above regulatory limits associated with  
10 exposure to soils or soil vapor at the JPL site. The  
11 primary reason for this was that the chemicals that  
12 we're talking about are more than 50 feet below the  
13 ground surface, so exposure to humans is very much  
14 unlikely.

15 However, as Peter mentioned earlier,  
16 there is a risk that these chemicals will continue to  
17 migrate through the soils to the groundwater table,  
18 and so that's what we're concentrating our efforts on  
19 here tonight is removing these chemicals from the  
20 soils before they reach the groundwater table. The  
21 technical term for that is source removal, as again  
22 protecting the groundwater from the chemicals that  
23 are in the soil.

24 Now, we are currently studying how to  
25 remove the VOCs that have reached the groundwater

1 site assessment and investigation activities that  
2 were done at JPL.

3 And before I start, I was just  
4 reminded to remind you here tonight that the public  
5 comment period for JPL has been extended through  
6 July 11th. So I just wanted everybody to know that  
7 your comments, if you don't get them in tonight or  
8 you don't want to do them in front of everyone  
9 tonight, please get your comments in to us by mail or  
10 by E-mail by July 11th.

11 First I want to talk about the  
12 remedial investigation. From 1994 through 1998, we  
13 conducted a remedial investigation at JPL. During  
14 that time, in over nine different sampling events, we  
15 took samples at 45 soil vapor locations, 35 soil  
16 bores, and three test pits. Now, 37 of those soil  
17 vapor monitoring locations are now part of a regular  
18 monitoring program that we conduct at the JPL site.

19 The samples that we took from 1994  
20 through 1998 identified the extent of the chemicals  
21 in the soils and the soil vapor under JPL. The  
22 results showed that there were elevated levels of  
23 four volatile organic compounds beneath and in the  
24 soils at JPL. Those four compounds were carbon  
25 tetrachloride, trichlorethene, 1,1-cichloroethene,

1 table; but that's going to be the subject, as Peter  
2 mentioned earlier, of a future meeting probably, in  
3 early 2002. However, there is no risk from VOCs in  
4 the groundwater because the regulatory agencies  
5 mandate -- your water carriers or those who deliver  
6 your drinking water to you have to meet very, very  
7 strict regulatory requirements. But, again,  
8 tonight's meeting is focused on source reduction,  
9 removing the chemicals from the soil.

10 Now, this graphic shows the extent to  
11 which VOCs were detected in soil vapor at the JPL  
12 site. Now, the extent of the VOCs in the soil there  
13 are the extent to which any detection of VOCs were  
14 found at the site from the most minuscule all the way  
15 up to the highest levels, which are concentrated in  
16 the north central part of the site. But based on the  
17 results of the remedial investigation and our ongoing  
18 soil vapor monitoring program, we found that the VOC  
19 plume has not migrated off the site, but does  
20 encompass roughly 45 acres on JPL.

21 So based on the analysis that we did  
22 in the remedial investigation, the remedial objective  
23 for Operable Unit 2 vadose zone soils is to prevent  
24 the VOCs from migrating to the groundwater or, again,  
25 what we're calling source removal.

1 To meet this objective, we evaluated  
2 several alternatives, and this was done, in what Mark  
3 Ripperda talked about earlier, a feasibility study.

4 Of the alternatives, two were  
5 selected for further detailed evaluation where we go  
6 through nine different criteria and evaluate each of  
7 the technologies in that nine criteria, and those  
8 were the ones that were in the proposed plan mailed  
9 to the public and is also available on the table in  
10 the back.

11 The first of these is called "No  
12 Further Action." This is a default alternative that  
13 is mandated by Congress, and it's the alternative  
14 that all other alternatives are compared against. It  
15 would really only consist of continuing our ongoing  
16 soil vapor monitoring program at the JPL site, and  
17 any incidental natural degradation of the chemicals  
18 in the soil.

19 The second, soil vapor extraction with  
20 granular activated carbon treatment, would involve  
21 installing up to five soil vapor extraction wells and  
22 systems to remove the chemicals from the soil vapor  
23 before they reach the groundwater.

24 So to help us evaluate the  
25 alternatives, we conducted a pilot test of the soil

1 released from the system. The chemicals that remain  
2 in the carbon are then taken off-site and recycled,  
3 and the new carbon is brought into the system as  
4 needed.

5 So based on our analysis, alternative  
6 one, no further action, wasn't chosen because it did  
7 not adequately prevent migration of the VOCs to  
8 groundwater; therefore, the proposed alternative  
9 method is soil vapor extraction.

10 Soil vapor extraction would be used to  
11 reduce the migration of the VOCs to groundwater. The  
12 advantages to using soil vapor extraction are, first,  
13 it removes and actually reduces the amount of VOCs in  
14 the soil and soil vapor.

15 Secondly, it works very, very well in  
16 the types of soils that we have at JPL, which was  
17 shown during our pilot study.

18 Third, again, it protects the  
19 groundwater from further migration of these  
20 chemicals.

21 Fourth, it's very simple to operate  
22 and fairly inexpensive, as well.

23 Fifth, the treatment period is  
24 relatively short, probably from one to five years.

25 Now, since this soil vapor extraction

1 vapor extraction technology. During the pilot test  
2 in over 14 months of operation we removed over 200  
3 pounds of chemicals from the soil. And the operation  
4 of the extraction system continues to date. And  
5 since it has been so successful, and we had a lot of  
6 good data and good results from that, we're going to  
7 discuss that in a little bit more detail here in the  
8 next slide.

9 This is a conceptual diagram of how  
10 soil vapor extraction works. First, as you can see,  
11 there are VOCs which are the chemicals that came from  
12 the seepage pits that are in the soil and the soil  
13 vapor. Now, these VOCs from the past disposal  
14 practices are then drawn by a vacuum through the  
15 well -- over to the right -- into the well and are  
16 basically just like a vacuum; they're sucked out of  
17 the soil and the soil vapor into that well and then  
18 pulled aboveground by the pump into the vapor  
19 treatment system.

20 The VOCs are then sent through the VOC  
21 treatment system, which is comprised of granular  
22 activated carbon. The activated carbon basically  
23 absorbs -- what we would technically calls adsorbs --  
24 the chemicals in the carbon and then holds them  
25 inside the vapor treatment system and clean air is

1 technology has all these qualities, and is so  
2 effective at sites very similar to JPL, it's one of  
3 the best and most accepted technologies by the EPA  
4 and the state regulatory agencies. Therefore, the  
5 EPA gives this technology the term "presumptive  
6 remedy," and soil vapor extraction is the presumptive  
7 remedy that we're using here for Operable Unit 2.

8 So based on the soil vapor data and  
9 the soil extraction on the site and ongoing  
10 monitoring program of the soil vapor at the site,  
11 NASA proposes soil vapor extraction as the proposed  
12 alternative for Operable Unit 2.

13 Lee.

14 MR. SAUNDERS: Thank you. We're now open to  
15 comments and questions from you. As a quick reminder  
16 to make sure that all participants' questions or  
17 comments receive equal treatment, please limit your  
18 comments or questions to five minutes. We also ask  
19 that you please state your first and last name and  
20 spell your last name for the court reporter.

21 In regards to basic information up  
22 here for people to contact afterwards if you do not  
23 want to provide any questions or comments for you  
24 tonight for you to send the questions or comments  
25 to.

1 Do we have any speakers tonight that  
2 would like to ask any questions or provide any  
3 comments?

4 MR. RIPPERDA: The two microphones.

5 MR. SAUNDERS: And please come up to the  
6 microphones so everyone can hear you. We have one up  
7 here and one back here. This is a great opportunity  
8 for you to provide feedback for us. This is a very  
9 important process.

10 Yes, sir.

11 MR. CRIPPEN: Hi. I'm Bob Crippen. I'm a  
12 JPL employee. I also live a couple blocks from the  
13 JPL property in La Canada.

