```
0001
 01
                         PUBLIC HEARING
 02
             STATE WATER RESOURCES CONTROL BOARD
 03
                    DIVISION OF WATER RIGHTS
 04
                       STATE OF CALIFORNIA
 05
                           ---000---
 06
 07
 08 SUBJECT: AMENDMENT OF CITY OF LOS ANGELES' WATER RIGHT
 09 LICENSES FOR DIVERSION OF WATER FROM STREAMS THAT ARE
 10
                     TRIBUTARY TO MONO LAKE
 11
 12
                            ---000---
 13
 14
                             Held in
 15
                    Water Resources Building
 16
                          901 P Street
 17
                    Sacramento, California
 18
                  Wednesday, February 9, 1994
 19
 20
                          VOLUME XXXIX
 21
 22
                            ---000---
 23
 24
 24 Reported by:
                             Kimberley R. Mueller, RPR,
 25
                             CSR No. 10060
 25
0002
 01
 02
                         BOARD MEMBERS
 03
 04 MARC DEL PIERO
 05 JOHN CAFFREY
 06 JAMES STUBCHAER
 07 JOHN W. BROWN
 08 MARY JANE FORSTER
 09
 10
                          STAFF MEMBERS
 11
 12
 13 DAN FRINK, Counsel
 14 JAMES CANADAY, Environmental Specialist
 15 STEVE HERRERA, Environmental Specialist
 16 RICHARD SATKOWSKI, Engineer
 17 HUGH SMITH, Engineer
18
18
19
 19
 20
 20
 21
 21
 22
 22
 23
 23
 24
```

```
25
25
0003
01
01
                      COUNSEL AND OTHERS
02
02 For the U.S. Fish and Wildlife Service:
03
03 ERIKA NIEBAUER
04 Assistant Regular Solicitor
04 Office of Solicitor
05
    Pacific Southwest Region
05 2800 Cottage Way
06 Sacramento, California 95825
06
07 For the Sierra Club:
07
08 LARRY SILVER:
08
09 For California Department of Fish and Game:
09
10 HAL THOMAS
10 VIRGINIA CAHILL
11 McDonough, Holland & Allen
   555 Capitol Mall, Suite 950
12 Sacramento, California 95814
12
13 For the U.S. Forest Service:
13
14 JACK GIPSMAN
14
   Office of General Counsel
15
    U.S. Department of Agriculture
15
16 For the National Audubon Society and Mono Lake
16 Committee:
17
17 BRUCE DODGE
18 PATRICK FLINN
18 Attorneys at Law
19 755 Page Mill Road
19 Palo Alto, California 94304
20
20
21 For California Trout:
22 RICHARD ROOS-COLLINS
22 CYNTHIA KOEHLER
23 Attorneys at Law
23 114 Sansome Street, Suite 1200
24 San Francisco, California 94104
24
25
25
0004
01
01 For the City of L.A. and L.A. DWP:
02
02 THOMAS W. BIRMINGHAM
03 JANET GOLDSMITH
03 Attorneys at Law
```

```
04 Kronick, Moskovitz, Tiedemann & Girard
04 400 Capitol Mall, 27th Floor
05 Sacramento, California 95814
06 For State Lands Commission, Department of Parks and
06 Recreation:
07
07 JOHN STEVENS
08 MARY SCOONOVER
08 Assistant Attorney General
    1515 K Street
09 Sacramento, California 95814
10
10 For Meter Water District of Southern California and
11 L.A. MWD:
11
12 VICTOR GLEASON
12 Attorney at Law
13 1111 Sunset Boulevard
13 Los Angeles, California 90050-0153
14
14 FRANK HASELTON
15 Haselton Associates
15
16 JOHN ARCULARIUS
16
17 For the California Air Resources Board:
17
18 OFFICER OF LEGAL AFFAIRS
18 2020 L Street
19 Sacramento, California 95814
19 BY: KIRK C. OLIVER, Senior Staff Counsel
20 For the Great Basin Unified Air Pollution Control
21 District:
21
22 PAUL BRUCE, District Counsel
22
23
23
24
24
25
25
0005
01
01
02
                         INDEX
02
03 PANEL
                                                    PAGE
03
04 DR. VORSTER, MR. GARY SMITH
04
05
      Direct Examination by Ms. Cahill
05
      Cross-examination by Mr. Birmingham
                                                     29
06
      Cross-examination by Mr. Dodge
                                                     53
06
      Cross-examination by Mr. Roos-Collins
                                                     57
07
      Cross Examination by The Staff
                                                     73
07
      Redirect Examination by Ms. Cahill
                                                    94
08
      Recross Examination by Mr. Birmingham
                                                    99
```

```
Recross Examination by Mr. Dodge
      Recross Examination by Mr. Roos-Collins
 09
                                                   118
 09
      Recross Examination by The Staff
                                                    123
10
10
11
11
12
 12
13
                        EXHIBITS
 13
 14
                                                TD
                                                     EV
 14
 15 NAS Exhibit No. 1-A-G
                                                       7
15 DFG Exhibit No. 170-A
                                                     125
16 DFG Exhibit No. 198
                                                     125
16 DFG Exhibit No. 199
                                                     125
17 DFG 170-A, 1/26/94 Letter included
                                                     126
17
18
19
 20
 21
 22
 23
 24
25
0006
                    SACRAMENTO, CALIFORNIA
01
02
                  FEBRUARY 9, 1994, 8:45 A.M.
 03
                            ---000---
         HEARING OFFICER DEL PIERO: Ladies and gentlemen,
 05 this hearing will again come to order. Good morning,
 06 my name is Marc Del Piero. I'm the Chairman of the
    State Water Resources Control Board. This hearing is
 08 conducted by the Board regarding the amendment of the
 09 City of Los Angeles' water rights licenses on streams
10 tributary to Mono Lake.
11
         Good morning, Mr. Dodge, welcome back, sir.
12
         MR. DODGE: Thank you.
13
         HEARING OFFICER DEL PIERO: I understand that both
14 Mr. Smith and Mr. Vorster are on this morning's panel;
15 is that true?
         MR. DODGE: That's not my panel, Mr. Del Piero,
17 but I believe so.
18
         HEARING OFFICER DEL PIERO: Okay.
19
         MR. DODGE: I was driving back home after the
 20 session that ended at 7:00 o'clock with Mr. Vorster,
 21 and I realized I had forgotten to offer into evidence
 22 his rebuttal testimony, which is National Audubon
 23 Society Exhibit 1-A-G.
 24
         And I would offer that now.
 25
         HEARING OFFICER DEL PIERO: Any objection?
0007
01
         MR. BIRMINGHAM: (Counsel shakes head.)
 02
         HEARING OFFICER DEL PIERO: Hearing none, so
 03 ordered into the record. Thank you very much.
04
                              (NAS Exhibit Number 1-A-G
 05
                             was admitted into evidence.)
 06
         HEARING OFFICER DEL PIERO: Ms. Cahill?
```

07 MS. CAHILL: Good morning. HEARING OFFICER DEL PIERO: Are you the 80 09 responsible party for these two people? MS. CAHILL: I am the responsible party. At this 10 11 time, the California Department of Fish and Game would 12 call Gary Smith, of the Department, and Peter Vorster 13 as surrebuttal witnesses. Let me get organized. 14 I'd like to start with Mr. Smith this morning. He 15 will be testifying, basically, on two subjects. 16 The first is the recommendations of the Department 17 as shown on DFG Exhibit 170-A, and as the Department's recommendations relate to the necessity for releasing 18 19 water from storage in Grant Lake to meet the fish flows 20 on Rush Creek. 21 And the second discrete topic on which he will be 22 testifying is in surrebuttal to Dr. Hardy's evaluation 23 of the Department of Fish and Game's Lee Vining Creek 24 final IFIM report. 25 HEARING OFFICER DEL PIERO: Okay. 8000 01 MS. CAHILL: Good morning, Mr. Smith. 02 MR. SMITH: Good morning. 03 DIRECT EXAMINATION BY MS. CAHILL BY MS. CAHILL: And you have been previously sworn in this action have you not? BY MR. GEORGE SMITH: Yes, I have. Are you familiar with DFG Exhibit 170-A? 07 Q. 08 A. Yes, I am. 09 And does it contain details and clarifications of 10 the Department of Fish and Game's recommendations in 11 this proceeding? Α. Yes, it does. 13 Ο. And you are available to answer questions about 14 that exhibit? 15 Α. Yes, I am. 16 Q. Has the Department modified the position which you 17 had stated previously in your oral testimony with 18 regard to the circumstances under which it will require 19 releases from storage when inflow is insufficient to 20 meet the numerical flows recommended in the addendum to 21 the Rush Creek report? 22 A. Yes, it has. 23 Q. Could you tell us what the recommendation is? Essentially, the recommendation today is to 24 A. 25 release the numerical flows listed in the Rush Creek 0009 01 addendum for wet and normal water runoff years, until 02 such time the inflow to Grant Lake drops below the 03 recommended numerical values. And at that time the inflow would equal the 05 recommendation. Our recommendation is that inflow 06 equal outflow. 07 Until the dry runoff year recommendations are 08 reached, the inflow reaches the dry year runoff recommendations, at which time we would recommend that 10 storage be released to maintain the dry year runoff 11 flows, regardless of water year type -- or excuse me, 12 runoff year type. 13 Q. In other words, on Lee Vining, for example, the 14 recommendation is the numerical recommendation or

- 15 inflow, whichever is less --
- 16 A. That's correct.
- 17 Q. -- on Lee Vining. So on Rush, the recommendation
- 18 now is the recommended number or inflow whichever is
- 19 less, but never to drop below the dry year criteria; is 20 that correct?
- 21 A. That's correct.
- MS. CAHILL: Mr. Vorster, good morning to you.

  DR. VORSTER: Good morning.
- $24\,$  Q. BY MS. CAHILL: Have you analyzed the impact of  $25\,$  the recommendation which Mr. Smith has just discussed?  $0010\,$
- 01 A. BY DR. VORSTER: Yes, I have.
- 02 Q. And could you explain what analysis you've done.
- 03 A. Yes, I used the LAAMP model to look at how often
- 04 the inflow to Grant was less than the Fish and Game dry 05 year recommendation.

In fact, you don't need to use LAAMP, per se, you just need to make a comparison of the runoff record for the Rush Creek gauging station, which we refer to as the Rush Creek dam site located actually somewhat upstream of Grant Lake a half mile or so.

And one can compare that runoff record with the dry year Fish and Game recommendations. And this is not including any downstream gains or additions or subtractions from the flow below the gauge.

But making that comparison, you can see how often the inflow to Grant is less than the Fish and Game dry year recommendation.

- 18 Q. And have you prepared a table that does that?
- 19 A. Yes, I have.
- 20 Q. And is that DFG 198?
- 21 A. I didn't have a formal exhibit -- oh, yes, it is, 22 yes. Yes, it's DFG Exhibit 198.
- MS. CAHILL: We'll wait just a moment while that's passed out.
- $25\,$  Q. BY MS. CAHILL: And can you explain what the  $0011\,$
- 01 percentages are on this table?
- 02 A. BY DR. VORSTER: Yes, it's simply the percent of 03 time, the number of months, which we give as a
- 04 percentage of time in which the Rush Creek runoff at 05 the dam site gauging station, what's called the dam
- 06 site gauging station, what's called the dam 06 site gauging station, is less than the DFG dry year 07 recommendation.

And it doesn't matter how small or how much the deficit is. In other words, even if it was a tenth of a cfs, it still would show up as a deficit. So quite a few of the deficits are fairly small.

And so looking at April, as an example, 20 percent of the 50 months, the 50 Aprils, that were analyzed had a deficit, and most of them were one to five cfs range.

- 15 Q. In the case of some of the larger deficits, were there some unusual event in the historical hydrology
- 17 that would account for those?
- 18 A. Yes, for example, in 1954, in August and
- 19 September, it appears that the predecessor to Edison
- 20 was not releasing very much, if any, flow out of the 21 power plant for Rush Creek power house.
- 22 So the only inflow to Grant was what was being

- 23 Reverse Creek (phonetic) and Alder Creek. And so the
- 24 flow into Grant was on the order of seven to eight cfs,
- 25 and the dry year requirement was on the order of 35 to 0012
- 01 40. And so that it shows up as a fairly large deficit.
- 02 That's an unusual situation, I think, that's reflected
- 03 in the historical record that may not occur in the 04 future.
- 05 Q. And if it didn't, in fact, the number of deficits 06 might be less than shown on the table?
- 07 A. Yes. And as I said, I didn't include any
- 08 downstream gains or any downstream losses that might
- 09 have occurred either due to gains from inflow stream
- 10 flow or due to the losses from evaporation.
- 11 Q. I believe you've testified previously that you ran
- 12 LAAMP both with no release from storage to meet fish
- 13 flow and with release from storage to meet the
- 14 originally recommended flows.
- And what was the difference between those runs?
- 16 A. The difference between those runs, and those runs
- 17 are, one, you take the Fish and Game recommendations
- 18 for the three year types, and assume you can use Grant
- 19 storage to meet the deficits. And you do the same run
- 20 where you assume you don't use Grant storage to meet
- 21 the deficits.
- 22 And those results were actually reported on
- 23 Table 2A in Audubon MLC Exhibit 1-A-G. And the
- 24 difference was on average about 2,000 acre-feet. 25 Now, you can do the same type of analysis using
- 0013
- 01 just the dry year flows. And see what the difference 02 would be using Grant storage and not using Grant
- 03 storage. And the difference is on the average of five
- 04 to 600 acre-feet.
- O5 And what actually happens there are months in
- 06 which Grant is at a minimum storage level. And the way 07 LAAMP works, it does not release from storage if Grant
- 07 LAAMP works, it does not release from storage if Grant 08 is at a minimum. So there still would be, in the LAAMP
- 09 run, some deficits that would occur even if you're --
- 10 in other months, you're allowing ground storage to be
- 11 used to meet the deficits.
- ii used to meet the deficits.
- 12 Q. In that sense, by deficits, you mean a month in
- 13 which the fish flow recommendation would not be met?
- 14 A. That's right. And you bring up a very important
- 15 point. These are all based on mean monthly flows. So
- 16 it's the mean for the entire month.
- 17 Q. Are you familiar with any projects in which,
- 18 during some months, releases are set equal to inflow?
- 19 A. I'm familiar with one right there in the Mono
- 20 Basin, which is the Mill Creek project that Edison has,
- 21 where they are required to pass through the inflow that
- 22 comes into Lundy Lake, the outflow has to equal the 23 inflow.
- 24 They aren't allowed to store any water until the 25 inflow reaches -- is higher than I think
- 0014
- 01 approximately 70 cfs, quite a large amount. And that's
- 02 because of all the downstream water right holders. So
- 03 that's an example.
- 04 Q. Thank you. We're going to proceed now to the

- 05 surrebuttal of Dr. Hardy's evaluation of the
- 06 Department's Lee Vining study. And we'll go back to
- 07 Mr. Smith on that.
- Mr. Smith, Dr. Hardy proposes that this Board use the draft Lee Vining Creek report rather than the final report.
- 11 Does the draft Lee Vining Creek report leave out
- 12 the results from Reach Three on Lee Vining when
- 13 calculating stream-wide WUA?
- 14 A. BY MR. GARY SMITH: Yes, it does.
- 15 Q. Could you show us where Reach Three is? Is there
- 16 an exhibit number on that?
- 17 A. I don't see one.
- 18 Q. If you would describe, verbally, where it is.
- 19 A. Reach three is located roughly from the
- 20 intersection of Lee Vining Creek and Highway 120,
- 21 downstream to the intersection of Lee Vining Creek, and
- 22 Highway 360 -- excuse me, 395.
- 23 Q. And what percent of the total stream length of
- 24 Lee Vining Creek does Reach Three constitute?
- 25 A. Roughly, 20 percent.
- 0015
- 01 Q. And what habitats are found in that reach?
- 02 A. There were runs, riffles, pools, and cascades in
- 03 Reach Three. But it is primarily a cascade, plunge
- 04 pool, habitat type.
- 05 Q. And did Dr. Lee subsequently, after doing the
- 06 draft report, reconsider the decision to leave out
- 07 Reach Three?
- 08 A. Yes, he did.
- 09 Q. And does he now believe it is better to include
- 10 three?
- 11 A. Yes, he --
- 12 MR. BIRMINGHAM: Objection. Calls for
- 13 speculation.
- 14 Q. BY MS. CAHILL: Have you talked to Dr. Lee?
- 15 A. BY MR. GARY SMITH: Yes, I have.
- 16 Q. And does he believe now it is better to include
- 17 Reach Three?
- 18 A. Yes, he does.
- 19 Q. And, in fact, did he include Reach Three in the
- 20 final report?
- 21 A. Yes, he did.
- 22 Q. What was the reason that Reach Three was
- 23 originally omitted?
- 24 A. It was omitted because Dr. Lee felt that the
- $25\,$  entrained air affected the hydraulic model calibration  $0016\,$
- 01 and the use of the stream by trout.
- 02 Q. Did he do a calculation to determine whether WUA
- 03 was effected by entrained air?
- 04 A. Yes, he did.
- 05 Q. And was that analysis flawed?
- 06 A. Yes, it was.
- 07 Q. And why?
- 08 A. Dr. Lee set the cover code to zero in the IFIM
- 09 algorithm whenever entrained air was present in a cell.
- 10 And by doing that, he eliminated any habitat that that
- 11 particular cell may have to the stream. And --
- 12 Q. Mr. Smith, he ran it first with the ordinary --

- 13 A. Yes, he did.
- 14 Q. The ordinary program?
- 15 A. He ran the ordinary program, the PHABSIM analysis.
- 16 Q. And then he ran it again setting --
- 17 A. He ran it again setting the cells with entrained
- 18 air, setting the cover code criteria to zero.
- 19 Q. And then what did he do?
- 20 A. And then he compared the two results, and that
- 21 technique is flawed in two -- for two reasons.
- One, one has to look at how fish are using the
- 23 habitat, and if they do use the habitat.
- And two, he's assuming, when he sets the cover
- 25 code to zero, that indeed there is no habitat.
- 0017
- 01 Q. And, in fact, setting the cover code to zero in
- 02 the second run, didn't he necessarily end up with a
- 03 result showing less habitat?
- 04 A. His results were guaranteed to show that there was
- 05 less habitat if he deleted the entrained cells.
- 06 Q. And he now realizes that?
- 07 A. Yes.
- 08 Q. And, in fact, by the time the final report was
- 09 done, it had been decided that it was better to include
- 10 the reach?
- 11 A. Yes, he re-evaluated the entire Reach Three
- 12 hydraulic model and habitat use characteristics, and
- 13 decided to include it in the final report.
- 14 Q. Do fish actually use areas of the stream that have
- 15 entrained air?
- 16 A. Yes, they do.
- 17 Q. Have you prepared a videotape showing fish in
- 18 streams segments with entrained air?
- 19 A. Yes, I have.
- 20 Q. Does this pass the interesting question test?
- 21 MR. BIRMINGHAM: Objection. Calls for a legal 22 conclusion.
- MS. CAHILL: I withdraw the question.
  - HEARING OFFICER DEL PIERO: Okay.
- $25\,$  Q. BY MS. CAHILL: Did you take this video yourself, 0018
- 01 Mr. Smith?

