

0001

01 PUBLIC HEARING  
02 STATE WATER RESOURCES CONTROL BOARD  
03 DIVISION OF WATER RIGHTS  
04 STATE OF CALIFORNIA

05  
06 ---o0o---

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 ----o0o---

13

14 Held in  
15 Bonderson Building  
16 Sacramento, California  
17 Monday, January 10, 1994

18

19 VOLUME XXIX

20

21 ---o0o---

22

23

23 Reported by: Kelsey Davenport Anglin, RPR,  
24 CM, CSR No. 8553

24

25

0002

01 BOARD MEMBERS

02

03 MARC DEL PIERO  
04 MARY JANE FORSTER

05

06

07 STAFF MEMBERS

08

09 DAN FRINK, Counsel  
10 JAMES CANADAY, Environmental Specialist  
11 STEVE HERRERA, Environmental Specialist  
12 RICHARD SATKOWSKI, Engineer  
13 HUGH SMITH, Engineer

14

14

15

15

16

16

17

17

18

18

19

19

20

20

21

21

22

22

23  
23  
24  
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  
11 555 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:  
21  
22 RICHARD ROOS-COLLINS  
22 CYNTHIA KOEHLER  
23 Attorneys at Law  
23 114 Sansome Street, Suite 1200  
24 San Francisco, California 94104  
24  
25 For the City of LA and LA DWP:  
25  
0004  
01 THOMAS W. BIRMINGHAM  
01 JANET GOLDSMITH

02 Attorneys at Law  
02 Kronick, Moskovitz, Tiedemann & Girard  
03 400 Capitol Mall, 27th Floor  
03 Sacramento, California 95814  
04  
04 For State Lands Commission, Department of Parks and  
05 Recreation:  
05  
06 JAN STEVENS  
06 MARY SCOONOVER  
07 Assistant Attorney General  
07 1515 K Street  
08 Sacramento, California 95814  
08  
09 For Meter Water District of Southern California and  
09 LA MWD:  
10  
10 VICTOR GLEASON  
11 Attorney at Law  
11 1111 Sunset Boulevard  
12 Los Angeles, California 90050-0153  
12  
13  
13 For Haselton Associates and John Arcularius:  
14  
14 FRANK HASELTON  
15 Attorney at Law  
15 P.O. Box Drawer 4687  
16 Anaheim, California 92803  
16  
17 JOHN ARCULARIUS  
17  
18 For the California Air Resources Board:  
18  
19 OFFICER OF LEGAL AFFAIRS  
19 2020 L Street  
20 Sacramento, California 95814  
20 BY: KIRK C. OLIVER, Senior Staff Counsel  
21  
21 For the Great Basin Unified Air Pollution Control  
22 District:  
22  
23 PAUL BRUCE, District Counsel  
23  
24  
24  
25  
25  
0005

I N D E X

PANEL	PAGE
LUCI McKEE, ANDY RANZIERI, DUANE ONO, KEN RICHMOND, DR. DAVID GROENEVELD, THEODORE D. SCHADE	
Direct Examination by Mr. Gipsman	12
Direct Examination by Mr. Bruce	22, 37
Direct Examination by Mr. Oliver	35

06	Cross-examination by Mr. Birmingham	46
07	Cross-examination by Ms. Cahill	93
07	Cross-examination by Mr. Flinn	100
08	Cross-examination by Mr. Roos-Collins	115
08	Cross-examination by The Staff	116
09	Recross Examination by Mr. Birmingham	128
09	Recross Examination by Mr. Flinn	130
10	Recross Examination by The Staff	131

10

11 DR. CARL F. MESICK

11

12	Direct Examination by Mr. Dodge	139
12	Direct Examination by Mr. Roos-Collins	164
13	Cross-examination by Mr. Birmingham	181
13	Cross-examination by Ms. Cahill	208
14	Cross-examination by The Staff	215
14	Cross-examination by The Board	240

15

15

16 E X H I B I T S

16

17		ID	EV
17			
18	Great Basin Exhibit No. 33	46	133
18	DFG Exhibit No. 78	98	98
19	Great Basin Exhibits Nos. 1-32		135
19	USFS Exhibits Nos. 3, 4, 5, 6, 7		
20	13, 22		137
20	ARB Exhibits Nos 1 - 13		137
21	NAS/MLC Exhibits Nos. 246, 255		138
21			
22			
22	USFS Exhibits Nos. 17, 18, 21 were withdrawn		137

23

23

24

24

25

25

0006

01

SACRAMENTO, CALIFORNIA

02

MONDAY, JANUARY 10, 1994, 8:30 A.M.

03

---o0o---

04

HEARING OFFICER DEL PIERO: Ladies and Gentlemen,  
this hearing will come to order.

05

06

Good morning, this is the time and place for the  
continuance of the hearing regarding the amendment of  
the City of Los Angeles' water rights licenses for  
diversion of water from streams that are tributary to  
Mono Lake. My name is Marc Del Piero, Vice-Chairman of  
the State Water Resources Control Board, and I have  
been acting and will continue to act in the capacity as  
Hearing Officer in this matter.

07

08

09

10

11

12

13

14

So, joining me today, this first hearing day of  
1994, Staff Counsel, Mr. Dan Frink. Our environmental  
specialists, Mr. Jim Canaday and Mr. Steve Herrera, and  
our Staff Engineers, Mr. Rich Satkowski and Mr. Hugh  
Smith.

15

16

17

18

19

Everyone looks well and rested after the  
holidays. Also with us today is Kelsey Davenport

20

21 Anglin, who's our Court Reporter. It's a pleasure to  
22 see everyone. I hope everyone had a wonderful  
23 holiday.  
24 Mr. Canaday, I have received your publication, and  
25 I appreciated it very much. In fact, I brought it

0007

01 along with me, read the appropriate page this morning.  
02 So thank you very much for that.

03 We are beginning today with a panel on air  
04 resources. It is my understanding that there are  
05 witnesses that have been empaneled here today on behalf  
06 of three different parties, the Air Resources Board,  
07 the Great Basin Air Pollution Control District, and I  
08 believe there's one witness on behalf of the U.S.  
09 Forest Service.

10 Mr. Gipsman? There you are. Is Mr. Paul Bruce  
11 here? Mr. Bruce. And also Kirk Oliver? Mr. Oliver.  
12 Good.

13 Who's making the initial presentation here this  
14 morning, Gentlemen?

15 MR. BRUCE: Mr. Del Piero, if I can --

16 HEARING OFFICER DEL PIERO: Mr. Bruce.

17 MR. BRUCE: -- make a brief statement with regard  
18 to this matter. First of all, I'm District Counsel for  
19 Great Basin Unified Air Pollution Control District, and  
20 this morning the panel is comprised of members, as you  
21 correctly pointed out, from three agencies. The  
22 majority of the panel members are from Great Basin  
23 Unified Pollution Control District, and we have the  
24 addition of two other panel members with related  
25 testimony on air quality: Luci McKee from the U.S.

0008

01 Forest Service, and Andy Ranzieri from the Air  
02 Resources Board.

03 Now, the Great Basin Unified Air Pollution Control  
04 District is a unified control district and covers the  
05 counties Inyo, Mono, and Alpine Counties in California,  
06 and within that area, of course, it covers the Mono  
07 Basin. The district, for a number of years because of  
08 the air quality problems in the Mono Basin, has been  
09 studying air pollution and air quality at the Mono  
10 Basin, particularly at the lake, and in such capacity,  
11 having undertaken those studies as part of its  
12 regulatory functions, is particularly well-qualified to  
13 present some facts and evidence here today for your  
14 consideration.

15 On the panel, the first presentation will be made  
16 by Luci McKee, who is a hydrologist and air quality  
17 manager with the U.S. Forest Service Inyo National  
18 Forest. The next presentation will be made by Duane  
19 Ono, who is the deputy air pollution control officer  
20 for Great Basin Unified Air Pollution Control District.  
21 He will be followed by Mr. Ken Richmond, who is a  
22 consultant and expert to the Great Basin Unified Air  
23 Pollution Control District and who actually completed  
24 the modeling for the district concerning the Mono Basin  
25 and Mono Lake.

0009

01 Followed by that, will be Mr. Andy Ranzieri from  
02 the California Air Resources Board who, in fact,

03 reviewed the modeling and validated the model that was  
04 used by the district concerning Mono Lake. He will be  
05 followed by Dr. David Groeneveld, who is an expert and  
06 consultant to the district regarding vegetation. And  
07 the last party on the panel is Mr. Ted Schade who is a  
08 project manager for the district, and he will provide  
09 testimony concerning the attempts by the district to  
10 find viable mitigation measures for dust problems on  
11 Inyo and Mono Lake.

12 Today, the testimony by the Great Basin Unified  
13 Control District is going to point out several facts.  
14 And if you'll just let me take a second, what our  
15 evidence is going to show in summary is that the  
16 average lake level must be raised to the 6392  
17 alternative or higher in order to meet the applicable  
18 Federal Air Quality Standards.

19 Two, the average lake levels below the 6390  
20 alternative will likely result in violations of  
21 National Air Quality Standards.

22 Three, lake levels which result in violation of  
23 the National Air Quality Standards will cause adverse  
24 health effects.

25 Four, the Federal Air Quality Standards applicable  
0010 to the Mono Lake and the Mono Basin must be met.

01 Five, the standards in the Clean Air Act cannot be  
02 balanced against other interests.

03 Six, raising the lake level is the only reasonable  
04 mitigation measure for fugitive dust emissions from  
05 Mono Lake.

06 Seven, without extensive irrigation, there is no  
07 realistic way to enhance vegetation growth to reduce  
08 the blowing dust from the exposed Mono Lake playa that  
09 currently has poor or no vegetation cover.

10 And lastly, that the modeling upon which the  
11 district bases its opinions and evidence today  
12 regarding the attainment of Federal Air Quality  
13 Standards is reliable in accordance with the EPA  
14 requirements.

15 With that, I would like to turn the podium over to  
16 Mr. Gipsman with regard to Luci McKee.

17 HEARING OFFICER DEL PIERO: Good morning,  
18 Mr. Gipsman.

19 MR. GIPSMAN: Good morning.

20 HEARING OFFICER DEL PIERO: Nice to see you, Sir.

21 MR. GIPSMAN: Nice to get back. Even though I  
22 have not been here that much, I did feel a certain  
23 emptiness in the past three weeks.

24 MR. BIRMINGHAM: We've missed you, too,  
0011

01 Mr. Gipsman.

02 MR. GIPSMAN: Thank you.

03 Before we get too excited about air quality, we  
04 have a short matter to take care of with regard to  
05 water rights. There will be three parts to Ms. McKee's  
06 presentation, and the first five minutes will be  
07 devoted to this small water rights issue, the second  
08 will be a very short video, and the third will be a  
09 very short narrative with respect to air quality of  
10 less than five minutes.

