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IN THE MATTER OF MOFFETT FEDERAL AIRFIELD
OPERABLE UNIT 1 PROPOSED PLAN

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500 Castro Street
Mountain View, California 94140

#3717

A P P E A R A N C E S

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P R E S E N T A T I O N

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3 MR. CHAO: Hi. My name is Stephen
4 Chao, and I'm the Navy Environmental Coordinator
5 from Moffett Field. Some of you may be wondering
6 where the Navy's located and what responsibility
7 that the Navy has right now. Even though the
8 base has been turned over to NASA and to the
9 Air Force officially, the Navy retains
10 responsibility for cleanup of all the
11 contaminated waste that had been left on Moffett
12 Field. And my staff and myself are responsible
13 for that clean up, and we are located up in
14 San Bruno in the Engineering Department for the
15 Navy, and we also have one of my staff, Don
16 Chuck, who is located physically at Moffett Field
17 itself.

18 What are we here for tonight? We're
19 here to talk about two of the landfills we have
20 at Moffett Field, and those two landfills,
21 Landfill I and II, is what we call
22 Operable Unit I. Operable Unit I is just
23 basically a management tool in which we group
24 sites that have similar types of contamination.
25 We're going to talk a little bit about the
26 investigation and the cleanup remedy and the

1 alternatives tonight.

2 Who has been involved with the
3 investigation of cleanup so far and involved with
4 the oversight? Those parties involved are
5 regulators from EPA and represented by Michael
6 Gill. From the State we have Joseph Chou who is
7 representing the Department of Toxic Substance
8 Control. And another member from the State is
9 Michael Bessette who is a representative from the
10 Regional Water Quality Control Board.

11 In addition to oversight by state and
12 federal regulators, we also have what we call a
13 Restoration Advisory Board, a RAB. And that RAB
14 consists of community members in and around the
15 Moffett Field area, many of you which are here
16 tonight, and also city council members and in
17 addition to state and federal regulating agencies
18 such as the Fish & Game and Fish & Wildlife.

19 I'd also like to introduce Paul Lesti.
20 Paul Lesti is the RAB co-chair. And the RAB
21 meets on the second Thursday of each month, and
22 it is open to the public. And we meet at the
23 Mountain View Police Auditorium which is located
24 at 1000 Villa Street near Mountain View, and
25 you're more than welcome to come.

26 I'd like to go over the agenda that

1 we're going to talk about tonight to start off
2 the instruction. And we're going to have Michael
3 Young from PRC who is a consultant for the Navy
4 that helps the Navy investigate and design a
5 cleanup for the base. And he will be talking
6 about how we got to this point this evening.

7 And I would ask everybody to actually
8 hold their questions about the presentation until
9 after the presentation. We'll have like a ten
10 minute clarifying question and answer period in
11 which we can take care of those questions at that
12 time.

13 We'll have a five minute break, and
14 then we will have a public comment period in
15 which you can read your comments, and hopefully
16 we'll have responses to them, and/or you could
17 bring your -- we've handed out these
18 three-by-five cards. If you don't have any,
19 Hubert can hand them out and get you a copy.

20 If you have any specific comments, you
21 can go ahead and read it yourself at the public
22 comment period or go ahead and give it to us, and
23 we'll read it out loud.

24 In addition, I'd like to note that we
25 have a court reporter on-site here. That's for
26 our administrative record purposes. And I'd like

1 to emphasize to everybody not to be afraid that
2 everything is going to be reported, but we just
3 wanted to be accurate about peoples' comments
4 this evening.

5 So Mike wants to start off the
6 presentation.

7 MR. YOUNG: Thank you, Steve. As Steve
8 talked and told everybody before, my name is Mike
9 Young, and I work with PRC Environmental
10 Management, and we're consultants for the Navy.
11 And tonight we're here to talk about Unit I like
12 Steve stated.

13 Unit I if you look up here at the
14 figure, consists of Site 1 and Site 2, and these
15 are both landfills. Site 1 is also referred to
16 as the Runway Landfill, and Site 2 is referred to
17 as the Golf Course Landfill. Those are the two
18 sites which we're going to discuss tonight.

19 Tonight what I want to talk about, I
20 want to talk about what the decision process is.
21 How we got to the point where we're having a
22 public meeting tonight, and what goes on from
23 here on out.

24 Then I want to talk a little bit about
25 what the site characteristics were, and what we
26 found during our investigations.

1 Then I'll move on to the various
2 cleanup alternatives that we looked at in order
3 to see what we could do to cleanup those sites.

4 And finally, I want to discuss the
5 recommended alternative. What the Navy and the
6 regulators believe should be done to help cleanup
7 these sites.

8 The decision process is interesting,
9 and it has several key aspects. One of the first
10 key aspects is that we have significant
11 regulatory oversight. Although, the Navy does
12 most of the work and most of the investigation
13 work, we have significant oversight from
14 regulatory agencies. These include the EPA and
15 many departments from the State as led by
16 Department of Toxic Substance Control with
17 Joseph Chou and Michael Bessette from the
18 Regional Water Quality Control Board.

19 Another key aspect about the decision
20 process is that it's a cooperative effort. All the
21 reports which are produced by the Navy, are reviewed
22 by the regulators; they follow EPA guidance and the
23 Federal EPA guide, and they also follow the State's
24 guide for completing investigations.

25 And the results and the alternatives which
26 we present, represent the consensus of the BRAC

1 cleanup team, and this BRAC consists of Stephen,
2 Joseph, Mike Gill and Michael Bessette.

3 Another key aspect of the decision process
4 is that we go through many steps to get to our final
5 step. First things we do are just called remedial
6 investigations feasibility studies. This includes
7 scientific studies to go out and examine what the
8 potential problems are. Then we do engineering
9 analysis or feasibility studies to find out what can
10 be done to accomplish the cleanup of these sites.

11 Another thing we do have are human health
12 risk assessments. We look and see what the potential
13 risk to humans who may be out and around some of
14 these sites are. And we also investigate the risk to
15 ecological receptors which may be at these sites.
16 Finally, we draw that altogether with the feasibility
17 study, and we come out with an appropriated plan.

18 This is our plan for cleanup of these
19 sites, and an integral part of this is the public
20 comment which we're undergoing right now. This is a
21 phase of the public comment. The proposed plan
22 itself is one of the opportunities which the public
23 gets to provide input to the regulators and to the
24 Navy on how we think we should clean up the site.

25 You can either give your formal comments
26 tonight as Steve pointed out after this presentation,

1 or you can mail or send by facsimile your comments to
2 Don Chuck, and Don was noted in the back of the room,
3 and in the handout is his address and fax.

4 All the comments need to be responded to by
5 the Navy, and the responses to those comments get
6 rolled into the actual decision document or the legal
7 document for cleanup which is the record of decision
8 often times as referred to as a ROD.

9 If you have any questions about some of the
10 things that we say tonight about the site, one of the
11 best places to get information is the Information
12 Repository which is located at the Mountain View
13 Public Library. You just go and check at the
14 reference desk, and probably all the documents which
15 relates to cleanup of the base are there.

16 At this point, I'd like to talk and get
17 down to a little bit more specifics of what
18 Operable Unit I is. I'll start with Site 1 or the
19 Runway Landfill.

20 If you look at Site 1 -- again it is
21 located down here at the bottom of the picture -- and
22 this is the end of the runway. This is the north end
23 of the runway. And you see Site 2 a little bit
24 farther up on the picture, a little bit farther to
25 the north. And then finally it's off the edge of
26 this picture. You go down to the south end of the

1 base which is where Highway 101 is. So this is an
2 idea of where we are for Site 1.

3 Site 1 itself was about a twelve acre
4 landfill which was active in receiving waste from
5 about 1963 until sometime in the mid 70's, and
6 although we don't have complete disposal records
7 about what was placed in the landfills, generally
8 what we found through our investigations are that the
9 types of things that are in there are construction
10 debris, construction rubble, asphalt, things like
11 that and also some waste solvents and waste oils,
12 both fuel oils and some transformer oils which had
13 been disposed of at that site.

14 Whenever we evaluate landfills and
15 particularly for the Site 1 Landfill, what we're
16 concerned about are three major pathways. So the
17 primary concerns that we have are what are the
18 exposure to the contents of the refuse and of the
19 landfill itself. And that's the first one.

20 A next primary concern of ours is exposure
21 and migration of leachate. And leachate is just
22 water which is moved through the waste of the rubble
23 either from rain water percolating down into the
24 waste or from ground water moving through the waste
25 itself. And that's considered leachate. And we're
26 concerned about the possible movement of that

1 leachate outside of the area of the landfill.

2 And finally, the other primary concern is
3 migration of landfill gases. Gases are produced in
4 landfills just from regular degrading of wastes, so
5 wastes break down, and they produce various gases.

6 In particular at landfills and at Site 1
7 we're concerned about methane because methane can
8 gather in confined spaces and areas that we don't
9 want it to, and it can become an exposure hazard.

10 Based on our work at Site 1, the general
11 conclusions which we've reached through our
12 investigation are that some of the waste is exposed.
13 We may be exposed to the waste and the refuse itself.
14 The leachate from Site 1 hasn't -- contaminated
15 leachate hasn't migrated outside of the area of the
16 landfills itself.

17 We have detected some migration of landfill
18 gases, and we detected some methane outside of the
19 area of Site 1 when we initially did some sampling
20 back in 1990. And since then, we haven't detected
21 any outside of the boundaries of landfill. But it's
22 something that we need to look at when we go through
23 and do our engineering evaluation.

24 Now, let me talk a little bit about Site 2
25 Landfill. Site 2 is a much smaller landfill; it's
26 only about five acres, and again it was active --

1 it's a little older also. It was active from some
2 time in the mid 40's until 1963 when they closed the
3 Site 2 Landfill and opened the Site 1 Landfill.

4 The types of wastes which we see disposed
5 of at the Site 2 Landfill are similar to the waste
6 which we saw disposed of at Site 1 such as
7 construction debris, waste solvents, waste oils.

8 And again, our concerns as we investigate
9 Site 2 are the same concerns that we had for Site 1;
10 exposure to the refuse migration of leachate outside
11 of the area of the landfill and also migration of
12 landfill gases outside of the area of the landfill.

13 What we found following our investigation
14 of Site 2, is that we still have the opportunity to
15 be exposed to the refuse which was disposed of at
16 Site 2. We haven't detected any migration of
17 contaminated leachate outside of the area of Site 2,
18 and nor have we detected any migration of the
19 landfill gases. We just haven't seen that at Site 2.

20 Another aspect of the characterization of
21 the site which we must go through, is what are the
22 risks to human health as the landfills sit right now?
23 What potential problems do they present to us?