- 02 A. BY MR. GARY SMITH: Yes, I did.
- 03 Q. Was it taken on Lee Vining Creek?
- 04 A. No, it was not.
- 05 O. Where was it taken?
- 06 A. This video was a compilation of videos taken on
- 07 three separate streams: Bailey Creek in Shasta County,
- 08 Battle Creek in Tehama County, and the head waters of
- 09 the Owens River in Mono County.
- 10 Q. When did you take these films?
- 11 A. I took the films in 1988 and 1989.
- 12 Q. And does the film demonstrate that fish use water
- 13 in reaches with entrained air?
- 14 A. Yes, it does.
- MS. CAHILL: Could we show the video, please? I
- 16 think everyone is going to want to gather around it,
- 17 and get rather close, because we're going to be looking 18 for fish through bubbles.
- 19 HEARING OFFICER DEL PIERO: Does everyone have
- 20 their soft arm ring on?

```
MR. GARY SMITH: I don't think this demonstrates
 22 soft arm ring.
         MS. CAHILL: Mr. Del Piero, you really are going
 23
 24 to need to be closer to the screen.
25
         HEARING OFFICER DEL PIERO: Oh, really?
0019
01
         MS. CAHILL: Yes.
 02
         MR. GARY SMITH: It's roughly a four-minute video.
 03
    And what I'm going to do at certain points in the
    video, is put it into slow motion, so we can see the
    fish as they move about, because some of them are
 06 pretty difficult to see. If I can figure this out
 07
    here.
 0.8
         The first stream you'll see is a plunge pool.
 09
    It's Battle Creek in Inyo County. It's simply to
 10 demonstrate the occurrence of entrained air. And this
11 is what it looks like underwater.
12
         We'll show the same plunge pool from the side.
13
         HEARING OFFICER DEL PIERO: And you filmed these?
14
         MR. GARY SMITH: Yes, I did.
15
         And as you move forward, you will notice down here
    in the lower left, just beginning to appear, young
    fish. These happen to be rainbow trout fry, nearly a
    year. They're a little larger than a fry.
         This is typical of how fish use areas with
    entrained air. They're associated with it. They're
 20
    down underneath. They're off to the sides.
 21
         Bailey Creek, showing another young salmonid.
    addition a -- I'm not sure if this is a rainbow or
    brown. This is a little fuzzy. And I couldn't tell
 25
    from the video whether this is a rainbow or brown
0020
 01 trout.
 02
         This stream is much shallower than Bailey Creek
    or -- excuse me, Battle Creek. You will notice the air
    bubbles moving past over the young fish. The water
 05 velocity here is pretty rapid.
 06
         Now, I'm going to slow it for a second.
 07 Dr. Lee's analysis, this habitat as well as the other
 08 habitat would have, in his comparison, would have been
    calculated as zero fish habitat when he changed his
 10 cover code entry and then made the comparison. As you
 11 can see, there is a fair amount of white water going
 12 over these fish.
         Now, we're moving into the upper -- the head
13
14 waters of the Upper Owens. And if you look through the
    bubbles, the air bubbles on the far side, center
16 bottom. Look right in here, you'll see several fish
17
    moving about. There's one right there.
         But again, plenty of entrained air. The fish are
18
 19
    associated with it, and they're moving about. They're
    feeding. They're making a living at it. And again, in
 20
    Dr. Lee's analysis this would have constituted the zero
    habitat.
 23
         MS. CAHILL: In the original analysis?
 24
         MR. GARY SMITH:
                         In the original analysis.
 25
         MS. CAHILL: In the draft report.
0021
01
         MR. GARY SMITH: See the face, right here? And
```

02 there's one right there. There he is. And going over

03 towards him a little closer.

80

09

10

11

13

14

15

16

17 18

20

0.3 04

0.5

06

07

80

10

11

12

15

16

17

18

19

22

2.3

24

02

03

07

0.8

Okay. Now I stuck this in to show how fish exist 05 in areas with high velocity. It's not really 06 associated with entrained air at this point. If you notice the sediments are being picked up and moved and mobilized here through the current velocity.

And if you watch right in front, this rock here, and behind these rocks here, you'll see a fish moving back and forth. Go a little faster here. There. I'm sorry. This -- let me start this up. And it -- wrong button.

Okay. We're back to almost where we were.

MS. CAHILL: You've lost your sound, too.

MR. GARY SMITH: I have? Oh.

HEARING OFFICER DEL PIERO: Do fish talk?

MS. CAHILL: No, actually, the bubbles make a 19 wonderful sound.

MR. GARY SMITH: Now, you can see the fish moving 21 back and forth in front of this rock. This area he is 22 in is very slow velocity compared to the area I'm in, 23 and right behind the fish, there. This is an example 24 of fish using entrained air.

25 If you look right in here, when I go back on to 0022

01 play, you will see there are actually three fish moving about: The stream margin here on the left, and the stream center, and white water on the right.

Typically, there are areas of slow velocity along the margins that provide excellent habitat for fish. And the center portion of fish is a food producing, production area -- not production, food transport zone.

And the fish, typically, move about like these two are doing here, right into the bubbles into the mainstream, capture a food item, and then back into the area of where they're in a resting or holding station.

What I'm doing here is going downstream, looking 13 downstream, and trying to move downstream through the 14 bubble curtain to the far side. There are several trout that are on the far side of the picture here. They are very difficult to see. One should be right in there, and one should be right up there.

And these fish are using this as overhead cover. See, if the bubbles weren't there, the fish would react to my presence.

There's one right here. If you'll look, you'll see the white part of his lower lip. See him right there?

Now we're downstream moving through the curtain, 25 and watch how the fish react. They realize that they

0023 01 have this big massive hulk there. Ready? Boom, gone.

Another example of a fish making a living in an area with high water velocity. As you watch these fish move about, notice we have very small fish here. He's about three or four inches. This fish is about nine or ten inches. And there's another one that moved through here about four inches.

Entrained air bubbles move overhead and sometimes 09 between me and the fish. And water velocity, again, is 10 pretty rapid here at this moment here. Here's the

11 small one here. Pretty rapid.

16

17 18

19

21 22

23

2.4

0024

02

03

07

10

11

12 13

14

15

17

18

19

20

21 22

23

0025

03

07

80

13

The fish are associated with the bottom, the 13 contours of the bottom, which provide areas of low velocity. But they're right there where the food items are being supplied.

And if you watch here in a moment, I have the larger fish isolated. He moves up very easily and slowly. Watch his fins. He's being moved about by the water that he's sitting in, but expending very little energy. Look at his fins, he's hardly swimming at all. The water is going by and above him and bringing food to him.

From a bionogenic prospective, this fish is making a pretty efficient living. See how the fins are 25 nice and easy, not startled, not having a hard time

01 maintaining this position.

Here's another example. The air bubbles at the top of the picture, this is a different type of 04 habitat. This fish is using what we call overhead 05 habitat, as well as object habitat. We'll go forward 06 here a little faster.

This is a short sequence, so I want to do it in 08 slow motion.

If you watch right in here, you'll see a fish coming into view right there. When I first start playing it, watch how easy he's swimming. And I move to him a little bit and startled him a little bit. And he pulled away from his cover and starting swimming harder.

Also watch. Up in here, you'll see air bubbles moving along the rock that he's hiding under. Watch his caudal fin as he starts to work harder. He's getting ready to escape. Shortly after I shut this off, he was gone.

Another example of fish using the entrained air. You'll notice the bubbles moving very rapidly between me and the fish and beyond the fish.

Another example, as you watch on the left, you 24 will see three fish materialize as I move up slowly. 25 They're hiding behind a rock under the white water,

01 brown trout, rainbow trout, and I think the other one 02 may be a brown trout. See the three right there?

Now, I'm going to raise up out of the water. is not a plunge pool habitat. This is what we call a riffle or rapid. But to give you some sense of a water velocity, the appearance of the white water or entrained air. I will swing to the left. The water is moving quite rapidly.

09 HEARING OFFICER DEL PIERO: This is how you make 10 your living?

11 MR. GARY SMITH: That's how I made my living. 12 Today, I'm making my living here.

HEARING OFFICER DEL PIERO: Oh.

14 MR. GARY SMITH: In 1988 and 1989, it was 15 wonderful.

16 MS. CAHILL: Thank you, Mr. Smith.

17 BY MS. CAHILL: Mr. Smith, have you snorkeled in 18 over 20 streams in Mono and Inyo counties?

- 19 A. BY MR. GARY SMITH: Yes, I have.
- 20 Q. And have you snorkeled in additional streams in
- 21 the Eastern Sierra?
- 22 A. Yes, I have, if one considered the Tahoe Basin to
- 23 be the Eastern Sierra. It drains to the east and it's
- 24 beyond the crest, so I presume it's the Eastern Sierra.
- $25\,$  Q. And that would be an additional how many streams?  $0026\,$
- 01 A. Ten or eleven streams, I think.
- 02 Q. Is it your experience that fish sometimes use
- 03 entrained air as cover?
- 04 A. Yes, they do.
- 05 Q. And is it your experience that fish are frequently
- 06 found in streams segments that have entrained air?
- 07 A. That's true.
- 08 Q. In your professional opinion, is it more accurate
- 09 to include or to leave out Reach Three in doing a
- 10 stream-wide weighted usable area calculation on
- 11 Lee Vining Creek?
- 12 A. In my opinion, it is more accurate to include
- 13 Reach Three in the analysis.
- 14 O. Did Dr. Lee also conclude that stream-wide WUA
- 15 would be more accurate if it were included?
- 16 A. Yes, he did.
- 17 Q. You said that Reach Three constituted about 20
- 18 percent of stream length?
- 19 A. That's correct.
- 20 Q. Does it provide habitat?
- 21 A. Reach Three does, yes.
- 22 Q. In your professional opinion, are the stream-wide
- 23 weighted usable area curves in the draft or final
- 24 Lee Vining Creek report more accurate?
- $25\,$  A. I believe the curves in the final report are more  $0027\,$
- 01 accurate of, excuse me, of Lee Vining Creek.
- 02 Q. Do you believe that Dr. Hardy's suggestion that
- 03 Reach Three data be excluded in calculating stream-wide
- 04 weighted usable area is justified?
- 05 A. No, I do not.
- 06 Q. Cascade habitat often involves high velocities;
- 07 doesn't it?
- 08 A. Yes, it does.
- 09 Q. If velocities got so high they were no longer
- 10 suitable for trout, would the PHABSIM model show those
- 11 cells as unsuitable?
- 12 A. It would eliminate those cells for the compilation
- 13 of weighted usable area. So the answer to your
- 14 question is yes.
- 15 Q. So would the model itself take into account any
- 16 velocities that were too high in the cascades areas?
- 17 A. That's correct.
- 18 Q. Is there low velocity water along the margins of
- 19 Reach Three?
- 20 A. Yes.
- 21 Q. Is there low velocities near the bottom?
- 22 A. Yes.
- 23 Q. Did the City of Los Angeles and Los Angeles
- 24 Department of Water and Power have the opportunity to
- 25 comment on the draft Lee Vining report?

```
01 A. Yes, they did.
```

- 02 Q. Did they submit comments?
- 03 A. Not to my knowledge.
- 04 Q. Aquatic systems used the Smith and Acetuno curves
- 05 on the Lee Vining Creek?
- 06 A. That is correct.
- 07 Q. At the time they did their research, was there
- 08 enough fish in Lee Vining to collect the data necessary
- 09 to validate the curves?
- 10 A. No.
- 11 Q. And in the absence of sufficient fish, what was
- 12 the best approach?
- 13 A. The best approach was to use criteria that were
- 14 developed within the region, and have been reviewed by
- 15 professional researchers and agreed upon for use.
- 16 Q. Thank you very much.
- 17 MS. CAHILL: I believe that concludes our direct 18 presentation.
- 19 HEARING OFFICER DEL PIERO: Thank you very much.
- 20 Mr. Birmingham?
- 21 MR. BIRMINGHAM: May we ask for a five minute
- 22 recess?
- 23 HEARING OFFICER DEL PIERO: Sure. Let's take a 24 five minute recess.
- 25 (A recess was taken at this time.)

- 01 HEARING OFFICER DEL PIERO: Ladies and gentlemen, 02 this hearing will again come to order. Mr. Birmingham? 03 CROSS EXAMINATION BY MR. BIRMINGHAM
- 04 Q. BY MR. BIRMINGHAM: Mr. Vorster, I have just a 05 few questions for you about the Department of Fish and
- 09 A. BY DR. VORSTER: Yes, what we call mean monthly 10 flows.
- 11 Q. Now, if we were to look at mean daily flows, do
- 12 the same kind of analysis that you did in preparation
- 13 for the Department of Fish and Game Exhibit 158, but
- 14 instead of looking at mean monthly flows, we would look
- 15 at mean daily flows, the percentages that are listed in
- the column on the right, they would go up, wouldn't
- 17 they?
- 18 MS. CAHILL: Objection. Ambiguous.
  - HEARING OFFICER DEL PIERO: How so?
- 20 MS. CAHILL: It's not clear whether he means
- 21 whether the numbers would go up if even one day in a
- 22 month went up, or whether he's talking about the
- 23 percentages of days over the total number of days
- 24 versus --
- MR. BIRMINGHAM: I think the question is clear.

0030

- 01 I'll stand by the question.
- 02 HEARING OFFICER DEL PIERO: I'm going to --
- 03 MR. BIRMINGHAM: May we ask the question be
- 04 reread?
- 05 HEARING OFFICER DEL PIERO: Yeah.
- 06 (Whereupon the record was read as requested.)
- 07 HEARING OFFICER DEL PIERO: Overruled.
- 08 MR. BIRMINGHAM: I misspoke if I said Exhibit 158.

09 It's DFG 198. MR. ROOS-COLLINS: Let me ask for clarification, 11 rather than object. This exhibit is entitled "Months 12 in which inflow is less than DFG dry year flow recommendation." 14 Mr. Birmingham's question appears to concern days 15 in which the inflow is less than dry year flow 16 recommendations. 17 I would just like him to clarify that that is his 18 intention before Mr. Vorster answers the questions. 19 HEARING OFFICER DEL PIERO: Do you have a problem 20 with that, Mr. Birmingham? 21 MR. BIRMINGHAM: No. 2.2 HEARING OFFICER DEL PIERO: Mr. Vorster, do you 23 understand the question? DR. VORSTER: Yes. I think that clarification is 25 extremely helpful, because you want to know the number 0031 01 of months in which there were -- the inflow on a mean 02 monthly basis is less in a dry year recommendation. 03 That's what's reported here. 04 If you want to know the number of months in which 05 there was one day or more, there was just one day in which the inflow was less than the DFG dry year recommendation, certainly these numbers would go up. 07 80 If you looked at the number of -- did the same 09 analysis looking at the number of days in the whole period of record in which the inflow was less, then the 10 11 numbers wouldn't change that much. In fact, I'm looking at the records right now, and 12 13 if you look at any particular month in which there is a deficit, you'll see that the mean monthly flow occurs -- these deficits occur when the flows are 16 generally relatively constant, within a couple cfs of 17 the mean. So -- I'll just leave it at that. 18 19 Q. BY MR. BIRMINGHAM: Well, isn't it correct, 20 Mr. Vorster, that in some months where the flows 21 exceed -- or the monthly mean exceeds the Department of 22 Fish and Game dry year recommendation, there are a 23 number of days within the month where the daily mean is 24 less than the Department of Fish and Game 25 recommendation? 0032 BY DR. VORSTER: I'm sure that can occur. I was 01 A. just going to look for an example of that. But there could be a month in which the mean is slightly higher than the DFG recommendation, but there may be a few 05 days in that month which is less. 06 Q. And on those days when the mean daily flow was less than the Department of Fish and Game 07 08 recommendation for dry year flows under the proposal by the Department of Fish and Game, DWP would be required to release water from storage to meet the minimum flow on those days; isn't that correct? 12 A. That's a policy question that I can't answer. And 13 I'd like Mr. Smith to address that issue. MR. GARY SMITH: If you would, Mr. Birmingham, 15 would you restate your question.