11 HEARING OFFICER DEL PIERO: Mr. Birmingham?  
12 MR. BIRMINGHAM: Mr. Del Piero, I did not  
13 understand that this hearing was noticed for purposes  
14 of determining water rights of the United States Forest  
15 Service or the Town of Lee Vining. I know that there  
16 are --  
17 HEARING OFFICER DEL PIERO: I don't know that  
18 that's what the nature of the presentation is about.  
19 MR. GIPSMAN: No. The nature is the uses that the  
20 Forest Service is going to -- is making of this water.  
21 It's our position that these are public trust uses and  
22 should be considered by the Board in the determination  
23 of the amount of water that needs to be set aside for  
24 public trust.  
25 MR. BIRMINGHAM: There are currently applications  
0012  
01 filed by the Town of Lee Vining.  
02 HEARING OFFICER DEL PIERO: Through this Board?  
03 MR. BIRMINGHAM: And the United States Forest  
04 Service. They are applications for permits to  
05 appropriate water, and the Department of Water and  
06 Power has filed protests with respect to the  
07 applications filed by the United States Forest Service.  
08 And we presume that those applications will be the  
09 subject of a hearing following the Board's normal  
10 procedures.  
11 MR. GIPSMAN: We understand that as well.  
12 HEARING OFFICER DEL PIERO: Good. We all  
13 understand what the procedure's going to be for a water  
14 rights application. Mr. Birmingham, let me point out  
15 that Mr. Gipsman is, in fact, allowed to put on his  
16 case, and I'm cognizant of your constraint. This is  
17 not -- this hearing has not been noticed to take up the  
18 issue of a water rights application that you're  
19 referring to, and I don't think there's any  
20 representation that it is or it ought to be.  
21 MR. GIPSMAN: That's correct.  
22 HEARING OFFICER DEL PIERO: Why don't you go ahead  
23 and proceed, Sir.  
24 DIRECT EXAMINATION BY MR. GIPSMAN  
25 Q Ms. McKee, will you identify yourself and spell  
0013  
01 your name for the record?  
02 A BY MS. McKEE: My name is Lucinda McKee,  
03 L-U-C-I-N-D-A, last name's Mc-K-E-E.  
04 MR. BIRMINGHAM: Mr. Cane correctly points out --  
05 Mr. Cane, who is a staff member of the Mono Lake  
06 Committee, correctly points out that none of the  
07 members of this panel have been sworn.  
08 HEARING OFFICER DEL PIERO: I appreciate that very  
09 much.  
10 Ladies and Gentlemen, would you be kind enough to  
11 stand and raise your right hand? Do you promise to  
12 tell the truth during the course of this proceeding?  
13 The answer is I do.  
14 (All say I do.)  
15 HEARING OFFICER DEL PIERO: Thank you very much.  
16 Q BY MR. GIPSMAN: Ms. McKee, who are you employed by?  
17 A BY MS. McKEE: I'm employed by the U.S. Forest  
18 Service.

19 Q And what is your position with the U.S. Forest  
20 Service?  
21 A I'm the Forest Hydrologist and Air Quality  
22 Coordinator.  
23 Q And what are your responsibilities in that  
24 position?  
25 A I manage the hydrology and air programs for the  
0014  
01 forest and have familiarity with the applicable laws  
02 and regulations and policy.  
03 Q Will you take a look at U.S. Forest Service  
04 Exhibit 22? Is this your statement that was submitted  
05 to the Board?  
06 A Yes.  
07 Q Do you wish to make any corrections to that  
08 statement at this time?  
09 A Yes, I do.  
10 MR. HERRERA: Luci, could you use the microphone  
11 please?  
12 MS. McKEE: Is that better?  
13 HEARING OFFICER DEL PIERO: Much better.  
14 Q BY MR. GIPSMAN: Could you please go through the  
15 corrections?  
16 A BY MS. McKEE: The first correction is on Page 3,  
17 Paragraph 2, Line Number 5. I'd like to replace  
18 "excellent" with "good".  
19 The second correction is Page 3, Paragraph 2,  
20 Line Number 6. I would like to delete the word  
21 "substantial".  
22 The next correction is Page 4, Paragraph 6, Line  
23 5. I would like to replace "can" with "may."  
24 And the last correction is Page 4, Paragraph 6,  
25 Line 6. I'd like to delete the sentence beginning with  
0015  
01 "many" and ending with "arise".  
02 Q With these corrections, Ms. McKee, is this  
03 statement a true and accurate version of your  
04 testimony?  
05 A Yes, it is.  
06 Q Would you please summarize your testimony for the  
07 Board?  
08 A I've been asked by the State Water Board Staff to  
09 take a few minutes and discuss our water rights  
10 applications as noticed in the October 18th, 1993, memo  
11 from the Board. I'm going to use Figure 1.2 to quickly  
12 describe what those petitions are and the condition of  
13 water rights in the Lee Vining Canyon area.  
14 Currently, we have two water rights licenses right  
15 about there, a little north and west of the ranger  
16 station. These licenses are for 9500 per day for  
17 domestic, irrigating, and fire protection uses at the  
18 ranger station and the compound.  
19 We have two future uses that we anticipate in the  
20 basin. The first use is at the visitor's center. The  
21 second use is at some proposed campgrounds up Lee  
22 Vining Canyon. We'll need approximately 20,000 gallons  
23 per day at the visitor's center, and approximately  
24 75,000 gallons per day for the campgrounds.  
25 The petitions noticed in the October 18th memo  
0016



01 describe three different changes that we'd like to  
02 make. The first two petitions relate to the water  
03 rights licenses that we currently have at Pashati  
04 Springs. One change is we'd like to change the source  
05 of the water from Pashati Springs to Lee Vining Creek  
06 underflow.

07 The second change is to add the visitor's center  
08 as a place of use under those two licenses.

09 The third change is to add a new well that was  
10 drilled last winter as a point of diversion under those  
11 licenses.

12 The last petition in that October 18th letter was  
13 a request for the state assignment or release of about  
14 20,000 gallons per day under State Filing Application  
15 19769 for use at the visitor's center. This water  
16 would be taken from our well up canyon and pumped  
17 directly into the Town of Lee Vining Public Utility  
18 District pipeline where the Public Utility District  
19 would wheel our water down their pipeline, which  
20 already goes to the Town of Lee Vining, and out to the  
21 visitor's center, and we'll have an agreement for  
22 that.

23 Now, in this October 18th letter, it did not  
24 mention the 75,000 gallons per day which was mentioned  
25 in my declaration. This is an update to that

0017

01 declaration. There have been some changes. It was  
02 determined by the Forest Service and the board staff  
03 that the 75,000 gallons per day in that new well was  
04 not a right that needed an appropriative right, so that  
05 was not in the October 18th letter. And that's it for  
06 water rights discussion.

07 Moving on to the air quality portion of my  
08 declaration. The goal of scenic area management, as  
09 stated in the plan, is to protect the geologic,  
10 ecologic, cultural, scenic, and other natural  
11 resources. One of the critical natural and ecologic  
12 resources in the Mono Basin is air quality. The  
13 comprehensive management plan, hereafter referred to as  
14 the CMP, recognizes that on most days, air quality in  
15 the Mono Basin is good. However, episodes of blowing  
16 alkali dust from relicted lands have caused short-term  
17 air quality degradation in the scenic area which has  
18 resulted in exceedences of the State and National  
19 Ambient Air Quality Standards for P.M. Ten.

20 At this time, I'd like to show a video of about  
21 five minutes of excerpts from dust event footage  
22 recorded this spring by our visitor center personnel.  
23 Hopefully, this video will allow those of you who have  
24 never been to Mono Lake during a dust event to begin to  
25 understand the magnitude and the impact that blowing

0018

01 alkali dust from the relicted lands has on the value  
02 for which this area was created.

03 Jim, can you let me know about the sound?  
04 (Video being shown.)

05 "It's Wednesday, April 21st. It's 3:40 p.m.  
06 There's no significant wind blowing here at the  
07 visitor's center, but there is a huge dust cloud over  
08 on the land bridge. We did notice some dust storm

09 activity about an hour and a half ago on the east side  
10 of the lake. Things are pretty quiet over there now.  
11 There's some dust devils over on the east shore,  
12 though.

13 "It is Monday, May 3rd, 1993, and yet one more  
14 dust storm, and I'm sure not the last. You can  
15 probably hear the wind howling into the building.

16 "Okay. It is still Monday, May 3rd, 1993, and  
17 it's 10:00 a.m. now. An hour has passed. It's still  
18 blowing. It looks like the east shore is now taking  
19 its turn, although the land bridge, as you can see, is  
20 still blowing pretty good.

21 "Hi, again. It is Monday, May 3rd, 1993, at 2:05  
22 p.m. The dust storms have been going on all day.  
23 They've gotten worse since the afternoon has been going  
24 on. As you can see, you can't even see the mountains  
25 beyond Paoha on the east shore anymore. Everything's

0019

01 totally obscured.

02 "It's four o'clock in the afternoon, Monday, May  
03 3rd, 1993. Still lots of dust. Still can't see the  
04 mountains on the east shore. Paoha looks worse. We  
05 even have some toward the south and the east shore,  
06 also.

07 "Again, that's May 11th, 1993, Tuesday. It is  
08 12:24 p.m., and the dusts have been blowing since I got  
09 into work this morning about 7:38. I noticed from the  
10 barracks that the wind was blowing pretty hard, so I  
11 wouldn't doubt that the storm has been going on all  
12 morning. It's very thick on the east shore as we look  
13 out past Negit and Paoha. It is obscuring the  
14 mountains beyond. You can hear the wind again. These  
15 wind storms are really frequent this month and last.

16 "Well, it's still Tuesday, May 11th, 1993. It's  
17 3:30 in the afternoon. The dust is still going  
18 strong. The previous footage is from the same day at  
19 noon or about 12:30. We are starting to be able to see  
20 the mountains on the east shore where there seems to be  
21 more dust now on the land bridge. Still very hazy out  
22 because of the dust."

23 (End of video.)

24 MS. McKEE: The dust storms you've just seen don't  
25 happen only as isolated occurrences in the spring.

0020

01 This year we've begun monitoring dust events from the  
02 Mono Basin visitor's center. It's important to point  
03 out that we were not monitoring air quality. We were  
04 just monitoring dust events as viewed from the  
05 visitor's center, and I'd like to make one correction  
06 to Exhibit No. 4. I'd like to change the title of  
07 those forms from "air quality monitoring forms" to the  
08 more accurate "dust event monitoring forms."

09 Our data indicate that relatively large dust  
10 events occur in the winter and summer as well as the  
11 spring. Furthermore, we compared our data to the Great  
12 Basin Unified Air Pollution Control District, hereafter  
13 referred to the APCD, data and found that we recorded  
14 events for which APCD data was either not collected or  
15 the dust event apparently missed the single monitoring  
16 site maintained by the APCD. We are mandated by law to

17 to protect the scenic area resources and human health  
18 from the anthropogenic dust events like the ones  
19 you've just seen.