24 There's three main things we feel have
25 risks due to that from the landfills. And again,
26 inhalation, dust and contaminated dust from the

1 landfills being breathed in and getting into our
2 lungs and getting into our bodies in that manner,
3 ingestion of the actual landfill contents and some
4 dust which may be contaminated at the landfill, and
5 that can come through incidental things. You always
6 get a little bit of dust in your mouth for whatever
7 reason, or actually some children, for example,
8 eating it if they were to play on the landfill. And
9 then direct contact which is if we have some
10 contamination which sits on our skin which is termed
11 a dermal absorption of the contaminants. That's a
12 concern for human health.

13 And then we also as part of this look at
14 what effects on ecological receptors we might have.
15 And part of this that we're concerned with is direct
16 contact. And that would include direct contact with
17 the waste itself, or if you look on this drawing up
18 here off on the left, leachate migrating off the site
19 and then to areas where we may have some ecological
20 receptors whether they're plants or whether they're
21 animals that maybe potentially exposed to some
22 contaminated leachate.

23 We also are worried about if we try to deal
24 with this, what's going to happen to the habitat that
25 are out there. There is some habitat out there.
26 It's a disturbed habitat. It's not a natural

1 habitat. But there's one that exists nonetheless.
2 And that's a concern that we have to evaluate during
3 our analysis.

4 And to come up with our cleanup
5 alternatives, we start with what are called remedial
6 action objects. This is what we want to accomplish
7 and make sure happens because of this cleanup in
8 order to say, "Yeah, we've done a good job cleaning
9 up the site."

10 We've developed three for OU1. The first
11 one we'll discuss real quickly is prevent direct
12 contact with landfill material. Again, this is one
13 of those exposure pathways that's potentially
14 dangerous and puts humans at risk.

15 The next one is prevent movement of
16 leachate. Again, like I discussed on the slide here,
17 we want to make sure that our leachate, contaminated
18 leachate, doesn't move outside of the area of the
19 landfill where it can potentially be -- wear humans
20 and ecological receptors can be exposed to it.

21 And finally we want to prevent any
22 migration of landfill gases. We want to keep the
23 landfill gases, any that are generated, in areas that
24 we feel comfortable with, and that they don't go
25 someplace where they may become a exposure hazard.
26 So those are our three remedial objections.

1 To help accomplish this, meaning the
2 remedial objectives, we've developed some cleanup
3 alternatives. The first one I'd like to talk about
4 is Alternative 1. This is a no action where this is
5 a step which is required by EPA guidance to include,
6 and it provides a base line. It let's us evaluate
7 other alternatives and see just how good they are,
8 and this would include continuation of the monitoring
9 which we're doing right now. And we've looked at a
10 thirty year monitoring of these landfills. And again
11 to reiterate, there's no active cleanup involved in
12 this, and it's a base line for comparison to the
13 other alternatives.

14 The next alternative we developed is
15 Alternative 2 or soil cap. If we look up here the
16 soil cap is characterized by a three foot soil cap,
17 and it would have a vegetative cover on top of it.
18 We would plant some native grass and try to restore
19 the area to what it would look like before, and it
20 would also include a biotic barrier which is just a
21 layer which would prevent either roots from growing
22 down into the waste and bring contaminants up through
23 their roots or burrowing animals from getting down
24 into the waste and getting exposed in that manner.

25 Another aspect of this that's fairly key is
26 a gas migration trend and a ground water collection

1 trench, and these are both up here. Again, this is a
2 schematic drawing of Site 1. North is to the left,
3 and the runways would be to the right.

4 One of the things we want to prevent is we
5 want to prevent migration of leachate into sensitive
6 areas, and just north of Site 1 is a storm water
7 retention pond. And this is an area that the storm
8 water from the base goes out there; it's held out
9 there, and it has become a fairly thriving habitat
10 for many different types of species, and we'd like to
11 keep that and make sure that we don't have any of the
12 leachate migrating in that direction.

13 We also have a gas collection trench. I
14 said earlier that at Site 1 we detected some gas
15 migrating outside of the area of the landfill. And
16 gas collection trench would be placed approximately
17 in that area that we found it before to make sure
18 that we don't have any migrating even further off
19 site to an area that may be dangerous. So that's
20 Alternative 2.

21 Another aspect and which I've probably --
22 I'll say this this time, and it applies for all the
23 alternatives, it's an extended monitoring. This
24 extended monitoring would be we've looked at a thirty
25 year monitoring period, and this is the period which
26 is required by State law, so all three of these

1 alternatives include that monitoring.

2 For Alternative 3 we've come up with a
3 multi-layer cap or impermeable cap. And the main
4 reason for this is to make sure that we minimize the
5 infiltration from rain water through the layers of
6 the cap into and through the leachate. This has
7 several more layers. It includes some man-made
8 layers, and it also includes a slightly more
9 extensive gas collection system because we won't be
10 able to let the landfill gases which are generated
11 move through the cap naturally, and we'd have to
12 collect it and make sure -- we'd have to take a
13 little bit more active measures to make sure we can
14 control that gas.

15 Again, with Alternative 3 or the
16 impermeable cap, we've looked at keeping the leachate
17 collection trench and the gas collection trench at
18 Site 1 and a period of extensive monitoring, the
19 thirty years.

20 To compare these alternatives, to come up
21 with what we want to do for cleanup, we use the EPA
22 evaluation criteria, and these are standard criteria
23 which have been developed and required by EPA to use
24 at sites across the nation. And I'm going to discuss
25 these one by one and talk about how each of the
26 alternatives fit into the criteria.

1 First criterion that we looked at is
2 protection of the environment. And Alternative 1
3 again provides us a base line. Alternative 2 and 3
4 will both protect the environment. We look at this
5 as being -- we'll meet all the remedial action
6 objectives. We'll make sure that we prevent contact
7 with the waste. That we prevent the migrational
8 leachate and then the migration off-site of landfill
9 gases.

10 The next criterion that we evaluate things
11 against is as I have up here is compliance with the
12 law. We're concerned with do all these alternatives
13 meet the law of the land? What we have found is that
14 both the soil cap and the multi-layer cap meet with
15 the legal requirements which are set upon the closure
16 of landfills as defined both by the State and by the
17 United States Government.

18 The next criterion that we look at is the
19 reduction of toxicity, mobility and volume. For this
20 alternative what we're concerned about primarily at
21 this point is the migration of leachate and the
22 formation of leachate. And for Alternative 2 and 3
23 they're fairly even. And we've done some evaluation
24 of landfill caps and different types of designs for
25 landfills, and generally there won't be significantly
26 more leachate produced through the soil cap as there

1 will with the multi-layer cap.

2 The next criterion that we evaluate is
3 based on our short and long-term effectiveness.
4 Short-term effectiveness is concerned primarily with
5 what happens at the time of construction or right
6 around the time of construction. Is it going to be
7 an effective remedy? Are we putting more people at
8 harm through the remedy in a very short period of
9 time than we would later on than any of the other
10 alternatives? And then long-term effectiveness is
11 again what's not going to happen in a year or two
12 years, but what happens in ten, twenty, thirty years.

13 So what we've looked at when we look at
14 these two together is that Alternative 2 is going to
15 be probably more preferred in the short-term. We're
16 not going to have as many trucks on the road trying
17 to bring landfill material here to help recovery. We
18 don't have workers exposed for as long a time trying
19 to make sure that we have this cap on.

20 So in the short-term we evaluate that
21 Alternative 2 is going to be a little bit more
22 effective. Over the long-term, over thirty years,
23 the evaluation shows us that the caps are going to be
24 very similar between Alternative 2 and Alternative 3.
25 So when we look at the long-term, there's not a whole
26 lot of difference between those two.

1 The next criterion that we evaluate is
2 based on implementability. Implementability deals
3 with how easy is this to construct? Are we going to
4 be able to -- is it a complicated design? Can we get
5 something in place that works, works right and works
6 right the first time?

7 Alternative 3 or the multi-layer cap is a
8 fairly intensive and complex procedure to build. We
9 would need some specialized equipment on-site. We
10 would also need some specialized people and people
11 that would understand and experienced at putting in
12 these kind of caps. So what we have decided is that
13 Alternative 2 is a little bit easier to implement
14 than Alternative 3.

15 The next thing that we look at is cost.
16 It's another of these items. And again, as I've
17 discussed Alternative 3, it's a little bit more
18 complex, needs specialized equipment. So it's
19 approximately twice as much as Alternative 2.

20 And the final criterion which we use to
21 evaluate is public acceptance. And that's one of the
22 reasons why we're here tonight is to help get some
23 understanding of what the public feels.

24 We have to remember that the alternative
25 selection process is a cooperative effort. That it
26 includes the Navy. It includes the regulators, the

1 oversight from the regulators. And again, it
2 includes the public, and that's why we're out here
3 making sure that the community gets there input
4 during the public comment period.

5 Community acceptance is something that
6 needs to be addressed before we finalize the ROD,
7 record of decision, which is again the legal document
8 for cleanup of the site.

9 At this point, the Navy recommends and the
10 regulators have recommended that we use Alternative 2
11 or the soil layer cap. And this would include the
12 three foot cap, biotic barrier, the ground water
13 collection trench and the landfill gas migration
14 trench, those last two at Site 1, plus the period of
15 extended monitoring.

16 And to summarize, it's going to meet the
17 remedial action objectives. We're going to be able
18 to comply with all the laws which have been
19 identified as being the laws of the land that we have
20 to follow. It's also going to be a little bit more
21 effective than the short-term. And it should cost
22 about half as much as Alternative 3 or the
23 multi-layer cap.

24 And with that, let's get the lights and be
25 open for some questions on this.

26 MR. CHAO: Are there any specific

1 questions pertaining to the presentation itself?

2 AUDIENCE MEMBER: Mike, maybe this is
3 picky but the weighting of the criteria and how
4 you judge those criteria, it seemed to me that
5 the implementability of the soil cap verses the
6 multi-layer cap should be the same since they're
7 very similar in that in California there's a
8 large number of specialized contractors who put
9 on multi-layer caps, and it's done quite often.

10 And for the short-term effect in this,
11 I'm not sure what you're getting at. If you're
12 trying to lean it towards weighting the soil cap
13 which I personally don't have a problem with, but
14 I just don't think that you should play with this
15 criteria. I don't think that you gave an
16 adequate justification for weighting
17 implementability.

18 MR. CHAO: Tom Peters is the engineer
19 that helped on the design. If you could just
20 talk a little bit about the design for the two
21 different alternatives.

22 MR. PETERS: I'll provide a little more
23 justification for the weighting on
24 implementability. The various layers in the
25 multi-layer cap will have much tighter
26 specifications for construction. There's a lot

1 of different types of materials that need to be
2 compacted to a certain degree, and there's a lot
3 more stringent and assurance in quality control
4 procedures involved with achieving a certain
5 compaction and a certain permeability for the
6 various layers. Because of these factors, it's
7 just more difficult to construct, and you're
8 right that there are plenty of qualified
9 contractors around that could do that work. But
10 in general it is just more difficult to
11 construct.