16 Q. BY MR. BIRMINGHAM: Mr. Vorster has just agreed,

```
17 Mr. Smith, that in some months when the mean flow, the
 18 mean monthly flow is in excess of the Department of
 19 Fish and Game recommendation for dry year releases,
 20 there will be days on which the mean daily flow is less
    than the Department of Fish and Game recommendation.
         And under the Department of Fish and Game
 23 proposal, on those days, the Department of Water and
    Power would be required to release water from storage
    to maintain the minimum flow; is that correct?
0033
         Presumably that would be correct if DWP had the
 01 A.
    ability to monitor the flow daily and check the flow
 02
 0.3
    daily, and make a modification to it. I'm not familiar
 04 with DWP's operations, so I can't give you a definite
 05 answer to that question.
 06 Q.
         Mr. Vorster, in 1977, did the mean monthly flow
 07 exceed the Department of Fish and Game recommendation
 08 for dry year releases during each month?
 09 A.
         BY DR. VORSTER: I was just going to look at them.
 10 I'm looking at 1977 right now. And I will -- I'll go
    through the exercise step by step.
          In April, the mean cfs was 33.8, flow was very,
 13 very constant, though, in that month. It varied just a
    couple cfs off that mean.
         Is that greater than or less than the Department
 15
    of Fish and Game recommendation for dry year minimum?
         That is 1.2 cfs less, but that, again, is not
 17
    accounting for any gains downstream from that.
 18
    fact, in April you would probably have gains downstream
    that would probably actually exceed the 35 cfs release.
 21
         May, the recommendation is 75, and the mean was
 22
    34.
 23
         In June the recommendation is 72, the mean is
 24
    53.6.
 25
         So, so far, we're always under.
0034
 01
         July is 40.5. The recommendation is 45 cfs.
 02
         And I'm just looking down the rest of the months,
 03
    and I think in November -- November, it's -- 31.0 is
    the mean, and the recommendation is 30.0. So that
 05
    would be an example where it wasn't.
 06
         We have to remember that 1977 was the driest year
    on record by far. It was an extremely low runoff year.
 07
         Now, when you were doing the analysis in
    preparation of DFG 198, did you include the DFG
    proposed flushing flows?
 10
 11
         It wasn't necessary, because there is no flushing
    Α.
    flows in dry years. Or it wasn't relevant. I guess,
 12
 13
    that's a better answer.
    Q.
         This is maybe a policy question for Mr. Smith, but
    under the proposal, is there a minimum Grant Lake
 15
 16
    storage.
 17
          BY MR. GARY SMITH: The minimum Grant Lake
    storage, I believe that Mr. Vorster used in his
    analysis, was 11,500 acre-feet.
 20
          DR. VORSTER: That was agreed upon for LAAMP
 21 modeling purposes. I don't think there was any --
 22 Q.
         BY MR. BIRMINGHAM:
                             I'm asking you specifically
 23
    about the proposal of the Department of Fish and Game.
 24
         So in other words, Mr. Smith, what you're telling
```

- 25 us is, that if storage in Grant Lake falls below 11,500 0035
- 01 acre-feet, it would no longer be necessary for the
- 02 Department of Water and Power to release water from
- 03 storage to meet the minimum flows recommended by the
- 04 Department of Fish and Game?
- 05 A. BY MR. GARY SMITH: No, that's not what I'm 06 saying.
- O7 DR. VORSTER: I did it because the LAAMP model -- 08 we agreed that we would use eleven and a half thousand 09 as a minimum reservoir storage.
- 10 So the way LAAMP works is that if it's at the
- 11 minimum, it no longer requires release from storage.
- 12 Q. BY MR. BIRMINGHAM: So Mr. Smith, if Grant falls
- 13 below 11,500 acre-feet, what would be the Department of
- 14 Fish and Game's position on the release of stored water
- 15 to meet minimum flows?
- 16 A. BY MR. GARY SMITH: If that situation were to
- 17 occur in the future, we would address that, given the
- 18 circumstances existing at that time.
- 19 Q. Would it not be necessary for the Board to
- 20 include, at this time, in the modification of the
- 21 Department's licenses, what's to occur in that event?
- 22 A. I don't think I'm qualified to dictate what the
- 23 Board should or should not do.
- 24 Q. So the Department of Fish and Game is not making
- 25 any recommendation with respect to what would happen in 0036
- 01 the event that Grant Lake storage falls below 11,500 02 acre-feet?
- 03 A. Our recommendation is that we will address that
- 04 issue if it were to occur. I have no idea if it would
- 05 even occur. At that time we would make a decision.
- 06 Q. Mr. Vorster, I'd like to go back to a question I
- 07 asked a few moments ago. I asked if you had included
- 08 in your analysis of the Department of Fish and Game 09 flushing flows.
- 10 And you responded it wasn't necessary, because
- 11 there are no flushing flows in dry years; is that
- 12 correct?
- 13 A. BY DR. VORSTER: That's correct.
- 14 Q. The analysis that was used to prepare DFG 198 it's
- 15 not restricted to dry years is it?
- 16 A. Absolutely. As I explained in my testimony, I did
- 17 something very straight forward, simple. I looked at
- 18 what the Rush Creek runoff was at that dam site gauging
- 19 station. That's input that we use the actual runoff.
- 20 And compared it to the dry year recommendation of the
- 21 Department of Fish and Game.
- 22 That would be the release requirement, and the inflow.
- 23 So since there's no flushing flow requirement in
- 24 dry years, I'm not quite sure why it would be relevant.
- $25\,$  Q. Well, the analysis you did in preparing Department  $0037\,$
- 01 of Fish and Game Exhibit 198, you looked at all years,
- 02 is that correct, years that would fall into the dry,
- 03 normal, and wet category developed by the Department of
- 04 Fish and Game?
- 05 A. That's correct. But again, it's not -- since
- 06 there is no dry year flushing flow requirement, the

- 07 analysis that went into Exhibit 198 just -- it's not 08 relevant.
- 09 Q. Is there a normal year flushing flow?
- 10 A. There is a flushing flow recommendation for -- the
- 11 Department of Fish and Game's recommendation, I think,
- 12 is given in Exhibit 170-A. It's a recommendation --
- 13 Q. All we need to establish, Mr. Vorster, is that the
- 14 Department of Fish and Game does recommend a flushing
- 15 flow for normal years; isn't that correct?
- 16 A. The reason why I can't give you a straight yes
- 17 answer is because there is more than one definition --
- 18 Q. You used to work for Mr. Huchison, right?
- 19 A. Right. There's a normal year definition that we
- 20 use in the LAAMP model, and there's a normal year
- 21 definition that the Department of Fish and Game uses in
- 22 Exhibit 170-A. So I just want to be very clear that
- 23 there's a difference.
- 24 Q. Well, I'm looking at 170-A on Rush Creek, and
- 25 there is a proposed flushing flow for normal years; 0038
- 01 isn't there, Mr. Vorster?
  - 02 A. That's correct. But it's not the same as the
- 03 flushing flow normal year that we use in the LAAMP
- $04\,$  model. And that was the only purpose for my clarifying  $05\,$  that.
- 06 Q. Let's get back to my question about DFG 198. Now,
- 07 in some normal years, there will be days when the mean
- 08 annual -- I mean, the mean daily flow, is less than the
- 09 Department of Fish and Game's recommended flow for dry
- 10 years; isn't that correct?
- 11 A. In some normal years, there might be days in which
- 12 the inflow to Grant Lake is less than the dry year
- 13 recommendation. It's possible. It's easy enough to
- 14 check the record.
- 15 Q. Would you check the record?
- 16 A. Sure. In fact, I think -- yeah. For example, I
- 17 think 1989, which we consider one of the drought years,
- 18 is actually under the classification that's
- 19 considered -- I think it's considered a normal year.
- 20 And so May of 1989, there were -- the flows ranged
- 21 from 70 to a hundred and three cfs. So there was --
- 22 and the dry year recommendation for May is 75 cfs. And
- 23 there was a couple days in which --
- 24 Q. What's the normal year recommendation,
- 25 Mr. Vorster?
- 0039
- 01 A. Oh, I'm sorry. The normal year recommendation
- 02 would be 100 cfs.
- 03 Q. So in May 1989, which would have been considered a
- 04 normal year under the Department of Fish and Game's
- 05 recommendation --
- 06 A. Right.
- 07 Q. -- there were days in which the daily mean inflow
- 08 into Grant Lake was less than the Department of Fish
- 09 and Game recommendation?
- 10 A. Right. Well, no, that's no longer true, because
- 11 the recommendation, now, is that in a case like that,
- 12 that the release be equal to the inflow, as long as the
- 13 inflow is at or above the dry year recommendation.
- 14 So in 1989 the actual recommendation would be

- 15 whatever the inflow is, except on three days when the
- 16 inflow was less than 75 cfs, there would have to be a
- 17 slight release from storage, a couple acre-feet from 18 storage.
- 19 Q. So in May 1989 a normal year --
- 20 A. A very dry normal year.
- 21 Q. Maybe I could finish my question, Mr. Vorster,
- 22 before you -- I'll try to not interrupt your answers,
- if you won't interrupt my questions.
  - How does that sound?
- 25 A. I apologize.
- 0040
- 01 Q. In May 1989, a normal year, there were days in
- which the inflow into Grant Lake was less than the
- 03 proposed minimum release for dry years?
- 04 A. That's correct. The record would indicate three 05 days.
- 06 0. And in May -- excuse me. In 1989, a normal year,
- 07 the Department Fish and Game recommendation, there
- 08 would have been a flushing flow during that year; isn't 09 that correct?
- Absolutely not. That's why I --
- 11 HEARING OFFICER DEL PIERO: I'm sorry. The answer 12 was absolutely not?
- DR. VORSTER: Not. And the reason why is because 13 14 if you look on Exhibit 170-A, in dry normal years, 15 there's no requirement for flushing.
- And 1989 is exactly the type of year that I call 16 dry normal. So that's why I wanted to make sure we 17
- were always -- it's important we deal with the 18
- Department of Fish and Game's recommendations in the way they define normal years.
- Mr. Smith, I'd like to go back to your testimony 22 regarding the Reach Three data that were excluded from the Lee Vining draft report, but included in the final
- 24 report. 25 It was Dr. Hardy's testimony that he thought there 0041
- 01 were good reasons to exclude the Reach Three data in
- 02 the -- in calculating weighted usable area, and that
- 03 there was inadequate explanation as to why the Reach
- 04 Three data were included in the final report.
- 05 Is that your understanding of Dr. Hardy's
- 06 testimony?
- BY MR. GARY SMITH: Yes, that's essentially my 07 A. understanding.
- Now, you explained why Dr. Lee excluded the data Ο.
- 10 from the draft report, and then decided to include the 11 data.
- Is there any reason why Dr. Lee didn't come in and 12 13 testify?
- No particular reason.
- 15 Now, you explained the decision to include the Q. Reach Three data in the final report.
- Did Dr. Lee reach that conclusion after 17
- 18 consultation with you?
- 19 A. Dr. Lee reached that conclusion after reviewing
- 20 the comments he received on the draft report. And he
- 21 and I worked together, yes.
- 22 Q. And the reason that Dr. Lee decided to include the

- 23 draft report was because -- excuse me, the Reach Three
- 24 data in the final report, was because it was concluded
- 25 that fish actually do use habitat where there's 0042
- 01 entrained air?
- 02 A. That's part of the reason.
- 03 Q. What were the other reasons?
- 04 A. The other reason is that his analysis was flawed
- 05 when they demonstrated that habitat decreased. And he
- 06 reviewed the model calibration details, and discovered
- 07 that the margin of error would be much greater if one
- 08 were to eliminate Reach Three from the compilation of
- 09 WUA than if one were to include it.
- 10 From a biological ecosystem perspective, Reach
- 11 Three is part of Lee Vining Creek. Fish do occur
- 12 there. And from an ecosystem prospective, Reach Three
- 13 should be addressed.
- 14 Q. Do you have a copy of the draft report here with 15 you?
- 16 A. No, I do not.
- 17 MR. BIRMINGHAM: May I ask Mr. Frink a question,
- 18 Mr. Del Piero?
- 19 HEARING OFFICER DEL PIERO: Certainly.
- 20 MR. BIRMINGHAM: Mr. Frink, the draft report of
- 21 Department of Fish and Game is part of the State
- 22 Board's staff file; is that correct?
- MR. FRINK: Yes, it is. I believe it would be
- 24 part of Exhibit 2.
- MR. BIRMINGHAM: Thank you.
- 0043

0.8

- 01 Q. BY MR. BIRMINGHAM: I'm referring to --
  - HEARING OFFICER DEL PIERO: Do we have an extra
- 03 copy handy? Maybe that will facilitate
- 04 Mr. Birmingham's examination.
- 05 MR. BIRMINGHAM: Thank you.
- 06 HEARING OFFICER DEL PIERO: Mr. Herrera takes
- 07 fingers back if he doesn't get his copy back.
  - MR. HERRERA: You bet.
- 09 Q. BY MR. BIRMINGHAM: Mr. Smith, I'm giving you a
- 10 copy of the Department of Fish and Game's Stream
- 11 Evaluation Report, 92 dash 4, Volume one; Instream Flow
- 12 Requirements for Brown Trout in Lee Vining Creek, Mono
- 13 County, California; 13, July 1992.
- 14 Are you familiar with that report?
- 15 A. BY MR. GARY SMITH: Yeah. It has been some time
- 16 since I've reviewed it in total, but I have reviewed
- 17 it.
- 18 Q. When was the last time you reviewed this report in
- 19 toto?
- 20 A. When I provided comments to Aquatic Systems
- 21 Research on the -- during the review. That was several
- 22 years ago.
- 23 Q. That was several years ago since you reviewed the
- 24 report?
- 25 A. In total.
- 0044
- 01 Q. Now, you were called to respond to rebuttal
- 02 testimony of Dr. Hardy; is that correct?
- 03 A. That's correct.
- 04 Q. Now, do you have a copy of Dr. Hardy's written

```
05 rebuttal testimony with you?
 06 A.
          Somewhere, yes, I have it.
 07 Q.
          If you could take a moment and pull that out, I'd
    like to go through it for a moment if we can. The
 09 first page of Thomas Hardy, Ph.D.
 10
          HEARING OFFICER DEL PIERO: Mr. Smith?
 11 Mr. Smith, you need to speak more directly into the
 12
    microphone.
 13
          MR. GARY SMITH: Let's try this one. It might be
 14
    okay. Which one would be better?
 15
          HEARING OFFICER DEL PIERO: We just need to make
 16
    sure we get a good clean record.
 17
          BY MR. BIRMINGHAM:
    Ο.
                               Now, on page one of
 18 Dr. Hardy's rebuttal testimony, there's a section that
 19
    states, "Reach Three Weighted Usable Area Results," and
    the paragraph reads, and I'll read it into the record,
 21 slowly.
 22
                    "I also have significant concerns
 23
               regarding the use in the final
 24
               Lee Vining Creek report of the Reach
 25
               Three weighted usable area, paren, WUA,
0045
 01
               end paren, data which was excluded from
 02
               the analysis in the draft report.
 03
                    I cannot concur with the inclusion
 04
               of Reach Three data in the total
 05
               weighted usable area relationship for
 06
               Brown trout used in the final Lee Vining
 07
               Creek report. This is based on a review
 80
               of the material presented in the draft
 09
               Lee Vining instream flow report, cited
 10
               in my direct testimony, beginning with
 11
               the second full paragraph from the
               bottom of page 28, and continuing
 12
 13
               through the end of the paragraph on page
 14
               35.
 15
                    The draft report clearly
 16
               articulates sound reasons for the
 17
               exclusion of this data in the
 18
               computation of total weighted usable
 19
               area for use in the final analysis of
 20
               the recommended instream flows.
 21
                    No defensible justifications have
               been provided for the inclusion of these
 2.2
               data in the final report."
 2.3
          Now, you were called to respond to this part of
 25 Dr. Hardy's testimony; is that right?
0046
 01 A.
          That's correct.
 02 Q.
          And Dr. Hardy says here that there are, "sound
 03 reasons for the exclusion of the data in the
    computation of total weighted usable area set out on
 05
    pages 28 through 35 of the draft report." Is that
 06
    correct?
 07
          That's correct.
    Α.
    Ο.
          And you didn't go back and look at pages 28
    through 35 of the report to determine what those sound
 10 reasons were?
```

If that's your question, yes, I did. You asked me

12 if I had reviewed the report in total. No, I had not

11 A.

- 13 reviewed it in total.
- 14 Q. But you went back and looked at 28 through 35?
- 15 A. I did not look at the graphs within pages 28
- 16 through 35. I looked at the text itself.
- 17 Q. Did you compare, as Dr. Hardy suggested, the
- 18 Figure 18 on page 39 of the draft report with Figure 16
- 19 on page 37 of the final report?
- 20 A. I have compared those, yes.
- 21 Q. When --
- 22 A. If I'm -- I'm going to have to ask, because I do
- 23 not have the draft report in front of -- well, let met
- 24 take a look. Which -- that's figure?
- 25 Q. You do have a copy of the draft report.

- 01 A. That's right. Figure -- which in the draft 02 report?
- 03 Q. Dr. Hardy recommended that to see the bias,
- 04 that -- what he perceived as bias, you could look at
- 05 Figure 18 on page 39 of the draft report, and compare 06 it to Figure 16 on page 37 of the final report.

And my question, Mr. Smith, is that when you were preparing your surrebuttal testimony, did you compare those two charts or graphs that Dr. Hardy mentioned?

- 10 A. I have looked at these two figures and compared them. But the comparison is a moot point.
  - Q. Let's go through the draft report, if we can.

On the bottom of page 28 of the draft report,

14 which is part of State Water Resources Control Board

- 15 Staff Exhibit 2, it states, "However, this habitat
- 16 model of Reach Three is unrealistic, based upon our 17 experience, delineating habitat on the creek and
- 18 collecting physical data for PHABSIM, "spelled, 19 P-H-A-B-S-I-M.

20 "Further evidence for this is supported by the 21 fact that Reach Three weighted usable area flow

- 22 relationship peak at higher flows than Reach Two, a
- 23 reach with a flatter gradient."

Now, Dr. Lee apparently thought that the Reach

- 25 Three data should be excluded from the final analysis 0048
- 01 because, in Reach Three, the weighted usable area went 02 up with higher flows than in Reach Two, which has a

03 flatter gradient.