20 We know that frequent dust events occur in the  
21 Mono Basin which may be harmful to human health. The  
22 general public has access and utilizes all of the  
23 scenic area including the relicted lands. Human health  
24 must be protected everywhere in the Mono Basin, not  
25 just in the two or three most highly-used areas. At  
0021

01 the time the CMP was approved, it was assumed that  
02 mitigation measures could be identified that would  
03 alleviate the air quality problem and also be  
04 consistent with the CMP. The relicted lands, which  
05 include the primary sources areas for P.M. Ten, were  
06 designated as a no-development zone, an area managed  
07 essentially in natural condition, free of surface  
08 disturbance.

09 The Forest Service, through the CMP, committed to  
10 working with the APCD to bring the basin into  
11 compliance with the P.M. Ten. However, the Forest  
12 Service never anticipated that appropriate and feasible  
13 mitigation would prove too difficult to identify. Both  
14 the APCD and L.A. DWP have identified possible  
15 mitigation measures including soil leaching for native  
16 vegetation establishment, sand fences, volcanic  
17 cinders, gravel, and other coverings, flood irrigation  
18 systems, sprinkler systems, the use of non-native  
19 vegetation, and raising the level of Mono Lake to at  
20 least 6,390 feet.

21 We have determined that all of the possible  
22 mitigation measures proposed to date with the exception  
23 of raising the lake level are not appropriate or  
24 feasible in the no-development zone and are also  
25 clearly incompatible with the protection of resources  
0022

01 in the scenic area. Therefore, the Forest Service  
02 recommends that the 6390 alternative be chosen as the  
03 preferred alternative to most adequately protect the  
04 public trust values in the Mono Basin.

05 Thank you.

06 HEARING OFFICER DEL PIERO: Thank you very much.  
07 Mr. Bruce?

08 MR. BRUCE: Thank you.

09 DIRECT EXAMINATION BY MR. BRUCE

10 Q Mr. Ono, would you please state your name and  
11 spell it for the record?

12 A BY MR. ONO: Good morning, Mr. Del Piero. My name is  
13 Duane Ono, and that is spelled D-U-A-N-E. Last name is  
14 O-N-O.

15 Q Would you please describe your current employment  
16 and its duties and responsibilities?

17 A I am currently the Deputy Air Pollution Control  
18 Officer with Great Basin Air Pollution Control  
19 District, and my primary area of responsibility, at  
20 least as it pertains to this hearing, is for air  
21 quality planning for P.M. Ten and also for doing  
22 particulate matter research.

23 Q Mr. Ono, would you briefly describe your education  
24 and experience which relate to your duties and

25 functions with the district in regard to P.M. Ten  
0023  
01 monitoring and management?  
02 A Okay. Since May of 1989, I have been the Deputy  
03 Air Pollution Control Officer for the Great Basin, and  
04 I've been responsible, in my regular duties, for  
05 developing and reviewing the technical information for  
06 Owens and Mono Lake, especially for the fugitive dust  
07 projects.  
08 From September of 1983 to May 1989, I was employed  
09 by the U.S. Environmental Protection Agency at Region  
10 Nine in San Francisco, and there I was the P.M. Ten  
11 Program Coordinator, and I coordinated P.M. Ten  
12 programs in the western states including Arizona,  
13 Nevada, California, Hawaii, and the Pacific Islands.  
14 As part of my duties, I developed, reviewed, and  
15 implemented policies and strategies for the P.M. Ten  
16 program, reviewed legal issues and programs related to  
17 P.M. Ten such as air toxics, visibility, acid  
18 deposition, ozone, and oxides and nitrogen.  
19 Also --  
20 HEARING OFFICER DEL PIERO: Mr. Ono, were you here  
21 before?  
22 MR. ONO: I have been here on several occasions  
23 and casually spoken with you.  
24 HEARING OFFICER DEL PIERO: But before that?  
25 MR. ONO: I don't think so. I don't think that I  
0024  
01 had anything going with Monterey Bay, and I know that's  
02 where you were before.  
03 HEARING OFFICER DEL PIERO: Okay. Thank you.  
04 MR. ONO: I also provided technical and policy  
05 evaluations for P.M.10 ozone air quality plans. That  
06 included remodeling, monitoring, soil sampling. I  
07 performed emissions inventory work, and developing  
08 control techniques for P.M.10 and ozone. Also, I  
09 developed resource models for the regional P.M.10  
10 program and evaluated schedules and programs for state  
11 and local agencies in Region Nine.  
12 While I was at EPA, I also created and supervised  
13 a P.M.10 task force and also a computer users group.  
14 As a result of the experience that I had in the P.M.10  
15 program, in January of 1988, I was awarded the title of  
16 Regional P.M.10 Expert for EPA Region Nine, which was  
17 one of a handful of expert positions that were created  
18 at the regional level.  
19 Q BY MR. BRUCE: Do you have any educational  
20 qualifications that make you particularly suited to  
21 deal with the issues of air quality and P.M.10?  
22 A BY MR. ONO: Okay. I received two Bachelor of  
23 Science degrees; one in environmental resources  
24 engineering and another one in physics. I have my  
25 Master of Science degree from the University of  
0025  
01 California at Davis in fluid mechanics where I also  
02 worked on air pollution as an emphasis, and that was in  
03 the mechanical engineering field.  
04 Q Mr. Ono, have you had an opportunity to review the  
05 written testimony along with the referenced exhibits  
06 which were submitted as part of the Great Basin Unified

07 Air Pollution Control District's evidence in this  
08 matter?

09 A Yes, I have.

10 Q Are there any changes or corrections to that  
11 written testimony or any of the exhibits which you wish  
12 to make at this time?

13 A I have no changes to my written testimony.

14 Q Do you hereby adopt that written testimony and all  
15 the referenced exhibits as your testimony today?

16 A Yes, I do.

17 Q Would you briefly summarize for us the significant  
18 aspects of that written testimony?

19 A My written testimony covered basically three  
20 questions; the first question being what lake level  
21 provides the appropriate level of protection for air  
22 quality. The second question is what would be the  
23 health effects at different lake levels, and the last  
24 question, can air quality be balanced against other  
25 resource interests. So these are the three primary

0026  
01 questions that I've addressed in my written testimony.

02 With regard to the first question, what lake level  
03 is appropriate to protect air quality? And based on  
04 the investigation done by the district and based on  
05 information provided through Jones and Stokes and the  
06 EIR, we find, or I find, that about 6392 feet -- an  
07 average lake level of 6392 feet would provide an  
08 appropriate level of protection for air quality. And  
09 this is very close to the 6391.6 foot average that is  
10 included in the 6390 foot alternative, and so we  
11 believe that the 6390 foot alternative will provide the  
12 level of assurance that we need to believe that we will  
13 be protecting the public for air quality purposes.

14 We believe that the NAAQS must be met, or the  
15 National Ambient Air Quality Standard for P.M.10 must  
16 be met and that any higher lake levels would also bring  
17 the air into attainment of the air quality standard.  
18 The 6410 foot alternative or the no-diversion  
19 alternative would also satisfy the requirement for  
20 protecting the air quality.

21 Lower lake levels, however, such as the  
22 no-restriction alternative, 6372 foot alternative, 6377  
23 foot alternative, and 6383.5 foot alternative, none of  
24 those would satisfy the air quality requirements to  
25 bring the area into attainment.

0027  
01 To help us make the decision as to what the lake  
02 level needed to be, we contracted with TRC  
03 Environmental Corporation to run an air quality model.  
04 The model that was chosen was the Industrial Source  
05 Complex Two model which is an EPA approved model. And  
06 in running this model, we followed all the regulatory  
07 guidelines that were set out by the Environmental  
08 Protection Agency, and we also followed guidelines for  
09 collecting the information that went into the model  
10 including meteorology and the emissions inventory  
11 information.

12 This model and the results from the model were  
13 reviewed by the California Air Resources Board, and  
14 Andy Ranzieri is here to testify on that part. So with

15 regard to the second question, what would be the effect  
16 of different lake levels on health effects, the U.S.  
17 Environmental Protection Agency has set a national  
18 ambient air quality standards of 150 micrograms per  
19 cubic meter as a level of air pollution for P.M.10 that  
20 needs to be met. And based on their health studies,  
21 they feel that this level will protect sensitive  
22 individuals, and by sensitive individuals, EPA includes  
23 the elderly, children, people with heart or lung  
24 diseases, or people with influenza. All those people  
25 will be considered sensitive individuals who could be

0028

01 adversely impacted by bad air quality at Mono Lake.

02 And again, the solution for health effects is to  
03 bring the lake level up to a level that would protect  
04 the air quality standard. The 6390 foot alternative or  
05 a higher lake level would be the level that would be  
06 needed to do that.

07 With the final question, can air quality be  
08 balanced against other resource issues? And the answer  
09 to that is no. There's a national ambient air quality  
10 standard. There's the Clean Air Act that federally  
11 mandates us to meet those standards. The Mono Basin  
12 was just recently designated as a non-attainment area  
13 for the P.M.10 standard, and this officially occurred  
14 on December 29th, 1983, and there's a Federal Register  
15 notice to that effect and because of this and because  
16 of other information in the congressional record that  
17 has already been entered into evidence, we do have to  
18 meet the air quality standard, and it cannot be  
19 balanced against other issues.

20 That concludes my summary of my testimony.

21 Q Mr. Ono, the modeling that you relied on, was that  
22 the modeling performed by TRC by Mr. Ken Richmond?

23 A Yes, it was.

24 Q Can you describe for us just briefly the national  
25 air quality standard and how that relates to

0029

01 violations?

02 A The national ambient air quality standard for  
03 P.M.10 is statistically based. You're allowed to have,  
04 on the average, one exceedence or less per year of the  
05 P.M.10 standard, and it really doesn't matter what that  
06 level is. If you're only exceeding once per year but  
07 maybe the standard is set at 150, if it's maybe 1,000  
08 or 2,000, if that only occurs once per year, that is  
09 still an attainment of the standard. However, if you  
10 have multiple exceedences of that 150 value per year,  
11 then you would be in violation of the standard. So,  
12 for instance, values of 200 micrograms per cubic meter  
13 that occur for maybe two or three times on the average  
14 per year, such as the case in the Mono Basin, that  
15 would be considered a violation of that standard. Q  
16 Based upon your review of the data and the modeling and  
17 your opinion that the 6390 alternative is the minimum  
18 lake level at which the national air quality standard  
19 can be met, what level of assurance are you able to  
20 provide that the 6390 alternative will, in fact, meet  
21 the national air quality standards?

22 A We believe that it provides a reasonable level of

23 assurance. There is -- it's not absolute that -- we  
24 can't give 100 percent guarantee that the air quality  
25 standard would be met with the 6390 alternative.

0030

01 However, we believe that there is a reasonable  
02 assurance, and that's really all that's required when  
03 we submit an air quality plan is that we have a very  
04 good idea that the standard would be met with the  
05 strategy that's included in the plan.