12 In terms of short-term effectiveness,
13 really what it comes down to is the time it takes
14 to build the caps. The multi-layer cap requires
15 a lot more material, therefore, it's going to
16 take longer, and it's going to require more
17 trucks going back and forth from the base, and
18 that's essentially the differences.

19 Those are the required criteria that
20 we're required to evaluate each alternative
21 against, and they're broad based criteria for all
22 different kind of cleanup, and sometimes they are
23 a little simplistic for a landfill, but for
24 short-term effectiveness that's really all it
25 comes down to is the time to remediate and the
26 increased truck traffic which is why

1 Alternative 2 gets a slightly better rating.

2 AUDIENCE MEMBER: I think that we could
3 say that this landfill has been sitting idle for
4 some years, and to say that, you know, one is
5 going to take three months longer to implement
6 now is playing with the criteria. I would
7 propose that you just do it on cost because I
8 think cost is legitimate, and I think that you
9 should stick with that.

10 MR. CHAO: I'd like to address the
11 concern about the time factor. The time factor
12 is not necessarily the time to get the landfill
13 cap, but all they're talking about is the time
14 that workers would be at risk for longer periods
15 of time, not that the landfill is going to get
16 capped sooner or later.

17 It's just that we'll have workers
18 on-site, and instead of three months, it will be
19 six months time to get a multi-layer cap
20 construction completed. That is what we're
21 talking about. And that's what we're saying
22 about the risk associated with the workers and
23 exposure to the site for a longer period of time.
24 And again, you know, we only have three dots. We
25 only have a clear dot, a half dot and a full dot.

26 AUDIENCE MEMBER: Well, you actually

1 could have a forth one. Did you ever consider
2 removing it?

3 MR. CHAO: That is a consideration,
4 yes.

5 AUDIENCE MEMBER: It does not appear
6 here.

7 MR. CHAO: In itself we have looked at
8 it, and in doesn't appear there because it is so
9 costly to look to remediate that site.

10 MR. PETERS: Yeah, the excavation of
11 the landfill was removed from the selection very
12 early other on. It's typically extremely costly
13 and an extremely hazardous undertaking.

14 We did some rough estimate. It did
15 cost about twenty million dollars likely to
16 excavate and remove and replace the landfill in
17 another landfill, so you're just transferring the
18 problem somewhere else, so that really didn't
19 warrant very series consideration.

20 MR. CHAO: In addition to just the cost
21 itself, there's very high hazards of maybe
22 puncturing of something there. You may be
23 puncturing the clay layer into the bottom. You
24 may further contaminate the aquifer or the ground
25 water or just the hazard itself of people getting
26 in the area itself.

1 MR. YOUNG: And it's a very dangerous
2 exercise.

3 AUDIENCE MEMBER: I know in some
4 landfills in other parts of the country dioxin
5 has been found. Has dioxin been tested in this
6 landfill?

7 MR. PETERS: Yes, and we have not found
8 it.

9 AUDIENCE MEMBER: What were your levels
10 of detection?

11 MR. PETERS: I don't recall.

12 MR. YOUNG: We'd have to get back to
13 you on that one.

14 AUDIENCE MEMBER: My name is Paul
15 Fisher. We reviewed the OU1 report that came
16 out, and in the report we had some concerns. We
17 didn't see any boring logs for any of the wells.
18 The wells that we did see some boring information
19 on, the screen intervals were primarily through
20 clay for most of the wells which doesn't make the
21 ground water quality better. The analysis that
22 was done for the ground water didn't include any
23 consideration for the seasonal variability that
24 we see around here on different sites.

25 There were a few contradictory
26 statements in the reports. At one point in one

1 paragraph there was a statement that the landfill
2 is not leaking, and then in the immediately
3 following paragraph there was a statement that
4 leachate was found in the ground water beneath
5 the site and those kinds of things were a concern
6 to us.

7 And then primarily we were concerned
8 that we've just closed a one hundred and five
9 acre landfill, and we closed it to what is
10 considered the State minimum standard, and that
11 was two feet of foundation, a foot of clay and a
12 foot of top soil. That's from Title 23 from the
13 Water Board.

14 And one of the three alternatives that
15 hasn't been addressed is what the statement of
16 standard is. And, in fact, it proposed three
17 feet of soil, so that doesn't meet the statement
18 of the standards.

19 MR. PETERS: Okay. That was about six
20 or seven comments. You want to start with the
21 first one again or --

22 MR. CHAO: Maybe we could actually --
23 if we could --

24 AUDIENCE MEMBER: We sent in a letter.
25 We just wanted to have this read into the --

26 MR. CHAO: If actually we could reserve

1 that for the public comment portion of it?

2 AUDIENCE MEMBER: Oh, I'm sorry.

3 MR. CHAO: This is just clarification
4 of the presentation itself right now.

5 AUDIENCE MEMBER: I'm confused; I'm
6 sorry. Do I have to repeat that later?

7 MR. CHAO: Well, you'll probably have
8 to repeat it later anyway because I don't think
9 Tom got all those questions anyway.

10 Yes, sir?

11 AUDIENCE MEMBER: What happens after
12 thirty years? What about the year thirty-one?
13 Do you re-evaluate the condition of these two
14 sites and decide in another thirty years, or do
15 you go through this process again, or do you walk
16 away from it?

17 MR. PETERS: You're first description
18 is fairly accurate. You would re-evaluate the
19 data that you've seen historically over the
20 thirty years. You would evaluate this data, and
21 if the landfill is unearthed at that period, then
22 you could consider monitoring, or you could
23 continue depending on how the data looks at that
24 point. You certainly wouldn't walk away without
25 any evaluation of the data.

26 AUDIENCE MEMBER: So there's an element

1 of this that goes beyond thirty years?

2 MR. PETERS: Potentially.

3 AUDIENCE MEMBER: Can I ask -- maybe
4 you're going to cover it later, but you did say
5 that Alternative 2 meets the law?

6 MR. PETERS: Yes.

7 AUDIENCE MEMBER: And has that been
8 approved by the Regional Quality Control Board?

9 MR. CHAO: Yes, it's been approved by
10 EPA, Department of Toxic Substance Control and
11 the Water Board.

12 AUDIENCE MEMBER: If the monitoring is
13 going to go on for thirty years, if the operation
14 at Moffett were to cease to exist, when would
15 that land be available for re-use for
16 development?

17 MR. CHAO: As far as re-use and
18 development is concerned, I guess that issue
19 really as far as the Navy is concerned is not
20 going to be part of -- you know, when that would
21 be available. But NASA is the current owner of
22 the facility, and they would be the entity in
23 which they would say when the facility would be
24 available. Are you talking specifically about
25 the contamination itself?

26 AUDIENCE MEMBER: Right. You cannot

1 develop on a contaminated site. I guess what I'm
2 trying to get at is when would closure be
3 effective, and when would the cleanup be
4 sufficient to develop the land?

5 MR. CHAO: Well, as far as the
6 landfills are concerned, there usually isn't any
7 specific areas where you could cleanup a landfill
8 that you could use to build on, but most of the
9 time most sites are usually capped and prevented
10 from any specific contact of the landfill content
11 itself. And usually building on the facility
12 itself is usually not a recommended alternative.
13 I mean, you could go ahead and maybe build a park
14 or something else or have a trail along there or
15 something of that nature, but any use you'd have
16 to make sure that the people that are using the
17 site will not get to the contents of the landfill
18 itself.

19 AUDIENCE MEMBER: So the Navy would
20 retain jurisdiction over that and the monitoring
21 for thirty years or more?

22 MR. CHAO: Or more. That's correct.

23 AUDIENCE MEMBER: Could you clarify
24 what the purpose of the ground water collection
25 trenches are for? Is that for leachate or --

26 MR. CHAO: That's for leachate

1 collection.

2 AUDIENCE MEMBER: How far is that from
3 the landfill?

4 MR. PETERS: The exact distance isn't
5 specified yet. It will be evaluated in due time.
6 The trench has been placed there as a contingency
7 against leachate migration. Currently we haven't
8 seen any leachate migration, but we'll construct
9 this trench and more or less be ready for it in
10 the unlikely event it does occur. We don't
11 expect it to occur. We've done modeling, and we
12 have over eleven years of ground water data that
13 shows it hasn't migrated.

14 MR. CHAO: Just in case we do, we'll be
15 monitoring that trench as the water collects in
16 it, and if the levels do get above a certain
17 level, then we'll start pumping it out.

18 AUDIENCE MEMBER: Is it going to be in
19 the sand or the clay layer?

20 MR. PETERS: Clay.

21 MR. CHAO: Question in the back?

22 AUDIENCE MEMBER: In Alternative 2 what
23 would the biotic cap be composed of and how thick
24 would it be?

25 MR. PETERS: I'm sorry?

26 AUDIENCE MEMBER: The cap you talk

1 about underneath the soil layer.

2 MR. PETERS: The biotic barrier?

3 AUDIENCE MEMBER: Uh-huh.

4 MR. PETERS: That would consist of
5 either compacted gravel or cobbles. The
6 thickness hasn't really been set. It's more of a
7 design issue. We haven't gone into the detail.
8 But the basic idea is that if you use compacted
9 gravel or cobbles or something that a burrowing
10 animal couldn't lift it out of the way as it's
11 going down.

12 MR. CHAO: The type of animals we've
13 seen at the site so far are like maybe voles.
14 Joe LeClaire is also a consultant of the Navy who
15 is the head of our ecological assessment.

16 AUDIENCE MEMBER: Basically the types
17 of animals that we're seeing out there are small
18 burrowing animals like squirrels, voles, shrews.
19 The type that wouldn't be able to move the
20 cobbles.

21 AUDIENCE MEMBER: So it wouldn't be a
22 barrier to infiltration?

23 MR. PETERS: No.

24 AUDIENCE MEMBER: It would just be a
25 barrier to animals?

26 MR. PETERS: Correct.

1 MR. CHAO: Paul?

2 AUDIENCE MEMBER: Steve, can you
3 discuss the anecdotal evidence that you went
4 through in characterization of the landfill site?

5 MR. CHAO: Mike, you want to address
6 that?

7 MR. YOUNG: I'd let you do it. During
8 the initial stages of investigation for all of
9 the contamination at Moffett Field, the Navy did
10 what's referred to -- and if you look in the
11 documentation -- as the initial assessment study.

12 And during this study one of the things
13 that the Navy tried to do is see how much waste
14 were generated at Moffett Field and what happened
15 to it. And how much possibly could have been
16 contaminated and whether it caused contaminated
17 ground water or contamination within the soil.