14 MR. SAUNDERS: Sir, please spell your last  
15 name.

16 MR. CRIPPEN: Certainly. C-r-i-p-p-e-n.

17 My question relates to the topography  
18 at the site. You say that the VOCs are 50 feet deep,  
19 but the property across the site is more than 50  
20 feet. How does the depth relate to the property?  
21 Do the VOC's come closer to the surface as you go  
22 down?

23 MR. ROBLES: Fifty feet measured from the top  
24 of the topography.

25 MR. CRIPPEN: But you're on a hillside.

1 that's where most of the seepage pits were. We found  
2 the old bricks in the seepage pits in some places.  
3 Some of them have been taken out over the years. We  
4 went and did some investigation. But those pits went  
5 about, I'd say, as far down as 30 feet. They were  
6 pits. And the key was the chemicals migrated through  
7 the surface of it to the ground, sank down below.  
8 But that's where all the seepage pits were, in the  
9 northeast portion of the land.

10 MR. CRIPPEN: Is a seepage pit generally near  
11 the --

12 MR. ROBLES: Yes, yes, generally near the  
13 east gate.

14 MR. CRIPPEN: Another question. Your  
15 distribution map looks like the distribution went  
16 pretty far to the west of the map.

17 MR. ROBLES: Oh, mostly south. Mostly south  
18 because there were some buildings that still were  
19 doing some work. It was not just the seepage pits  
20 only. There was other work going on in other  
21 buildings closer to where the library was -- where it  
22 is now. There was some work done there, as well, and  
23 you see less as you go there. And the water table  
24 rises and causes this [unintelligible] issue within  
25 the soil. And that's where the spring came out

1 MR. ROBLES: I know. And we know that the  
2 bedrock is to a thousand feet, but what we're saying  
3 is that it's below -- wherever the topography is  
4 standing, it is not within the first 50 feet anywhere  
5 at JPL. It's usually below that, and gets much more  
6 higher as you go closer to that 50 feet. And we  
7 measured that and wanted to make sure of that simply  
8 because we were concerned about exposure to the  
9 public. And that's one of the reasons why we tested  
10 that first layer all the way through and we sampled  
11 the whole -- I know what you're saying. It's 50 feet  
12 from the surface wherever the topography is.

13 MR. CRIPPEN: Fifty feet or more is what  
14 you're saying?

15 MR. ROBLES: Right, right. In some places,  
16 50 feet. If you're on the private road, topography,  
17 50 feet down at south gate, that's correct. But  
18 it's still -- because it falls down. It just doesn't  
19 come to the surface anywhere on that.

20 MR. CRIPPEN: Okay. Another question. Where  
21 were the pits and how deep were they? Were the pits  
22 more than 50 feet deep?

23 MR. ROBLES: Some of the pits -- first of  
24 all, good question. The location was in the north --  
25 I want to say northeast portion of the old farmland;

1 there, so it's not like a point source where you  
2 wonder where it came through.

3 MR. CRIPPEN: Recently the sewer system was  
4 put into the eastern part of La Canada, and I'm in  
5 that area. I live in that area. It's sort of the  
6 easternmost part of La Canada. They were putting in  
7 a sewer there. And I was talking to the guys when  
8 they put the sewer on my street, and I live up on the  
9 hill. They said they were going to have -- I didn't  
10 follow up on this, but when they were putting the  
11 sewers [unintelligible] area because the water table  
12 was only about 10 feet below the surface. That's the  
13 part of La Canada that's immediately adjacent to JPL,  
14 and you're saying the water table is 200 feet below  
15 the surface.

16 MR. ROBLES: Right. We tested it.

17 MR. CRIPPEN: Did you verify it?

18 MR. ROBLES: That's beyond me.

19 MR. SAUNDERS: One thing you have to keep in  
20 mind tonight, while you can ask questions and write  
21 comments, the purpose is really to take those  
22 comments and questions and give you a formal response  
23 back. So they can give you just some general  
24 responses, but we really can't expect him to give you  
25 a formal answer tonight. So they will give you those

1 formal remarks back in the official response.  
 2 MR. CRIPPEN: Okay.  
 3 MR. RIPPERDA: And, also, there is another  
 4 hour after this informally.  
 5 MR. CRIPPEN: That's fair. These are just  
 6 questions that came up in your presentation, the  
 7 numbers, the topography, the depth.  
 8 MR. SAUNDERS: And you will definitely get  
 9 answers back in detail.  
 10 MR. CRIPPEN: Thanks.  
 11 MR. SAUNDERS: Thank you.  
 12 Who else would like to ask some  
 13 questions tonight or provide some comments to us?  
 14 Great opportunity, a great time to do this. Please  
 15 feel free to come up. Thank you.  
 16 MS. COMPTON: Hi. I am Cynthia Compton,  
 17 C-o-m-p-t-o-n. I am also a JPL employee. Most of  
 18 you know me. I've been at all three meetings. I  
 19 thank you for increasing your comment and question  
 20 period to five minutes, although I have lots of  
 21 questions this time. You've incorporated the answers  
 22 to my questions in most of your presentation.  
 23 Back to the seepage pits. I heard you  
 24 say that they took out the seepage pits, and I'm not  
 25 really sure if that is technically correct about all

1 seepage pits because from what I understand, some of  
 2 them are under the parking lots, some of them are  
 3 under buildings, and some of them are literally  
 4 undiscovered and some of them may even be lost. So I  
 5 just want to bring that out. Is there a plan to go  
 6 back and identify as many seepage pits as possible  
 7 and maybe pulling everything out, pulling them out,  
 8 like you said?  
 9 Another question I have is the -- the  
 10 plume, also. When you talked about the vadose zone,  
 11 is that the entire area from the surface to the  
 12 groundwater? Is that the definition of vadose zone?  
 13 Okay.  
 14 And then I just want to comment again  
 15 that the feasibility study is not at the Altadena  
 16 Library. I went there after the first meeting, and  
 17 it wasn't there. I mentioned this. And I went there  
 18 again last night. And there are change pages there,  
 19 but the actual feasibility study is not there. And I  
 20 really don't want everyone to have to go to Pasadena,  
 21 having to go out to La Canada, having to go to JPL to  
 22 chase this down. It needs to be provided now. Some  
 23 of the answers to some of my questions last meeting  
 24 were -- it's in the feasibility study, so I need to  
 25 go over there and find the answers.

1 Also, you mentioned afterwards when  
 2 you're delisted from the NPL list, the long-term  
 3 monitoring and review. I'd like to get some  
 4 quantification of what does that mean, long-term  
 5 monitoring? Do they come out and look at it once  
 6 every five years or once every six months? I'm  
 7 looking for some quantification there.  
 8 And then let's see here.  
 9 And also something about the EPA  
 10 presumptive remedy, I'd like a clearer definition of  
 11 what does that mean. And I guess that's pretty much  
 12 most of my questions.  
 13 MR. RIPPERDA: I'll answer some of the  
 14 questions, and then we'll get back to that -- so your  
 15 last question was about presumptive remedies. It's  
 16 not really a legal term -- it's more of a working  
 17 term -- where certain types of contamination are seen  
 18 at almost all the SuperFund sites around the country;  
 19 and, you know, over the last 20 years, multiple  
 20 things have been tried. And when you get down to  
 21 using the same technology over and over again, we  
 22 have volatile organic compounds in the soils, one  
 23 tried and true technology is soil vapor extraction.  
 24 So another presumptive remedy would be treating,  
 25 processing plants, and a few other industries have

1 technologies where we always use the same thing over  
 2 and over again. And when something has been called a  
 3 presumptive remedy by EPA, it means that the people  
 4 who are actually spending money -- they skip over a  
 5 lot of the studies comparing alternative studies and  
 6 then just cut to the chase, like they did here.  
 7 Your other question about long-term  
 8 monitoring and the future aftermath after we've  
 9 cleaned it all up, we're done. We don't just walk  
 10 away. That's where EPA and the State of California  
 11 says, "You still have to do long-term monitoring to  
 12 be absolutely sure you got it all." There's  
 13 something called the five-year review, so every five  
 14 years they have to write a comprehensive report to  
 15 summarize everything. That doesn't mean that they  
 16 just monitor every five years. So when they actually  
 17 implement the remedy and the remedy is completed,  
 18 they then have to negotiate between them and us how  
 19 much monitoring they're going to do, which  
 20 groundwater wells are going to be monitored, how  
 21 often they're going to monitor them. And it usually  
 22 works out to be something like every six months.  
 23 Several water purveyor wells will be  
 24 monitored, and those are all part of the  
 25 [unintelligible]. I'm not sure that that's being