06 Q Now, Mr. Ono, there are other methodologies to  
07 model the dust problem at Mono Lake; is that correct?

08 A There are different models that are available,  
09 yes.

10 Q And why did you select the IST, I believe it is,  
11 model?

12 A The ISCST Two is, I think, the proper name,  
13 Industrial Source Complex Short-Term Version Two. That  
14 model was selected because the U.S. Environmental  
15 Protection Agency -- when asked which model should be  
16 used, they directed us to use a regulatory guideline  
17 model, and that was ISCST Two, that has been approved.  
18 Other models have not been approved for regulatory  
19 purposes.

20 Q In your opinion, is that ISCST Two the most  
21 appropriate model to use for the Mono Lake study?

22 A In this case, yes, because of the regulatory  
23 needed.

24 Q Mr. Richmond, I'd like to ask you to please state  
25 your name and spell it for record.

0031

01 A BY MR. RICHMOND: My name is Kenneth James Richmond.  
02 It's spelled K-E-N-N-E-T-H, R-I-C-H-M-O-N-D.

03 Q Mr. Richmond, would you describe your employment  
04 at the current time with TRC and your employment and  
05 educational background?

06 A I am currently employed with McCully, Frick and  
07 Gillman, formerly employed with TRC. My title is  
08 Senior Air Quality Scientist. I've been conducting air  
09 quality studies for fugitive dust since 1980 and have  
10 been developing and applying models since roughly  
11 1978.

12 My education was from the University of  
13 Washington. I received a Bachelor of Science degree in  
14 physical oceanography. I attended graduate courses in  
15 atmospheric sciences before joining a consulting firm  
16 called Dames and Moore. I was employed with Dames and  
17 Moore as an air quality scientist from 1978 to 1986.  
18 That was the period that I was in Australia, and during  
19 my period in Australia, my principal task was to model  
20 dust from the uranium coal mines.

21 In 1986, I was transferred to Santa Barbara and in  
22 that capacity, I was modeling fugitive dust from  
23 Superfund sites throughout the western United States.  
24 Subsequent to that, I was hired by TRC in Seattle and  
25 while under TRC's employ, I conducted the modeling that

0032

01 was done for the Great Basin. In addition, I have been  
02 under contract to the EPA to develop several different  
03 models, fugitive dust models, and I have conducted  
04 several model evaluation studies. As of the summer, I

05 joined another firm, my current firm.

06 Q And have you been retained by the district to  
07 perform certain services related to Mono Lake and the  
08 Mono Basin?

09 A Yes.

10 Q And exactly what tasking were you given by the  
11 district in this regard?

12 A I've been the principal author or investigator of  
13 two major studies. The first study was to contrast or  
14 compare two models and two different types of  
15 approaches to try and see how well these modeling  
16 approaches described ambient air quality at Mono Lake  
17 and decide if one model is better than the other and to  
18 see if modeling couldn't even come close to the P.M.10  
19 values that were being observed at Mono Lake.

20 The second study was a study that was to look at  
21 different areas or different lake levels and to see how  
22 as the lake level rose, what impact that would have on  
23 the spatial extent and the number of exceedences of the  
24 24-hour P.M.10 standard.

25 In the second study, we also, at that time, had  
0033

01 more extensive P.M.10 data when we conducted a revised  
02 model evaluation study based on this new information to  
03 see if we were still performing adequately.

04 Q And have you had an opportunity to review your  
05 written testimony and the studies which are attached to  
06 that testimony as referenced exhibits?

07 A Yes, I have.

08 Q Do you wish to make any changes or corrections in  
09 that written testimony or any of the exhibits?

10 A No, I don't.

11 Q Do you adopt that as your testimony here today?

12 A Yes, I do.

13 Q Let me ask you a couple of questions. You  
14 indicated that you were tasked with determining whether  
15 or not one or more models would be able to allow some  
16 predictions concerning the air quality at the Mono  
17 Basin. How many studies or models did you test?

18 A We tested two models and two initial approaches.

19 Q What were those models?

20 A FDM, which stands for fugitive dust model, and the  
21 older version of the ISC model called ISC short-term.

22 Q Is that the model that Mr. Ono just got done  
23 referring to?

24 A We, actually, in the later study applied a more  
25 recent version called -- it was Version Two in the more

0034  
01 recent study, and the difference is primarily a  
02 difference in the coding of the model. The important  
03 technical algorithms are very similar to our previous  
04 model.

05 Q In reviewing the two models in the initial study,  
06 did you make any determination as to what was the best  
07 model to be used in providing predictions concerning  
08 air quality at Mono Lake?

09 A Yes, we did. We -- based on our first study on  
10 that data set, we concluded that all things considered,  
11 the FDM model was scientifically more accurate.  
12 However, when we -- if you looked at the comparisons



13 with the data, both the ISC and FDM model compared  
14 quite closely or predicted similar concentrations and  
15 in some instances, the ISC model was better, and in  
16 some instances, the FDM model was better. So  
17 scientifically, the FDM model, it would be my opinion  
18 that it would be a more accurate model, but practically  
19 and statistically, neither model was different from one  
20 another in this particular application.  
21 Q Just so I can be clear, did you find any  
22 significant differences between results from the ICST-2  
23 and the fugitive dust model?  
24 A In this application, we found no significant nor  
25 practical differences.

0035

01 Q Thank you, Mr. Richmond.  
02 I'd like to turn now to Dr. David Groenveld.  
03 Would you please state your name and spell it for the  
04 record? Excuse me. How about Andy? Mr. Andy  
05 Ranzieri. Excuse me.  
06 I understand, Mr. Ranzieri, from your attorney,  
07 you're a self-starter, so can you state your name and  
08 spell it for record and carry on from there?  
09 MR. BIRMINGHAM: Excuse me, Mr. Del Piero. I  
10 wonder if since Mr. Ranzieri is appearing on behalf of  
11 a different party, if Counsel for that other party is  
12 going to examine Mr. Ranzieri.  
13 HEARING OFFICER DEL PIERO: That's a fair  
14 question. Mr. Oliver?  
15 MR. OLIVER: Whatever the preference of the Board  
16 is.  
17 HEARING OFFICER DEL PIERO: No. It's whatever  
18 your preference is.  
19 DIRECT EXAMINATION BY MR. OLIVER  
20 Q Mr. Ranzieri, why don't we be consistent with  
21 everyone else here today.  
22 Please state and spell your name for the record.  
23 A BY MR. RANZIERI: My name is Andrew Ranzieri. My  
24 last name is spelled R-A-N-Z-I-E-R-I.  
25 Q Where are you employed, Mr. Ranzieri?

0036

01 A I am employed at the California Air Resources  
02 Board as the manager of the modeling support section.  
03 Q And is that your job title? Manager of the  
04 modeling support section?  
05 A Yes, it is.  
06 Q Could you briefly describe your job duties and  
07 then your educational background?  
08 A Okay. My job responsibilities are mainly in three  
09 different areas. One is to develop modeling guidelines  
10 to ensure that models are applied properly throughout  
11 the State of California for impact assessment. I also  
12 am responsible for applying air quality models to  
13 support the Air Resources Board's ongoing air  
14 management program. And lastly, I'm also a technical  
15 manager of the San Joaquin Valley air quality study.  
16 Q And could you describe your educational background  
17 for us, Mr. Ranzieri?  
18 A Yes. My educational background is in  
19 engineering. I have a B.S. and a Master's Degree in  
20 civil engineering.

21 Q Could you identify your written testimony for the  
22 Board here today, Mr. Ranzieri? I believe it appears  
23 at ARB Exhibit 8. Is that your written testimony?

24 A Yes, it is.

25 Q Do you have any changes to either it or the  
0037

01 exhibits attached to your testimony?

02 A I do not.

03 Q Do you adopt that testimony as being true and  
04 correct here today?

05 A Yes, I do.

06 Q Would you please summarize the major points of  
07 that testimony for the Board here today, Mr. Ranzieri?

08 A Yes, I will. We have been asked to evaluate the  
09 methodology used by TRC in their modeling work for the  
10 Mono County Lake air quality study. My written  
11 testimony has been submitted for the record which goes  
12 into more detail of our evaluation.

13 To summarize our findings, a TRC modeling analysis  
14 was conducted in accordance with the currently accepted  
15 modeling protocols. It is a sound approach that  
16 reasonably estimates ambient P.M.10 concentrations  
17 which may be anticipated from the exposed playa of the  
18 lake -- of Mono Lake under various water levels.

19 Q Is that all you have today as far as your summary  
20 goes, Mr. Ranzieri?

21 A Yes, it is.

22 Q Well, thank you very much.

23 DIRECT EXAMINATION BY MR. BRUCE (CONTINUED)

24 Q Now, Dr. Groeneveld.

25 A BY DR. GROENEVELD: Thank you. My name is David

0038

01 Groeneveld, last name spelled G-R-O-E-N-E-V-E-L-D.

02 Q Would you please briefly state your educational  
03 experiences and employment history that makes you  
04 qualified to give testimony today concerning vegetation  
05 in the relict areas of Mono Lake?

06 A Yes. I have a Bachelor's and Master's Degree from  
07 the University of Colorado in environmental biology and  
08 continuing along the same lines of study, a Doctorate  
09 from Colorado State University at Fort Collins.

10 Q And would you please just briefly state some of  
11 your experiences, work-related, that qualify you to  
12 testify in this area?

13 A In 1981, I began work with the Inyo County Water  
14 Department and evaluated much similar vegetation to  
15 that which grows in the Mono Basin relative to its  
16 needs for groundwater and its ability to survive once  
17 groundwater pumping had isolated the roots from the  
18 water table, and with that information from a series of  
19 studies that began in '81 and were completed in '87,  
20 put together a monitoring protocol, groundwater  
21 management protocol, which was the underpinnings for an  
22 agreement between the City of Los Angeles and Inyo  
23 County.

24 In 1985, I was contracted by the Great Basin Air  
25 Pollution Control District to evaluate vegetation

0039

01 growth on the shores of Mono Lake and to determine the  
02 rate at which those plants were becoming established on

03 what's called relicted lands and to determine if there  
04 was a way of speeding that process up.  
05 Q Have you done any work or research on similar  
06 areas in California? Areas similar to the Mono Lake?  
07 A Yes. As I mentioned, much of the Inyo County area  
08 has similar vegetation.  
09 Q Now, have you had an opportunity to review your  
10 written testimony which was presented to the Hearing  
11 Board as an exhibit and the related exhibits?  
12 A I have.  
13 Q Do you wish to make any changes or corrections in  
14 that?  
15 A No, I do not.  
16 Q Do you adopt your written testimony and all the  
17 exhibits referenced therein as your testimony here  
18 today?  
19 A I do.  
20 Q Would you briefly summarize the most pertinent  
21 points of your testimony?  
22 A Certainly. If I may draw your attention to the  
23 map that's on the wall, my comments will be --  
24 HEARING OFFICER DEL PIERO: You need to take the  
25 microphone.