18 And during that investigation, they did
19 a lot of site interviews and interviews with
20 people that worked at the site. And they asked
21 what type of things that have been disposed of at
22 the landfills.

23 And what Paul is really referring to is
24 that there is significant evidence that large
25 amounts of things like solvents and various
26 trichloroethanes which was used as a parts

1 washing solvent and paints -- let me see what are
2 some of the other things -- transformer oils and
3 sawdust that was used to sop up any of the
4 transformer oil which they may have filtered out.
5 During the operations of the base, these were
6 supposedly disposed of at these sites, and both
7 Site 1 and Site 2 were operated for a long period
8 of time. And that evidence -- there's quite a
9 bit of evidence that those things were disposed
10 of there.

11 Does that answer your question?

12 AUDIENCE MEMBER: Yes.

13 MR. CHAO: Are there any other
14 questions pertaining to the presentation? Jim?

15 AUDIENCE MEMBER: Actually this is a
16 follow-up to the last question. There was a
17 comment made at the last RAB meeting to the
18 effect that there may have been some disposal of
19 construction debris or other material at this
20 site as recently as the last year or two. And I
21 wondered if that had been followed-up?

22 MR. YOUNG: We have seen some things
23 that have been placed there, and I wouldn't
24 consider that as an active disposal of that. One
25 of the landfills, in particular the Site 2
26 Landfill doesn't have very restricted access at

1 this point. It's right next to the golf course.
2 Anyone who works on base can go there, and we
3 have seen a couple -- you know, for the last five
4 years every once in a while there's some
5 construction debris which is placed there, and we
6 do see that.

7 AUDIENCE MEMBER: Is it the Navy's
8 position, though, that that doesn't constitute
9 active disposals?

10 MR. YOUNG: That's correct.

11 MR. PETERS: It's not buried on-site.
12 It's more or less stored there. That would be a
13 more accurate characterization of the activity.

14 MR. CHAO: Well, the thing is, it's not
15 necessarily that the material that is placed
16 there is left there. A lot of times if we find
17 it, we tell them that you're not supposed to put
18 it at this location; would you please move that
19 type of material.

20 But a lot of times there's many people
21 that use the base. We don't know exactly which
22 entity of the facility placed that material on
23 that location, so it takes a little time to
24 figure out who placed that material there.

25 A lot of times it's brush that's
26 cleared from maybe like the golf course area or

1 something of that nature, not just the
2 construction material, but also leaves or
3 something like that that have just sort of poured
4 out in that area.

5 AUDIENCE MEMBER: I'd like to ask if
6 the ETC and the Regional Board have made an
7 exclusive judgment on that subject whether or not
8 that disposition of material -- or however we're
9 going to characterize it. I'm asking those two
10 agencies, but I'm assuming it's your
11 recommendation and the mid 1980's threshold for
12 landfill classifications that would make you the
13 most interested in that?

14 MR. BESSETTE: It was just brought up;
15 this week as the waste being disposed -- is that
16 Site 1?

17 MR. CHAO: Site 2.

18 MR. BESSETTE: And the volumes as far
19 as I understand it, haven't been determined at
20 this time. I think the reopening of the landfill
21 based on that disposal would be -- because of the
22 nature of the waste, it's an inner waste, you're
23 talking about I guess based on the volume. And
24 they're actually being subject to some type of
25 placement in some areas. So the Regional Board
26 has not made a determination that reopens the

1 landfill or constitutes a new disposition into
2 the landfill.

3 AUDIENCE MEMBER: Am I correct in
4 understanding, though, from the Navy comments
5 just before that the actual fill areas have not
6 been secured during the interval, and that a
7 variety of things have been observed at various
8 times? I guess what I'm really getting at is do
9 we really know what the nature of the post '76
10 disposition of Site 1 or the post '63 disposition
11 of Site 2 is?

12 MR. CHAO: Well, Landfill No. 1 is
13 completely fenced off. Landfill No. 2 would be
14 the only one in question. And again, it was just
15 last week at the RAB it was mentioned, you know,
16 what type of disposal was at that site. But we
17 will further investigate that site to make sure
18 of what is at that location.

19 Although, if the soil boring and things
20 of that nature that have been done to investigate
21 the landfill itself that had already been done,
22 and that includes anything that was on top of it
23 that may have been placed prior to -- I mean,
24 following the 1976 quote en quote, "closure of
25 the landfill itself." The investigations at
26 Site 2 were done about what timeframe?

1 MR. PETERS: Late 80's early 90's, and
2 ground water sampling is continuing.

3 MR. CHAO: So anything that may have
4 been on top, we should have been able to have
5 included with our investigations.

6 AUDIENCE MEMBER: Is it fair to say,
7 though, that that issue having been raised last
8 week -- and I appreciate that it was only raised
9 last week -- that that is an open issue at this
10 point which the agencies and the Navy plan to
11 resolve?

12 MR. CHAO: Well, it's an issue that we
13 need to take up with NASA to assure that any of
14 the people that are the tenants at the facility
15 currently will not be dumping any of the type of
16 refuse at that site at all.

17 AUDIENCE MEMBER: I meant whether or
18 not the landfill had ceased to accept waste prior
19 to the 1980's. It is fair to characterize that
20 that issue having been raised last week is open
21 and is being considered and will be addressed in
22 the near term?

23 MR. CHAO: Yes.

24 AUDIENCE MEMBER: Thank you.

25 MR. CHAO: Cynthia?

26 AUDIENCE MEMBER: There was some

1 mention made of the clay liner at the bottom of
2 the landfill, but it was mentioned in the
3 document that they were all on-line landfills.
4 So the earlier comment about drilling through the
5 clay liner was not accurate because there isn't
6 liner in those landfills; is that correct?

7 MR. PETERS: That's correct. There
8 isn't a man-made liner underneath the landfill.

9 AUDIENCE MEMBER: Or a standard clay
10 liner like is required now?

11 MR. PETERS: Right. It's not an
12 engineered, man-made, clay constructed by man.
13 It is a native clay made of mud underneath.

14 AUDIENCE MEMBER: In that same
15 connection, since your schematic here indicates
16 that there can be leachate out the bottom, do the
17 trenches go down beneath the level of the
18 landfill, and are the monitoring wells -- you
19 know, you're showing them just on one side, the
20 trenches. Is there any monitoring and drilling
21 being done on the other sides?

22 MR. PETERS: Yes. There's monitoring
23 wells all around the parameter of both landfills,
24 and the depth of the trench will be set at the
25 depth of refuse and --

26 AUDIENCE MEMBER: You would want it

1 below that.

2 MR. PETERS: Yeah, it would be set at
3 the same elevation as the leachate itself. I
4 mean, as the bottom of the refuse. The question
5 about the trench locations, that was dictated by
6 the -- it was only selected for the location
7 between the storm water retention pond and the
8 landfill because that's where the sensitive
9 receptors were, so we felt it would be a good
10 idea to put a contingency plan in place between
11 the landfill and the surface water.

12 MR. CHAO: Steve?

13 AUDIENCE MEMBER: I've heard several
14 times during the presentation about leachate
15 migration and ground water migration in that the
16 landfill is surrounded by wells. And in looking
17 at the document, the principal flow path to the
18 south for both leachate and the ground water
19 seems to flow between within a four hundred to
20 five hundred foot gap in monitoring.

21 Now, this may be convenient for you in
22 the fact that you aren't monitoring in that
23 particular area of discharge. But I'm concerned
24 as I look at this, and I don't share the same
25 confidence that you have that there is hydraulic
26 control for post ground water and leachate.

1 MR. PETERS: Well, we feel that the
2 current ground water monitoring network is
3 sufficient and the wells are spaced. We have
4 eleven wells around the perimeter of the Site 1
5 Landfill. And typical requirements are two down
6 grading it and one upgrading it. So we feel we
7 have a fairly sufficient monitoring network.

8 AUDIENCE MEMBER: Even though your own
9 model shows the discharged being in an
10 unmonitored area?

11 MR. PETERS: I'm sorry? I don't follow
12 that.

13 AUDIENCE MEMBER: Towards the south
14 where both the ground water and leachate flow
15 paths would be going, there are no monitoring
16 posts.

17 MR. PETERS: Yes, there are. There's
18 three or four wells between the landfill and
19 Building 191 southern direction where the ground
20 water does flow towards -- there are four wells.

21 AUDIENCE MEMBER: Right. I'm referring
22 specifically between Well 114 and Well 115 which
23 has a gap of four hundred to five hundred feet
24 and the apparent flow path goes between those two
25 wells.

26 MR. PETERS: Well, I guess one way to

1 respond to that would be without putting wells
2 side by side all the way around the landfill, you
3 could postulate that there would be a flow path
4 between wells, and it could be debated for a long
5 time about how close together they should be.

6 The fact that we haven't seen any
7 leachate migration from any of the other eleven
8 perimeter wells, doesn't lead us to believe that
9 there would be through that corridor.

10 But we will be looking into enhancing
11 our current network, and we certainly could look
12 into putting a well between those two wells. And
13 if we have a problem there, then we would address
14 it.

15 MR. CHAO: Cynthia?

16 AUDIENCE MEMBER: In the document,
17 there's this table of arrears with the codes in
18 them, and it says that according to the
19 California Code of Regulations the
20 recommendations in that section apply to: One,
21 solid waste disposal sites that did not commence
22 complete closure prior to August 18th, 1989,
23 which is fully implemented by November 18th,
24 1990, in accordance with applicable requirements.
25 Two, any new post-closure activity that may
26 jeopardize the integrity of previously closed

1 sites. These were never closed.

2 MR. PETERS: That's correct.

3 AUDIENCE MEMBER: So I'm confused. It
4 says that all these regulations apply to anything
5 that wasn't officially closed prior to
6 August 18th, 1989, and which is fully implemented
7 in terms of the closure requirements. So it
8 sounds to me like these 1976 dates are --

9 MR. PETERS: Well, you're right. And
10 those regulations -- because of that citation
11 that you just quoted, those regulations are
12 applicable.

13 What that's basically saying is if you
14 have a landfill, and you're not completely closed
15 by that 1990 date, these regulations are
16 applicable. And because of that fact, the
17 California Waste Management Board has dictated
18 those regulations as applicable for a landfill
19 closure, and we are going to follow them.

20 MR. CHAO: Is this a presentation
21 question? I just want to make sure. If it's
22 another comment, if we could just hold off.

23 AUDIENCE MEMBER: That's okay.

24 MR. CHAO: We'll take a quick five
25 minute break and reconvene.

26 (Whereupon a brief recess was held.)

PUBLIC COMMENT PERIOD

1
2 MR. CHAO: Before we get started off
3 with the public comment period, I'd like to
4 introduce again Paul Lesti. He had a couple of
5 things to say about the Restoration Advisory
6 Board.