1 negotiated, but it's usually once every six months.  
 2 MS. COMPTON: Is that in the public  
 3 depositories?  
 4 MR. RIPPERDA: Yes. All of that information  
 5 is publicly available.  
 6 You asked about the seepage pits, and  
 7 that's more a question for the NASA guys.  
 8 Is there anything else that I can  
 9 answer? No?  
 10 Oh, and the incident with the library,  
 11 I agree with you. I hate to hear that it's not there  
 12 because, you know, we're absolutely supposed to make  
 13 sure that they're out there. And the field checking  
 14 person -- so if it's not there in the future, we'll  
 15 get it there.  
 16 MR. ROBLES: And I apologize for that. There  
 17 are people who love to take them home, so we have to  
 18 constantly be checking, so -- that's not an excuse.  
 19 Just to get back to what Mark said  
 20 about the sampling, one of the things that we had to  
 21 do is submit to them a sampling plan of how we're  
 22 going to sample long term. I will tell you, I have  
 23 yet to see a site delisted, you know. So a site is  
 24 usually studied, monitored, and usually they start  
 25 monitoring every quarter, and if they don't find

1 anything, then expanding it and expanding it to six  
 2 months. If that's working at the location, those  
 3 documents are available to the public because that's  
 4 the key. You say, "Well, I want it still to be every  
 5 quarter," so those would [unintelligible].  
 6 On the seepage pits, the pits that  
 7 were taken out, you probably were talking about the  
 8 bricks. What we have found is that some of our what  
 9 we call civilian structures -- and we compare those  
 10 and we find red brick. Those are the old seepage  
 11 pits. The plumbing is gone, everything was taken  
 12 out, and we find the bricks. There's nothing  
 13 connected to them. It's just the old site location.  
 14 We have done soil borings and soil  
 15 analysis of all that, so we know generally -- we have  
 16 pictures -- so we can see generally where the seepage  
 17 pits were and all of that.  
 18 Some of them are under buildings, but  
 19 wherever we have found them, we have done remediation  
 20 on them and taken samples to see. And off we go, the  
 21 chemicals that were in there we don't see. They've  
 22 gone out [unintelligible]. But periodically we'll  
 23 come across a seepage pit. So those were kind of in  
 24 the office to see what the site looks like.  
 25 Any other items that we didn't

1 address? If nothing else, we'll answer you back  
 2 formally, anyway.  
 3 MS. COMPTON: Right.  
 4 MR. ROBLES: Okay?  
 5 MS. COMPTON: Thank you.  
 6 MR. SAUNDERS: We had two people come in  
 7 recently. Just to let you know, we're in a public  
 8 comment and question period. This is an opportunity  
 9 for you to ask questions and provide comments to us  
 10 about the proposed plan. And we have some  
 11 microphones around the room for you to come up to the  
 12 microphones, state your first and last name, and  
 13 please spell your last name for the court reporter  
 14 for the record. And, again, these questions and  
 15 comments are on the record, and you will get formal  
 16 responses, written responses back.  
 17 Any other questions or comments,  
 18 please feel free to come up to the mike.  
 19 Yes, ma'am.  
 20 MS. GONZAL: Good evening. My name is  
 21 Cynthis Gonzal. I'm a resident of Altadena,  
 22 California. Two questions.  
 23 MR. SAUNDERS: Certainly. Would you please  
 24 spell your last name.  
 25 MS. GONZAL: G-o-n-s-a-l. G- as in good

1 -o-n-z-a-l.  
 2 MR. SAUNDERS: Thank you.  
 3 MS. GONZAL: [Unintelligible.]  
 4 In terms of long term, will JPL  
 5 actually be monitoring the site or would it be an  
 6 outside company or agency doing that?  
 7 MR. ROBLES: Could you clarify what you mean  
 8 by "monitoring."  
 9 MS. GONZAL: In terms of the toxicity levels.  
 10 MR. SAUNDERS: You're talking about that the  
 11 agency is not doing it themselves?  
 12 MS. GONZAL: Yes.  
 13 MR. ROBLES: Yes, there are agencies. In  
 14 fact, two of them are here. How the SuperFund works  
 15 is that all the documents that we produce for our  
 16 contractor has to go over to them for review. So we  
 17 have U.S. EPA, Department of Toxic Substances, the  
 18 State of California, and the Los Angeles Regional  
 19 Water Quality Control Board. And they have  
 20 contractors, subcontractors, that make a lot of  
 21 comments on our documents.  
 22 We go through draft, draft finals.  
 23 We discuss issues. "Hey, we need more sampling here.  
 24 We need more lab analysis. Here we need to drill  
 25 another well here." They are very active in the

1 process, and it's not just NASA doing its own thing.  
 2 We have to coordinate through them. We have  
 3 quarterly meetings called RPN meetings. We have  
 4 project management meetings. Those are the meetings  
 5 where we have working groups that decide on how we're  
 6 going to do this. They have had them for the last 10  
 7 years.

8 MS. GONZAL: Okay. Second question. In the  
 9 printed material where you talk about the risks  
 10 associated with exposures to chemicals, and you  
 11 indicated that there were no risks by regulatory  
 12 standards.

13 MR. ROBLES: Right. In the soils.

14 MS. GONZAL: In the soils. The risk that  
 15 usually is associated with that, will you be  
 16 monitoring that aspect, also, as relates to the human  
 17 element?

18 MR. ROBLES: Yes. They're called MCLs,  
 19 maximum contaminant levels. And every time we take  
 20 samples, quarterly take samples and telling where  
 21 those levels are, and it's also to make sure that  
 22 they're not coming to the surface. And we're always  
 23 having to revisit this to make sure that the public  
 24 health is addressed.

25 MS. GONZAL: What parameters are set for

1 the groundwater without it being treated. But all of  
 2 the water purveyors, Lincoln Avenue, La Canada, City  
 3 of Pasadena, if their water levels have contamination  
 4 above health-based limits set by the State of  
 5 California or by U.S. EPA, they install -- I think  
 6 mostly it's carbon treatment around here. And so  
 7 they treat the water before it gets sent out to  
 8 anybody in the public. So even though the chemicals  
 9 are in the groundwater, it's all being treated and  
 10 taken care of before it's sent out to the public.

11 So even though it's in the  
 12 groundwater, it's all being treated and taken care of  
 13 before the water gets out to the public. So now that  
 14 we say there's no risk from these chemicals, it's  
 15 because the water purveyors are actually treating the  
 16 water.

17 MR. SAUNDERS: We really appreciate your  
 18 comments and questions. Who would like to comment or  
 19 ask a question next? Ma'am.

20 MS. HIBNER: My name is Sara Hibner. The  
 21 last name is H-i-b-n-e-r.

22 Actually, I'm talking about reaching  
 23 the groundwater; however, many of us around here  
 24 understand about groundwater and the rain basin and  
 25 all of those kinds of complexities as to how our

1 that?

2 MR. ROBLES: Those are regulatory parameters  
 3 set by the State of California and the U.S. EPA.

4 MS. GONZAL: Okay.

5 MR. RIPPERDA: Just to clarify that a little  
 6 bit, most of what we've been talking about  
 7 [unintelligible] is just in the soils, and that's all  
 8 on-site at JPL. So in the printed material you have  
 9 there are no risks from these chemicals. That means  
 10 there's no risk of exposures to the soils at JPL.

11 But the other component to the whole  
 12 site is groundwater underneath the site is migrating  
 13 off-site. We're not really talking about that  
 14 tonight, but I may as well say a little bit about it.