0040

01 DR. GROENEVELD: Thank you.  
02 If I may draw your attention to the map that's  
03 presented here. Looking at the rate of vegetation  
04 establishment around the lake in regard to air quality,  
05 much of the western margin, there's essentially no  
06 problem with vegetation establishment. Because of the  
07 amount of fresh water that comes into the system,  
08 plants become established relatively rapidly and,  
09 therefore, have the ability of constraining fugitive  
10 dust.  
11 It's only on the east margin of the lake that  
12 we're concerned, and essentially, in the zone from Ten  
13 Mile Road in a band about to the middle of the zone on  
14 the eastern shore between Simons Springs and Warm  
15 Springs. There are other areas which are up in the  
16 zone of 6390. For instance, there's an extended vetch  
17 zone up in here which, although it's showing poor  
18 vegetation establishment today, it eventually will, in  
19 my opinion, become vegetated. That zone perhaps could  
20 be accelerated. But in this zone between Ten Mile  
21 Springs and the Warm Springs area and then a small  
22 piece in this zone which is more shoreward, the zone  
23 being between Warm Springs and Simons Springs, the  
24 vegetation establishment is being controlled  
25 essentially by the natural hydrologic processes and

0041

01 especially the quantity and quality of groundwater,  
02 and not by lack of plant material.  
03 Thus, unless you provide extensive irrigation with  
04 fresh water in those zones, there's no way to  
05 effectively enhance vegetation growth to reduce blowing  
06 dust, and that's essentially a condition which will  
07 last probably up to tens to hundreds of years.  
08 Q BY MR. BRUCE: Thank you, Dr. Groeneveld.  
09 Turning now to Theodore Schade. Would you please  
10 state your name and spell it for the record?

11 A BY MR. SCHADE: Theodore D. Schade. Last name  
12 S-C-H-A-D-E.  
13 Q Mr. Schade, would you please briefly describe your  
14 employment at the current time?  
15 A I'm currently employed by the Great Basin Air  
16 Pollution Control District.  
17 Q Tell us what your duties and functions are.  
18 A I'm a project manager. I'm responsible to oversee  
19 the fugitive dust mitigation research activities  
20 occurring on both Owens and Mono Lakes.  
21 Q And would you tell us what educational and  
22 employment experiences qualify you for these duties?  
23 A I have a Bachelor's Degree in civil engineering  
24 from the University of Notre Dame and a Master's Degree  
25 in civil engineering from California State University

0042

01 at Long Beach. I'm also a registered professional  
02 engineer in the State of California. I have 13 years  
03 of experience in the field of engineering. My primary  
04 areas of expertise are in public works design,  
05 construction, and contract management.  
06 Q Have you had an opportunity to review your written  
07 testimony and the exhibits referenced thereby?

08 A Yes, I have.

09 Q Do you wish to make any changes or corrections to  
10 that testimony or any of the exhibits?

11 A No, I don't.

12 Q Do you adopt that written testimony and the  
13 referenced exhibits as your testimony here today?

14 A I do.

15 Q Would you please briefly summarize the pertinent  
16 points of your testimony?

17 A The district is involved with solving dust  
18 problems, not only on Mono Lake, but also on Owens Lake  
19 in Inyo County. Since the early 1980s, the district  
20 has tested a number of fugitive dust mitigation  
21 measures at Owens Lake and one measure at Mono Lake.  
22 The measures tested at Owens Lake have included patched  
23 up surface, thrust, placement of layer of coarse  
24 gravel, application of chemicals to stabilize the  
25 surface, the creation of artificial sand dunes, and

0043

01 installation of sprinkler systems, tree survivability  
02 test. All of these measures -- all of the measures  
03 tested with the exception of the gravel blanket did not  
04 reduce fugitive dust levels enough to be considered  
05 successful and appropriate for large scale limitation.

06 The mitigation measures currently being tested on  
07 Owens Lake include flood irrigation, sand fence arrays,  
08 and grass and shrub establishment. As these tests are  
09 underway, the success of these measures have not been  
10 established at this point.

11 The only measure tested to date at Mono Lake has  
12 been vegetation establishment without modifying soil  
13 and groundwater conditions, and these tests, as  
14 testified by Dr. Groeneveld, have been largely  
15 unsuccessful.

16 Great Basin has not identified any other  
17 mitigation measures that have a reasonable chance of  
18 success at Mono Lake.

19           The large-scale test required to validate the  
20 proposed mitigation measures is not possible at Mono  
21 Lake because the portions of the lake bed that emit  
22 fugitive dust are contained in an area designated by  
23 the Forest Service as a no-development zone and as a  
24 consequence, this designation prohibits surface  
25 disturbances as well as motorized vehicle access making

0044

01 it difficult or impossible to test the measures.

02           With regard to the actual implementation of  
03 mitigation measures, should a successful mitigation  
04 measure be identified, in order to implement on a large  
05 scale any of the mitigation measures tested or being  
06 tested at Owens or Mono Lakes, there would need to be a  
07 large amount of land disturbance in the construction of  
08 the supporting infrastructure. This infrastructure may  
09 include roads, pipelines, wells, power lines, fences,  
10 sand fences, or excavation pits.

11           Again, as with mitigation testing, it would not be  
12 possible to implement these measures without violating  
13 the requirements of the Forest Service's no-development  
14 zone.

15           In conclusion, despite testing numerous dust  
16 mitigation measures, the district has not specifically  
17 identified any measures that have a reasonable chance  
18 of succeeding at Mono Lake. The testing and  
19 implementation of mitigation measures involve  
20 considerable surface disturbances and the construction  
21 of support infrastructure. These disturbances are not  
22 compatible with the Forest Service's designation as a  
23 no-development zone, therefore, based on this, it is my  
24 professional opinion that there is no other reasonable  
25 fugitive test mitigation measure for Owens Lake other

0045

01 than raising the lake level -- other than raising the  
02 lake to a level that allows federal air quality  
03 standards to be met.

04 Q       Thank you, Mr. Schade.

05           At this time, I would like to move the  
06 introduction of the written testimony and exhibits  
07 referenced thereby by the Great Basin Air Pollution  
08 Control District staff and its consultants as Great  
09 Basin Unified Air Pollution Control District Exhibit  
10 No. 33.

11           HEARING OFFICER DEL PIERO: Mr. Bruce, it's been  
12 our common practice to have the offer of evidentiary  
13 exhibits to be made after cross-examination has taken  
14 place, so if --

15           MR. BRUCE: Thank you. I'll withhold that offer  
16 until that time.

17           HEARING OFFICER DEL PIERO: Thank you very much.

18           MR. FRINK: I believe there is a question of  
19 identification, though. The testimony of the witnesses  
20 appearing on behalf of the Air Pollution Control  
21 District was all included in a single volume that has  
22 not been given an exhibit number before now.

23           Mr. Bruce --

24           MR. BRUCE: Can we mark it for identification as  
25 Great Basin Exhibit 33?

0046

01 MR. FRINK: Okay. Thank you.  
02 (Great Basin Exhibit No. 33  
03 was marked for  
04 identification.)  
05 HEARING OFFICER DEL PIERO: Mr. Birmingham? Are  
06 you doing air, Mr. Birmingham?  
07 MR. BIRMINGHAM: Yes.  
08 HEARING OFFICER DEL PIERO: Did you have a good  
09 holiday, Sir?  
10 MR. BIRMINGHAM: I had a wonderful holiday.  
11 HEARING OFFICER DEL PIERO: Certain individuals  
12 find their stockings stuffed at your house?  
13 MR. BIRMINGHAM: Yes, they did. And I have to say  
14 that cross-examination will never hold the same appeal.  
15 (Laughter.)  
16 HEARING OFFICER DEL PIERO: As we get older, we  
17 learn the errors of our ways, right?  
18 MR. BIRMINGHAM: Yes, we do. I hope that your  
19 holiday was equally as pleasant.  
20 HEARING OFFICER DEL PIERO: I'm still all together  
21 and here, so that's -- given my activities during the  
22 holidays, that's about as much as I could hope for.  
23 CROSS-EXAMINATION BY MR. BIRMINGHAM  
24 Q The first series of questions I have are for  
25 Ms. McKee. First I should introduce myself. My name  
0047  
01 is Tom Birmingham. I am one of the attorneys that  
02 represents the Department of Water and Power of the  
03 City of Los Angeles and the City of Los Angeles in  
04 these proceedings.  
05 Ms. McKee, the video that you -- that you showed  
06 here this morning, who narrated that video?  
07 A BY MS. MCKEE: The video was narrated by visitors  
08 center personnel who just happened to be working at  
09 that time.  
10 Q You can't tell us who the narrator of the video  
11 was?  
12 A Not right now, no. There were several different  
13 narrators.  
14 Q And you're not sure who those individuals are?  
15 A No. If you wanted me to find out, I could,  
16 though.  
17 Q During the video, we saw a number of episodes of  
18 dust blowing from the playa around the lake; is that  
19 correct?  
20 A We saw a number of dust events filmed from the  
21 visitor's center.  
22 Q It appeared that in at least one of those dust  
23 events, there was also dust blowing from the area  
24 between the visitor's center and the lake; is that  
25 correct?  
0048  
01 A It looked as though the morning of the 3rd there  
02 was some general dust blowing as well as alkali dust.  
03 Q And what was the wind speed on the morning of May  
04 3, 1993, do you know?  
05 A I was not there at the time nor did I look at any  
06 meteorological equipment. I understand that the winds  
07 that day were blowing very hard, in excess of 100 miles  
08 an hour, at least in the Owens Valley.

09 Q But you don't know what the wind speed was in the  
10 Mono Basin?

11 A No, I don't.

12 MR. ONO: Can I volunteer that information?

13 MR. BIRMINGHAM: If you know it, Mr. Ono, that  
14 would be fine and, in fact, perhaps the panel should be  
15 made aware of the rule that if a question is asked that  
16 one panel member can't answer, it's perfectly  
17 acceptable for any member of the panel to respond to  
18 the question.

19 HEARING OFFICER DEL PIERO: That is, in fact,  
20 correct Ladies and Gentlemen. So if you'd be kind  
21 enough to respond in the event that you do happen to  
22 know the answer to a question that the individual to  
23 whom it's been asked may not know the answer, we'd  
24 appreciate it for the completeness of the record.

25 MR. ONO: Okay. On May 3rd, we have monitoring  
0049

01 sites at Simis and at Lee Vining and the peak hourly  
02 average wind speed at Simis Ranch was almost 36 miles  
03 an hour. That's the ten meter wind speed.