- And apparently that was inconsistent with
- 05 Dr. Lee's understanding of the way the model works; is 06 that right, Mr. Smith?
- 07 A. Your question confused me a little bit right there
- 08 at the end. Would you ask it again, please?
- 09 Q. Sure. I'm looking at this sentence. It says, 10 "Further evidence for this, the fact that the Reach
- 11 Three are unrealistic --
- 12 A. All right.
- 13 Q. "Further evidence of this is supported by the fact
- 14 that Reach Three weighted usable area flow
- 15 relationships peak at higher flows than Reach Two, a 16 reach with a flatter gradient."
- Now apparently, Dr. Lee was stating that the data seems a little unrealistic, because Reach Three as
- 19 flows increase, weighted usable area increases at rates
- 20 greater than in Reach Two, a reach with a flatter

- 21 gradient.
- 22 And apparently that is inconsistent with his
- 23 understanding of the way the model works; is that your
- 24 understanding of what I just read?
- 25 A. That is what's stated in the draft.
- 0049
- 01 Q. Now, you've shown us this video about entrained
- 02 air. That video of entrained -- fish using habitat
- 03 with entrained air, that doesn't relate to this part of
- 04 Dr. Lee's testimony or report, excuse me, where he
- 05 says, "This increase in habitat in Reach Three with
- 06 increased flows just doesn't make any sense," to him,
- 07 based on his understanding of the model; does it,
- 08 Mr. Smith?
- 09 A. Dr. Lee was making a subjective assessment. He
- 10 had no data upon which to make that assessment. He was
- 11 questioned in response to questions he received on the
- 12 draft report.
- He re-evaluated the model, the model calibration
- 14 details, and discovered that his decision to eliminate
- 15 Reach Three from the analysis was unfounded.
- 16 Also, he determined that leaving Reach Three out
- 17 would introduce a greater margin of error than
- 18 including it.
- 19 Q. Mr. Smith, I'm not sure you understood my
- 20 question. And if you've finished your answer, I'll see
- 21  $\,$  if I can answer it again, and make sure I get an answer
- 22 to my question.
- 23 A. Right.
- 24 Q. You've presented this video showing fish using
- 25 habitat with entrained air.
- 0050
  - 01 A. That's right.
- 02 Q. My question is: Does the evidence that fish use
- 03 habitat with entrained air address the statement made
- 04 by Dr. Lee in the paragraph in the sentence that
- 05 states, "Further evidence is supported by the fact that
- 06 Reach Three weighted usable area flow relationships
- 07 peak at higher flows than Reach Two, a reach with a
- 08 flatter gradient."
- Now Dr. Lee's statement is not addressed by your
- 10 video that shows fish using habitat with entrained air?
- 11 A. Oh, indeed it is.
- 12 Q. I'd like to go on to page 32. Page 32, Dr. Lee,
  - 3 in his draft report states that, "We believe the
- 14 overestimation of habitat," and here he's still talking
- 15 about Reach Three; is that right, Mr. Smith?
- 16 A. I believe so.
- 17 Q. Then, "We believe the overestimation of habitat is
- 18 due to the inability of the IFG4 HABTAT model to
- 19 recognize turbulent super critical flow. And air
- 20 entrainment is not suitable for trout habitat."
- Now, that's what you addressed through the showing 22 of your video; is that right?
- 23 A. In part.
- 24 Q. The next sentence goes on to say, "Another factor
- 25 which may have affected habitat estimation, was the 0051
- 01 location of transects within cascades."
- Now, Dr. Lee is there talking about how the actual

```
03 IFIM study was conducted on Lee Vining Creek; isn't
 04 that right, Mr. Smith?
 05 A.
         I believe so.
06 Q.
         Now, that's not addressed by -- Dr. Lee's concern
 07 about the placement of transects is not addressed by
 08 any of the evidence you've presented here today, is it?
         I believe that sentence refers to Dr. Lee's
 10
    understanding at that time of the hydraulic modeling
    capabilities of IFG4. He has since learned that he had a misunderstanding of the IFG4 capabilities.
 11
         Let's go to the next paragraph. It says, "Data on
 13
    Ο.
 14 habitat suitability of air entrained water are scant.
 15 However, Smith, 1986, notes from data that are the
 16 basis for the Eastern Sierra Nevada habitat suitability
 17 criteria, that all trout fry actively avoid air
 18 entrained turbulence, although, juvenile and adult
 19 trout are indifferent to it.
 20
         Now the 1986 Smith report, that's the Smith and
 21 Acetuno report; is that correct?
         No. That's another Smith report. I am the sole
 23 author of that. That deals with observation of fish
 24 using various cover components in the stream systems.
 25 Q.
         Did Dr. Lee accurately interpret the data that you
0052
 01 collected?
 02 A.
         Partially.
 03 Q.
         Why do you say partially?
 04 A.
         I believe if you review the Smith and Acetuno --
    excuse me, the Smith '86, it also concludes that rather
    than active avoidance of entrained air, fry, now we're
    talking about fish up to approximately two inches in
    length, fry are more apt to be avoiding water
    velocities that exceed or are in the upper ranges of
 10 their preferred values.
 11
         And as the video demonstrated, high water
 12 velocities and entrained air are often associated.
 13 a matter of fact, it's seldom you will have entrained
 14 air without high water velocity.
15
         So therefore, that's why I said partially
16 interpreted Smith '86.
 17
         MR. HERRERA: Mr. Birmingham, your 20 minutes has
 18 elapsed.
         MR. BIRMINGHAM: May I take a moment,
 20 Mr. Del Piero?
         HEARING OFFICER DEL PIERO: Certainly,
 22 Mr. Birmingham.
         MR. BIRMINGHAM: May I ask Mr. Dodge a question?
 24
         HEARING OFFICER DEL PIERO: Certainly.
         MR. BIRMINGHAM: You've designated Dr. Lee as a
25
0053
 01 surrebuttal witness. Do you plan on calling Dr. Lee?
 02
         MR. DODGE: Yes.
 03
         MR. BIRMINGHAM: I have no further questions.
 04
         HEARING OFFICER DEL PIERO: Thank you very much,
 05 Mr. Birmingham. Mr. Dodge, nice to see you back, sir.
 06
         MR. DODGE: Thank you. Glad to be back.
 07
         MR. BIRMINGHAM: That's not what you told me this
 08 morning, Bruce.
```

CROSS EXAMINATION BY MR. DODGE

10 Q. BY MR. DODGE: Mr. Vorster --

- 11 HEARING OFFICER DEL PIERO: Is that an accusation
- 12 of his being a tad disingenuous this morning? There's
- 13 only three more days, Bruce.
- 14 Q. BY MR. DODGE: DFG Exhibit 198, now what is the 15 capacity of Grant Lake?
- 16 A. BY DR. VORSTER: 47,500 acre-feet.
- 17 Q. And Exhibit 198, if I'm reading it correctly,
- 18 tells us the percentage of time where you might, under
- 19 the revised DFG recommendation, you would use Grant
- 20 Lake storage to make up for a -- an inflow that was
- 21 insufficient; is that right?
- 22 A. That's correct, on a mean monthly basis.
- 23 Q. Now, my question to you is in terms of thousand
- 24 acre-feet, can you give us any estimate for a year as
- 25 to how much, if you will, make up, would be required?
- 0054
- 01 A. It would be on the order of magnitude of a
- 02 thousand acre-feet as opposed -- going by orders of
- 03 magnitude, a thousand acre-feet as opposed to 10,000 04 acre-feet. It would be anywhere from a hundred
- 05 acre-feet to two thousand acre-feet.
- 06 I haven't done the calculations -- or I don't have
- 07 the results right in front of me. I think somewhere in 08 my files I do. I think I would be able to give you a
- 09 more precise answer.
- 10 But I know that it would be -- obviously,
- 11 depending on the year. Many of the years would be
- 12 around a thousand acre-feet. I mean, I'll try to give
- 13 you a more precise answer after the break.
- 14 Q. Let me change subjects. Under the revised DFG
- 15 recommendation for Rush Creek, you would not use Grant
- 16 Lake storage in wet and normal years, correct, to make
  17 up a deficit?
- 18 A. Using the mean monthly flows as your guideline, I
- 19 think Mr. Smith testified that if there was an inflow
- 20 in a normal or wet year, which was less than the dry
- 21 year recommendation, you would use Grant storage. That
- 22 would be a pretty rare event. But in theory, as
- 23 Mr. Smith said, on a daily basis, you might have to use
- 24 the Grant storage on a normal or wet year.
- 25 Q. With that exception, under the revised DFG 0055
- 0055
- 01 recommendation, you would not use Grant Lake storage;
- 02 is that correct?
- 03 A. That's correct.
- 04 Q. And it follows from that, doesn't it, that under
- 05 the revised recommendation, there would be less water
- 06 sent down Rush Creek from Grant Lake?
- 07 A. Absolutely. More water would be available for 08 export.
- 09 Q. Can you quantify that amount for us?
- 10 A. Well, yes. I think I earlier talked about the
- 11 difference between using Grant storage and not using
- 12 Grant storage, of being about 2,000 acre-feet.
- 13 And since LAAMP doesn't have the capability right
- 14 now to evaluate Fish and Game's proposal directly, I
- 15 can indirectly say that it would allow, not the full
- 16 2,000 acre-feet, but about 14 to 15 hundred acre-feet additional water for export.
- 18 In other words, the requirement that Fish and Game

```
19 has that the flows are, inflows are less than the dry
```

- 20 year flows, requires that some water be release from
- 21 storage, but allows that about 15 hundred acre-feet
- 22 still to be available for export.
- 23 Q. And that is on a yearly basis, correct?
- 24 A. On an average annual basis, correct.
- $25\,$  Q. Now, last question. In terms of this revised DFG 0056
- 01 recommendation, and relating specifically to the use of
- 02 Grant Lake storage, did you consider the revised DFG
- 03 recommendation in the two management plans that you've
- 04 testified to in your rebuttal testimony?
- 05 A. Yes. I think I testified that the assumption I
- 06 made in my management -- in the MLC/NAS management
- 07 plan, was that Grant storage was not used, and that's
- 08 because I -- as I explained, LAAMP didn't have the
- 09 capability to exactly model the recommendation, but the
- 10 results indicated that it would be closer to that
- 11 assumption of not using Grant storage. It would be
- 12 closer in terms of average annual export.
- 13 So in the runs I did, I -- that's how I did it.
- 14 Q. So this testimony today is not new to you? You
- 15 anticipated this?
- 16 A. Absolutely. Absolutely. And I want to make
- 17 further comment to clarify this issue of, that on the
- $18\,$  daily basis, you may have inflows that are less than
- 19 the requirement, and therefore might need to use Grant 20 storage in normal wet years or in dry years.
- Of course, there will be days in which the inflow
- 22 is greater, and therefore you can build up storage in
- 23 Grant, which you will be able to use later in the
- 24 month, later in the year, for export or to make up the 25 deficits. So that's the converse of the issue.
- 0057

- 01 MR. DODGE: That's all I have, thank you.
  - HEARING OFFICER DEL PIERO: Thank you very much,
- 03 Mr. Dodge. Mr. Roos-Collins?
- MR. ROOS-COLLINS: One moment, please.
- 05 HEARING OFFICER DEL PIERO: Certainly.
- 06 MR. ROOS-COLLINS: Good morning.
- 07 DR. VORSTER: Good morning.
  - CROSS EXAMINATION BY MR. ROOS-COLLINS
- 09 O. BY MR. ROOS-COLLINS: Mr. Smith, under the
- 10 Department of Fish and Game's revised recommendation,
- 11 Exhibit 170-A, release will be made from Grant Lake
- 12 storage whenever inflow was less than the dry year
- 13 recommendation, correct?
- 14 A. BY MR. GARY SMITH: That is correct.
- 15 Q. Now, that extra release, that is, the release from
- 16 storage, would provide a benefit to the fishery?
- 17 A. That is correct.
- 18 Q. It would also provide a benefit to the lake?
- 19 A. Presume --
- 20 MR. BIRMINGHAM: Objection. Lacks foundation.
- 21 HEARING OFFICER DEL PIERO: Sustained. You can
- 22 lay some foundational questions before you proceed. Go 23 ahead.
- 24 Q. BY MR. ROOS-COLLINS: Mr. Smith, are you familiar
- 25 with the January 26th, 1994, letter from Virginia

```
01 Cahill, Department of Fish and Game's counsel, to this
```

- 02 Board voiding Exhibit 170-A?
- 03 A. BY MR. GARY SMITH: Yes.
- 04 Q. Do you have that letter in front of you?
- 05 A. No, I do not. Yes, I do. Mr. Vorster has a copy.
- 06 Q. Let me ask you to turn to footnote two, on page 2
- 07 of that letter, and read it.
- 08 A. All right.
- 09 Q. What does that mean?
- 10 Ã. Let's see. "In years in which additional
- 11 releases --
- DR. VORSTER: Read that more slowly. 12
- 13 MR. BIRMINGHAM: This also lacks foundation.
- 14 HEARING OFFICER DEL PIERO: Asking him to read the 15 footnote?
- 16 MR. BIRMINGHAM: No, asking him what it means.
- 17 MR. ROOS-COLLINS: In the interest of moving this
- 18 along, I'll withdraw the question.
- 19 HEARING OFFICER DEL PIERO: Okay.
- 20 Q. BY MR. ROOS-COLLINS: Mr. Smith, does footnote two
- 21 comport with the Department of Fish and Game's policy
- 22 for the operation of Grant Lake?
- 23 A. BY MR. GARY SMITH: Yes.
- 24 Q. What does footnote two mean to you?
- 25 A. It means if additional water is needed that 0059
- 01 exceeds -- water that exceeds the requirements of
- 02 Department of Fish and Game dry year criteria stream
- flows, if water, in addition to those flows, is needed
- to maintain Mono Lake for whatever purpose, if that
- water is going to be released during those years -- now
- this would occur during normal and wet years, we're
- asking that such water be released during periods when
- the inflow during a normal and wet year type is less
- than the DFG recommended stream flow. 10 Q. Now, Mr. Vorster discussed with Mr. Dodge the
- 11 amount of make up --
- 12 DR. VORSTER: I'm sorry. Would you repeat your 13 question?
- 14 Q. BY MR. ROOS-COLLINS: Mr. Vorster discussed with
- 15 Mr. Dodge the amount of make up from storage that might
- 16 be needed to comply with the dry year minimum
- 17 requirement.

- Do you recall that discussion? 18
  - DR. VORSTER: Yes.
- 20 Q. BY MR. ROOS-COLLINS: Mr. Smith?
- 21 A. MR. GARY SMITH: Yes.
- 22 0. I believe Mr. Vorster estimated that that make up
- 23 might range from 100 to 2,000 acre-feet per year.
- Is that your understanding of his testimony? 24
- 25 A. Given -- if I'm understanding your question
- 0060 01 correctly, given storage -- release of stored water for
- 02 stream flows during all year types, that the amount of 03 water would average up to 2,000 acre-feet per year.
- Given the criteria described in DFG 170-A, that
- 05 amount of water would amount to up to 600 acre-feet per 06 year.
- 07 MS. CAHILL: Perhaps Mr. Vorster ought to answer 08 the question.

MR. GARY SMITH: I may have misinterpreted either 10 Mr. Vorster's answer or your question. And that would probably be better addressed by Mr. Vorster.

BY MR. ROOS-COLLINS: Mr. Smith, let me then ask 12 Q. 13 the question of Mr. Vorster, and I'll return to you.

14 Mr. Vorster, when you were discussing make up with 15 Mr. Dodge, were you describing the quantity of water to be released from storage in order to meet the dry year 17 requirements set forth in Exhibit 170-A?

18 Α. BY DR. VORSTER: That's correct.

19 And did you estimate that that amount might vary

20 from 100 to 2,000 acre-feet a year?

21 A. As I said, it was just an estimate. And obviously 22 in some years, it would be less; some years, more. And 23 the average would result in about five or 600 acre-feet 24 over the long term, and would not -- that would not be 25 available for export.

0061

11

04

05

07

- 01 0. BY MR. ROOS-COLLINS: Mr. Smith, in footnote two 02 on page 2 of Miss Cahill's letter, where it is stated 03 that, "releases shall be made preferentially in months in which the releases would otherwise be less than 05 those specified in the addendum to DFG 52."
- 06 A. BY MR. GARY SMITH: Yes.

Does that concern the release from storage, which we just discussed -- which I just discussed with 09 Mr. Vorster -- let me withdraw that question. That's 10 unclear.

Mr. Smith, does footnote two, in your 12 understanding, concern the release from storage 13 necessary to meet the dry year requirement? No. Footnote two, in my understanding, addresses primarily normal and wet year types. Under our flow 16 recommendations in 170-A, the dry year criteria would 17 not be violated.

18 And storage would be -- if the inflow were less 19 than the dry year criteria, storage would be required 20 to be released under all year types.

21 Q. So in normal and wet year types, if inflow to 22 Grant Lake is less than the dry year requirement, 23 release would be made from storage, correct?

If the -- yes.

25 0. And you are recommending according to footnote 0062

01 two, that release be made from storage in months where 02 those releases would also serve Mono Lake level of 03 maintenance; is that correct.

MR. BIRMINGHAM: Objection. Ambiguous.

HEARING OFFICER DEL PIERO: Ms. Mueller, would you 06 read that question back, please.

(Whereupon the record was read as requested.)

MR. BIRMINGHAM: The reason I say it's ambiguous 80 09 is that the question immediately preceding the question 10 related to dry year releases.

And Mr. Smith has testified that footnote two does 11 12 not relate to dry years, but instead relates to wet and 13 normal years. And therefore without some clarification 14 as to what kind of year Mr. Roos-Collins is talking 15 about in his question, the question is ambiguous.

16 HEARING OFFICER DEL PIERO: I'm going to overrule

```
the objection. I think the question is clear.
         Mr. Smith, do you understand the question?
18
19
         MR. GARY SMITH: I'm a little bit confused. Maybe
 20 I --
 21
         HEARING OFFICER DEL PIERO: Mr. Roos-Collins --
 22
         MR. ROOS-COLLINS: I withdraw the question.
         MR. GARY SMITH: I think Mr. Vorster has a better
 23
    understanding of the question.
 25
         DR. VORSTER: I do. And I would just like to run
0063
 01 through --
         HEARING OFFICER DEL PIERO: Wait. Wait. Wait.
 02
 03 Whatever you would like to do, Mr. Vorster,
 04 Mr. Roos-Collins has withdrawn the question, and we
 05
   don't have a question to answer.
         As far as I can tell, the objection was overruled.
 06
 07 Mr. Roos-Collins chose to withdraw the question. You
 08 don't have anything else to talk about, because he has
 09 not put another question on the record.
 10
         MS. CAHILL: Mr. Birmingham and I were going to
 11 propose a stipulation for clarity sake, so instead of
 12 floundering, we would all know what footnote two meant.
13
         HEARING OFFICER DEL PIERO: Okay.
14
         MS. CAHILL: Footnote two applies to the
15 situation -- I will propose this, and then everyone can
16
    agree.
 17
         Footnote two applies to the situation in wet and
 18
    normal years where inflow is less than the number in
 19
    the addendum, so the recommendation drops to inflow,
    but that the fish flows in that year are exceeded by
 21
    additional flows required for Mono Lake maintenance.
          In which case, we would prefer that the lake
 23 releases be made at times in which we have dropped
    inflow, instead of going up to our numerical -- to get
 25
    us as close as possible to our numerical value.
0064
 01
         That's my understanding. I believe that's
 02 Mr. Birmingham's understanding. And perhaps --
 03
         HEARING OFFICER DEL PIERO: Anybody wish to object
    to the Department's representation as to what their
 05
    understanding of their own letter is?
 06
         MR. GARY SMITH:
                         That's my understanding of it.
 07
         HEARING OFFICER DEL PIERO: That's good,
 08 Mr. Smith. I'm glad.
                          I attempted to explain that.
         MR. GARY SMITH:
         HEARING OFFICER DEL PIERO: Okay. Now that we've
10
11 got that, Mr. Roos-Collins, do you have another
12 question, sir?
13 Q.
         BY MR. ROOS-COLLINS: Mr. Smith, so the record is
    clear, you do concur with the stipulation that
15 Miss Cahill just proposed?
         BY MR. GARY SMITH: Oh, yes.
 17
         That is an accurate statement of the Department's
    Q.
    policy as reflected in footnote two, on page 2 --
 18
 19
    Α.
         Yes.
 20
    Q.
         -- of this letter.
 21 A.
         (Witness nods head.)
 22 Q.
         Let me turn now to another sticky wicket, which I
 23 hope we can get through somewhat more easily.
 24
         Specifically, the starred footnote on the first
```