15 So some of these chemicals have gotten  
 16 into the groundwater, and that's why NASA is  
 17 proposing the cleanup of the soil with soil vapor  
 18 extraction because they don't want to put any new  
 19 chemicals into the groundwater. It's much cheaper to  
 20 clean up the soil than it is to clean up groundwater.  
 21 So the more you take out before it hits the  
 22 groundwater, the quicker you can clean up the  
 23 groundwater long term.

24 So the chemicals that are in the  
 25 groundwater could pose a risk if you actually drank

1 local water is pumped. I think it would be helpful,  
 2 and in the future when you are discussing  
 3 groundwater, if you specify that what you are talking  
 4 about is the rain basin. If there is such a setup by  
 5 Lincoln Avenue Water that you mentioned or whatever  
 6 you mentioned, those people that have to live in the  
 7 area who are informed will be better able to  
 8 understand exactly what it is you are saying.

9 Thank you.

10 MR. SAUNDERS: Thank you.

11 Who would like to speak next? Any  
 12 other comments or questions from the public?

13 Yes, sir.

14 MR. O'KENE: My name is John O'Kene, O  
 15 apostrophe K-e-n-e. I'm a resident of La Canada.  
 16 I apologize for my lack of sophistication. I was  
 17 born in West Virginia, and the first thing I ever  
 18 heard back then is when the canary dies, it's time to  
 19 get out of the mine.

20 And what you're not telling us or not  
 21 explaining, and having read the report at the  
 22 library, what he's not addressed is: What are the  
 23 potential problems from a breakdown in the extraction  
 24 system that permits the escape of any of these vapors  
 25 into the atmosphere? What is the potential danger?

1 What is the catastrophe level possible? You have  
2 3,000 school-aged students in the direct prevailing  
3 winds from where your cleanup site is.

4 The best laid plans of mice and men  
5 often go awry. Tell me that you're going to have  
6 monitoring systems set up around that will let you  
7 know that there is more come out than should have.  
8 These are the remedial actions. What are the  
9 preventative actions? And I think that the parents  
10 of the students who send their kids to those schools  
11 need to know what the potential dangers are. And  
12 that is not put out. That information is not made  
13 generally available. I understand that there's no  
14 risk while it's in the ground, unless your kid digs  
15 down in this dirt. But you're pulling it out of the  
16 ground, and you're not telling us what could go  
17 wrong, how you're going to prevent that from going  
18 wrong, and what remedial action needed to be taken in  
19 case it does go wrong. I would simply like to see  
20 that, not for myself, but for the general population  
21 who live in that area.

22 Thank you.

23 MR. SAUNDERS: We appreciate your comments on  
24 that. We will respond to that in the responses in  
25 the summary in detail.

1 MR. SAUNDERS: Sir, could you please spell  
2 your last name.

3 MR. FIEDLER: F-i-e-d-l-e-r. Like Fiedler,  
4 but no baton. Some people recognize the name.

5 Is there SuperFund money being  
6 expended for this meeting?

7 MR. RIPPERDA: No. All the cleanup is being  
8 paid for by NASA.

9 MR. FIEDLER: Where is the SuperFund money in  
10 this cleanup?

11 MR. ROBLES: Actually, the answer, Mark, all  
12 money is being spent by NASA. Not the SuperFund, the  
13 federal SuperFund. It's being paid through NASA. We  
14 have to put a line item in Congress and get  
15 appropriate funds, and that's what we do. But  
16 Congress appropriated funds to come through NASA for  
17 cleanup.

18 MR. FIEDLER: Great. NASA, not JPL or Cal  
19 Tech?

20 MR. ROBLES: Right. NASA is paying 100  
21 percent of the bill right now.

22 MR. FIEDLER: There were, I think, two  
23 proposed systems that were shown on the slides up  
24 there. The first one shows to preventing the VOCs  
25 from entering the atmosphere as that young man --

1 MR. ZUROMSKI: And let me just say the level  
2 of detail as we were talking about earlier today is  
3 really for a written response because we don't have  
4 all that detail here in front of us today.

5 But what we can tell you, in general,  
6 is that, as we talked about earlier today, the  
7 systems are designed such as that when there are  
8 types of upsets in the system, such as the vacuum  
9 break or a vacuum leak or some other type of leak in  
10 the system, the system automatically shuts down. And  
11 we also have an operator that is on the site at least  
12 daily that is monitoring the system to make sure  
13 there are not those types of problems.

14 But we need to address that. The  
15 detail that you're asking for today, that really  
16 needs a written comment, and we will look back at the  
17 feasibility study and see exactly those types of  
18 detail that you're looking for. Thank you, though.

19 MR. SAUNDERS: Any other comments or  
20 questions?

21 Yes, sir. There's a mike right  
22 there.

23 MR. FIEDLER: My name is Dick Fiedler. My  
24 office is in Lincoln Avenue Water's domain. Also I  
25 live in [unintelligible]. Just a couple questions.

1 (Discussion held off the record.)

2 MR. FIEDLER: There were two descriptions,  
3 alternative A and B up there. I'm just kind of  
4 wondering which one are we talking about, the first  
5 one that had extraction and removing the VOCs before  
6 they go into the atmosphere or another one because I  
7 didn't see another one?

8 MR. ROBLES: The alternative number two. The  
9 first alternative was no action. And that includes  
10 air circulating. Base soil vapor extraction includes  
11 that.

12 MR. FIEDLER: Does the VOC removal require  
13 heat?

14 MR. ROBLES: No.

15 MR. FIEDLER: So, therefore, the VOCs that  
16 are underground basically live there until the  
17 pressure is such that they are volatilized?

18 MR. ROBLES: They are in vapor form. They  
19 are particles -- the chemicals are around particles,  
20 and you pump air through the soil. They volatilize and  
21 that comes up the pipe and you put them through a  
22 carbon system, like a Britta filter, but larger, and  
23 it's captured in there.

24 MR. FIEDLER: I think the VOCs are in a  
25 liquid form until you apply the pressure?

1 MR. ROBLES: Yes, they are in a liquid form.  
 2 MR. FIEDLER: And the Navy is going to be in  
 3 charge of this operation?  
 4 MR. ROBLES: [Unintelligible.]  
 5 MR. FIEDLER: And they've been doing it out  
 6 at Vandenberg?  
 7 MR. ROBLES: Yes.  
 8 MR. FIEDLER: Who else has been employed to  
 9 do the work?  
 10 MR. ROBLES: Other subcontractors that we've  
 11 had are Force Wheeler.  
 12 MR. FIEDLER: But they're doing some analysis  
 13 work. Who is doing the actual VOC removal? The  
 14 Navy?  
 15 MR. ROBLES: The Navy.  
 16 MR. FIEDLER: Under contract with someone  
 17 else?  
 18 MR. ROBLES: No. Under contract to NASA.  
 19 MR. FIEDLER: So it's Navy equipment?  
 20 MR. ROBLES: Navy equipment, and they sub it  
 21 out to other subcontractors. One of them is Geofund  
 22 here who is actually doing the on-site work.  
 23 MR. FIEDLER: The on-site work removal?  
 24 MR. ROBLES: Yeah  
 25 MR. ZUROMSKI: I'm Richard Zuromski from the

1 Navy.  
 2 How it works is NASA sends money to my  
 3 office, the Navy office, and my office then contracts  
 4 out with Navy contractors to do the work. The  
 5 contractor who is actually doing the field work for  
 6 the [unintelligible] soil vapor extraction and is  
 7 also doing -- taking the soil vapor samples is  
 8 Geofund Incorporated, and we have a couple of  
 9 representatives from them here today. And if you  
 10 talk to them, they're out there in the field at least  
 11 four, five, six days a week operating the system,  
 12 taking samples, and running the system under contract  
 13 with the Navy. But we get our money from NASA. And  
 14 it's all under a big -- what Mr. Saunders said  
 15 earlier, a memorandum agreement between NASA and the  
 16 Navy.  
 17 MR. FIEDLER: I appreciate that, and I'm glad  
 18 everybody is getting paid.  
 19 Are they going to do the rest of the  
 20 cleanup, or does that go out to bid to the lowest  
 21 bidder?  
 22 MR. ZUROMSKI: No. What's happening is we  
 23 have two separate contractors. Geofund is one  
 24 contractor that is actually doing the fieldwork under  
 25 an existing Navy contract. So they're doing the