04 HEARING OFFICER DEL PIERO: That's average?

05 MR. ONO: Hourly average.

06 HEARING OFFICER DEL PIERO: Hourly average? Over  
07 what period, 12 or 24?

08 MR. ONO: For one hour. That was from four  
09 o'clock 'til five o'clock in the afternoon or -- excuse  
10 me. Three o'clock 'til four o'clock in the afternoon.  
11 For comparison, the gusts on that day were peaking out  
12 at almost 55 miles an hour, so, yeah, it was a windy  
13 day and from our review of the records over the last  
14 five years, and I think Ken Richmond may be able to  
15 address this a little bit better, this day was an  
16 extraordinary day in terms of meteorology. There were  
17 very high wind speeds.

18 At the Lee Vining site on the same day, on the  
19 3rd, the hourly average wind speed peaked at around ten  
20 o'clock in the evening, and that was 35 miles an hour.  
21 The gusts on that day went up almost to 61 miles an  
22 hour, and that was at around midnight on May 3rd, going  
23 May 4th.

24 HEARING OFFICER DEL PIERO: Thank you.

25 Mr. Birmingham?

0050

01 Q BY MR. BIRMINGHAM: Thank you very much.

02 Now, Ms. McKee, did you participate in the  
03 preparation of the Comprehensive Management Plan?

04 A BY MS. MCKEE: No, I did not.

05 Q So on Page 4, Paragraph 8 of your testimony, it  
06 states, "At the time the CMP was approved." The CMP  
07 there refers to the U.S. Forest Service Comprehensive  
08 Management Plan; is that correct?

09 A That's correct.

10 Q It says, "At the time the CMP was approved, it was  
11 assumed that mitigation measures could be identified  
12 that would alleviate the air quality problem and also  
13 be consistent with the CMP." You, as matter of  
14 personal knowledge, do not know what was assumed by the  
15 Forest Service when it approved the CMP; isn't that  
16 correct?

17 A It is my understanding from talking to Ms. Upland  
18 and Mr. Rickford and Mr. Warren, who were present when  
19 the CMP was written, that that was the case.

20 Q But you don't know from your personal knowledge  
21 what the Forest Service assumed when it approved the  
22 CMP?

23 A It's my understanding based on talking to the  
24 people who wrote and approved the CMP.

25 Q But you weren't involved in the preparation --  
0051

01 A I was not involved in the preparation of the CMP.

02 Q Now, you've changed part of your testimony. In  
03 Paragraph 2, you've changed the testimony from stating  
04 that the Comprehensive Management Plan recognized that  
05 on most days air quality in the Mono Basin is excellent  
06 to air quality in the Mono Basin is good. Why did you  
07 make that change?

08 A Well, I got a little carried away writing the  
09 testimony and upon checking and confirming my  
10 references, I found that the CMP listed air quality in  
11 the Mono Basin as good. I think if it were not for  
12 blowing dust from the relict lands, it would be safe  
13 to say that air quality was excellent in the Mono  
14 Basin.

15 Q And you've also deleted the word "substantial"  
16 from the next sentence of the testimony; is that  
17 correct?

18 A That's correct.

19 Q Now, in the paragraph that is on Page 3,  
20 immediately after Paragraph 4, Paragraph 5.

21 A Yes.

22 Q It says that, "The dust storms that you've just  
23 seen don't happen only as isolated occurrences in the  
24 spring." The dust events that were depicted in the  
25 video that you showed, those dust events are -- well,  
0052

01 maybe I'll ask Mr. Ono.

02 Mr. Ono, what were the recorded measurements of  
03 P.M.10 at your monitoring stations on May 30, 1993?

04 A BY MR. ONO: Why don't you give me a few seconds  
05 here?

06 Q Certainly. Take your time, please.

07 A On May 3rd, 1993, the concentration at the Simis  
08 Ranch site was 810 micrograms per cubic meter, but that  
09 was measured starting from 12:30 in the afternoon 'til  
10 midnight. We have recalculated that value to assume  
11 that in the period from midnight 'til 12:30 when we  
12 started the instrument, that the concentration was  
13 zero, and this gives the benefit of the doubt to anyone  
14 who wants to call this an exceedence. But the number  
15 that we gave to the Air Resources Board and the EPA is  
16 402 micrograms per cubic meter. That's a conservative  
17 number, but that's a clear indication of a violation on  
18 May 3rd. The standard for comparison is 150 micrograms  
19 per cubic meter.

20 Q The 12-hour measurement you said was 800  
21 micrograms per cubic meter, Mr. Ono?

22 A Yes.

23 Q You assumed that from the period from midnight to  
24 12:30, the concentration was zero?



25 A Yes, we did.

0053

01 Q But that that was a very conservative estimate  
02 which gives benefit of the doubt to anyone who wants to  
03 argue about whether or not this is an exceedence?  
04 A Exactly, yes.  
05 Q My question is this, Mr. Ono. The dust storm that  
06 we saw depicted in that May 3 video, that was a pretty  
07 major dust storm, wasn't it?  
08 A Yes. I would consider that a big one.  
09 Q And that's not typical of the dust events that  
10 occur in the Mono Basin, is it?  
11 A What do you mean by "typical"?  
12 Q Well, isn't it correct that dust storms exceeding  
13 the Federal Air Quality Standard, the current P.M.10  
14 standard, at current lake levels occur, in your  
15 estimation, about three times a year?  
16 A Our monitoring data at Simis Ranch, and that's the  
17 only one that I can attest to, shows a statistical  
18 average of about 3.2 exceedences per year from the  
19 period 1988 through 1992.  
20 Q And the model that we've heard testimony about, it  
21 estimates that there will be about three exceedences of  
22 the P.M.10 standard per year; is that correct?  
23 A At what site are you talking about?  
24 Q At the Simis site.  
25 A At the Simis site, the estimate is about 5.3

0054

01 exceedences per year.  
02 Q Now, there are more than three dust events in the  
03 Mono Basin which would impact the Simis site; is that  
04 correct, Mr. Ono?  
05 A Could you repeat that question?  
06 Q Yes. There are more than three dust events in any  
07 given year which would produce concentrations of P.M.10  
08 at Simis Ranch?  
09 A There are many dust events. Some of them may not  
10 be exceedences at Simis Ranch, yes.  
11 Q That's the point, isn't it, Mr. Ono, that based on  
12 your monitoring data -- and monitoring data's the most  
13 accurate data, isn't it, Mr. Ono?  
14 A It's accurate for that site. It's not a clear  
15 indicator for the entire lake.  
16 Q The monitoring data indicates that there will be  
17 approximately three exceedences per year at Simis  
18 Ranch. But the dust storm that was depicted on May 3,  
19 1993, and the video that we saw had a concentration of  
20 at least 800 micrograms per cubic meter at Simis  
21 Ranch. Isn't that correct?  
22 MR. BRUCE: Objection. Misstates his prior  
23 testimony.  
24 HEARING OFFICER DEL PIERO: Excuse me.  
25 Ms. Anglin, would you be kind enough to read that back?

0055

01 (Whereupon the record was read as requested.)  
02 HEARING OFFICER DEL PIERO: Mr. Birmingham, do you  
03 want to restate that question?  
04 MR. BIRMINGHAM: Sure.  
05 HEARING OFFICER DEL PIERO: Good.  
06 Q BY MR. BIRMINGHAM: Your monitoring data from Simis

07 Ranch indicates that there were approximately 3.2 days  
08 per year where the P.M.10 standard will be exceeded;  
09 isn't that correct, Mr. Ono?  
10 A BY MR. ONO: Yes, it is.  
11 Q And isn't it also correct that the dust event, May  
12 3 dust event, depicted on the video that we saw during  
13 Ms. McKee's testimony, had a measured concentration at  
14 Simis Ranch of at least 800 micrograms per cubic meter?  
15 A For what sampling period are you talking about?  
16 Q For the sampling period of May 3, 1993?  
17 A Okay. This requires some clarification because --  
18 HEARING OFFICER DEL PIERO: And I understand that,  
19 Mr. Ono, so you go ahead and take your time in terms of  
20 clarifying this on the record because nobody out there  
21 objected to your question as being ambiguous, but it is  
22 given the circumstances here, Mr. Birmingham. So,  
23 Mr. Ono, go ahead and outline that, okay?  
24 MR. ONO: The concentration out there was 810  
25 micrograms per cubic meter for an averaging period of  
0056  
01 710 minutes, but the 24-hour average, we can't say what  
02 that concentration was, whether or not it was higher  
03 than 810 micrograms per cubic meter or lower than 810.  
04 There's no way that we can conclude that from our  
05 monitoring data.  
06 We can conclude, however, that the concentration  
07 was over 402 micrograms per cubic meter.  
08 HEARING OFFICER DEL PIERO: Does that answer your  
09 question, Mr. Birmingham?  
10 MR. BIRMINGHAM: Yes, it does.  
11 Q BY MR. BIRMINGHAM: And, Mr. Ono and Ms. McKee, I can  
12 ask either of you this question. Isn't it correct that  
13 the dust storm that was depicted in that video was of a  
14 greater magnitude than dust storms that would occur in  
15 the Mono Basin except perhaps maybe three days a year?  
16 MR. GIPSMAN: I'm going to object to the question  
17 as to relevance. The key question is whether a dust  
18 storm exceeds federal air quality standards. It  
19 doesn't matter how large it is if there is a violation.  
20 HEARING OFFICER DEL PIERO: I'm going to overrule  
21 the objection as to relevance. You are can go ahead  
22 and answer the question.  
23 MR. ONO: In terms of magnitude?  
24 HEARING OFFICER DEL PIERO: Do you you need to  
25 have the question reread?  
0057  
01 MR. ONO: I'd like to have a clarification of the  
02 question because what he means by magnitude isn't  
03 really clear to me.  
04 HEARING OFFICER DEL PIERO: Why don't we start  
05 with having the question reread.  
06 (Whereupon the record was read as requested.)  
07 MR. BRUCE: I'd like to object on the basis of  
08 ambiguity. It doesn't identify which dust storm in the  
09 video Mr. Birmingham was referring to.  
10 HEARING OFFICER DEL PIERO: I'm going to overrule  
11 the objection.  
12 Mr. Ono, do you understand the question?  
13 MR. ONO: If I may restate the question.  
14 HEARING OFFICER DEL PIERO: I don't want you to

15 restate it. I want you to answer my question. I asked  
16 you did you understand the question?

17 MR. ONO: No, I didn't.

18 HEARING OFFICER DEL PIERO: Fine.

19 Mr. Birmingham, do you want to restate the  
20 question, please?

21 MR. BIRMINGHAM: Thank you very much,

22 Mr. Del Piero.

23 Q BY MR. BIRMINGHAM: When I'm talking about magnitude,  
24 Mr. Ono, I'm talking about concentration of P.M.10. So  
25 if I use the term "magnitude," I'm going to use that

0058

01 term with respect to concentrations of P.M.10. And let  
02 me explain the reason I'm asking these questions. Ms.  
03 McKee, in her testimony, states that the dust storms  
04 that you've just seen don't happen only as isolated  
05 occurrences in the spring, but if I understand the  
06 testimony of the Great Basin Unified Air Pollution  
07 Control District, Mr. Ono, the kind of dust storm that  
08 we saw depicted in that video, the May 3 dust storm,  
09 those dust storms happen a few times a year. Is that  
10 correct?