7 MR. LESTI: Thank you, Steve. My name
8 is Paul Lesti, and I'm the community co-chair of
9 the Moffett Restoration Advisory Board. We do
10 meet every second Thursday at the police building
11 at 1000 Villa. And we have a sign up sheet over
12 here and a copy of our little fax sheet for the
13 Restoration Advisory Board.

14 And if you're interested in learning
15 more information about it and coming to a meeting
16 or getting on a mailing list, please sign up on
17 the yellow sign up sheet there. We'd love to
18 have you come to the meetings. They are open to
19 the public. We do have public comment periods.
20 And I'm very impressed at the turn out.

21 AUDIENCE MEMBER: Paul, what time are
22 the meetings?

23 MR. LESTI: Seven p.m. to nine unless
24 Steve is talking; then it can go a little bit
25 longer. But thank you very much.

26 MR. CHAO: Okay. Actually has

1 everybody had a chance to either send their cards
2 up to the front, or were there any additional
3 cards here?

4 We'll go ahead and take comments.
5 We'll just go across the room. Actually if we
6 can start off with this gentleman here because I
7 put him off at first, and we just wanted to go
8 over these items again.

9 AUDIENCE MEMBER: Excuse me, Steve. Do
10 you think people could use the mike? It is
11 really hard to hear.

12 MR. PETERS: We'll just try to speak up
13 a little bit. The mike is not working.

14 MR. CHAO: What was your name again?

15 AUDIENCE MEMBER: Paul Fisher.

16 MR. CHAO: From the City of Sunnyvale?

17 AUDIENCE MEMBER: Yes.

18 MR. CHAO: Can you just go over one at
19 a time?

20 AUDIENCE MEMBER: Okay. The letter is
21 much more elaborate than what I have here. But
22 basically after reviewing the report, we didn't
23 see any boring logs included in the report.

24 MR. CHAO: Paul, can you speak up a
25 little bit or stand up?

26 AUDIENCE MEMBER: Basically after

1 reviewing the report, we didn't see any boring
2 logs in the report; although, I did see some
3 cross sections of the borings, and that led to
4 the next comment which was that a great many of
5 the borings seemed to be screened through clay
6 which is not normal for monitoring. Normally of
7 monitoring of wells you like to see them screened
8 in a high permeable layer which is common in
9 sites along the Bay.

10 The analysis that was done of the
11 ground water data didn't seem to take into
12 consideration seasonal variability, and out here
13 along the Bay because we have a very wet season
14 and very dry season, that's very important, and
15 we felt that was important to do.

16 The ground water analysis might be over
17 simplistic especially with Site 1 where it was
18 said that Site 1 was basically considered up
19 gradient and everything else -- the well was up
20 gradient which can lead to erroneous results if
21 it's not true.

22 We found several statements in the
23 report that were contradictory. In one case we
24 found one paragraph that said that -- that
25 implied that the landfill was not leaking, and
26 the very next paragraph said that leachate is

1 probably flowing from the site; we were concerned
2 about that.

3 Next is the analysis of Title 14 and
4 Title 23. We've just recently completed closure
5 of our landfill in Sunnyvale, and Title 23 is
6 pretty explicit with the minimum requirements for
7 closure -- for final closure cap which Title 23
8 requires two feet of foundation, a foot of top
9 soil and a foot of clay over the entire site.
10 And Alternatives 1 and 2 presented in the report
11 don't meet those state minimum requirements.

12 Finally, we had a comment on the
13 closure cost. We briefly looked at the cost, and
14 we saw the justification for them. But we've
15 just recently completed closing about sixty acres
16 at a cost of around five million dollars. That's
17 more in line of what Alternative 2 costs in the
18 report. Alternative 3 costs were way out of
19 sight, so it might be worthwhile to look at using
20 two feet of foundation, a foot of clay and a foot
21 of top soil at a cost of what many landfills have
22 experienced in the area for this recent closure,
23 and we're more than happy to share our
24 information with you.

25 MR. CHAO: Does that five million
26 dollar cost include the monitoring?

1 AUDIENCE MEMBER: We have an existing
2 monitoring system. Oh, you're talking about
3 long-term monitoring?

4 MR. CHAO: Yes.

5 AUDIENCE MEMBER: No, it didn't. But
6 remember our site is a hundred and five acres;
7 it's much larger than these two sites combined.

8 MR. PETERS: If it's okay with you in
9 the interest of time, we will respond to all your
10 written comments in here through the
11 responsiveness summary. Are you in agreement
12 with that?

13 AUDIENCE MEMBER: Yeah, that's --

14 MR. CHAO: Are there any specific items
15 you want to address or anything like that?

16 MR. PETERS: Well, I could speak about
17 the prescriptive requirements in Title 23. I
18 have a feeling some others may have some
19 questions about that also. And the question is
20 essentially why aren't we following the
21 prescriptive requirements for a multi-layer cap
22 that are contained in Title 23 regulations?

23 The reason is that Title 23 is
24 applicable through Title 14 which has been deemed
25 applicable for us to close the landfills. Built
26 into the regulations, there is a prescriptive

1 standard and also a subsection that allows
2 engineered alternatives that let's you tailor
3 your cap to site specific conditions. So we
4 appropriate our cap based on the specific
5 conditions at Site 1 and 2. And they're mainly
6 three main features that illuminate the cap that
7 we're proposing over the prescriptive standard.
8 I'll go through those really quick.

9 The first one is the fact that
10 currently leachate is not migrating from the
11 landfills, and what that means is current
12 infiltration rates are not causing the problem.
13 One could make an argument if it weren't for
14 upward exposure capways that no cap at all is
15 required.

16 The Bay muds that the landfills are
17 sitting in are very low permeability in
18 restricting the flow to very low levels, and they
19 are also retarding contamination through the
20 physical properties of the clay.

21 So first the current infiltration rates
22 aren't causing a problem, so we basically have an
23 innocuous condition, and the cap that we're
24 replacing is making a safe condition even better.

25 The second feature, the second site
26 condition, is the fact that we have saturated

1 waste at the landfills. What that means is
2 there's ways below the ground water table, and
3 that leachate will exist regardless of the type
4 of cap.

5 In fact, EPA guidance states that if
6 you have waste below the water table and ground
7 water contamination is minimal, a soil cap is
8 always required, and that's exactly the
9 conditions we have here.

10 If leachate does migrate in the
11 future -- we don't think it will -- but if it
12 does, it will happen due to the horizontal
13 gradings in the ground water, and the cap itself
14 won't do much. Again, if it migrates in the
15 future, it's because a drum finally rusts out
16 or -- and you could have six feet of concrete on
17 top of your cap, and it's not going to prevent
18 that.

19 The third reason is that we performed a
20 computer model called the Health Model and for
21 hydrologic evaluation of landfill performance to
22 compare the performance between the two caps, and
23 their ability to resist infiltration.

24 And what we found was that the two caps
25 essentially perform to the same degree in
26 resisting infiltration. We found that about

1 ninety percent of precipitation is lost through
2 evapotranspiration through both caps, and
3 therefore their performance is essentially the
4 same.

5 So the multi-layer cap really doesn't
6 have any gain. And it's more expensive, and it's
7 more difficult to construct. So we're proposing
8 the single layer soil cap with the biotic barrier
9 to effectively isolate the waste and limit
10 infiltration for the specific site conditions
11 that we have. We found that was the most
12 feasible cost effective solution.

13 MR. CHAO: I'd like to address one more
14 item in that there may be some confusion about
15 what we believe is out there at the landfill
16 right now. Some me people may believe that the
17 site is not quote en quote "an engineered
18 landfill." But I'd like to have Tom address how
19 that landfill was made itself before the refuse
20 was placed in it.

21 MR. PETERS: Well, essentially the Navy
22 lucked out because the landfill is constructed in
23 the Bay muds which are very tight and have low
24 permeability and restrictive flow. Like Cynthia
25 mentioned, there's not a designed liner that was
26 placed down before refuse was placed in, a

1 compacted clay layer wasn't constructed. But the
2 native clays are doing a fairly good job of
3 containing the waste.

4 MR. CHAO: I'd like to address this
5 drawing here maybe a little bit deceiving looking
6 at this heavy line itself as the liner itself,
7 but what we're actually looking at is this whole
8 area here is clays, and this area here was either
9 dug out or leveled off and compacted before the
10 refuse was placed in the landfill itself.

11 AUDIENCE MEMBER: The Leslie Salt
12 Company -- and now I forget the name of the
13 company.

14 MR. PETERS: Cargill Salt?

15 AUDIENCE MEMBER: Yeah. They've been
16 running salt water all the way around the south
17 end of this Bay for God knows, seventy, eighty
18 years, and they get almost total evaporation out
19 of that. Is there anything inside of their salt
20 ponds other than just Bay mud?

21 MR. PETERS: I don't have knowledge
22 about that.

23 AUDIENCE MEMBER: It would appear that
24 those things have a very, very low
25 impermeability.

26 MR. PETERS: That's correct. In fact,

1 the storm water retention pond to the north of
2 Site 1 dries out every summer, and the clays are
3 so tight that the neighboring slews don't
4 permeate through the clays and fill up the diked
5 pond, so you're correct. There's very low
6 permeability.

7 MR. CHAO: Did you have a question?

8 AUDIENCE MEMBER: When you talk about
9 the clays having low permeability, what is the
10 permeability of the Bay muds, and how does it
11 compare to a normal engineer's clay liner or
12 storm wall, and also you speak of the Bay muds as
13 being homogeneous, but are you finding any sand
14 layers within the mud?

15 MR. PETERS: There is an aquifer about
16 fifteen or twenty feet below sea level, but
17 mainly it's Bay mud and above it. The laboratory
18 tested permeability is ten to minus eight
19 centimeters per second, and typical landfill
20 minor requirements require ten to minus six.

21 AUDIENCE MEMBER: How many wells do you
22 have in the sand layer? How many wells are you
23 monitoring?

24 MR. PETERS: In the aquifer there are
25 all eleven.

26 MR. CHAO: Leslie?

1 AUDIENCE MEMBER: I have a little bit
2 of a statement. My name is Leslie Byster, and
3 I'm Program Director for the Silicon Valley
4 Toxics Coalition. SVCT is a fourteen year old
5 community based organization with over fifteen
6 thousand members, and we've been working to build
7 a sustainable -- an economy where the health and
8 vitality of the community and its workers and
9 environment are protected.

10 And we've been concerned about the
11 contamination at Moffett Field for a long time
12 and have been actively involved in working with
13 the Navy and the regulatory agencies and industry
14 on the cleanup of that site. And I wanted to
15 address issues of cleanup standards that had been
16 raised by other people here.