1 actual fieldwork.  
 2 We have another contractor, Patel,  
 3 Patel Engineering Institute, who is the contractor  
 4 who set up this meeting here today; and they also do  
 5 the [unintelligible] plan and the mailings that were  
 6 sent out. But they're also doing the detailed  
 7 technical analysis of the way the soil extraction  
 8 wells that are going to be put on the site are going  
 9 to go. So we have two contractors out working to do  
 10 this work. First there's Patel. When they try to  
 11 decide where those wells are going to go, and then  
 12 once we've decided where they're going to go, we'll  
 13 give the rest of the work back to Geofund to install  
 14 the wells and install the systems. And that's the  
 15 great scheme of how it all works.  
 16 MR. FIEDLER: So Patel, under your auspices,  
 17 is the consulting engineers?  
 18 MR. ZUROMSKI: Yes.  
 19 MR. FIEDLER: And Geofund is at the site, is  
 20 actually going to do the work?  
 21 MR. ZUROMSKI: Yes.  
 22 MR. FIEDLER: Congratulations.  
 23 Now, what is the assumption that this  
 24 soil remediation removing what's in the soil will  
 25 have no effect on what has gone into the groundwater

1 as of now? Increased VOCs into the groundwater could  
 2 result from this vaporization process? Decreased  
 3 VOCs, I know that would be the hope, but what do you  
 4 think really reality means?  
 5 MR. ZUROMSKI: The reality is, as Mark  
 6 Ripperda said earlier today and I said, the reality  
 7 is that this technology actually removes the  
 8 chemicals from the soil and pulls them above ground  
 9 for treatment so that they never reach the  
 10 groundwater.  
 11 And as you can see from the results of  
 12 our preliminary results, from just our pilot test of  
 13 the soil vapor extraction at the JPL site, we did  
 14 actually physically remove 200 pounds of these  
 15 chemicals from the soils before they ever reached the  
 16 groundwater. So it will actually remove the  
 17 chemicals from the soil.  
 18 MR. FIEDLER: I understand the theory. I  
 19 think I can almost guarantee you that we've probably,  
 20 at Lincoln Avenue, removed over 200 pounds of the  
 21 VOCs that you're talking about that you extracted by  
 22 vapor extraction. And I imagine the City of Pasadena  
 23 has removed more than that in their groundwater  
 24 treatment.  
 25 My question is: If you really don't

1 know what's going to go down versus what's coming up,  
 2 even though you know what's coming up, it might be  
 3 more that goes down, I think NASA should do increased  
 4 testing at the Pasadena water sites and at Lincoln  
 5 Avenue sites to find out if this is going to be a  
 6 factor. Because if we have to start using more  
 7 activated carbon to remove those VOCs, as far as I'm  
 8 concerned, it's -- there's going to be hell raised on  
 9 who's paying for it. You understand? So I just  
 10 don't think you really know. I don't know. I've  
 11 tried to study the process at length. I don't think  
 12 anybody necessarily knows what is going to happen to  
 13 all those VOCs, but you already know they've gone  
 14 down there and they've contaminated the groundwater.  
 15 So now -- I mean, we may think that this soil  
 16 remediation is a Godsend, you know; it's going to  
 17 solve all the problems. Don't bet too many martinis  
 18 on it.

19 MR. SAUNDERS: And Richard --

20 MR. ZUROMSKI: We're going to have to --

21 MR. FIEDLER: I really would like to have a  
 22 transcript of this meeting -- not in the library, but  
 23 sent to Lincoln Avenue so we can understand and have  
 24 it in our books.

25 Is that permissible?

1 MR. ZUROMSKI: We can take that request under  
 2 advisement.

3 MR. FIEDLER: That's all I have to do.

4 MR. ZUROMSKI: Thank you.

5 MR. FIEDLER: I thank you very much.

6 MR. ZUROMSKI: Thank you.

7 MR. SAUNDERS: Any other questions or  
 8 comments.

9 Yes, ma'am.

10 MS. SCHRAHAZON: My name is Randi  
 11 Schrahaizon, S-c-h-r-a-h-a-z-o-n. Down where I'm  
 12 [unintelligible] I have two children at the La  
 13 Canada High School. And are any of the four  
 14 chemicals that you mentioned, is it possible in the  
 15 event, say, of an earthquake when monitoring the  
 16 leaks would no longer be a leak, it would be a crack,  
 17 would these four chemicals come together and produce  
 18 something like when a train has a crash and they have  
 19 the cloud of smoke and they have to evacuate an  
 20 area?

21 I mean, not to be personal. I just  
 22 got out of jury duty today -- because I taught  
 23 chemistry, but I would not even begin to use that  
 24 excuse to solve this problem. But could those  
 25 chemicals, once turned into a gas, combine and create

1 a cloud which could mean evacuating not only the high  
 2 school children, but the children above? And then  
 3 there's a riding stable, and it's pretty difficult to  
 4 evacuate a hundred and some horses. Then we have  
 5 quite a bit of evacuation going on a very narrow and  
 6 crowded street, on La Canada Boulevard.

7 Is there some kind of a chemical  
 8 problem here?

9 MR. SAUNDERS: Well, ma'am, again, we have  
 10 your comment and it's something that we should  
 11 respond to in a written response in more detail, and  
 12 that's what we want, to wait for the responsive  
 13 summary. I think that would be more appropriate.

14 MR. ZUROMSKI: I think that leads right into  
 15 the level of detail as far as chemicals combining and  
 16 forming toxic clouds are really beyond what we can  
 17 answer for you right now. But what we can, with the  
 18 limited response I can give you right now, is that  
 19 when and if there is an earthquake and when and if  
 20 there are some power failures, the system operates  
 21 all in a vacuum. When it shuts off, there's  
 22 nothing -- you know, the chemicals stay in the  
 23 ground. There's no more drawn to the surface. So  
 24 there really couldn't be probably enough risk that  
 25 they would escape to the atmosphere because none

1 would be drawn out anymore. But, again, as far as  
 2 the formation that you're talking about, please  
 3 submit those in written comment, and we'll give a  
 4 detailed written response to your comment.

5 MS. SCHRAHAZON: I'm just curious -- when a  
 6 carbon filter is removed, you said it's recycled.  
 7 How? What's that process?

8 MR. ZUROMSKI: Sure. I'm really not sure of  
 9 the cost. Actually, what we do is they're in a big  
 10 carbon canister, and when the carbon canister becomes  
 11 full of chemicals, we take it off-site to a recycling  
 12 facility and basically a brand-new canister is put  
 13 inside. I'm not sure of the actual costs, though,  
 14 actually, of one those canisters. Again, if you  
 15 like, I could give you --

16 MS. SCHRAHAZON: Again, I'm just saying as  
 17 they're transporting the carbon filters with those  
 18 very condensed chemicals, they would have to just  
 19 about drive by the high school. And good luck if  
 20 it's during pickup and drop-off. And if there was an  
 21 accident and it did fall off the truck -- I mean, I  
 22 know these are all what-ifs, but there's a lot of  
 23 children there, a lot of panic. Maybe with all that  
 24 in La Canada they should have have some kind of  
 25 contingency plan here, knowing a truck with chemicals

1 will be traveling by the school. Maybe do it after  
2 school. Maybe do it in the evening.

3 MR. ZUROMSKI: Again, we will respond to that  
4 in writing. But the transportation of hazardous  
5 waste and chemicals off-site, we do use a very  
6 [unintelligible] to do that. But for details like  
7 that, again, submit your questions and we'll respond  
8 to that.

9 MR. SAUNDERS: And just to reiterate a couple  
10 of things. What you're providing to us is official  
11 comment that's going into the record, and it will be  
12 responded to. If you want to write even more  
13 details, feel free to submit them, but we have your  
14 comments now for the record. And you will get a  
15 written response in response to some of them.