- 25 page of Exhibit 170-A. Do you have that exhibit in 0065 01 front of you? 02 A. Yes. 03 Q. Could you explain what this footnote means? 04 A. What that means, if a change in flow is made by 05 Mono Lake Department Water and Power, then the ramping 06 rate in Exhibit DFG 170-A applies. If the change in flow is brought about through 08 circumstances other than Los Angeles' change in, 09 physical change in flow, then the ramping rate does not 10 apply. 11 In other words, quote unquote, a natural change or 12 natural daily change, hourly change, weekly change in 13 flow that Los Angeles does not cause, the ramping rates 14 would not apply. 15 Q. So the ramping rate would not apply to the change 16 in inflow resulting from the change in release from SCE 17 facilities upstream from LA's facility. 18 HEARING OFFICER DEL PIERO: It would not apply? 19 MR. GARY SMITH: Would not apply. 20 HEARING OFFICER DEL PIERO: Thank you. 21 MR. GARY SMITH: We would certainly like to see 22 those ramping rates, if SCE were to cause ramping rates to be very abrupt, if there's something that DWP could do to dampen the effects, it would be appreciated, but that's not a requirement of our criteria. 0066 Thanks. Now let's turn to Dr. Hardy's rebuttal 0.1 testimony. Do you still have that in front of you? 03 Yes. Ο. Page 1, in the section entitled, "Reach Three Weighted Usable Area Results," states that, "The draft 06 report clearly articulates sound reasons for exclusion of this data and the computation of total WUA for use in the final analysis for recommended instream flows. Λ9 You previously discussed that sentence with 10 Mr. Birmingham? 11 A. Yes. 12 Q. In the course of this proceeding, did Dr. Hardy contact you to discuss your reasons for including Reach 14 Three in the final Lee Vining Creek report? 15 A. No. MR. BIRMINGHAM: Objection. Misstates the 17 testimony. I think this witness has testified about 18 Dr. Lee having included it. And I don't think there's 19 been any testimony that this witness made a decision to 20 include the testimony or to include the data. 21 HEARING OFFICER DEL PIERO: I'm going to sustain 22 the objection. BY MR. ROOS-COLLINS: Mr. Smith, in the course of 23 Q. this hearing, did Dr. Hardy contact you to discuss 25 Dr. Lee's reasons for including Reach Three in the 0067 01 final Lee Vining Creek report? 02 A. BY MR. GARY SMITH: No.
  - 03 Q. To the best of your knowledge, did Dr. Hardy
  - 04 contact Dr. Lee during that same period for that same
  - 05 purpose?
  - 06 A. There was some contact between Dr. Hardy and

```
07 Dr. Lee, but it was, I believe, exclusively for -- in
```

- 08 response to the Department of Water and Power's request
- 09 for the IFG4 calibration information on Lee Vining
- 10 Creek.
- 11 Q. Now, after Dr. Lee submitted the final report to
- 12 the Department, did you have a go, no go decision
- 13 whether to adopt that report as the Department's?
- 14 A. The Department has the option of reviewing the
- 15 reports, and adopting them or modifying them to comply
- 16 with the Department's responsibilities.
- 17 Q. Did you adopt Dr. Lee's final report --
- 18 A. Yes.
- 19 Q. -- as the Department's report for Lee Vining
- 20 Creek?
- 21 A. Yes, we did.
- 22 Q. Mr. Vorster, several questions for you.
- 23 Mr. Birmingham discussed with you Exhibit 198. He
- 24 specifically discussed with you how the results might
- 25 change if the exhibit concerned days, rather than
- 0068
- 01 months.
- 02 Do you recall that examination?
- 03 A. BY DR. VORSTER: Yes, I do.
- 04 Q. Why does Exhibit 198 concern months?
- O5 A. Because the data that's been provided for the
- 06 models that we've constructed developed for this
- 07 proceeding are all in mean monthly basis. The
- 08 models -- let me start from square one.
- 09 We realized that to construct a daily model
- 10 simulation model was probably more than what was needed
- 11 to analyze the impacts that we were wanting to analyze.
- $12\,\,$  And so LAAMP was constructed as a monthly model, which
- 13 would rely on mean monthly data as its input.
- 14 Q. Now, you were called in part as a surrebuttal
- 15 witness for the testimony of William Hasencamp?
- 16 A. Yes, I was here.
- 17 Q. Do you have Mr. Hasencamp's rebuttal testimony in
- 18 front of you?
- 19 A. Yes. He submitted two different rebuttal
- 20 testimonies. I want to make sure, is it the one
- 21 that's --
- 22 Q. The one entitled, "Analysis of DFG Recommended
- 23 Stream Flows."
- 24 A. Is it the -- if you give me a date it was
- 25 submitted -- I just want to make sure.
- 0069
- 01 Q. It's contained within the rebuttal testimony
- 02 volume submitted by the City of Los Angeles. It's
- 03 entitled, "Analysis of DFG Recommended Stream Flows."
- 04 Do you have that in front of you?
- 05 A. Yes, I do.
- 06 MR. HERRERA: I believe that's L.A. DWP Exhibit
- 07 133.
- 08 MR. ROOS-COLLINS: Thank you, Mr. Herrera.
- 09 Q. BY MR. ROOS-COLLINS: Mr. Vorster, could you
- 10 please turn to page 4 of that testimony?
- 11 A. BY DR. VORSTER: Okay.
- 12 Q. Second sentence says that, "In 38 percent of
- 13 months in the 50-year period, the minimum instream
- 14 flows exceed the monthly runoff of the stream."

- 15 Is it your understanding that Mr. Hasencamp is
- 16 here discussing Rush Creek?
- 17 A. That's correct.
- 18 Q. Is it your understanding that he is discussing the
- 19 Departments's original flow recommendation for Rush
- 20 Creek?
- 21 A. That's correct.
- 22 Q. And how does that percentage stated in
- 23 Mr. Hasencamp's testimony compare with Exhibit 198?
- 24 A. Well, the -- it is no longer a situation where in
- 25 51 percent of the months in the 50-year period, the 0070
- 01 minimum instream flows exceed the stream runoff, if you
- 02 interpret the minimum instream flows would be
- 03 restricted to the -- that they be no lower than the dry 04 year recommended flow.
- O5 And the analysis in 198 shows how often that would
- 06 be the case. And about 15 percent of the months, the
- 07 inflow would be less than the dry year recommended 08 flow.
- 09 Q. So Mr. Hasencamp testified that the Department's
- 10 flow recommendation exceeds the Grant Lake inflow in 38
- 11 percent of the months. Am I right so far?
- 12 A. Yes. I'm actually referring to -- his most recent
- 13 testimony has Table 6, "Comparison of DFG Recommended
- 14 Flows to Historical Flows."
- 15 Q. Mr. Vorster, one thing at a time. I asked you
- 16 specifically about page 4 --
- 17 A. Yes.
- 18 Q. -- of the rebuttal testimony entitled, "Analysis
- 19 of DFG Recommended Stream Flows."
- Does Mr. Hasencamp there testify that in 38
- 21 percent of the months in a 50-year period the minimum
- 22 instream flows exceed the monthly runoff of the stream?
- 23 A. Could you show me where?
- 24 Q. First paragraph, second sentence.
- 25 A. Okay. I was looking -- I'm sorry. I was looking 0071
- 01 further down. Yes, in 38 percent of months in a
- 02 50-year period.
- 03 Q. And he goes on to say, "That is, the DFG
- 04 recommends augmenting the stream in a one-month period 05 of time"?
- 06 A. That's correct.
- 07 Q. Now, your analysis of the Department's revised
- 08 flow recommendation shows that the Department would
- 09 augment inflow in 15 percent of the months; is that
- 10 correct?
- 11 A. Over the year's period, that's correct.
- 12 Q. Thank you. Now, you were referring to other
- 13 testimony, which apparently has another estimate by
- 14 Mr. Hasencamp?
- 15 A. No, not at all. I'm sorry. I didn't want to
- 16 create confusion. In his most recent testimony, he
- 17 actually lays out what he described on page 4. He lays 18 it out in tabular form.
- 19 So our comparison, the comparison between 198 and
- 20 what he says, is much more straightforward. If you
- 21 look at Table 6, you can go month by month by month and
- 22 see how it compares to Exhibit 198.

```
Just to try to wrap up this line of questions in a
24 neat package, would it be fair to say that you estimate
    the Department requires release from storage less than
0072
01 half as frequently as Mr. Hasencamp?
02 A.
         Correct, because of the revised recommendation.
03 Q.
         Thank you.
         MR. ROOS-COLLINS: Thank you. No further
04
05
    questions.
06
         HEARING OFFICER DEL PIERO: Thank you very much.
07
    Ladies and gentlemen, we're going to take a ten minute
08 break.
09
               (A recess was taken at this time.)
10
         HEARING OFFICER DEL PIERO: Ladies and gentlemen,
11
   this hearing will again come to order.
12
         Mr. Roos-Collins, we've completed your examination
13 of the witnesses; is that correct?
14
         MR. ROOS-COLLINS: Correct.
15
         HEARING OFFICER DEL PIERO: Mr. Valentine, any
16 questions?
17
         MR. VALENTINE: No.
18
         HEARING OFFICER DEL PIERO: Mr. Frink?
19
         MR. FRINK: Yes, I do have a few questions.
20 I'll wait for Mr. Smith's return, however.
21
         HEARING OFFICER DEL PIERO: Where is Mr. Smith?
22 There he is.
23
         Actually, Mr. Smith, do you have my copy of the
24 Los Angeles Department of Water and Power rebuttal
25
    testimony?
0073
01
         MR. GARY SMITH: Yes, I do. That's this one.
         HEARING OFFICER DEL PIERO: I don't want to lose
02
0.3
    this one.
         MR. BIRMINGHAM: The question is, Mr. Smith, did
05 you look through it to see if there were any really
   rotten notes?
07
         HEARING OFFICER DEL PIERO: Actually, I've got
08 extensive comments on the quality of individual's ties
    written down here in the margins. Other than that,
10 nothing of particular import.
11
                CROSS EXAMINATION BY THE STAFF
12 Q.
         BY MR. FRINK: Mr. Smith --
         MR. GARY SMITH: Good morning, Mr. Frink.
13 A.
         Mr. Birmingham asked you a guestion regarding what
14 0.
15 the Department of Fish and Game would recommend if
16 there were a conflict between maintaining a specified
17 minimum storage level at Grant Lake and maintaining the
18 dry year flows in Rush Creek.
19
         And I believe you answered that if those
20 conditions occurred, the Department of Fish and Game
21 would consider if the change in the flow rate in Lower
22 Rush Creek would be appropriate; is that accurate?
         Would consider if releasing additional stored
    water was water that would cause Grant Lake to go below
25 roughly 11,000 acre-feet storage, is what I was
0074
01 addressing.
02
         The two items that you have to consider, among
03 others: How much water is in Grant? What is Grant's
```

04 inflow? What is the release into Lower Rush Creek, the

- 05 release rate? What are the reservoir temperatures? 06 What are the stream temperatures? We would have to 07 consider a number of factors.
- So I was really addressing in my response whether or not we would call for Grant Lake to go below eleven five, and at this point 11,500 acre-feet is simply an arbitrary level that we generated for, or agreed with, for purposes of modeling in LAAMP.
- 13 Q. Okay. And from that answer, then, I take it that
- 14 the Department of Fish and Game has not made a
- 15 recommendation on what the minimum storage level in
- 16 Grant Lake should be for protection of fish or
- 17 recreation; is that correct?
- 18 A. We have made a preliminary recommendation that if
- 19 it can be maintained about eleven five, as a minimum,
- 20 that would, I think, meet the fishery purposes.
- 21 Q. Is recreation also a consideration to the
- 22 Department?
- 23 A. I'm sorry?
- 24 Q. Is recreation in Grant Lake also a consideration
- 25 to the Department?
- 0075
- 01 A. The angling would be a consideration. The -- I
- 02 personally did not review any records, angling records
- 03 and storage records, on Grant. I can't give you a good 04 response to your question.
- 05 Q. Is Grant Lake a stocked lake with fish? Does the
- 06 Department of Fish and Game stock Grant Lake?
- 07 A. Yes.
- 08 Q. Now, from your answer earlier, I take it that you
- 09 believe that it may be conceivable that a situation
- 10 would occur in which the Department would recommend
- 11 reducing the flows below the dry year flow
- 12 recommendations; is that correct?
- 13 A. I would consider a situation where we would reduce
- 14 Grant to maintain the stream flows, which is not quite
- 15 the same as your stated question.
- 16 Q. And is the flip side of that also a possibility,
- 17 that if --
- 18 A. Not in my mind.
- 19 Q. So regardless of the storage level in Grant Lake,
- 20 the Department of Fish and Game would advise
- 21 maintaining the dry year flows in Lower Rush Creek?
- 22 A. Again, this is the -- some of the -- I can't give
- 23 you a positive answer, because we would need to have
- 24 some information like I laid out on items I described a
- $25\,$  moment ago; lake temperature, stream temperature, and  $0076\,$
- 01 the like, what time of year, and so on, and what are 02 the flows we're talking about.
- 03 Q. Mr. Vorster, if the inflow into Grant Lake were to
- 04 be used as a criteria for determining the downstream
- 05 flow requirements at a particular time, would one use
- 06 mean monthly inflows or daily flows?
- 07 A. BY DR. VORSTER: I think that the modeling was
- 08 done with mean monthly. But the protocol that you're
- 09 asking for, I guess, clarification on, is something
- 10 that hasn't been determined, whether the release would
- 11 be based upon a daily inflow and changed accordingly to
- 12 a day or bi-weekly or some averaging period. I think

- 13 that clarification hasn't been made, although Mr. Smith 14 suggested daily, I think.
- MR. GARY SMITH: Again, excuse me, I'm not
- 16 familiar enough with Los Angeles' operational
- 17 facilities and modes to know whether they accomplish it
- 18 on a daily basis or not. Ideally, a daily basis would
- 19 be a good change rate.
- 20 Q. BY MR. FRINK: As a practical matter, the mean
- 21 monthly flows aren't known until the end of the month;
- 22 is that correct?
- 23 A. BY MR. GARY SMITH: That's correct.
- DR. VORSTER: I think we've heard testimony from
- $25\,$  Mr. Hasencamp that they do have the capability to  $0077\,$
- 01 manually change the flow as often as necessary.
- 02 I think the key requirement would be to somehow to
- 03 have the information from the inflow gauging station
- 04 made available on a fairly rapid basis, what we call a 05 real-time basis.
- Of For example, the Lee Vining Creek inflow is
- 07 available on a real-time basis. You can literally dial
- 08 up the station and get that flow. Rush Creek doesn't
- 09 have that capability right at this point in time. But
- 10  $\,$  I would think that could be something installed in Rush 11  $\,$  Creek.
- 12 MR. FRINK: Okay. That's all my questions. Thank 13 you.
- 14 HEARING OFFICER DEL PIERO: Mr. Satkowski?
- MR. SATKOWSKI: Yes.
- 16 Q. BY MR. SATKOWSKI: Mr. Vorster, I have a couple
- 17 questions about DFG 198, which is the months in which 18 the inflow to Grant Lake is less than DFG dry year
- 19 recommendation.
- What period of records did you use for your analysis?
- 22 A. BY DR. VORSTER: The 1940 to '89, 50-year period,
- 23 which is the base period we're using for LAAMP right 24 now.
- 25 Q. Does this, in your table, which is DFG 198, do you 0078
- 01 include all the months in that 50-year period to come
- 02 up with your percentages, or just the dry years?
- 03 A. No, all the months, all the months.
- 04 Q. Have you done a similar table looking at just dry 05 years?
- 06 A. In other words, just comparing dry year inflow --
- 07 comparing the inflow to Grant Lake in dry years?
- 08 Q. That's correct.
- 09 A. Just in dry years. No, I haven't done that
- 10 separate analysis.
- 11 Q. If an analysis of that type were to be done, would
- 12 the compared percentage numbers increase?
- 13 A. Well, the dry year recommendation, and Mr. Smith
- 14 probably could add to this, was developed based upon
- 15 the median -- in fact, I'm going to let Mr. Smith
- 16 answer the question, so I don't trip up, so you can
- 17 understand how often it would occur. Once you can
- 18 understand how the recommendation for dry year was
- 19 developed, you would expect deficiencies.
- 20 A. BY MR. GARY SMITH: The Rush Creek dry year

21 criteria, or excuse me, stream flow recommendations, 22 were developed using the habitat duration analysis of 23 PHABSIM output. It took the 20 percent dry years, calculated the 25 habitat available given the flow during each of those 0079 01 year types. 02 DR. VORSTER: Each of those who? MR. GARY SMITH: Each of the dry years. Then developed a frequency of currents of habitat. And from 05 that, made a flow recommendation. Now, your question was: If you look at only dry 06 07 year, dry years, let's make sure I'm understanding it correctly, would the 14.8 percent average impaired 09 percent in DFG 198 go up? The answer is, no, it would 10 not go up. It would go down. 11 Q. BY MR. SATKOWSKI: I guess maybe there's a 12 misunderstanding here. My question was that if one 13 were to look at only those dry years in the 50-year 14 period, and do an analysis to look at the months in 15 which the inflow to Grant Lake is less than the Fish 16 and Game dry year recommendations, then would these 17 percentage values increase? 18 A. BY DR. VORSTER: They could go up, since the 19 habitat duration analysis was based upon the median 20 habitat for -- in each month. We're comparing, see, the recommendation for base month habitat. And to translate the habitat into flows is what we'd have to do here. But I would think they would go up a little 24 bit, if you just look at the dry years. 25 Thank you. Let's go on. I have just one last 0800 01 question. These are unimpaired percentages in Fish and 02 Game 198. Did you perform a similar analysis using unimpaired flows? I want to make sure I heard your question correctly. I think you meant to say impaired. 06 MR. SATKOWSKI: Impaired, I'm sorry. 07 DR. VORSTER: Did I do a similar analysis using 08 unimpaired? No, I did not. 09 MR. SATKOWSKI: Thank you. Those are all the 10 questions I have. HEARING OFFICER DEL PIERO: Mr. Smith? MR. HUGH SMITH: Yes, I've got a couple of 13 questions. Thank you. BY MR. HUGH SMITH: A point of clarification. You are going to be requiring storage releases for flushing flows, are you not, for Rush Creek? We had a long 17 discussion about fish flows and storage releases. But 18 you are going to be requiring storage releases for 19 flushing flows now? 20 A. BY MR. GARY SMITH: Yes. If the inflow were less than the flushing flow requirement, then storage would be required for flushing flow releases. 23 MR. BIRMINGHAM: Would the reporter mark that, 24 please? 25 A. BY DR. VORSTER: I hope I'm not being too 0081 01 nonresponsive here.