17 In 1993 we asked the Navy to
18 investigate what was being done in other cities
19 where landfills had brought the Bay, and in
20 response to these comments in July of 1994, the
21 Navy said that they would request that
22 information and incorporate that into the revised
23 FS, so I don't know if that has been done.

24 And I want to go back to my concerns
25 about dioxin because dioxins have been found in
26 the Bay, and dioxins we all know that they're a

1 very toxic chemical, and when they're in a
2 landfill they tend to stay there and not migrate
3 out. However, under certain circumstances
4 dioxins can move out of the landfills if there's
5 another pollutant that can dissolve dioxins like
6 oil or chemical leachate that contain organic
7 solvents such as Benzene and Toluene which I
8 think we know have been found in that landfill.

9 There are also concerns raised at the
10 last FS about the accuracy, for lack of a better
11 word, of the anecdotal evidence of what was in
12 the landfill.

13 In closing, I think it's very important
14 to the community that the Navy not remediate to
15 lower standards than private parties and city
16 government.

17 MR. PETERS: Okay.

18 MR. CHAO: Peter?

19 AUDIENCE MEMBER: My name is Peter
20 Strauss, and I'm the Environment Director of MHP
21 Technical Associates. I'm the Technical Advisor
22 to the Silicon Toxics Coalition under a technical
23 assistance grant from EPA.

24 I first commented on the feasibility
25 study in 1993. Since then two other drafts were
26 completed, and I want to commend the Navy for

1 being responsive to many of the concerns that
2 were made about the landfill remedy.

3 Briefly, the Navy has agreed to alter
4 its proposed plan in several ways. First,
5 although, Mike didn't say this today, its added
6 as a remedial action objective immunization of
7 infiltration, and there has been added an extra
8 foot of material to the cap. As first proposed,
9 it was going to be two feet. It's integrated OU1
10 which was originally defined as constituting
11 soils only with ground water, and that was very
12 important. They were only going to consider what
13 was in the soil, and not what's in the ground
14 water, and that didn't make any sense.

15 That they waited to design and
16 implement a remedy until information was
17 developed on the ecological effects of
18 alternatives and sample in additional areas that
19 our hydrologist identified.

20 They added the leachate collection
21 trench to the northern boundaries between the
22 Site 1 Landfill and the storm water retention
23 pond. And they developed a rudimentary
24 contingency plan should leachate migrate outside
25 the boundaries of the landfill.

26 And I think that those are major

1 improvements from the original proposed remedy.
2 However, I believe that plan should be improved.
3 And I have four general areas that need
4 improvement.

5 One is the contingency plan involving
6 detections of leachate outside the landfills
7 needs to be strengthened. Two, a contingency
8 plan should be developed that deals with the
9 event that the use of the facility changes or
10 where the government no longer wants to operate
11 and maintain the drainage system at Moffett.
12 Three, to the degree possible the remediation
13 strategy should try to enhance the quality of
14 surrounding wetlands. Four, that all measures
15 should be taken to have the remedy to conform to
16 community standards. And that's what Leslie was
17 talking about. And I'm going to go into these
18 first three a little bit more.

19 While I realize that little leachate
20 has been detected in the area previously, it is
21 important to establish guidelines or criteria of
22 when the leachate system, this trench, will be
23 mechanically activated.

24 The FS, as I understand it, proposes
25 that this be done when the leachate exceeds the
26 water quality criteria for the Bay. And the FS

1 states that hydraulic control or packaged
2 leachate collection system -- treatment system
3 can be implemented if those standards are
4 exceeded.

5 I propose that the level be set at some
6 lower percentage of the water quality criteria in
7 combination with an increase in the level
8 detected at existing wells for two consecutive
9 quarters.

10 It really seems quite reasonable to me
11 as it would allow time to plan for remediation
12 strategy and gain approvals from the regulators.

13 The feasibility is incomplete in that
14 the remedial action evaluated assumed that the
15 facility will continue to be operated at levels
16 at current use. After thinking this through, I
17 think that this issue poses probably the largest
18 potential problem to the Navy and to the
19 community.

20 As you know some community members are
21 opposed to having Moffett Field continue to
22 operate as an air base. With budget slashers
23 going to work in Washington, I don't think we can
24 assume that the Department of Defense or NASA is
25 going to want to operate that landfill in the
26 future. I'm saying that we can't assume that.

1 So the question arises of what would
2 happen if the drain system and the pumps are
3 turned off? Would the elimination of pumping
4 inundate some of the areas and defeat the purpose
5 of the remedy? We're spending four or five
6 million dollars here. Are we going to just let
7 that go and wash into the Bay? Who would have
8 the responsibility for maintaining the drainage
9 system in the event that Moffett is not operators
10 of the landfill as an air field?

11 These are questions that should be
12 thought about before a remedy is implemented. At
13 the very least there should be some institutional
14 mechanism to pass along knowledge of the remedy
15 and consequences of not maintaining the drainage
16 and pumping system.

17 And three, I believe that efforts
18 should be made to protect and where ever possible
19 enhance the existing wetlands including the storm
20 water retention pond. I think it's important to
21 realize that this is somewhat degraded wetland,
22 and that it's potentially habitat for endangered
23 species including the salt harvest mouse.

24 MR. CHAO: Thank you. Cynthia?

25 AUDIENCE MEMBER: I'm going to read
26 mine also because it constrains me from saying

1 too much, so thank you for that. And the
2 comments generally fall into the category of when
3 in Rome do as the Romans do.

4 My name is Cynthia Sievers, and I thank
5 you for the opportunity to be here tonight. I'm
6 a thirty year resident of Mountain View, and I
7 would like to direct my comments to the impasse
8 this proposed approach of the landfill cleanup
9 may have on local perception of State and
10 Environmental Protection Agency regulatory
11 oversight and the Department of Defense's image
12 as a good neighbor in the community in which they
13 locate facility.

14 During the thirty years I've lived
15 here, I've worked in regulatory affairs related
16 to environmental policy and specifically solid
17 waste planning in both private industry and in
18 local government. Those of us who live and work
19 here together with our local government have been
20 around the block more than once when it comes to
21 environmental compliance.

22 We've invested millions and millions of
23 dollars in managing methane and leachate
24 landfills and in pumping and treating ground
25 water throughout this valley. We separate our
26 trash for recycling, and we line up on hazardous

1 waste day to divert our used batteries and left
2 over cleaning products from the local landfills.

3 We take environmental protection
4 seriously. And Heaven knows we've put our money
5 where our mouths are. Since 1967 my garbage bill
6 has gone up over five hundred percent most of it
7 going with compliance with state and federal
8 regulations.

9 A number of us are in the process of
10 reviewing this proposed plan for landfill cleanup
11 and closure at Moffett, but a cursory overview
12 suggests to me that if one of our local cities or
13 Waste Management or BFI or some family owned
14 landfill owner were to appropriate such a minimal
15 approach, state and federal agencies would throw
16 them out of the office. And that's my comment.

17 MR. CHAO: Thank you, Cynthia. Sir?

18 AUDIENCE MEMBER: Thank you, Steve. My
19 name is Jim McClure. Tonight I want to make some
20 comments from the perspective of my role as the
21 Chair of the Technical Committee of the
22 Restoration Advisory Board that Paul Lesti has
23 described to you earlier.

24 We have been meeting for several months
25 and, in fact, several people who are actively on
26 that committee are here tonight. Some of them

1 have made independent comments. But at our most
2 recent meeting last night we decided collectively
3 that there were some preliminary general comments
4 that we wanted to make as a group. Those are the
5 comments that I want to make now.

6 I have a memorandum describing those
7 comments which I'll leave with the reporter when
8 we're done to be added to the record, and in the
9 interest of time, I will just try to hit the high
10 points now.

11 First, I want to reiterate that the
12 committee is in the process of reviewing
13 feasibility studies. Those of you who perhaps
14 haven't actually seen it, this is the current
15 draft of the feasibility study. Its predecessor
16 document called the Remedial Investigation Report
17 for this operable unit is about three times that
18 thick, and the collective technical documentation
19 that backs up the whole bulk of that work
20 occupies many feet of shelf space in my office
21 and many other people's offices.

22 So the committee is working hard trying
23 to get a grip on that, and we will be providing
24 more detailed and thorough comments later.
25 Perhaps some of those may be different from our
26 general comments tonight because we are also in

1 the process of having discussions and asking
2 questions and getting them answered by the Navy
3 and the regulators.

4 I do want to thank of the Navy for
5 extending the public comment period. Our
6 understanding is that it is now open until
7 July 31st, and we very much appreciate that in
8 light of the volume of material that the
9 committee members are trying to assimilate.

10 The Technical Committee basically has
11 general comments in three areas. Issues related
12 to the adequacy of the site investigations, and
13 the Navy's assumptions about current conditions.
14 The assumptions that underlie the design of the
15 alternatives that were described earlier tonight.

16 Second, we have some concerns related
17 to the adequacy of the Navy's assumptions about
18 future conditions that may surround landfills in
19 the future.

20 And finally, we have identified some
21 issues related to regulatory compliance and
22 financial security. I'll go through those three
23 areas very briefly.

24 There are four general questions at
25 this point about the investigations of the
26 landfills' current conditions. We're concerned

1 that the definition of the boundaries of the
2 landfill may require further refinement. We are
3 concerned that there's apparently been no
4 trenching done at the edges. It's certainly the
5 experience of many landfill related organizations
6 that that's important and useful and, in fact, a
7 very common step to define the edges of
8 landfills. It often turns out that the edges
9 aren't where they look like they are on the basis
10 of some of the tools which the Navy has used so
11 far.

12 We're concerned about the assumptions
13 about the depth of the refuse and specifically
14 about the nature and the thickness of the
15 underlying soils, the clay layer which has been
16 described tonight which is defined on the basis
17 across the twelve acre Site 1 Landfill on the
18 basis of a hand full of borings some of which
19 only extend to the bottom of the refuse.

20 Since the Navy's assumption that there is
21 not significant movement of the leachate out of the
22 landfill and into the underlying ground water is
23 really the key to their selection of remedial
24 alternatives, their assumptions that there is an
25 effective and impermeable clay layer is very
26 important.

1 Unfortunately our confidence in the Navy's
2 assumptions has been somewhat eroded by finding, for
3 example, that some permeability presented in the
4 feasibility study actually are off by a factor of ten
5 according to the numbers listed in the remedial
6 investigation report.

7 We're concerned about the characterization
8 of movement of leachate in and to the boundaries of
9 the landfill itself. I think there's been some
10 comments earlier about a somewhat ambiguous
11 presentation of the feasibility study report, and the
12 question about the extent to which leachate is
13 moving. The data that we see in the feasibility
14 study report indicates to us that leachate is
15 actively moving in and out of the landfill.