16 And just to clarify one other thing,  
17 again, our project managers here have been responding  
18 to some of the questions because they are dealing  
19 with information that's already out in fact sheets  
20 and it's very general information. When we get to  
21 hypotheticals and more detailed types of questions  
22 and comments, we are required to respond officially  
23 in response in a summary, and we can't really give a  
24 response here at this particular meeting.

25 Typically, in this situation, project

1 But just, you know, the environmental  
2 climate in Washington [unintelligible], but funding  
3 for environmental cleanups has been pretty constant  
4 whether it be Democrats or Republicans. That doesn't  
5 get messed with that much. And EPA in California  
6 still has the authority to take action against NASA.  
7 So if Congress were to say, "We're not going to give  
8 you money to clean it up," then EPA can take an order  
9 against them, which maybe doesn't mean anything, but  
10 we have the authority to make them do it. But if  
11 Congress just flat out says no, we can't override  
12 Congress. But Peter has the information.

13 MR. ROBLES: Believe it or not, even though  
14 this is a friendly [unintelligible] administration  
15 they have been sending us, they are not adverse to  
16 environmental. They are supporting funding.

17 The way the funding works at NASA is  
18 like it works at other agencies. The actual funding  
19 for SuperFund or environmental issues is expensed.  
20 It can't be touched. You have to put in actual line  
21 item in the budget for that agency. So with NASA  
22 going off doing some rocket testing, doing some  
23 research, and at the bottom there is this SuperFund  
24 budget that you have to put down.

25 Once Congress funds that, and they

1 managers don't even respond at all to any of the  
2 questions. It's very general, but they want to give  
3 you some feedback.

4 Do we have any other questions or  
5 comments? Feel free to come on up. We really  
6 appreciate.

7 MR. SHOPTSBERGER: Terry Shoptsberger,  
8 S-h-o-p-t-s-b-e-r-g-e-r. I'm a little confused about  
9 what the SuperFund really is, if NASA is paying the  
10 bill. Also, the second question, [unintelligible]  
11 all the way through located in [unintelligible] with  
12 the current environmentally unfriendly administration  
13 in Washington, how can you begin and how do you  
14 guarantee that it's going to continue?

15 MR. RIPPERDA: So the first part about  
16 SuperFund and what is it. My whole description of  
17 Congress passing this law that created a tax, all  
18 that money is only paid for abandoned sites. So EPA  
19 spends that money when the site has been abandoned  
20 and nobody else is going to clean it up.

21 But the sites operating, then Congress  
22 gave EPA the authority to make the operating entity,  
23 in this case NASA or particularly operating with  
24 NASA's money, but we can make them spend their money  
25 to clean it up. Peter will talk about the budget.

1 usually fund it at first, that is spent. We are  
2 programmed -- we've budgeted three and a half million  
3 a year. This year it will be a lot more because they  
4 feel that it's important to start the work here. We  
5 have been pretty consistent over the years to get  
6 something, and we've been cut a little bit and  
7 getting more, but we've never been totally axed out  
8 of any funding. So we're pretty sure that we'll be  
9 funded for that in that sense.

10 And just to get back to Mark, the  
11 SuperFund process is a way for the government to deal  
12 with these issues because it puts the onus on us. We  
13 can't put a line item in a budget until we get on the  
14 SuperFund list. So in one sense, we like the  
15 SuperFund because it allows us to immediately put a  
16 line item in the budget once we get in the SuperFund  
17 process, and that's what helps us.

18 Do you want to stand up and ask a  
19 question?

20 MS. GONZAL: Sure. What timeline are we  
21 talking about in terms of getting approval for the  
22 budget?

23 MR. ROBLES: Could you state your name for  
24 the record again.

25 MS. GONZAL: My name is Cynthia Gonzal.

1 MR. ROBLES: The budget -- we usually are  
2 talking a five-year cycle plan. Every five years.  
3 So this year we're planning for this year and the  
4 next five years, next year, next five years. So  
5 that's usually how the budgets work.

6 MS. GONZAL: But specifically in terms of  
7 when you begin the work -- to do the cleanup process.

8 MR. ROBLES: We are planning -- once we get  
9 approval [unintelligible] to expand what we're doing  
10 right now, the pilot study. So we are doing  
11 something. But we want to be able to start the whole  
12 work as soon as possible.

13 MS. GONZAL: But you don't know what date  
14 that is?

15 MR. ROBLES: In the next six months, we want  
16 to start the construction of the VOC treatment  
17 system.

18 MS. GONZAL: The second part of that: What  
19 is the rate of migration or absorption in the soil to  
20 the groundwater without this situation?

21 MR. ROBLES: I wouldn't even hazard a guess.  
22 We need to give a formal response to that. We will  
23 give you a formal response to that.

24 MR. SAUNDERS: Who would like to ask  
25 questions next? Please feel free to come up to the

1 should be put on your chemicals of concern list.  
2 It's not on it right now because you didn't think it  
3 was a problem, but the work that they're doing there  
4 indicates that it goes into the fine particle soil  
5 and really doesn't come out that easily.

6 He was also thinking -- suggested that  
7 in the 40 years since we quit dumping into the wells,  
8 into these seepage tanks, why hasn't all of that  
9 already vaporized? And he's guessing that maybe it's  
10 tied up with some other product that really also  
11 needs to come out, which won't come out on a  
12 vaporization. I may not be reading this right, but I  
13 think that was the idea. So that perhaps needed to  
14 take a little more attention.

15 And there's a little more here, some  
16 of it, but I don't want to repeat it all without  
17 reading, and I won't try to do that now. I just want  
18 to say I absolutely feel that we need to remove this  
19 material from the earth and set an example for the  
20 entire country and for private industry. And do it  
21 and get it rolling so that it becomes a doable  
22 process for any old gas station and anybody who owns  
23 property. So I just want to express my own concern  
24 that we make this possible and to do it the best way  
25 we possibly can. And if we find more stuff than we

1 mike.

2 Sir, before we let you come up, I'd  
3 like to get any other people first. You will get  
4 another chance once we get other speakers, unless  
5 there are no other speakers that would like to speak  
6 right now.

7 Yes, ma'am.

8 MS. SWAIN: My name is Barbara Swain,  
9 S-w-a-i-n. I'm not in this field at all, but I have  
10 a nephew at UC Berkley who has been involved in the  
11 steam extraction process. And I have sent him some  
12 information about this and asked him for his  
13 comments. And I sent him information that I took  
14 from the summary report. And I just wanted to pass  
15 along a couple of things. And, actually, I can pass  
16 along his whole response, which is --

17 MR. SAUNDERS: If you'd like to give it to  
18 the court reporter, sure.

19 MS. SWAIN: Okay.

20 MR. SAUNDERS: She can enter it into the  
21 record.

22 MS. SWAIN: The one comment was he's actively  
23 working on a project about removing perchlorate. And  
24 apparently this is a little more difficult than we  
25 might have thought, and so he wasn't sure that it

1 thought -- every project that the steam extraction  
2 has taken on, at least each of the reports I've  
3 read -- Livermore Lab, the Edison site, the Naval Air  
4 Station in Alameda, which the Navy people probably  
5 know all about -- it seems like there's more stuff  
6 than anybody ever expected no matter who was doing  
7 the estimate.

8 So thank you.

9 MR. RIPPERDA: I have a quick question: Is  
10 that a form you can turn in?

11 MS. SWAIN: Absolutely. I just printed it  
12 off the Internet. It was an E-mail. We were just  
13 going back and forth. So I will give it on the court  
14 reporter.

15 MR. SAUNDERS: Do we have anybody else that  
16 would like to provide any comments or questions?  
17 Feel free. This is your opportunity. We like the  
18 feedback from you. We really appreciate this. We  
19 have a lot of information. Any other comments or  
20 questions?

21 Well, we have comments and questions  
22 from the individual that already commented, so I'll  
23 go ahead and start with him if there's nobody else at  
24 this point in time.