MR. BIRMINGHAM: That's okay, Mr. Vorster, we'll

03 come back to you if you are.

06

07

80

09

10

11

12

19

20

DR. VORSTER: My comparison, as you correctly 0.5 observed, was the comparison of inflow to Grant Lake with the DFG dry year recommendation.

I think I understand what Mr. Birmingham was asking. Would there also be releases from storage to meet those flushing flows. As Mr. Smith said, yes, there would be.

How often and what the magnitude would be, that's something -- we can get the frequency from

13 Mr. Hasencamp's testimony, page 5 of his testimony, and that was DWP Exhibit 133 on page 5. 14

15 In 40 percent of the years, Department of Fish and 16 Game requires a flushing flow of 300 cfs for two days. 17 Mr. Hasencamp analyzed how often there would be 300 18 cfs, the inflow to Grant Lake would be 300 cfs, and he

So that gives you an indication in how many years 21 you would have to release some water from storage in 22 order to meet that 300 cfs for two day flushing flow 23 requirement.

The magnitude is something you can look at. For 25 example, in 1973, which would be considered an above 0082

said it would occur in 26 percent of the years.

01 normal year, the requirement of 300 cfs flushing flow, but the inflow only reached 255, 260, 255.

And therefore, you would have to release a hundred 03 04 and seventy acre-feet from storage during those two days in order to meet the 300 cfs flushing flow 05 requirement.

07 BY MR. HUGH SMITH: Okay. Thank you. One more Q. 80 question.

L.A. DWP Exhibit 163, if I can just show it to 10 you. It's the Lee Vining diurnal flows. You don't 11 have to have it, I -- just do you recall it?

BY DR. VORSTER: Yes, I do. Α.

Q. 13 Is the Department of Fish and Game recommending diurnal flows to mimic Rush Creek? Or perhaps --

15 A. BY MR. GARY SMITH: I don't think they have the 16 ability to do that on Rush Creek.

17 A follow-up question. We have had some testimony 18 about re-doing the Mono Gate Number One, so we would have some real-time ability to work with it. I think it was some of your testimony, Mr. Vorster, and also Dr. Stine's testimony.

If that kind of equipment were put in, would you 23 expect something like diurnal flows on Rush Creek? BY DR. VORSTER: When -- I was referring to 25 real-time capability of monitoring inflow. But, yes, 0083

01 you could put a valve mechanism that would respond 02 to -- could respond to flow changes and have it do diurnal fluctuations. That would be possible.

Whether -- how often the valve would need to be 05 replaced because of the changing a lot, is another question. But it is possible, I assume, to put in a 07 control mechanism in order to have the out flows match 80 the inflows.

09 MR. HUGH SMITH: Okay. Thank you. That's all the 10 questions I have.

HEARING OFFICER DEL PIERO: Mr. Herrera? BY MR. HERRERA: Yes, first for Mr. Vorster. I believe you testified earlier today that -- and I believe the word you used was "on occasion," during dry year conditions, if you were to look at a mean daily flow requirement, would release from storage from 17 Grant Lake be required to meet dry year DFG flows. 18 I'm a little bit confused. And one is "on 19 occasion." Do you have any idea on number of days, what kind of time frame that -- you know, how many consecutive days? Or is it one day a month? Or is it 22 every third or fourth day or --23 A. BY DR. VORSTER: It obviously depends on the 24 nature of the dry year. I think we were examining 25 1977, which is the extreme dry year, the lowest dry 0084 01 year. So for example, in April, the release -- the dry 02 03 year release requirements is 35 cfs. And nearly every 04 day is slightly below 35 cfs. It's in the range of 32, 33 cfs. So just about every day, you would release a small amount of water from storage. 07 So when I say on occasion, some months it would be 80 28 days. In another less dry dry years it would be, for example, if you looked at 1992, it might be only one or two days that you would need to make that 11 release requirement. Would you anticipate those to be consecutive type 12 13 days, or do they follow a pattern of several days in a 14 row? 15 It would be consecutive days. Because generally, when the inflows are that low, the runoff is within a 17 fairly constant range. It's not varying a whole lot. 18 When you're in snow melt, the runoff is obviously 19 fluctuating more. But when you're in low stream flow conditions, it's within a few cfs, and generally, 21 reflecting the releases from the power plant. Again, I want to go back a little bit to Grant 23 Lake. And we were talking about operational capabilities. And I'm assuming you've incorporated 25 some of that in the analysis that you've done in 0085 01 developing the Mono Lake Committee's Management Plan. And it's my understanding, again, that the 03 operations for releases out of Grant Lake are manual, 04 and are they -- is it your understanding, or do you understand how they operate that, or whether or not they can operate that to react to daily flows? 06 07 A. Well, we had testimony earlier from Mr. Hasencamp that said it is possible to make flow changes on a 80 fairly continuous basis, it's theoretically possible, 09 10 if you had someone out there standing over and making 11 release changes all the time. In fact, during the last several years when the 13 ramping was done in Rush Creek, I think flow changes were made twice a day. So it's just how often you want 15 to have the personnel out there to make those changes. 16 I think we also heard testimony that there are two 17 changes that might be involved, depending on whether any export occurred.

If there was no export occurring, you could just 20 make a change at Grant Lake outflow, which is a release mechanism that there's more control over than the 22 mechanism at Mono Gate Number One.

Where, if there was some export going on and some releases going into Rush Creek, as Mr. Hasencamp 25 testified, that is not a very sophisticated mechanism 0086

01 and needs to be fine tuned, before you get things to settle down to where you want them to be.

Do you know, or do you have an understanding if there's any limitations on the release of water from 0.5 Grant Lake at lower lake levels, and did you use any of 06 that analysis in your manual?

07 Α. Well, there isn't -- no releases can occur in 08 Grant Lake when it gets down to what we call a dead 09 storage level. But that's --

10 0. And that dead storage level is?

11 A. I think it's elevation 7,065 feet or 66 feet. But 12 we -- the model assumes a minimum reservoir storage of eleven and a half thousand acre-feet for LAAMP. 14 think it runs 11,000 acre-feet for the DWP plan.

15 And so we were -- that's the amount of storage --16 that's active storage, 11,000 acre-feet of active 17 storage. So that never came into play.

There is an issue, though, that has come up in the 18 past. And one reason the 11,000 and a half acre-feet 19 was -- not the main reason, but a consideration was 20 given that as you get down to lower reservoir levels you start entraining sediment, fine sediment, into the outflow. And several years ago we observed higher turbidities in Rush Creek because of the entrainment of 25 sediment in the -- from Grant Lake. 0087

There was a suggestion of some monitoring, which 02 never actually occurred. But that is a possibility, because if it's windy and the waves kick up sediment, it can be entrained into the outflow.

05 Q. Mr. Smith, again on the same subject matter, did 06 you in making the recommendation for various releases, 07 including maintenance and flushing flows for Rush

08 Creek, did you include the problem that Mr. Vorster

just discussed about additional sediments being

10 discharged into Rush Creek below Grant Lake from lower

lake levels in meeting some of your instream flow

12 requirements and some of your flushing flow 13 requirements?

14 A. BY MR. GARY SMITH: No, I did not.

01

15 Also I'd like to clarify one thing. I believe Ο. Mr. Kondolf made a recommendation yesterday, or in our 16

last session, regarding the percentage of change for 17 18 ramping rates on Lee Vining Creek.

19 And he was discussing the change from your 20 recommendation on DFG 170-A of 10 percent change in stream flow for 24 hours to a 20 percent ascending rate 22 and a 15 percent descending rate.

23 Is that the DFG current recommendations for 24 ramping rates?

25 A. Yes, it is. As 170-A explains, it's 10 percent 0088

- 01 change unless data indicate otherwise. And Dr. Kondolf
- 02 completed his analysis after 170-A was prepared.
- 03 Q. So the answer to the question is: Now the
- 04 official DFG recommendation for ramping is 20 percent
- 05 ascending rate and 15 percent descending rate?
- 06 A. I believe that's correct. And that's only when 07 DWP is making the flow change.
- 08 Q. Okay. Thank you.
- 09 I have one last question of Mr. Vorster. Do you
- 10 know what the storage was in Grant Lake when you
- 11 mentioned the sediment problems that releases to Rush 12 Creek?
- 13 A. BY DR. VORSTER: It was in -- if I remember
- 14 correctly, it was the 11 to 12, 13,000 acre foot range.
- MR. GARY SMITH: If my memory also serves me
- 16 correctly, it was in the minimum range 11 to 12,000
- 17 that we've been talking about today.
- 18 Q. BY MR. HERRERA: And Mr. Vorster, you mentioned a
- 19 lake elevation, just momentarily here.
- 20 What was the volume or the storage in Grant at
- 21 that elevation? And my memory is --
- 22 A. BY DR. VORSTER: I think I was answering a
- 23 question about the elevation of dead storage, if my
- 24 memory serves me correctly. But it's information we
- 25 can easily obtain from DWP. Dead storage is at an 0089
- 01 elevation 7,066 feet, 7-0-6-6 feet.
  - The elevation capacity is 7,130, so I'm sure --
- 03 Q. That's present day capacity?
- 04 A. Yes, present day capacity. But it's a number we
- 05 can easily obtain. We may have it here. In fact, I do 06 have it here, now that I think about it.
- 07 MR. HERRERA: Thank you. I think that concludes 08 my questions.
  - 9 HEARING OFFICER DEL PIERO: Mr. Canaday?
- 10 Q. BY MR. CANADAY: Mr. Vorster, what determines the 11 inflow to Grant Lake?
- 12 A. BY DR. VORSTER: Well, it's the combination of
- 13 natural water shed processes in responding to
- 14 precipitation input, as well as the releases from the
- 15 Rush Creek power plant by Southern California Edison.
- So during the snow melt season, it's mainly
- 17 natural processes, especially when the Edison
- 18 reservoirs are spilling.
- 19 But after snow melt, during fall and winter
- 20 especially, the releases that flow into Rush Creek
- 21 going into Grant Lake is largely determined by any flow
- 22 changes as to SCE.

02

- 23 Q. Then in dry normal years and in dry years,
- 24 primarily the flow into Grant Lake would be dictated by
- 25 the operation of the SCE power plant?
- 0090 01 A. The flow changes especially. The volume of flow,
- 02 for example, in a dry year, let's say May of a dry
- 03 year, when the snow melt is occurring, the total volume
- 04 may be such that half is coming from the uncontrolled
- ${\tt 05}\,{\tt part}$  of water shed, half coming from the power plant  ${\tt 06}\,{\tt releases}.$
- 07 But any change in flow would, because of power
- 08 plant release, would reflect their control. Later on

- 09 in a dry year, then when the flows from the
- 10 uncontrolled part of the water shed are relatively low,
- 11 then it's much more dictated by the SCE releases.
- 12 Q. Then there's a possibility of times that flow --
- 13 or releases from Grant storage to make up Fish and Game
- 14 flows or stream flushing flows will be dictated by the
- 15 operations of the SCE project, and not the actual
- 16 inflow to the lake; is that correct?
- 17 A. Correct. In fact, earlier I gave an example of
- 18 1954, where it appears there is a large deficit that
- 19 has to be made up because the inflow is so low. But I
- 20 think the inflow is so low because there was virtually
- 21 nothing coming out of the power house.
- 22 Q. You see that as being realistic to require
- 23 additional Grant -- the potential modification of Grant
- 24 Lake storage because of the SCE operation for Fish and
- 25 Game flows?
- 0091
- 01 A. I want to make sure I understand the question.
- 02 Q. I'll withdraw the question. On point number two,
- 03 or on page -- I'm working from a fax here. I believe
- 04 it's page 3 of DFG 170-A.
- 05 A. Page 2 of the letter?
- 06 Q. Yes, page 2 of the letter. And the footnote two
- 07 at the bottom.
- 08 A. Yes.
- 09 Q. How would we predict when that would occur to make 10 those releases?
- 11 A. Well, there's a number of ways you could do that.
- 12 One, DWP, when they issue their forecast, initially
- 13 they forecast what the unimpaired flow will be on a
- 14 monthly basis. And they also have equations which
- 15 translate that into an impaired flow on a monthly
- 16 basis. That would be one technique.
- 17 The other is to coordinate with Southern
- 18 California Edison to find out how they're actually
- 19 going to operate. They have pretty clear operating
- 20 guidelines. They actually develop a forecasted release
- 21 from their power house. They do that every few months.
- 22 And from that, you could see on a forecasted
- 23 basis, what you think the inflows to Grant Lake would 24 be.
- 25 Separately from the LAAMP model, or whatever model
- 0092
- 01 you're using, your water balance model, to determine 02 what the lake level releases will be, you know what
- 03 volume of lake level releases would be required.
- O4 So merging those two pieces of information, you
- 05 could say on a forecast basis, that it looks like that
- 06 the inflow to Grant will be X, which may be less than
- 07 the Fish and Game requirement for that year, but there
- 08 appears to be a requirement for a lake release.
- O9 And so the idea is to, with that knowledge, to use
- 10 the storage in Grant Lake to -- when you're making the
- 11 lake release, do it in a month in which you can augment
- 12 the inflow that might be less than the recommended fish
- 13 flow, so that it equals the recommended fish flow or be 14 higher.
- 15 Q. So it's not something you could predict with a
- 16 high degree of certainty; is that correct? It's a

- 17 probability, but it's not something you could forecast
- 18 with the idea of, using the DFG language,
- 19 preferentially? It would be tough to meet that kind of
- 20 a standard?
- 21 A. Actually, it wouldn't be too tough if in your
- 22 non-snow melt season. Because flows are fairly uniform
- 23 in a non-snow melt season, it would be fairly -- you
- 24 could have a fair degree of confidence. In the snow
- 25 melt season, the timing of the snow melt is very
- 0093
- 01 difficult to predict. So that would be a problem.
- 02 Q. Mr. Smith, earlier you testified that your
- os recommendation on Grant Lake was based upon some recreation fishery studies.
- 05 Has that data been supplied to the Board?
- 06 A. BY MR. GARY SMITH: No. I'm assuming that that
- 07 information was taken into consideration. I don't have
- 08 that information. The 11,500 acre foot storage,
- 09 minimum storage on Grant, was generated to facilitate
- 10 the LAAMP modeling activities, primarily.
- 11 Q. It wasn't generated in an order by the Court?
- 12 A. The Court considered that, yes.
- 13 A. BY DR. VORSTER: Let me -- I think I understand
- 14 your question. On April 1st, 1989, the Grant storage
- 15 was at or near 11,500. And in Judge Finney's orders,
- 16 he said that releases shall be made, but in no -- it
- 17 wouldn't be required if Grant storage fell below 11,480
- 18 acre-feet. I think that's contained in his interim
- 19 stream flow order.
- 20 Q. But that was in the interim stream flow order,
- 21 right, correct?
- 22 A. Correct.

07

15

- 23 Q. Mr. Smith, just so I'm sure you're clear, on your
- 24 recommendations for Walker and Parker Creek, on your
- 25 maintenance and flushing stream flow requirements, if, 0094
- 01 in fact, the Board were to require the full release of
- 02 all natural flows, then that moots those
- 03 recommendations; is that correct?
- You're not suggesting that we use water from
- 05 Parker and Walker Lake to augment stream flows?
- 06 A. BY MR. GARY SMITH: No.
  - MR. CANADAY: Thank you, that's all I have.
- 08 HEARING OFFICER DEL PIERO: Thank you very much,
- 09 Mr. Canaday. Ms. Cahill?
- 10 REDIRECT EXAMINATION BY MS. CAHILL
- 11 Q. BY MS. CAHILL: Mr. Vorster, a few moments ago you
- 12 made some references to 1954. That's used as a sample
- 13 year in Mr. Hasencamp's testimony, in his original
- 14 rebuttal testimony, on page 3.
  - Do you recall that testimony?
- 16 A. BY DR. VORSTER: Yes, I do.
- 17 Q. And what was it that he concluded there?
- 18 A. I think his point there was, he thought 1954 or --
- 19 well, in his analysis, 1954 was in the normal year 20 classification.
- 21 And the required DFG releases would be, at the
- 22 time, for 8,582 acre-feet or 8,470 acre-feet, that
- 23 would have been in the stream naturally.
- 24 Q. In the period of record that you used, would it

```
25 have been categorized as a dry year? 0095
```