16 And finally, a real concern has to do with
17 the movement of the ground water underlying the
18 landfill, and the Navy's assumption that there has
19 not been a significant effect. There was some
20 comment earlier this evening that there are eleven
21 monitoring wells surrounding the Site 1 Landfill.

22 I'd just like to refer back to some
23 comments that Dave Glick made earlier and reiterate
24 that many of us share the concern that the principal
25 resolve to studying those eleven monitoring wells is
26 the conclusion that essentially all of the ground

1 water underneath the Site 1 Landfill is leaving the
2 area through a gap perhaps two and three hundred feet
3 wide that falls in the gap between the two wells that
4 Dave mentioned. That gap is about five hundred feet
5 wide, and so I'd like to suggest very strongly that
6 the Navy consider what I think I heard as a
7 suggestion earlier that that area be investigated in
8 more detail.

9 We haven't formed an opinion that leachate
10 has entered the ground water and is leaving the site,
11 but it does appear to us that there's not a sound
12 basis for the Navy's assumption that it's not. The
13 investigation simply has not looked in the right
14 place. Luckily it appears that the information is
15 available to allow the Navy to look in the
16 appropriate place now.

17 I want to move on to assumptions about
18 future conditions, and there is one that we've
19 focussed on, and it has also been mention by some
20 people here tonight. That's the issue of the future
21 status of a large scale sub drain system in operation
22 at Moffett Field.

23 That drain system dominates the ground
24 water flow field across the entire northern part of
25 Moffett and on to NASA. It drives the direction of
26 the land water flow underneath the two landfills. It

1 also keeps the area dry. It controls the vertical
2 gradients between ground water and leachate in the
3 landfills.

4 It seems to us that the operation of that
5 system is so central to the design of the remedial
6 actions of these two landfills that it should be
7 explicitly included in the alternative with
8 appropriate monitoring, funding and operation
9 provisions built in to the alternative. We're more
10 concerned about those issues now than we might have
11 been some months ago with the increased uncertainty
12 about continuing federal ownership of the entire
13 facility.

14 And finally, we have some concerns about
15 regulatory compliance and financial security issues.
16 The regulatory compliance issues focus at least so
17 far with the committee on questions of consistency of
18 the remedies proposed here with remedies proposed at
19 other sites, and I think that issue has already been
20 spoken to by others tonight.

21 I do want to focus attention, though,
22 on a concern that many committee members have,
23 and I think I might also speak as a member of the
24 Cost Committee that that committee also shares
25 this concern about ambiguous statements that we
26 have heard in the last few months about the

1 provisions for future funding by the Navy.

2 Frankly, I'm not sure what the
3 arrangements are, but in the last couple of
4 months I have heard statements ranging from the
5 Navy cannot or will not make provisions for
6 future funds to be available for actions that
7 don't begin now. To comments that were made
8 tonight, that if at the end of thirty years,
9 there's a need for on-going monitoring or
10 additional remedial actions, those will take
11 place.

12 And we're confused about what the
13 actual situation is; who really will provide
14 funding; whether it will be provided for now, or
15 whether it will be contingent on future
16 congressional action and future operation of the
17 facility.

18 We think that because of the ambiguous
19 status of the federal government under SURPLA and
20 the ambiguous ownership status at the base, that
21 those kinds of considerations also ought to be
22 expressly addressed in the alternatives for the
23 site.

24 Certainly any private facility with a
25 remedial action extended out for a number of
26 years either under circuit or state programs

1 would be required to provide concrete financial
2 assurance often through bonding, through the
3 creation of escrow accounts or through other
4 non-revokable mechanisms, and we think that's
5 appropriate for Moffett Field remedial actions in
6 light of the uncertainty surrounding the future
7 of the base. As I said, when the dust settles
8 here, I'll provide a copy of the memo that
9 perhaps will address those more clearly.

10 And I do want to just reiterate that
11 the work of the committee is an on-going process.
12 We were pleased last night to have a city
13 representative and a regional regulator at our
14 meeting. We look forward to taking the Navy and
15 their consultants up on these offers to discuss
16 some of these things in more detail.

17 I do want to make a separate pitch for
18 the committee meeting, separate from the RAB
19 meetings that Paul mentioned, and point out that
20 the next Technical Committee meeting will be held
21 on Wednesday July 5th, at seven in the evening at
22 the Mountain View Senior Center at 266 Escuela.

23 I want to specifically point out to
24 people that were at the meeting last night that
25 we had to change the date because of the
26 unavailability of that meeting room on the

1 Thursday. So it is now Wednesday July 5th,
2 rather than Thursday July 6th. Thank you very
3 much for your attention.

4 MR. CHAO: Thanks, Jim. You're going
5 to provide a copy of that to us?

6 AUDIENCE MEMBER: Yes.

7 MR. CHAO: Additional comments?

8 AUDIENCE MEMBER: I'm Sandy Albus from
9 NASA, and one of the things that I'm wondering
10 especially with the Landfill 1 being right on the
11 Bay, one of the provisions of the Bay plan or one
12 of the priority uses of the Bay plan is public
13 access to the Bay plan. So I'm wondering if the
14 Navy is going to formal consistency with the Bay
15 plan with the incorporated public access
16 provisions into the design of the landfill
17 remedies?

18 MR. CHAO: Yes, the Navy will do that.
19 Mary?

20 AUDIENCE MEMBER: I'd like to read this
21 too. My name is Mary Gravel. I'm speaking on
22 behalf of the League of Woman Voters of
23 Cupertino, Sunnyvale, Mountain View and
24 Los Altos, and some of this may be redundant.

25 The League supports confidential
26 measures to provide maximum protection to human

1 health and the environment. Closure and post
2 closure maintenance of the landfill should comply
3 with all state and federal regulations including
4 identification of the thirty year financial
5 assurance mechanism to finance post closure
6 maintenance.

7 Moffett Field should not be allowed to
8 meet lesser requirements than those that local
9 agencies and companies must comply. We also feel
10 there must be well defined channels of input to
11 governmental decisions.

12 It's come to our attention that
13 important effected local agencies were not
14 included in the initial distribution list for the
15 Operable Unit 1 final feasibility study, and we
16 request that you extend the comment period to
17 assure sufficient review time and revise the
18 distribution list so that all effected parties
19 are included in a timely fashion.

20 MR. CHAO: Thank you, Mary. Any other
21 comments? David?

22 AUDIENCE MEMBER: David Glick, a
23 resident of Mountain View. I have had the
24 opportunity to look briefly at the feasibility
25 study, and I do share the issue that there is a
26 minimum level of investigative effort that is

1 required, and I have serious concerns that the
2 Navy investigations to date have clearly
3 identified the boundaries of the leachate from
4 the Landfill 1.

5 I haven't had an opportunity to really
6 look at Landfill 2 yet. I will be sending
7 separate comments in a letter form to Don Chuck
8 directly with a series of specific comments.

9 But I think it is as Jim mentioned.
10 There is not a necessarily large financial burden
11 or exposure to the Navy to do some additional
12 investigation to identify and provide to the
13 community that there isn't an apparent hazard or
14 a threat.

15 Now, it doesn't necessarily affect the
16 remedial design. It doesn't necessarily affect
17 the health risk assessment. It would provide a
18 little more assurance to the community that there
19 isn't an unknown hazard left. Thank you.

20 MR. CHAO: Any other comments. Paul?

21 AUDIENCE MEMBER: Yes. Paul Lesti,
22 community co-chair of the Moffett Restoration. I
23 believe the Navy should be applauded for its
24 response to the various concerns of the community
25 within this whole process leading up to this
26 meeting tonight.

1 And I think that basically it
2 exemplifies the good working relationship that I
3 have with Steve, and that the community people
4 have built up with the Navy, so I believe that
5 the Navy should, in fact, be commended for its
6 response to the community at the request for
7 various things in this process.

8 There still exists some concerns about
9 the feasibility study, and that I have formally
10 requested in writing at least a thirty day
11 request for a public comment period for OU1.
12 Thank you.

13 MR. CHAO: Thanks, Paul. Are there any
14 other comments this evening? Okay.

15 Paul, I have a card from you. Is this
16 any different than what you just mentioned or
17 something additional?

18 AUDIENCE MEMBER: It's essentially the
19 same.

20 MR. CHAO: Yes?

21 AUDIENCE MEMBER: Could I just get you
22 to confirm something. That gentleman from the
23 Technical Committee indicated that you had
24 extended the deadline for comment, public
25 comment --

26 MR. CHAO: That's correct.

1 AUDIENCE MEMBER: -- until the
2 31st of July; is that correct?

3 MR. CHAO: That is correct, yes.

4 AUDIENCE MEMBER: Thank you. Because
5 that was a great concern to the City of
6 Mountain View because we just recently got the
7 document. Thank you very much.

8 MR. CHAO: You're welcome. Any other
9 comments? Did we get any additional cards that
10 we need to read off?

11 MR. PETERS: I don't think so.

12 MR. CHAO: Well, with that, I'd like to
13 close this evening.

14 AUDIENCE MEMBER: Steve, I think one
15 thing you might want to do is I think the Navy
16 should say how they're going to respond to the
17 comments, the collection of them, and if they'll
18 be tabulated, and the comments that have been
19 made tonight, and how they're going to be
20 responded to.

21 MR. CHAO: Again, we have of the court
22 reporter here this evening, so we will go over
23 each individual question, identify them and have
24 responses individually for each comment this
25 evening. And we'll address those not only in the
26 responsive summary, but also we'll be discussing

1 it at our RAB meeting in the next months.

2 And again the RAB meeting is open to
3 the public, and it's the second Thursday of each
4 month at the Mountain View Police Auditorium at
5 1000 Villa Street. Okay. Mike?

6 AUDIENCE MEMBER: The responsive
7 summary is part of the record of decision.

8 MR. CHAO: And the responsive summary
9 is part of the record of the decision itself.

10 AUDIENCE MEMBER: The different
11 versions of the feasibility study that are going
12 to be commented on, I think we just have our
13 final right now, and the comments that you've
14 provided, you want to be clear onto what version
15 that FS is?

16 MR. CHAO: The latest FS version I
17 believe was dated May 15th. If it's not that
18 date, get in touch with Don Chuck or anyone else
19 with the Navy, and we'll make sure that you get
20 the latest copy of that, or it is at the Mountain
21 View Library also, the latest update. Make sure
22 you get the right copy.

23 AUDIENCE MEMBER: Steve, a number of
24 members of the RAB also have May 15th copies as
25 well, so people can also contact Paul, and I
26 think he could put them in touch with someone.

1 MR. CHAO: Okay. Again thanks
2 everybody for coming out this evening. We really
3 appreciate all our comments and drive safely.