25 Okay, sir, why don't you come on up.

1 MR. CRIPPEN: Bob Crippen again.  
 2 C-r-i-p-p-e-n.  
 3 Earlier some of the discussion sounded  
 4 like this was going to be the first time that  
 5 something toxic had been removed from JPL. Clearly,  
 6 it's a large facility. Toxic, hazardous materials  
 7 are moved in and out of there on a regular basis,  
 8 just like they are at a gas station. This is nothing  
 9 new. It must meet current policies, and whatever  
 10 materials are going past the high school -- there's  
 11 lots of materials going past the high school on a  
 12 regular basis. I just want you to keep that in  
 13 mind.

14 Question: Is there an estimate of how  
 15 much material has been dumped at the site? It's  
 16 probably very difficult because it goes back to the  
 17 '30s, '40s, and '50s. It probably wasn't monitored.

18 MR. ZUROMSKI: Actually, I can't tell you an  
 19 estimate of what was dumped, but I can tell you an  
 20 estimate of what we believe to be the actual VOCs in  
 21 soil, soil vapor, which is estimated from two to five  
 22 thousand pounds of VOCs. That's an estimate of how  
 23 much is in the soil and soil vapor. I'm not sure how  
 24 much was actually put into the seepage pits.

25 MR. CRIPPEN: Of two to five thousand pounds

1 pound? A pound? A pound and a half?

2 MR. ZUROMSKI: That was a pilot study done  
 3 over 14 months.

4 MR. CRIPPEN: So it would be half a pound a  
 5 day?

6 MR. ZUROMSKI: [Unintelligible.]

7 MR. SAUNDERS: We can respond in more detail  
 8 in the responses.

9 MR. CRIPPEN: One last question: Where is  
 10 the -- what I wrote down here is currently operating  
 11 extractor? I don't know if it's currently operating.  
 12 Where was the testing well?

13 MR. ZUROMSKI: It's right next to the fire  
 14 station in the parking lot of building -- right next  
 15 to the security fire station from the parking lot.

16 MR. CRIPPEN: The new building?

17 MR. ZUROMSKI: Yes. The brand-new building.

18 MR. CRIPPEN: Thanks.

19 MR. SAUNDERS: Thank you.

20 And you had a question.

21 MS. COMPTON: Hi. Cynthia Compton,  
 22 C-o-m-p-t-o-n. I heard a couple times -- I heard a  
 23 couple comments, "That's a great question. Would you  
 24 please write it down." And so my question is: Do we  
 25 have to write up our spoken questions?

1 in the soil, what percent do you think is  
 2 recoverable?

3 MR. SAUNDERS: Again, that's something you  
 4 can save to the response to his question.

5 MR. CRIPPEN: I guess you would probably have  
 6 to try and experiment --

7 MR. ZUROMSKI: We try. Generally, I can't  
 8 give you a number of how the number is going to be.

9 MR. CRIPPEN: I understand.

10 MR. ZUMROWSKI: A hundred percent.  
 11 Ninety percent. What I can say is that we have  
 12 regulatory levels that we have to meet. When we do  
 13 the soil vapor extraction, we have to extract  
 14 chemicals to those levels. And when we get below  
 15 those levels, we can shut the system off. So when we  
 16 meet those levels, that's when the cleanup is done.  
 17 And those levels are set in a decision which we  
 18 agreed with the state and the fellow from the EPA to  
 19 clean up this site.

20 MR. CRIPPEN: Okay. I think a little earlier  
 21 we talked about what if something goes wrong. What  
 22 if gases escape into the air? It raises the  
 23 question: You recovered 200 pounds in how many  
 24 days? What is the rate? I mean, if the thing was  
 25 wide open for a day, how much would escape? A half a

1 MR. SAUNDERS: Ma'am, I stated that. What  
 2 you said verbally is for the record right now.

3 MS. COMPTON: Okay.

4 MR. SAUNDERS: If you want to submit any more  
 5 detailed questions, you can. But what you have said  
 6 right now is for the record, and it will be responded  
 7 to.

8 MS. COMPTON: And it will be responded to.  
 9 Okay. Those responses will be [unintelligible].

10 MR. SAUNDERS: No. They will be put together  
 11 in a response [unintelligible].

12 MR. ZUROMSKI: However, if you do want a  
 13 personal response sent to your home to your comment,  
 14 just put your address on the comment card, and I  
 15 think there's a little box you can check that says,  
 16 "I want the written response," and we will mail you  
 17 your response. So in addition to the responses in  
 18 the summary, we will also mail the personal responses  
 19 to your questions.

20 MS. COMPTON: So for me to receive a response  
 21 to other people's questions, I have to find -- what  
 22 is that document called again? -- response to  
 23 summary?

24 MR. RIPPERDA: This is a pretty small group,  
 25 and, hopefully, everyone signed in. Can you send the

1 responses to everybody that attended the meeting?  
2 MR. COMPTON: That would be great if we could  
3 all read all the responses. I know there were some  
4 great questions I would like to see the responses to,  
5 as well.

6 MR. ZUROMSKI: Again, as Mark said, we can  
7 send it. If everybody does want a copy of the  
8 response in the summary that's here at the meeting --  
9 when you signed in make sure you signed it before you  
10 leave today, and I guess as long as you're signing in  
11 we'll just make sure that the folks who have signed  
12 in and have attended these meetings will receive a  
13 copy.

14 MR. SAUNDERS: I just want to clarify  
15 something again. What Richard said, this comment  
16 sheet, if you fill it out and state at the bottom  
17 that you would like to get a written response back,  
18 that's perhaps the best way to do it. Otherwise, we  
19 will be sending these responsive summaries to people  
20 who don't want copies of it, and also wasting the  
21 taxpayers money in the process, so we don't want to  
22 send unsolicited material.

23 If they want solicited material, you  
24 can fill out the comment sheet here and state  
25 specifically when you turn it in that you would like

1 a written response.

2 (Discussion held off the record.)

3 MS. COMPTON: The soil vapor extraction  
4 operation, I heard you say that there will be an  
5 operator there daily. Does that mean he will be  
6 there continuously during the time of operation? So  
7 the concern about the gases leaking or anything like  
8 that, it won't necessarily be caught by a realtime  
9 person that's there at the site at the time it's  
10 operating?

11 And I was going to ask the same  
12 questions on the current presidential administration:  
13 Is the line item he's talking about or the NASA  
14 budget that's for the SuperFund cleanup efforts, is  
15 that limited to a certain percent and does that  
16 impact the overall NASA budget?

17 MR. ROBLES: It's called ECR, environmental  
18 compliance regulation. It's approximately 45 to 50  
19 million a year, [unintelligible] -- excuse me. So  
20 it's a small amount, but it is a consistent amount,  
21 and it's always taken out as part of that.

22 Congress won't let us  
23 [unintelligible]; so it's not impacted from the  
24 standpoint of, you know, it's always there. It's  
25 always required. It's always been filled in one form

1 or another. Sometimes you get more, but it's never  
2 been you're not going to get. Because understand  
3 that SuperFund is a continual process. You can't  
4 just stop it in the middle. Plus the regulators will  
5 get real mad at us.

6 MR. SAUNDERS: I think there was a comment  
7 that each budget is planned five years in advance.  
8 You don't just plan for that for the next year. The  
9 process is already started, the money funds for five  
10 years.

11 Any other questions or comments?

12 MR. FIEDLER: It just came to my mind. Dick  
13 Fiedler again. Since the Navy has been involved in  
14 this for some time now, I was just wondering from a  
15 material standpoint, material balance standpoint,  
16 these wonderful chemical engineers the Navy has, if  
17 you estimated, as you already said, 2,000 to 5,000  
18 pounds of VOCs, question mark, question mark, have  
19 you calculated, just for the heck of it, for the last  
20 years that JPL has funded the Pasadena  
21 [unintelligible] and well water and the stuff that  
22 Lincoln has been doing just on activated carbon  
23 liquid absorption, have you calculated just how many  
24 pounds of VOCs Pasadena and Lincoln has removed from  
25 the groundwater compared to what you were saying now

1 remains in the groundwater? Hasn't that calculation  
2 been made?