11 A BY MR. ONO: At Simis Ranch, the exceedences happen  
12 about three times per year. Those kind of dust storms,  
13 I'm not quite sure what you mean by "those kinds,"  
14 but --

15 Q Let me say dust storms of that magnitude.

16 A Of that magnitude, meaning the concentration at  
17 Simis Ranch, and I can only attest, again, to Simis  
18 Ranch. We don't have monitors all over the lake bed,  
19 but there are higher concentrations that have been  
20 recorded at Simis Ranch. This last spring, we had a  
21 concentration of 981 on May 11th. That was larger than  
22 the May 3rd concentration that was measured. On May  
23 12th, 658 was measured. That also was higher than the  
24 May 3rd concentration.

25 And, again, we don't monitor every day, so there

0059

01 may have been other days that could have been equally  
02 as high in magnitude as the storm on May 3rd or they  
03 could have been greater.

04 Q Mr. Ono, isn't it correct that among the reasons  
05 that you placed the monitor at Simis Ranch was that  
06 Simis Ranch is in the area towards which dust normally  
07 blows from the Mono Lake playa?

08 A Yes. It's one of the areas that we would expect  
09 to see high concentrations. However, one of the things  
10 that we found out through the modeling is that of the  
11 entire north shore, that was one of the lower  
12 concentration areas on the north shore, and a higher  
13 concentration may have been towards the east shore near  
14 Warm Springs where we placed a portable monitor.  
15 However, we do expect to see high concentrations on the  
16 entire north shore of the lake.

17 Q And is it correct, Mr. Ono, that for a period of  
18 time, the Great Basin Unified Air Pollution Control  
19 District operated a program of actually turning on its  
20 monitor at Simis Ranch when it expected a dust storm?

21 Q Yes, we did. And that program was -- didn't catch  
22 every dust storm. There were days that they failed to

23 make the prediction. There were days when we predicted  
24 that the storm would occur on Tuesday, the storm  
25 occurred on Wednesday. There were many days that were  
0060  
01 missed even within the period that we tried to catch  
02 the episodes.  
03 Q And is it correct, Mr. Ono, that the data that was  
04 collected during the program just described was used in  
05 preparation of the TRC model?  
06 A As much of the good air quality data as we could  
07 gather, we used that in preparing the TRC modeling  
08 outputs.  
09 Q Ms. McKee, during your oral summary of your  
10 written testimony, you said that you wanted to change  
11 the title of Exhibit 4, U.S. Forest Service Exhibit 4  
12 from "Air quality monitoring form" to -- to what?  
13 A BY MS. MCKEE: "Dust event monitoring form."  
14 Q Now, in going through the forms that make up U.S.  
15 Forest Service Exhibit 4, I note that there are a  
16 number of people who prepared the forms. Is that  
17 correct?  
18 A That's correct.  
19 Q Have you spoken with each one of the people that  
20 prepared these forms?  
21 A No, I haven't.  
22 Q Does the Forest Service have a written protocol  
23 that is used to fill out the forms that are attached as  
24 Exhibit 4 to U.S. Forest Service --  
25 A No. We don't have a written protocol.  
0061  
01 Q Are the individuals who fill out these forms, are  
02 they given specific instructions as to how to fill them  
03 out?  
04 A Yes, they are.  
05 Q And the back of the form contains a diagram; is  
06 that correct?  
07 A That's correct.  
08 Q And on each one of these diagrams, it indicates an  
09 area from which dust is being emitted; is that correct?  
10 A The back of the form just has the diagram, and  
11 then the person who filled out the form did or did not  
12 try and sketch in just whatever they happened to see as  
13 they were looking out of the visitor's center.  
14 Q And you can't tell us what the concentration of  
15 P.M.10 were on the days that these events were  
16 reported; is that correct?  
17 A Our monitoring effort was a dust event monitoring  
18 effort, and we did not monitor P.M.10.  
19 Q So you can't tell us what the concentrations of  
20 P.M.10 were on the dates that these dust events were  
21 recorded?  
22 A I have used Great Basin data in discussing with  
23 Duane to compare -- just to cross check our forms with  
24 the P.M.10 forms just for general interest, but the  
25 purpose was not to try and calibrate our dust event  
0062  
01 monitoring.  
02 A BY MR. ONO: Can I volunteer some information here?  
03 Q If it's responsive to my question, please.  
04 A On May 11th, which was one of the storms that was

05 depicted in the video, the concentration --  
06 Q Mr. Ono, here I'm talking about the U.S. Exhibit  
07 4. U.S. Forest Service Exhibit 4, not the video.  
08 A Okay. Do you have specific dates?  
09 Q I'm just asking Ms. McKee if she knows the  
10 concentrations of P.M.10 on these dates.  
11 HEARING OFFICER DEL PIERO: Am I incorrect,  
12 Mr. Ono, were you going to provide that information on  
13 the P.M.10 levels?  
14 MR. ONO: Just about any day that he wants I can  
15 tell you what the concentration is.  
16 HEARING OFFICER DEL PIERO: Mr. Birmingham, was  
17 your question to determine whether or not Ms. McKee had  
18 the information or what the information actually was?  
19 MR. BIRMINGHAM: My question was whether or not  
20 there was an effort made by Ms. McKee or anyone from  
21 the Forest Service to determine what the ambient air  
22 quality measured concentration was on the dates  
23 reported on these forms.  
24 MS. MCKEE: Is that the question?  
25 MR. BIRMINGHAM: Yes.

0063

01 MS. MCKEE: An effort was made to just cross  
02 check. I have the Great Basin data written on each of  
03 these forms just in preparation for this hearing.  
04 Q BY MR. BIRMINGHAM: You have the information written  
05 on your forms; is that correct?  
06 A BY MS. MCKEE: I have the values that Duane gave me  
07 as the average value for the day written in the top  
08 right-hand corner.  
09 Q Well, let's look at June 4, 1993. What was the  
10 concentration of P.M.10 at Simis Ranch on that day?  
11 A I do not have the concentration on that day.  
12 Q The dust event that is referred to is referred to  
13 as a localized dust devil. Do you have an opinion as  
14 to whether or not that localized dust devil would have  
15 resulted in a P.M.10 concentration in excess of 150  
16 micrograms per cubic liter?  
17 MR. BRUCE: Objection. Lack of foundation.  
18 MR. GIPSMAN: Also, Ms. McKee is not an expert in  
19 evaluating whether these dust events exceeded P.M.10  
20 concentrations. Her testimony is solely factual from  
21 the visual recording of dust events.  
22 HEARING OFFICER DEL PIERO: I think I'm going to  
23 sustain the objection without a better foundation,  
24 Mr. Birmingham.  
25 MR. BIRMINGHAM: Well, can I ask that

0064

01 Mr. Gipsman's objection be reread?  
02 (Whereupon the record was read as requested.)  
03 MR. BIRMINGHAM: I'll just ask to have that  
04 marked.  
05 Q BY MR. BIRMINGHAM: Ms. McKee, you're not an expert  
06 on P.M.10?  
07 A BY MS. MCKEE: No.  
08 Q You're not an expert on how P.M.10 concentrations  
09 affect human health?  
10 A No, I'm not.  
11 Q So basically, your testimony is that the Forest  
12 Service fills out forms, and you brought the forms to

13 the State Board for its consideration. Is that the  
14 purport of your testimony?

15 A The summary more accurately reflects my testimony.

16 Q But where there are references to the effects of  
17 P.M.10 on human health, you're not an expert in that  
18 area?

19 A No.

20 MR. GIPSMAN: Objection. I think the question is  
21 vague and ambiguous. References where to the effects  
22 on human health? I don't believe that she made any  
23 except that it may effect human health. That's the  
24 only reference in her testimony.

25 HEARING OFFICER DEL PIERO: I'm going to overrule  
0065

01 the objection. The witness' testimony, the witness'  
02 written testimony speaks for itself. The nature of her  
03 qualifications are also in the record.

04 So given that, Mr. Birmingham, why don't we move  
05 along.

06 Q BY MR. BIRMINGHAM: Ms. McKee, you can't tell us at  
07 what lake level the ambient air quality standards,  
08 federal P.M.10 standard will be achieved?

09 A BY MS. MCKEE: The Forest Service is not an air  
10 regulatory agency, and we do not make regulatory  
11 decisions. We rely on the California Resources Board,  
12 the Environmental Protection Agency, and Great Basin  
13 Air Pollution Control District to advise us.

14 Q Mr. Ono, the Great Basin Unified Air Pollution  
15 Control District is a state agency; is that correct?

16 A BY MR. ONO: No.

17 Q Is the Air Resources Control District not a  
18 district created by state law?

19 A This is getting out of my area of expertise, and  
20 so I can't answer that.

21 MR. FLINN: I was going to object on the grounds  
22 that that appeared to call for a legal conclusion, and  
23 I suspect we're going to get closer into that area.

24 HEARING OFFICER DEL PIERO: I'm going to sustain  
25 the objection. In fact, for the record, all air  
0066

01 pollution control districts in the state are creations  
02 of statute, however, they are governed on a localized  
03 level by boards of directors that are made up of  
04 locally elected or appointed officials. And so from  
05 the standpoint of their establishment, they're  
06 established by statute, however, for all intents and  
07 purposes, function as local agencies.

08 Mr. Birmingham, if you wish to proceed, you can go  
09 ahead.

10 MR. BIRMINGHAM: Sure.

11 Q BY MR. BIRMINGHAM: Mr. Ono, the Great Basin Unified  
12 Air Pollution Control District, is that the agency  
13 created by statute that is responsible for implementing  
14 the Clean Air Act in the area of the eastern Sierra in  
15 which the Mono Basin is located?

16 MR. BRUCE: Objection. Calls for a legal  
17 conclusion and analysis of statutory both federal and  
18 state regulations.

19 MR. BIRMINGHAM: Mr. Del Piero, I'm at loss here  
20 because we have a witness who comes in and presents

21 testimony and attorneys for the agencies start standing  
22 up and objecting on the grounds that my questions are  
23 asking for legal conclusions. If we struck every legal  
24 conclusion from Mr. Ono's testimony, there wouldn't be  
25 very much left and, in fact, the third question he

0067

01 analyzed is strictly a legal question.

02 Now, if we want to strike that from the record, I  
03 can sit down, and we can all go home a little earlier  
04 today.

05 HEARING OFFICER DEL PIERO: Mr. Oliver?

06 MR. OLIVER: I believe it does exceed the scope of  
07 Mr. Ono's direct testimony. He's not been qualified as  
08 an expert on the jurisdictional aspects of state and  
09 federal Clean Air Act law. Neither does his testimony  
10 open the door to this kind of cross-examination.