4 (Whereupon the meeting concluded
5 at 9:15 p.m.)
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STATE OF CALIFORNIA)

) ss.

COUNTY OF SANTA CLARA)

I, COLLEEN HOPKINS, do hereby certify:

That said meeting was taken before me at said time and place, and was taken down in shorthand by me, a Certified Shorthand Reporter of the State of California, and was thereafter transcribed into typewriting, and that the foregoing transcript constitutes a full, true and correct report of said deposition and of the proceedings that took place;

IN WITNESS WHEREOF, I have hereunder subscribed my hand this 4th day of July 1995.

Colleen Hopkins

COLLEEN HOPKINS, CSR No. 10757
State of California

PUBLIC COMMENTS: OU1 REMEDIATION PLAN

by
Peter M. Strauss
on behalf of the

Silicon Valley Toxics Coalition
June 15, 1995

- A) My name is Peter Strauss. I am the Director of Environmental Management with MHB Technical Associates in San Jose. I am the Technical Advisor to the Silicon Valley Toxics Coalition, which has a Technical Assistance Grant from the US EPA to help it participate in the decision making process regarding the Superfund sites at Moffett and the so-called MEW companies south of the Bayshore Freeway.
- A) I first commented on a draft Feasibility Study in 1993. Since then, two other drafts were completed. I wish to commend the Navy for being responsive to the concerns that I raised about the capping of the landfills. Briefly, the Navy has agreed to alter its proposed plan in several ways:
- 1) Added as a Remedial Action Objective (RAO) minimization of infiltration, thereby adding an extra foot of material to the cap;
 - 2) Integrated OU1, as originally defined as constituting soils only, with groundwater;
 - 3) Waiting to design and implement a remedy until information was developed on the ecological effects of alternatives;
 - 4) Sampled in additional areas that our hydrologist identified;
 - 5) Describing some details about the monitoring and sampling plan;
 - 6) Adding a leachate collection trench to the northern boundary between the Site 1 landfill and the storm water retention pond. Leachate will be transferred to one of the treatment facilities;
 - 7) Developing a rudimentary contingency plan should leachate migrate outside the boundaries of the landfills.

I think that these are major improvements to the original proposed remedy.

- B. However, I believe that the plan has to be improved. Four general areas that will need improvement are: 1) the contingency plan involving detections of leachate outside of the landfills needs to be strengthened; 2) a contingency plan should be developed that deals with the event that the use of the facility changes, or the federal government no longer wants to operate and maintain the drainage system at Moffett; 3) to the degree possible, the remediation strategy should try to enhance the quality of surrounding wetlands; and, 4) that all measures should be taken to have the remedy conform to community standards.
1. While I realize that little leachate has been detected in this area previously, it is important to establish guidelines or criteria for when the leachate system will be mechanically activated. The FS proposes that this be done when leachate exceeds the water quality criteria. The FS states that hydraulic control or a packaged leachate system can be implemented if WQC are exceeded. I propose that activation levels be set at percentage of the WQC, in combination with an

increase in the level detected at existing wells for two consecutive quarters. This seems quite reasonable to me, as it would allow time to plan the remediation and gain approvals from regulatory agencies.

Regarding Site 2, while I recognize that hydraulic control could be maintained by lift station 191, I am concerned that there is no contingency plan if monitoring wells detect leachate migration. The aeration nozzle Building 191 can only effectively treat some VOC's, and will not treat PCB's and SVOC's, and inorganics. Therefore, I recommend that the Navy develop a contingency plan to treat leachate from Site 2, if monitoring points outside of the landfill detect contaminants at levels similar to Site 1.

Additionally, I am concerned that relatively few WDL's are established for organic compounds. It is important that action levels be established for all possible constituents.

2. The FS is incomplete in that the Remedial Actions (RA) evaluated assume that the facility will continue to be used at levels similar to current use. After thinking this through, I think that this issue poses the largest potential problem to the Navy and the Community.

As you know, some community members are opposed to having Moffett Field continue to operate. With budget slashers going to work in Washington, I don't think we can assume that DoD or NASA is going to want to operate the airfield.

So the question arises of what would happen if the drain system and the pumps are turned off. Would elimination of pumping would inundate some of the areas, and may defeat the purpose of the remedy? Who would have responsibility for maintaining the drainage system, in the event that Moffett is not operated as an airfield? These are all questions that should be thought about, before a remedy is implemented. At the very least, there should be some institutional mechanism to pass along knowledge of the remedy and consequences of not maintaining the drainage and pumping system.

3. I believe that efforts should be made to protect, and wherever possible, enhance existing wetlands, including the storm water retention pond to the north of Site 1. I think it is important to recognize that this is a somewhat degraded wetland that is potentially habitat for endangered species (salt harvest mouse). By enhancing the wetland, possibly by removing or creasing the levees to allow for more tidal flushing, pickleweed communities which are essential for the salt harvest mouse may become established.
4. The Navy should be held to the same standards as private parties, including the Cities of Mountain View and Sunnyvale. In this context, and early comment on a draft FS requested that the Navy investigate and consider other remedies for old landfills that abut the San Francisco Bay. I provided a list of landfills that I knew about. It would seem prudent, if the Navy has not investigated these landfills, with the addition of Mountain View and Sunnyvale, that it does so before the remedy is implemented.

RESTORATION ADVISORY BOARD (RAB)
MOFFETT FEDERAL AIRFIELD

Public Meeting, June 15, 1995, in the matter of the

MAY 15, 1995, FEASIBILITY STUDY
Operable Unit 1 (Landfill Sites 1 and 2)
Moffett Federal Airfield

PRELIMINARY RAB TECHNICAL COMMITTEE COMMENTS ON THE FS

Presented by James G. McClure, Committee Chair

The RAB Technical Committee has been reviewing the Operable Unit 1 (OU1) Feasibility Study (FS) for several weeks. Committee participants active in the review include an urban and environmental policy planner, two professional geologists, two civil engineers, and several active community members with other backgrounds. In addition, the committee was pleased to host the Santa Clara Valley Water District's senior technical expert on groundwater protection and the City of Sunnyvale's Environmental Engineering Coordinator at our most recent meeting. Their input and advice was very valuable to the Committee.

The Committee has not finished its review of the FS and the voluminous related technical documentation. We appreciate the extension of the public comment period, which we now understand runs through Monday, July 31, 1995, and we look forward to using the available time to study the FS further, and to obtain further input not only from RAB members but from the Navy, the Navy's consultants, the involved regulatory agencies, and other interested parties. To this end, I want to announce that the next meeting of the Committee has been scheduled for Wednesday, July 5, 1995, at 7:00 pm, at the Mountain View Senior Center at 266 Escuela Street. (This represents a change from the previously scheduled date of July 7, 1995, due to a meeting room availability conflict).

The Committee has identified several FS issues that it wants to identify at this time. We expect to research these issues in more detail, and to present detailed written comments and questions to the Navy and the regulatory agencies before July 31, 1995.

At this time, the Technical Committee's issues can be divided into three general categories: (1) Issues related to the adequacy of the site investigations and Navy assumptions about current conditions, (2) Issues related to the adequacy of the Navy's assumptions about future conditions, and (3) Issues related to regulatory compliance

and financial security. All of the following comments focus on Site 1, the so-called Runway Landfill. The Committee may develop comments or questions about Site 2 in the future.

ASSUMPTIONS ABOUT CURRENT CONDITIONS

First, it does not appear that the available data adequately support some of the key assumptions that underlie the cleanup alternatives presented in the FS. In particular, the Committee is concerned that the Navy's assumptions are poorly supported in the following four key areas:

- Landfill Boundary. The Committee is concerned that the lateral extent of the landfill boundaries has not been directly investigated by trenching. Trenching is commonly used to sharpen the definition of landfill boundaries and often reveals that boundaries estimated by air photo review, geophysical surveys, drilling, and ground surface observations are incorrect. Inaccurate estimates of the landfill boundaries will have a significant effect on cleanup costs and could lead to incomplete capping when actual cleanup begins.

- Landfill Depth and Underlying Soil Type. The Committee is concerned that the depth of much of the landfill and the underlying soil types have only been approximately determined. The Committee recognizes the difficulties associated with exploring to the bottom of refuse in an abandoned landfill expected to contain tens to hundreds of thousands of gallons of hazardous waste. However, if the depth of the refuse and the underlying soil types cannot be more accurately determined, then the Committee questions the reliance that the Navy places on the critical assumption that the landfill is completely underlain by a low permeability clay. Unfortunately, the Committee's confidence in this assumption has been further eroded by the discovery that the FS understates the measured permeability of some underlying soil samples by factors up to approximately 10.

- Leachate Paths. The text of the FS is equivocal and confusing on the subject of leachate generation and migration within the landfill. However, the data presented in the FS appear to show that leachate must be more or less continuously generated in the landfill and discharge into underlying groundwater. It appears that the largest area of leachate discharge may be under the northern part of the landfill. The actual quality of this leachate appears to be largely unknown, because there are only five leachate monitoring wells for the entire 12 acre landfill. One of these wells is located more than 400 feet from its nearest neighbor.

- Groundwater Paths. The FS cleanup alternatives rely on the assumption that there is no significant impact of Site 1 on underlying groundwater. Unfortunately, key data to support this assumption do not exist. Specifically, the FS indicates that groundwater flow in the first aquifer under the landfill probably passes under a narrow portion of the landfill's southern edge. No monitoring wells have ever been installed in this area. The nearest existing wells are approximately 500 feet apart, with the apparent groundwater flowpath passing between. Therefore, there are no data from the critical location to determine whether leachate is entering the groundwater and is leaving the landfill area.

ASSUMPTIONS ABOUT FUTURE CONDITIONS

The second main area of Committee concern involves assumptions about future conditions. Navy consultants have stated that the proposed cleanup alternatives depend on the continued operation of the Moffett Field underground drainage system. However, it is not clear how the continued operation of this system will be assured, especially if the base reverts to local ownership. The Committee is concerned with a potential future scenario in which the drainage system may stop operating, and the potential that the landfills might be flooded. It seems that provision for the operation of the drains in perpetuity should be an explicit part of the alternatives presented in the FS.

REGULATORY COMPLIANCE AND FINANCIAL SECURITY ISSUES

The Committee is concerned with the following regulatory compliance and financial security issues. First, the proposed Alternative 2 landfill cap (the "loamy soil" cap) does not meet established state standards for a landfill closure cap, but is not adequately labeled as nonstandard and therefore requiring special regulatory review. Finally, the Committee is concerned that the Navy has made a number of statements recently that suggest that it will not or cannot provide for assured continued funding to support the future operation, monitoring, and maintenance of the landfill cleanups. This is especially troubling in light of the importance of the continued operation of the Moffett Field drain system and the growing probability that the base will move into local ownership.