- 01 A. In the base period that we're using in the LAAMP
- 02 runs which is 1940 to '89, it was in the dry year
- 03 category. It's an example of a year right on the
- ${\tt 04}\,$  borderline. Depending on the base year you use, it's
- 05 either a dry normal year or a dry year.
- 06 Q. And going by the original DFG recommendations, had
- 07 it been a dry year, then in fact, the recommendations
- 08 would have required approximately 30,000 acre-feet of
- 09 water?
- 10 A. That's correct.
- 11 Q. So in that year that would have allowed
- 12 approximately 40,000 acre-feet of export, if you had
- 13 characterized it as a dry year?
- 14 A. I think you misspoke. 10,000 acre-feet of export.
- 15 Q. Thank you. In fact, though, do the revised
- 16 recommendations handle years like this?
- 17 A. Yes, that's -- these borderline years don't become
- 18 as problematic because the recommendation is no longer
- 19 sensitive to the year type, except as long as the
- 20 inflow is at or above the dry year recommendations.
- 21 So, for example, in 1954, if the -- as long as the 22 inflow was at or above the dry year recommendation, all
- 23 you'd be required to release was the inflow, and you'd
- 24 only have to use storage if it was below.
- $25\,$  Q. Thank you. And with regard to the requirement for  $0096\,$
- 01 releases from storage to meet flushing flows, is it
- 02 your understanding, Mr. Vorster, of Mr. Hasencamp's
- 03 testimony is that the L.A. DWP management plan would
- 04 also, in some cases, require releases from storage to 05 meet flushing flows?
- 06 A. That's my current understanding of their plan,
  07 yes.
- 08 Q. Would the L.A. DWP management plan ever draw Grant
- 09 Lake below minimum storage in order to meet fish 10 flows?
- In fact, let me start by asking what the
- 12 L.A. DWP's minimum storage is in Grant Lake?
- 13 A. I think it's stated in Mr. Hasencamp's testimony
- 14 as 11,000 acre-feet. But on page -- there's no formal
- 15 page numbering, but I call page 8 of his second
- 16 rebuttal testimony on the DWP plan, he indicates that
- 17 the normal minimum in the reservoir would be 11,000
- 18 acre-feet.
- 19 Although he says that, as he states further, in
- 20 the middle of the page, in the middle paragraph, "Under
- 21 the DWP plan, the normal minimum reservoir storage
- 22 would be 11,000 acre-feet. This minimum would occur in
- 23 dry years early in the runoff year. The reservoir
- 24 would be operated, prevent spills -- no, I'll just
- 25 leave it there. Oh, next paragraph.
- 0097
- 01 "Because the runoff begins before the summer
- 02 recreation season does, the reservoir will usually gain
- 03 significant storage before the summer season begins.
- 04 The reservoir will be held at levels well above the
- 05 minimum through the summer, except in the driest
- 06 years."

```
Next paragraph, "The normal minimum in the
08 reservoir will be 11,000 acre-feet. However, if
09 emergency conditions warrant, the reservoir will be
10 lowered on a temporary basis. Such emergency
11 conditions include the potential dewatering of Lower
12 Rush Creek, and the immediate need for water in Crowley
13 Lake Reservoir or emergency need for water in Los
14 Angeles."
15 Q.
         So, apparently that doesn't include meeting fish
   flows?
16
17
    Α.
         Not at this point.
         Can you think of circumstances that would cause
18 0.
19 the dewatering of Lower Rush Creek?
20 A.
         Well, to the extent that they would use -- draw
21 the reservoir down to meet the potential dewatering of
22 Lower Rush Creek, obviously that would be -- they would
23 make those releases to keep the fish alive.
         I assume he was referring to a collapse of the
25 Mono return channel. And in that case, they would
0098
01 somehow, either with a siphon or some kind of a
02 mechanism, have to get water into Lower Rush Creek.
         Okay. Thank you.
04
         Mr. Smith, just very briefly back to Reach Three.
05 Mr. Birmingham quoted Dr. Hardy as stating that, "There
    was no defensible justification for including data for
    Reach Three in the final report."
07
80
         In your professional opinion, is there any
    defensible justification for excluding the data from
09
10
    Reach Three in the final report?
11
         BY MR. GARY SMITH: No, there is not.
         In your professional opinion, would the fact that
    there was increased WUA in Reach Three at higher flows,
    compared with Reach Two, mean that the Reach Three
15
    results are inaccurate?
16 A.
         No, it would not.
17
    Ο.
         Did you work with Dr. Lee? Were you in close
18 contact with him while he was working on the final Rush
19 Creek report?
20 A.
         Yes, we worked quite closely together.
21 Q.
         I'm sorry. Lee Vining Creek report.
22 A.
23
         MS. CAHILL: I believe that's all. Thank you.
         HEARING OFFICER DEL PIERO: Thank you very much,
25 Ms. Cahill. Mr. Birmingham?
0099
01
             RECROSS EXAMINATION BY MR. BIRMINGHAM
02 Q.
         BY MR. BIRMINGHAM: Mr. Vorster, you were just
    reading from Mr. Hasencamp's testimony there. You said
    "I assume what he meant by his statement was that if
0.5
    there was a problem with the Mono Gate return ditch,
    they would use a siphon or some kind of device to get
07
    water to Rush Creek."
80
         Do you recall saying that?
09 A.
         BY DR. VORSTER: Yes.
10 Q.
         You don't know what Mr. Hasencamp meant there?
11 A.
         No. As I said, I'm making an assumption, or I'm
```

13 Q. You were speculating? 14 A. That's correct.

12 speculating.

- 15 Q. I wanted to establish that that was speculation,
- 16 and there was no basis for your saying that. You are
- 17 speculating?
- 18 A. Mr. Hasencamp and I have not talked about that
- 19 particular thing. We have talked about everything 20 else.
- MR. BIRMINGHAM: I asked the reporter to mark a
- 22 particular place in the transcript during Mr. Smith's
- 23 response to the question. I wonder if we could go back 24 to that.
- 25 HEARING OFFICER DEL PIERO: Would you like her to 0100
- 01 read it?
- $\mbox{02}$   $\mbox{ MR. BIRMINGHAM: }$  I'd like her to read the question  $\mbox{03}$  and the answer.
- 04 (Whereupon the record was read as requested.)
- 05 Q. BY MR. BIRMINGHAM: Mr. Vorster, you would agree,
- 06 wouldn't you, that 1981 was a normal year under the
- 07 classification system used by the Department of Fish 08 and Game?
- 09 A. BY DR. VORSTER: Did you say 1991?
- 10 Q. 1981.
- 11 A. Oh, '81, yes, yes.
- 12 Q. So in 1981, under the Department of Fish and
- 13 Game's proposed recommendations, there would have been
- 14 a requirement for flushing flow of 200 cfs; is that 15 correct?
- 16 A. No. In fact, under the Department of Fish and
- 17 Game classification, it was a dry normal year, so there
- 18 wouldn't have been a requirement. So --
- 19 Q. Wait a minute. I thought I asked you a moment ago
- 20 if it was normal year, and you said it was?
- 21 A. I'm sorry. I --
- 22 Q. I want to make sure I understand, because you keep
- 23 talking about dry and dry normal, and you talk about
- 24 Department of Fish and Game classification and LAAMP
- 25 classification.
- 0101
  - The Department of Fish and Game's classification 02 is based upon a 50-year data set; is that correct?
  - 03 A. That's correct.
  - 04 Q. And the first ten -- the driest ten years are
  - 05 classified as dry years; is that correct?
  - 06 A. That's correct.
  - 07 Q. And the next driest ten years are dry normal
  - 08 years; is that correct?
  - 09 A. That's correct.
  - 10 Q. And then after that comes normal years?
  - 11 MR. DODGE: Objection. Ambiguous as to creek.
  - 12 I'm looking at DFG Exhibit 170-A. And it looks to me
  - 13 like there are two different definitions. 14 HEARING OFFICER DEL PIERO: You want to specify
  - 15 the creek, Mr. Birmingham?
  - 16 MR. BIRMINGHAM: Rush Creek, we're talking about. 17 HEARING OFFICER DEL PIERO: Mr. Vorster, have your
  - 18 answers been in response to the conditions in Rush
  - 19 Creek?
  - DR. VORSTER: That's correct.
  - 21 HEARING OFFICER DEL PIERO: So the record is
  - 22 clarified.

- 23 Q. BY MR. BIRMINGHAM: So Mr. Vorster, let me ask
- 24 you this, if there were 21 years in the 50-year record
- 25 that were drier than 1981, then 1981, under the 0102
- 01 Department of Fish and Game's classification, would be
- 02 considered a normal year; isn't that correct?
- 03 A. BY DR. VORSTER: If that were the case.
- 04 Q. I'm asking you to assume that was the case.
- 05 A. Okay.
- 06 Q. Just for purposes of illustration.
- 07 A. Yes.
- 08 Q. If there were 21 years drier than 1981, then 1981
- 09 would be considered a normal year?
- 10 A. If you were looking at a 50-year record, yes.
- 11 Q. Isn't that what the Department of Fish and Game 12 did?
- 13 A. Yes. I just wanted to make sure, because --
- 14 Q. I'm asking, Mr. Vorster, though, about what the
- 15 Department of Fish and Game did. And I'm confused. I
- don't know what happens to the record, but I'm confused when you ask me "if you want to make that assumption."
- 18 I'm asking: That's what the Department of Fish
- 19 and Game did, looked as a 50-year record?
- 20 A. Yes.
- 21 Q. Now, assume that there were 21 years that were
- 22 drier than 1981. That would make 1981 a normal year
- 23 under the Department of Fish and Game's classification?
- 24 A. Yes. I really want to clarify my answer to the
- 25 last question. For the LAAMP runs we did, we used a 0103
- 01 50-year period of record. Okay?
- And therefore, you correctly said that the first the driest ten years would be considered dry, because that's ten out of 50 is 20 percent. The next -- the driest 20 years -- I'm sorry. Let me back up.
- The years between the 11th and the 20th driest year would be considered dry normal. And between the
- 08 years that were between the 21st and 30th, would be
- 09  $\,$  considered normal normal, using the 50-year period of 10  $\,$  record.
- 11 This exceedence -- so the analysis was based upon
- 12 the 50-year runs that we did for LAAMP. This
- 13 exceedence will go beyond 50 years in term of this
- 14 analysis as we get a longer data base. But for right
- 15 now, we're using a 50-year period record.
- 16 Q. And using the 50-year period of record that the
- 17 Department of Fish and Game used in coming up with this
- 18 classification scheme, if there were 21 years dryer in
- 19 the 50-year period, than in 1981, if there were 21
- 20 years in the 50-year period drier than in 1981, under
- 21 the Department of Fish and Game's system of
- 22 classification, 1981 would be a normal year?
- 23 A. That's correct.
- 24 Q. I'm going to ask you to make that assumption.
- 25 A. Yes.
- 0104
- 01 Q. Now, I'd like you to look at Figure 2 from the
- 02 rebuttal testimony of Mr. Hasencamp, L.A. DWP Exhibit 03 133.
- 0.4
- 04 HEARING OFFICER DEL PIERO: Mr. Birmingham, just

- 05 for my information, how long do you expect your 06 examination to go on?
- 07 MR. BIRMINGHAM: I would say five minutes, if 08 things go a little smoother than what they have up to 09 this point.
- 10 MR. DODGE: This is the only panel we have today, 11 Mr. Chairman.
- 12 HEARING OFFICER DEL PIERO: Yes, I know.
- 13 MR. DODGE: Hopefully, we'll get it done before 14 lunch.
- 15 HEARING OFFICER DEL PIERO: I hope so. I have an 16 appointment at 12:00 noon. And if you have to carry
- 17 over, I need to work that out. And there are some
- 18 other people who had anticipated us by being done by 19 12:00.
- MR. BIRMINGHAM: We'll be done by 12:00. I'll be done by 12:45 at the latest. I mean, 11:45 at the latest.
- 23 Q. BY MR. BIRMINGHAM: Do you have Figure 2 in front 24 of you, Mr. Vorster?
- 25 A. BY DR. VORSTER: Yes, I do.
- 0105 01 O. Again, 1981 being a normal y
- 01 Q. Again, 1981 being a normal year, there would have 02 been a requirement of the Department of Fish and Game's 03 recommendation for DWP to release flushing flows of
- 04 200 cfs; is that correct?
- 05 A. That's correct.
- 06 Q. Now, in 1981, the maximum -- the peak flow in Rush
- 07 Creek was about 155 cfs; is that correct?
- 08 A. That's correct.
- 09 Q. So the additional 45 cfs would have had to have
- 10 been made up by storage?
- 11 A. That's correct.
- 12 Q. Now, did you include that analysis, that kind of
- 13 an analysis, that kind of flushing flow requirement in
- 14 your analysis of the amount of water that would be
- 15 available to DWP to export during  $\operatorname{\mathsf{--}}$  based on the Fish
- 16 and Game recommendations?
- 17 A. No, I did not. As I stated, LAAMP does not give
- 18 us the ability to directly analyze that, but --
- 19 Q. So, in fact, there would be less water available
- 20 for the Department of Water and Power to export than
- 21 you've reported under your analysis?
- 22 A. As an annual average, over the 50-year period of
- 23 record, it would be very, very small. 24 Q. But in response to my question, the answer is yes?
- 25 A. Absolutely.
- 0106
- 01 Q. Let's talk about some questions that you responded
- 02 to that were framed by Mr. Roos-Collins. It relates to
- 03 Table 6 in the second set, or the second document, of
- 04 statement of rebuttal testimony submitted by
- 05 Mr. Hasencamp, and it's the rebuttal testimony related 06 to water supply modeling issues.
- 07 Now, I just want to make sure the record is clear
- 08 on this. The data that is contained in Table 6, that
- 09 data is still correct; isn't it, Mr. Vorster?
- 10 A. Depends on how you interpret -- it says DFG
- 11 recommended flows. If it's the flows that are
- 12 contained in the Rush Creek IFIM addendum, it is. But

- 13 to the extent that the recommended flows now equal
- 14 inflow, it is not correct.
- 15 Q. Now, let's look at the top table on Table 6, there
- 16 are two tables. The top one relates to Lee Vining
- 17 Creek.
- 18 Isn't correct that the recommended flow of the
- 19 Department of Fish and Game equals or exceeds the
- 20 historical flow rates according to the percentages set
- 21 forth in this table?
- 22 A. The problem I have is how you interpret
- 23 "recommended flows."
- 24 Q. Well, the Department of Fish and Game has
- 25 recommended a minimum flow for a given month; is that 0107
- 01 correct?
- 02 A. Or the inflow.
- 03 Q. Now, the recommended flow that the Department of
- 04 Fish and Game has specified is equaled or exceeded the
- 05 percentage of time contained in Table 6; isn't that
- 06 right?
- 07 A. If you assume the recommended flows are those that
- 08 are specified -- those that were based upon the
- 09 analysis of the weighted usable area. But the
- 10 recommendation, I want to make sure it's very clear,
- 11 and Mr. Smith can correct me if I'm wrong, is equal to
- 12 the inflow on Lee Vining Creek at all times. And on
- 13 Rush Creek is equal to the inflow, unless it's less
- 14 than the dry year flow.
- 15 Q. But I just wanted to make sure that we all
- 16 understood that those percentages in Table 6 have not
- 17 changed based upon the change of the Department of Fish
- 18 and Game's recommendation; is that right, Mr. Vorster?
- 19 MR. DODGE: Objection. Vague as to form. I think 20 we have to be very specific as to whether we're talking
- about the DFG numerical recommendations, or we're
- 22 talking alternatively about the lesser of the DFG
- 23 numerical recommendation for the natural flow.
- MR. BIRMINGHAM: Fair enough. Mr. Dodge is
- 25 correct.
- 0108
- 01 Q. BY MR. BIRMINGHAM: Let's just restrict your
- 02 answers to numerical recommendations of the Department
- 03 of Fish and Game.
- 04 A. As contained in, I think, their IFIM reports?
- 05 Q. And their addendum.
- 06 A. And their addendum. With that assumption, I think
- 07 these numbers are correct.
- 08 Q. With that assumption, these numbers set forth in
- 09 Table 6 of Mr. Hasencamp's rebuttal testimony are still
- 10 correct?
- 11 A. I would assume so. I haven't done the unimpaired
- 12 analysis. I've done the impaired analysis. I assume
- 13 it's correct.
- 14 Q. You have no reason to doubt they're correct?
- 15 A. No.
- 16 Q. Thank you. Now, in response to some questions by
- 17 Mr. Dodge, you said in dry years, the Department of
- 18 Water and Power is required to release water to -- from
- 19 storage to make up for the flows in Rush creek.
- It would require the release of about a thousand

- 21 acre-feet of water from storage; is that right?
- 22 A. On the average, I would say. I said it was the
- 23 range. I did say I was going to check at the break.
- 24 Q. Did you check?
- 25 A. No, unfortunately, I didn't. But I want to make 0109
- 01 sure you understand this. Based upon the LAAMP runs I
- 02 did, and as I stated before the LAAMP runs require that
- 03 the minimum reservoir level -- you cannot lower it
- 04 below the minimum. Therefore there will be dry years
- 05 in which you cannot release water from the storage,
- 06 because they're at the minimum reservoir.
- 07 Q. But Mr. Smith says that's not necessarily the
- 08 position of Department of Fish and Game?
- 09 A. That's true.
- 10 Q. Now, let's analyze 1976, first, and then we'll
- 11 analyze 1977.
- Now 1976, the runoff in Rush Creek was
- 13 approximately 25,524 acre-feet; that is correct,
- 14 Mr. Vorster?
- 15 A. In 1976, yeah, 20 -- yeah, I think so.
- 16 Q. And Mr. Hasencamp wants me to -- he's objected on
- 17 the grounds it's an ambiguous question. We're talking
- 18 about runoff here, isn't that right, Mr. Vorster?
- 19 A. That's true, April through March.
- 20 Q. And during that year, the Department of Water and
- 21 Power would have been required to release about 5,000
- 22 acre-feet of storage water from storage to meet the
- 23 minimum dry year recommendations of the Department of
- 24 Fish and Game?
- $25\,$  A. Taking the lump sum of the annual amounts, it  $0110\,$
- 01 would be -- I can tell you that in the LAAMP run, that 02 would not be the case.
- 03 Q. But looking at actually what happened
- 04 historically, it would have been about 5,000 acre-feet?
- 05 A. As a lump sum. Let's just use a lump sum of
- 06 25,000 acre-feet of runoff, 30,000 acre-feet of
- 07 requirement, you obtain 5,000 acre-feet.
- 08 Q. Now, 1977 the following year, that also would have
- 09 required about 5,000 acre-feet of water from storage to
- 10 meet the Department of Fish and Game's minimum dry year
- 11 flows?
- 12 A. That's correct, using the same reasoning, 25,000
- 13 acre-feet as a lump annual sum of runoff, the annual
- 14 requirement, the requirement of DFG dry year flows is
- 15 30,000 acre-feet on an annual basis.
- 16 Q. It's correct, Mr. Vorster, and I'm going to ask
- 17 you here to assume that it would be necessary to
- release water from storage below the level of 11,500 acre-feet.
- 20 If you make that assumption, in 1976 and 1977
- 21 Grant Lake would have been reduced to dead storage to
- 22 meet the minimum Department of Fish and Game flows?
- 23 A. Close to it, but not quite. I think operationally
- 24 you can -- again, just using a lump sum approach, you
- 25 would be close to it. It would probably not happen, 0111
- 01 but using the assumptions, you're right.
- 02 Q. Now, the last question I have is for either one of

03 you. Mr. Smith asked a question about whether or not 04 you were recommending that diurnal flows on Rush Creek 05 mimic what occur naturally.

And in response to a question, Mr. Vorster, you said you could install a mechanism to accomplish the release of diurnal flows in Rush Creek to mimic what happens naturally.

My question is: Neither of you are recommending the adoption of an order that imposes diurnal fluctuations to mimic what happens naturally; isn't

13 that correct?