3 MR. ZUROMSKI: No. But that will be part of  
4 our summary. But no. That would be some of the  
5 work.

6 Again, put your comment in writing.  
7 That is something that -- I'm not sure -- let me just  
8 say overall how the SuperFund process works is even  
9 if -- when we respond to your comments, we're not  
10 only responding to you; we're also responding to EPA  
11 and the state regulators. And what happens is when  
12 we do our Record of Decision, which is the final  
13 binding agreement for cleanup at JPL, what is taken  
14 into account are the facts that we already decided on  
15 as far as the type of technology to use but also  
16 other factors. One, community input, which is what  
17 you're doing tonight, and also regulatory acceptance,  
18 which considers how they feel about the technology  
19 plus how they addressed questions like you're raising  
20 tonight. So those type of questions and input are  
21 things that the regulators may now ask us to go back  
22 and do before they'll sign a Record of Decision.

23 MR. FIEDLER: With all the questions that  
24 have been asked tonight, I presume that on the  
25 record --

1 MR. SAUNDERS: Your questions are on the  
2 record.  
3 MR. FIEDLER: -- there are going to be some  
4 answers?  
5 MR. ZUROMSKI: Yes.  
6 MR. SAUNDERS: Yes. You don't have to submit  
7 them in writing unless you want to submit something  
8 in more detail. We have them for the record.  
9 Do we have any other questions or  
10 comments from the public?  
11 Yes, ma'am. Please step up to the  
12 mike.  
13 MS. UNDERWOOD: My name is Nancy Lee  
14 Underwood, and I am Underwood Loss Control  
15 Environmental  
16 MR. SAUNDERS: Would you spell your last  
17 name.  
18 MS. UNDERWOOD: Underwood. Underwood.  
19 I just wanted to make a comment to one  
20 of the young ladies, and I know when you're -- I'm a  
21 [unintelligible] driver contractor, and I've been  
22 around for 19 years, but I wanted to ask a question  
23 pertaining to how CPR transporting -- he mentioned  
24 something about transporting hazardous waste near the  
25 school. There are -- I'd like to answer that

1 question.  
2 It's not done [unintelligible]; it's  
3 done under a controlled environment. The Department  
4 of Transportation has hazardous regulations that any  
5 hazardous waste contract must apply to before  
6 transporting on any local streets. So all the plans  
7 are made in advance, you know. The director has to  
8 write a whole plan and all the regulatory  
9 requirements have to be in line with that so it's  
10 safely done.  
11 Another area I just want to  
12 [unintelligible], and then I'll be done. Anytime  
13 there's an environmental contract that  
14 [unintelligible], you have your geologists,  
15 hydrogeologists, who I report to at our  
16 [unintelligible] on a regular basis. I operate all  
17 the time monitoring the environmental --  
18 environment -- getting [unintelligible]. This is so  
19 they know exactly, if it goes anywhere near, there  
20 are engineering controls if you have any exposure to  
21 the environment.  
22 MR. SAUNDERS: Thank you.  
23 Any other comments or questions,  
24 feedback from the public? Again, this is a great  
25 opportunity.

1 MS. GONZAL: Last question.  
2 MR. SAUNDERS: Again, please state your name  
3 for the record.  
4 MS. GONZAL: Sorry. Gonzal, G-o-n-z-a-l,  
5 last name.  
6 This doesn't in any way affect the  
7 community by virtue of the number of people that are  
8 here. My concern is: How public will this hearing  
9 be made to the community?  
10 MR. ZUROMSKI: Are we talking about how we  
11 advised of this meeting?  
12 MS. GONZAL: How we responded to the concerns  
13 of the community that are present in the meeting?  
14 MR. ZUROMSKI: That is what we call a  
15 response summary, what we've been referring to  
16 tonight. What happens is we collect all the comments  
17 that were received either in writing or given orally  
18 here tonight. And what we do is we take each of  
19 those comments by themselves and in response to your  
20 written responses, and we put together a document  
21 that's called a responsiveness summary. And as we  
22 mentioned earlier tonight, we're going to mail it to  
23 everybody that has been present at this meeting.  
24 We're going to mail you a copy of this responsive  
25 summary. However, that responsive summary is also

1 put into what we call our information depositories  
2 which are about three or four libraries that are  
3 mentioned in the pamphlet that's up at the front desk  
4 of the proposed plan. We put a copy of that in there  
5 for anybody else who maybe did not come to the  
6 meeting. They can come and look at it there.  
7 MS. GONZAL: How about the local newspapers  
8 like "The Star News"?  
9 MR. SAUNDERS: You have a reporter right over  
10 here.  
11 MS. GONZAL: Okay. Just asking.  
12 MR. SAUNDERS: Any other comments?  
13 Questions? Feedback? Please feel free to step up  
14 and express yourself at this time. No one else that  
15 would like to ask any further questions? No other  
16 comments. Yes.  
17 MS. SUTLAFF: This is just a comment just to  
18 let you guys know, I am a reporter with the "Pasadena  
19 Star News." And I may or may not write a story from  
20 today's, but I did write a story for Sunday's paper.  
21 And I just wanted to tell people about it just -- you  
22 can get it off the web, and I encourage you to buy  
23 "The Star News." But it is a concise explanation of  
24 what they're planning to do, and it gives a little  
25 history. So our website is [www.Pasadenastarnews.com](http://www.Pasadenastarnews.com).

1 And they did place advertisements for this, as well.  
 2 So I wrote that article so that people in the  
 3 community would know about the meeting.  
 4 MR. SAUNDERS: Could you state your name.  
 5 MS. SUTLAFF: I broke the rules. It's Visha,  
 6 V-i-s-h-a, Sutlaff, S-u-t-l-a-f-f, as in Frank.  
 7 MR. SAUNDERS: And this is also the third  
 8 public meeting we've had, and I know that she has  
 9 attended at least two of the public meetings. And  
 10 we've had them at roughly two different locations.  
 11 Two of them were in two different locations in JPL,  
 12 and this is the third meeting. Which is rather  
 13 unique. Most public meetings for remedial action for  
 14 proposed plans do not have three meetings, public  
 15 meetings. In fact, the guidance from U.S. EPA is  
 16 basically one public meeting, and we've had three of  
 17 them. I just wanted to tell you.  
 18 MR. ZUROMSKI: And in addition to the article  
 19 that Visha did in Sunday's paper, she also did an  
 20 article previously from the first public meeting in  
 21 the "Pasadena Star News." And also I believe it's  
 22 Saturday's "Foothill Leader" edition, there's another  
 23 article, interview with Peter Robles and myself about  
 24 the actions that we're taking at OU-2. So there are  
 25 circulating out there some articles that have been

1 provide any verbal comments or questions tonight, to  
 2 submit your questions and comments to Peter Robles  
 3 remedial project manager here at JPL. You have his  
 4 address up here. It's also listed in the proposed  
 5 plan fact sheet that is available in the back where  
 6 we have the poster board displays.  
 7 If there's nothing else at this time,  
 8 thank you for attending. Good night.  
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1 done on the site.  
 2 And you can speak with us about those  
 3 afterwards. We're going to be available right after  
 4 this comment period is closed. You can speak with us  
 5 on a one-on-one basis. And also back to our  
 6 information depositories, all of those newspaper  
 7 articles and clippings can be found in our  
 8 information depositories, as well. So you can go  
 9 back and read those articles at a later date.  
 10 MR. SAUNDERS: Any other comments, questions,  
 11 feedback from the public? This is your great  
 12 opportunity to give us feedback. We appreciate it,  
 13 everything that you say. It makes us do our job  
 14 better. Any other questions?  
 15 If not, I want to thank you for  
 16 attending tonight's meeting. I encourage you to  
 17 review and comment on the proposed plan. Final  
 18 decision regarding cleanup will be made after public  
 19 comments have been received and considered.  
 20 Keep in mind, as stated, that the  
 21 public comment period started May 7th and runs  
 22 through July 11th, 65 days, which is, again, a rather  
 23 unusual time. It's longer than normal that's  
 24 recommended for a public comment period.  
 25 So feel free, if you didn't want to