- 14 A. BY DR. VORSTER: I think --
- 15 A. BY MR. GARY SMITH: No, no we're not.
- 16 Q. BY MR. BIRMINGHAM: You're not making that
- 17 recommendation?
- 18 A. BY MR. GARY SMITH: If it can be done, it would be
- 19 desirable. But I don't believe we're making that
- 20 recommendation at this time.
- 21 MR. BIRMINGHAM: I went a minute over. I 22 apologize.
- HEARING OFFICER DEL PIERO: You don't have to apologize for that, Mr. Birmingham. Mr. Dodge?
- 25 RECROSS EXAMINATION BY MR. DODGE
- 0112
- 01 Q. BY MR. DODGE: Mr. Vorster, hypothetically, you 02 were asked to assume that 1981 was normal, and it was
- 03 pointed out that there was a peak in 1981 on Rush Creek
- O4 of a hundred and fifty-five cfs; is that correct?
- 05 A. That's right.
- 06 Q. So you would have to make up from storage for five
- 07 days, 45 cfs or more; is that a fair statement of what
- 08 would have occurred to meet the recommended flushing 09 flows?
- 10 A. Right, right. The recommendation for 200 cfs for 11 five days.
- 12 Q. Let's say it was a make up of 45 cfs for five
- 13 days. How much water is that?
- 14 A. That would be 90 acre-feet a day times five would 15 be 445 acre-feet.
- 16 Q. Let me ask you a broader question, still the same 17 subject matter, whether or not you would have to use
- 18 storage for flushing.
- 19 Mr. Smith, would you agree that it would be
- 20 desirable to try to avoid that?
- 21 A. BY MR. GARY SMITH: Yes, yes, I agree.
- 22 Q. Now, Mr. Vorster, hypothetically if the
- 23 decision-maker were trying to avoid using storage for
- 24 flushing, that would mean, I take it, timing the
- 25 flushing flows to come down the same time as the normal 0113
- 01 high flows come down, correct?
- 02 A. BY DR. VORSTER: That's correct.
- 03 Q. And it's been pointed out in 1981, assuming that's
- 04 a normal year, that you still wouldn't meet the DFG
- 05 minimum recommendation of 200 cfs for five days.
- 06 I just have a general question. Assuming you are
- 07 trying to time the flushing flows to correspond with
- 08 the high flows, how often would you have that sort of a
- 09 situation, where you had to make up flushing flows with 10 storage?

- 11 A. BY DR. VORSTER: Not very often. I think I
- 12 referred -- I think Bill Hasencamp referred to the
- frequency in his testimony, that in wet years, it would
- 14 be 14 percent of the years. In normal years, it would
  - be, I think, it was 6 percent of the years.
- 16 The magnitude, though, is what I think is most
- 17 important. I think 1981 is the extreme example.
- 18 That's about as high of a make up as would be
- 19 required. In some of those other years it would be
- much smaller. I think I use the example of 1973, I
- think it was only a hundred and seventy-eight
- 22 acre-feet.
- 23 Q. And again, 1981 it was 450?
- 24 A. Yes.
- 25 Q. Assuming that was a normal year?
- 0114
- 01 A. That's correct.
- Now, I think you established in response to 02 0.
- 03 questions by Mr. Roos-Collins, I believe, that -- I'm
- 04 looking at DFG Exhibit 198. You've now got a situation
- 05 under DFG Exhibit 198 where, as I understand it, the
- 06 Hasencamp figure of 38 percent for Rush Creek on page 4
- 07 of his rebuttal testimony is now reduced to
- 08 approximately 15 percent?
- 09 A. That's correct.
- Now, refresh my recollection as to what those two 10 Q.
- figures compare, because I've forgotten. 11
- It compares the number of months in which the
- inflow to Grant Lake is less than DFG dry year 13
- recommendation. And that's what I've shown in
- 15 DFG 198.
- 16 What Mr. Hasencamp is showing, I think is
- comparable too. Whether he included the flushing flow 17 18 requirement, I do not know.
- 19 Now, if you moved over to Lee Vining Creek, and Ο.
- 20 you assumed that the DFG recommendation is the
- either/or. Either the numerical cfs or whatever comes
- 22 down the creek, whichever is less. Then the comparable
- 23 figure for Lee Vining Creek is zero; isn't it?
- 24 A. That's correct.
- 25 0. So DFG is in no case recommending that more go

0115

- 01 down Lee Vining Creek than is actually being supplied 02 to it?
- 03 A. That's correct.
- 04 Q. Okay. Last question for either of you.
- We've had a series of questions about what would 0.5
- 06 happen if Grant Lake got down to 11,500 acre-feet. And
- 07 the incoming water was less than the DFG recommended 08 dry flows.
- 09 Do you recall those questions?
- BY DR. VORSTER: Yes. 10 A.
- BY MR. GARY SMITH: Yes. 11 Α.
- Now, do either of you have an opinion as to how 12
- likely it is that that situation will be faced in real
- 14 life, assuming that whoever is managing the reservoir
- 15 is trying to avoid it.
- BY DR. VORSTER: It would be a situation that only
- in the very driest of years, like we had in the 1977 17
- 18 situation, where you would face that. But actually, in

19 considering 1977, DWP was trying to export as much 20 water as possible, I believe, and was drawing the

21 reservoir down for that reason.

To the extent that we have different reasons to 23 release or maintain water in the reservoir, I think it would be possible to nearly always avoid that situation, unless you had obviously a very, very long

0116

22

01 period of extended dry conditions, very, very dry 02 conditions.

03 Looking at the historic record, it would be 04 extremely rare.

My question asked for you to assume that the 0.5 Ο. reservoir operator is trying both to maintain 11,500 07 acre-feet minimum and to send down the recommended DFG 08 flows down Rush Creek.

09 Now you told me that in 1977, the operator's 10 intent was not to do that but rather to export.

11 A. That's correct.

12 Q. Now, I want you to stick with my assumption, that 13 the operator is trying to maintain a minimum of 11,500 acre-feet, and also send down Rush Creek the DFG recommended flows for dry years.

Let me ask you directly: Had DWP been trying to 16 17 do that in 1977, in your judgment could it have been accomplished? 18

To the extent that 1977 followed 1976, there may 19 20 have been -- you know, the reservoir may have been drawn down so that by the end of '77 they were close to minimum, and they would have been in that situation where a decision would have to be made by the Department of Fish and Game.

25 But I think prudent operations would be able to 0117

01 keep it above 11,000 acre-feet until later on in the 02 year.

03 In other words, because '77 followed '76, your 04 reservoir levels would be gradually drawing down 05 through the year.

Are you saying the problem of choosing between DFG 07 flows and reservoir minimums occurs only in a two-year 08 situation?

09 A. I think that's when you would most likely see it.

I think if you were in a one-year drought situation, as

long as you, you know, planned and forecasted in a

12 fairly accurate way, you could avoid it in most

13 circumstances.

Are you aware of any other situations in the Q.

15 50-year historical record where there would have been a

16 problem for the reservoir operator both to keep a

minimum of 11,500 acre-feet and to send the DFG flows 17 18 down?

I haven't done the detailed analysis, but if you 19 Α. look at the last six-year drought we just experienced,

DWP was able to maintain the reservoir at or above the 22 11,500 acre-feet.

23 And I can -- well, the flows generally, in fact, 24 almost always -- I don't have the flows right in front 25 of me, were at or above the DFG recommended dry year 0118

```
01 flow.
02
         MR. DODGE: No further questions.
03
         HEARING OFFICER DEL PIERO: Thank you very much.
04 Mr. Roos-Collins, how many questions do you have? How
    much time is it going to take you?
06
         MR. ROOS-COLLINS: I can conclude in five minutes.
         HEARING OFFICER DEL PIERO: Staff, any questions?
07
80
         MR. FRINK: No questions here.
09
         MR. SATKOWSKI: No questions.
10
         MR. CANADAY: Just a couple.
11
         HEARING OFFICER DEL PIERO: I have to make a phone
12 call before 12:00 noon. So we're going to take a five
13 minute break. It's going to take me two minutes to
14 make the phone call. We'll come back and finish by ten
15 minutes after the hour.
16
               (A recess was taken at this time.)
17
         HEARING OFFICER DEL PIERO: Back in session
18 Mr. Roos-Collins please, proceed.
19
            RECROSS EXAMINATION BY MR. ROOS-COLLINS
20 Q.
         BY MR. ROOS-COLLINS: Mr. Smith, in the course of
21 your examination today, you've been asked questions by
22 all attorneys, and also by State Water Board Staff as
23 to whether your numerical recommendations are monthly,
24 daily, diurnal.
25
         Do you recall those questions?
0119
01 A.
         BY MR. GARY SMITH: Yes.
         Let's go back to DFG 52, the stream evaluation
    report for Rush Creek, and specifically the addendum
    sheet which sets forth the numerical recommendations.
05
         Do you have that addendum sheet in front of you?
06 A.
         Yes, I do.
         Now, that sheet states that the flows recommended
    Ο.
    are Mono Gate One releases?
    Α.
         Yes.
10 Q.
         Is that correct? When you were here for your
11 direct testimony, I asked you whether the numerical
12 recommendations are instantaneous flows. I recall that
13 your answer was yes.
14 A.
         Yes.
15 0.
         That was your answer?
16 A.
         Yes.
17 0.
         And it is your answer today?
         Today, yes.
18 A.
         So if it were feasible to operate Grant Dam, so as
19 0.
20 to change the fish release on a daily basis to comply
21 with the flow recommendations you would recommend that
22 that be done?
23 A.
         Are you referring to the addendum flows?
24 Q.
         Yes.
25 A.
         The -- as long as these flows are met, yes.
0120
01 Q.
         In other words, you would recommend that the State
    Water Board get as close as is feasible to continuous
    compliance with the numerical recommendations stated in
04
    this addendum; is that correct?
05 A.
         Yes, yes.
06 Q.
         Thank you. Now, let's return to footnote two, in
07 Miss Cahill's January 26th, 1994 letter to this Board.
```

On the basis of your testimony, and also

0.8

- 09 Miss Cahill's and Mr. Birmingham's stipulation. I
- 10 believe I understand footnote two now.
- 11 Let me ask you a hypothetical, to ensure that the
- 12 record and my understanding are clear.
- 13 A. All right.
- MR. BIRMINGHAM: Before he does that,
- 15 Mr. Del Piero, may I just state for the purposes of the
- 16 record that my stipulation was to concur that
- 17 Miss Cahill stated what she meant to state in her
- 18 footnote, not that we necessarily concur that that be a 19 condition.
- 20 HEARING OFFICER DEL PIERO: I appreciate having
- 21 that on the record, Mr. Birmingham. However, that was
- 22 my understanding anyway.
- MR. ROOS-COLLINS: You know, I thought I had
- 24 trapped the unwary into a stipulation accepting -- the
- 25 Department of Water and Power into accepting the
- 0121
- 01 Department of Fish and Game's flow recommendations.
- 02 HEARING OFFICER DEL PIERO: Come, come,
- 03 Mr. Roos-Collins, you knew that wasn't the case.
- 04 Q. BY MR. ROOS-COLLINS: Now, Mr. Smith, for the
- 05 purpose of this line of questioning, you should have
- 06 footnote two and the addendum to the Fish and Game 07 Exhibit 52 in front of you.
- 08 Do you have both?
- 09 A. Yes, I do.
- 10 Q. For the month of April, the dry year
- 11 recommendation is 35 cfs, correct?
- 12 A. That is correct.
- 13 Q. If actual inflow into Grant Lake is less than 35
- 14 cfs in any year type, the Department is recommending a
- 15 release from storage to make up for that deficit; is
- 16 that correct?
- 17 A. That is correct.
- 18 Q. Let's leave aside that scenario. Let's assume
- 19 that we're in a normal or wet year, and that the inflow
- 20 into Grant Dam exceeds 35 cfs?
- 21 A. All right.
- 22 Q. Now, your numerical recommendation for a normal
- 23 year is 59 cfs; is that correct?
- 24 A. That is correct.
- $25\,$  Q. Let's assume that the inflow into Grant Dam is  $0122\,$
- 01 49 cfs in a normal year?
  - 02 A. During April?
  - 03 Q. During April.
- 04 A. All right.
- 05 Q. As I understand it, footnote two recommends that
- 06 the 10 cfs deficit between actual inflow, the 49 cfs,
- 07 and the numerical recommendation of 59 cfs, be made up
- 08 from storage if that would serve lake maintenance
- 09 purposes; is that correct?
- 10 A. That is correct.
- 11 Q. As far as the Department is concerned, would that
- 12 10 cfs be treated as a lake release?
- 13 A. Yes.
- 14 Q. Not as a fish release?
- 15 A. Not as a fish release.
- 16 Q. It would be a lake release?

```
17 A.
         Correct.
         Credited to whatever quantity of water the State
19 Water Board set aside for lake maintenance purpose; is
20 that correct?
21 A.
         Yes.
22
         MR. ROOS-COLLINS: Thank you. No further
23 questions.
         HEARING OFFICER DEL PIERO: Thank you very much,
25 Mr. Roos-Collins.
0123
01
         Mr. Valentine?
02
         MR. VALENTINE: No questions.
0.3
         HEARING OFFICER DEL PIERO: Mr. Frink?
0.4
         MR. FRINK: No questions.
05
         HEARING OFFICER DEL PIERO: Mr. Satkowski?
06
         MR. SATKOWSKI: None here.
07
         HEARING OFFICER DEL PIERO: Mr. Smith?
80
         MR. HUGH SMITH: No questions.
09
         HEARING OFFICER DEL PIERO: Mr. Herrera?
10
         MR. HERRERA: I have no questions.
11
         HEARING OFFICER DEL PIERO: Mr. Canaday?
12
         MR. CANADAY: Two quick questions.
13
         HEARING OFFICER DEL PIERO: Go ahead.
14
              RECROSS EXAMINATION BY THE STAFF
         BY MR. CANADAY: Mr. Vorster, when you responded
15 Q.
    to Mr. Dodge, it was a hypothetical question that if in
    two consecutive dry years, you could maintain the
18 stream flow recommendations from the Department
    instream flow and flushing, and maintain a minimum
19
20 Grant Lake level.
21
         And you believed you could do that, correct?
         BY DR. VORSTER: Except in a dry year, you
    wouldn't have any flushing flow.
   Ο.
         Okay.
25
         I said you could run into some problems in your
    Α.
0124
01 second dry year, depending on where you started your
02 storage at the beginning of your first dry year.
03 Q.
         And if we were to take note of some testimony
04 that's coming up by Dr. Stine on the length of historic
05 droughts, you believe you could make that same
06 statement, that it would be likely you could do both?
07 A.
         Dr. Stine's going to be testifying about
08 prehistoric droughts. Was that what you meant?
09 that your question?
10 Q.
         Yes.
11 A.
         Yeah, we had droughts of prehistoric length of --
12 Q.
         20 years?
13 A.
         20 years, then you would run into a conflict
14 between maintaining dry year releases and maintaining
15 Grant storage at 11,500 acre-feet.
         MR. CANADAY: This question is actually for
16
17 Miss Cahill.
18
         It was my understanding that the Department met
19
    with the FERC this morning out at --
20
         MR. BIRMINGHAM: Objection. Relevance. I'm
21 sorry. I didn't allow Mr. Canaday to finish his
22 question.
23
         HEARING OFFICER DEL PIERO: That's right, you
24 didn't. And at this point, it's premature as to
```

```
25 whether or not it's relevant. He's simply asking about
0125
 01 whether or not a meeting took place.
         MS. CAHILL: It was my understanding that the
 02
 03 meeting was postponed, and that the meeting will happen
    this afternoon.
         MR. CANADAY: Do you know what time?
 05
         MS. CAHILL: I can find out. MR. CANADAY: Thank you.
 06
 07
 08
         HEARING OFFICER DEL PIERO: Thank you very much.
 09 Miss Cahill?
 10
         MS. CAHILL: I have no questions. I would just
 11
    like to thank the members of the panel, and move the
 12
    admission of DFG Exhibit 170-A, in place of old Exhibit
 13
    170, and also Exhibits 198 and 199.
 14
         HEARING OFFICER DEL PIERO: Any objection? None?
 15 So ordered. Exhibits 170-A, 198 and 199 are --
 16
                       (DFG Exhibits Nos. 170-A, 198, and
 17
                       199 were admitted into evidence.)
 18
         MR. DODGE: What's Exhibit 199?
 19
         MS. CAHILL: It was the video.
 20
         HEARING OFFICER DEL PIERO: Mr. Smith,
 21 Dr. Vorster, always a pleasure, gentlemen.
         MR. HERRERA: Does 170-A include the January 26th
 23 letter?
 24
         MS. CAHILL: I didn't think it needed to, but if
 25 the Board would prefer that it include the letter,
0126
 01 that's fine.
 02
         MR. BIRMINGHAM: The letter is part of the Board's
 03 record.
         HEARING OFFICER DEL PIERO: Yes, it was numbered
 05 as -- what was that number?
         MS. CAHILL: It wasn't numbered. It was like a
 07
    cover to 170-A.
         HEARING OFFICER DEL PIERO: Is that what it was?
 0.8
 09
         MS. CAHILL: If it would be your preference to
 10 include the letter in 170-A, we can do that.
         HEARING OFFICER DEL PIERO: That's my preference.
 11
 12
         MS. CAHILL: That will be fine.
 13
         HEARING OFFICER DEL PIERO: So ordered into the
 14 record.
 15
                         (DFG Exhibit 170-A was ordered to
                         include the January 26, 1994
 16
                         letter from Ms. Cahill.)
 17
 18
         HEARING OFFICER DEL PIERO: Mr. Roos-Collins?
         MR. ROOS-COLLINS: Just a clarification for
 19
 20
    Thursday, the 17th.
 21
         HEARING OFFICER DEL PIERO: Yes, sir.
         MR. ROOS-COLLINS: We intend to call Mr. Vorster
    to complete his testimony regarding the pre-1941
 23
 24
    hydrology.
 25
         HEARING OFFICER DEL PIERO: Okay. Thursday the
0127
 01 17th, as everyone may or may not be aware, is also
 02
    scheduled to go into the evening. Okay? Anything
 03
    else?
 04
         Thank you everyone for your participation, ladies
 05 and gentlemen, we'll see you Thursday.
 06
                 (Whereupon the proceedings were
```

```
07
                    adjourned at 12:07 p.m.)
 08
                            ---000---
 09
 10
 11
 12
 13
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24
 25
0128
 01
                    REPORTER'S CERTIFICATE
 01
 02
                           ---000---
 02
 03 STATE OF CALIFORNIA )
 03
                          )
                              ss.
 04 COUNTY OF SACRAMENTO )
 04
          I, KIMBERLEY R. MUELLER, certify that I was the
 05
 06 official court reporter for the proceedings named
 07 herein; and that as such reporter, I reported, in
 08 verbatim shorthand writing, those proceedings, that I
 09 thereafter caused my shorthand writing to be reduced to
 10 typewriting, and the pages numbered 1 through 127
 11 herein constitute a complete, true and correct record
 12 of the proceedings:
 13
 14
          PRESIDING OFFICER: Marc Del Piero
 15
          JURISDICTION: State Water Resources Control Board
 16
         CAUSE: Mono Lake Diversions
 17
         DATE OF PROCEEDINGS: Wednesday, February 9, 1994
 18
 19
         IN WITNESS WHEREOF, I have subscribed this
 20 certificate at Sacramento, California, on this 11th day
 21 of February, 1994.
 22
 23
 24
                              Kimberley R. Mueller, RPR
 24
 25
                              CSR No. 10060
 25
```