11 HEARING OFFICER DEL PIERO: Mr. Flinn?

12 MR. FLINN: Just one other additional observation.  
13 The particular question that was asked appeared to be  
14 the allocation of responsibility with regard to the  
15 Clean Air Act compliance as against Great Basin or  
16 perhaps some other agencies, the California Air  
17 Resources Board or someplace else, and I don't think  
18 that anything in Mr. Ono's testimony addressed that  
19 particular distinction. And it may be important  
20 because I think where Mr. Birmingham may be going,  
21 given their legal position before, had to do with  
22 restrictions that might apply to Great Basin that may  
23 not necessarily apply to the Air Resources Board.

24 HEARING OFFICER DEL PIERO: Mr. Birmingham, I'm  
25 going to sustain the objections. Let me point out that

0068

01 if you wish to pursue that, you need to establish  
02 foundational information as to whether or not Mr. Ono  
03 is qualified to answer a question as to the statutory  
04 nature of how the Great Basin Air Pollution Control  
05 District is organized and what their functional  
06 authorities and responsibilities are.

07 MR. BIRMINGHAM: May I ask for a stipulation,  
08 Mr. Del Piero, that Mr. Ono is not a legal expert or  
09 qualified to answer legal questions? That's the basis  
10 of the last objection which you just sustained.

11 HEARING OFFICER DEL PIERO: We don't have  
12 stipulations in here, as I pointed out to you one time  
13 earlier when you asked for one from me. So proceed,  
14 okay?

15 MR. BIRMINGHAM: All right.

16 Q BY MR. BIRMINGHAM: Mr. Ono, let's look at your  
17 testimony. Your testimony on Page 18 says that,  
18 "National ambient air quality standard for P.M.10 must  
19 be met in the Mono Basin. This is a federal mandate  
20 that cannot be compromised or balanced against other  
21 resource interests." Is that your understanding of the  
22 law, Mr. Ono?

23 A BY MR. ONO: Yes, it is.

24 Q But you are not an expert in the application of  
25 the Clean Air Act; is that correct?

0069

01 A As it pertains to the P.M.10 program, I am very  
02 familiar with what's required under the Clean Air Act.

03 Q Actually, I don't think your counsel gives you  
04 enough credit because you and I have spoken before, and  
05 I know that you're quite knowledgeable in that area.  
06 So let me see if I can lay an appropriate foundation.  
07 You worked for the EPA; is that correct?  
08 A Yes, I did.  
09 Q And as part of your responsibilities at the  
10 Environmental Protection Agency, you were involved in  
11 enforcing the Federal Clean Air Act; is that correct?  
12 A Yes.  
13 Q And, in fact, you were involved in the development  
14 of the P.M.10 standard; is that correct?  
15 A No. That is not correct.  
16 Q Were you involved in the application of the P.M.10  
17 standard within states?  
18 A I was involved with the application of the P.M.10  
19 program as it related to protecting the P.M.10  
20 standard.  
21 Q And that included its application in California;  
22 is that correct?  
23 A Yes. That is true.  
24 Q Is it correct that under the Clean Air Act, if an  
25 area of the State of California is designated by the  
0070 Environmental Protection Agency as a non-attainment  
01 area, it is up to the state to develop a proposed  
02 implementation plan?  
03 implementation plan?  
04 A That --  
05 Q Well, let me just ask you -- let me read from your  
06 testimony, and I'll ask you if what you've said in your  
07 testimony is correct. "Federal P.M.10 non-attainment  
08 area -- that the designation of the Mono Basin as a  
09 federal P.M.10 non-attainment area will require that a  
10 state implementation plan be submitted to demonstrate  
11 how the Mono Basin will be brought into compliance  
12 with the federal P.M.10 standard." That's correct,  
13 isn't it, Mr. Ono?  
14 UNIDENTIFIED SPEAKER: Objection. I would like to  
15 have the reference in the written testimony where that  
16 is, at least have the witness be given the opportunity  
17 to see that testimony.  
18 HEARING OFFICER DEL PIERO: I'm going to overrule  
19 the objection.  
20 Mr. Ono, you're aware of where it is, I assume,  
21 because you answered the question?  
22 MR. ONO: I have it in front of me.  
23 MR. BIRMINGHAM: I gave him the reference earlier.  
24 HEARING OFFICER DEL PIERO: Mr. Birmingham, please  
25 proceed.  
0071 Q BY MR. BIRMINGHAM: Now, with respect to the  
01 development of the state implementation plan, the  
02 Federal Clean Air Act does not tell the State of  
03 California how it is to comply with the Clean Air Act;  
04 is that correct?  
05 is that correct?  
06 A BY MR. ONO: That is true.  
07 Q It is up to the State of California to determine  
08 what will be contained in the state implementation  
09 plan?  
10 A That gets into a gray area and maybe I can explain



11 this a little bit. The state has designated the Great  
12 Basin Air Pollution Control District as the lead agency  
13 to develop the state implementation plan for the Mono  
14 Basin and they will oversee the process as we develop  
15 that state implementation plan. And once that has been  
16 completed and approved locally by the Great Basin Air  
17 Pollution Control District, then it will be forwarded  
18 to the state, and the California Air Resources Board  
19 would, in turn, adopt that document as their own. And  
20 then they would call that the state implementation  
21 plan which would be, in turn, forwarded to the EPA,  
22 satisfying the Clean Air Act requirements.

23 MR. HERRERA: Excuse me, Mr. Birmingham. It's 20  
24 minutes.

25 MR. BIRMINGHAM: I make an application for an  
0072 01 additional 20 minutes.

02 HEARING OFFICER DEL PIERO: I'll grant you the  
03 additional 20 minutes, Mr. Birmingham, after I ask one  
04 question and after the break.

05 MR. BIRMINGHAM: Sure.

06 HEARING OFFICER DEL PIERO: Mr. Ono, just for the  
07 sake of clarification, in terms of the implementation  
08 plan that you just referred to in your last answer, is  
09 it not true that the State Air Resources Board does not  
10 have the prerogative of ordering amendments or  
11 modifications to that plan once the Great Basin plan  
12 has been submitted, then, for adoption? They can  
13 either adopt it or send it back, but they don't have  
14 the authority to order the local board to change  
15 something that's in that plan?

16 MR. ONO: I don't know if they do or not.

17 HEARING OFFICER DEL PIERO: Fine.

18 Ladies and Gentlemen, we'll be in recess for ten  
19 minutes.

20 (Whereupon a short recess was taken.)

21 HEARING OFFICER DEL PIERO: Ladies and Gentlemen,  
22 this hearing will again come to order. If we'll all  
23 find our seats.

24 When last we left, Mr. Birmingham, I just  
25 indicated you had another 20 minutes.

0073 01 Q BY MR. BIRMINGHAM: I want to go back, and I want to  
02 look at this May 3 event because I was able to find  
03 what I was looking for in the video. And the record  
04 should reflect that I've turned the sound down. I'll  
05 turn it back up, I guess. But we are at -- starting at  
06 Frame 61 of the video

07 "Probably hear the wind howling through the  
08 building."

09 Q BY MR. BIRMINGHAM: Now, I have just paused the video  
10 on what is indicated on the counter as Frame 70. And  
11 is it correct, Ms. McKee, that right off of the balcony  
12 at the visitor's center there appears to be dust  
13 blowing in the video?

14 A BY MS. McKEE: Yes, that is correct. The purpose of  
15 the video was not as an air quality monitoring tool,  
16 but a dust event storm.

17 Q If you would limit your responses to my questions  
18 to -- just to my questions, I would appreciate it. As

19 you probably have noted, I don't have a lot of time or  
20 my time is limited, and it would speed things along if  
21 you would just limit your answers to my questions.

22 And it's correct that there appears to be dust in  
23 this Frame 70 blowing immediately off of the balcony at  
24 the visitor's center. Is that right?

25 A Yes. That's a disturbed area from new  
0074 construction.

02 Q Now, the area that you've just characterized as  
03 disturbed, the dust is not coming from the lake, that  
04 playa; is that correct?

05 "Monday, May 3rd, 1993 -- "

06 Q BY MR. BIRMINGHAM: Is that dust coming from the lake  
07 bed playa?

08 MR. BRUCE: I'm going to object. The video speaks  
09 for itself. This witness has already indicated that  
10 she didn't observe the events recorded in this video.

11 HEARING OFFICER DEL PIERO: I'm going to overrule  
12 the objection.

13 But, Ms. McKee, I want you to answer the question  
14 that Mr. Birmingham asked, and if you want the question  
15 read back, specifically -- I'm expecting you to answer  
16 this based on your inspection of what's there on the  
17 video right now. He asked you that question. He asked  
18 you a question about where that dust was coming from.  
19 If you know, you can answer it. If you don't know, you  
20 can answer "I don't know."

21 So do you want the question read back?

22 MS. McKEE: No. I think I can recall the  
23 question.

24 HEARING OFFICER DEL PIERO: Okay.

25 MS. McKEE: No. I do not know where that dust is  
0075 coming from.

02 Q BY MR. BIRMINGHAM: Have you ever been in a wind  
03 storm at the Mono Basin, Ms. McKee, when there was dust  
04 coming from areas other than the relict lake bed of  
05 Mono Lake?

06 A BY MS. McKEE: No, I have not.

07 Q In response to my questions about the wind  
08 conditions on that date, Mr. Ono, you stated that this  
09 day, May 3, 1993, was, using your words, "extraordinary  
10 in terms of meteorology." Is that correct?

11 A BY MR. ONO: I believe that I said something like  
12 that, yes.

13 Q So when you say that this was an extraordinary day  
14 in terms of meteorology, then you would agree with me  
15 that it's not a typical day in terms of meteorology?

16 A The May 3rd day was, I would say not typical of  
17 the five years of data that we analyzed from 1988  
18 through 1992. However, the spring of '93 was very  
19 windy. There were several days which had high winds  
20 similar to this.

21 Q And it's correct, isn't it, Mr. Ono, that one of  
22 the principal factors contributing to dust storms in  
23 the Mono Basin, both from the lake bed area and from  
24 sources other than the lake bed, is meteorology?

25 A Yes.

0076

01 Q And it's correct, isn't it, Mr. Ono, that there  
02 are dust storms in the Mono Basin where dust is  
03 generated from areas other than the relict lake bed?  
04 A On occasion, there will be dust coming from almost  
05 any disturbed area in the Mono Basin, and this is not  
06 unique to the Mono Basin. We've seen this in the Owens  
07 Valley. In the San Joaquin Valley this certainly  
08 occurs. On extremely windy days, those areas may blow,  
09 and they may blow temporarily and then stop. I think,  
10 later in the May 3rd video one of the things that you  
11 will notice is that in the afternoon, that dust is no  
12 longer blowing. It's a very limited event.

13 However, in comparison to the lake bed playa, you  
14 may see that blowing continuously throughout the storm  
15 in some areas, and that's what we would consider an  
16 unlimited type of source and that will continue.

17 One of the things that we can use to possibly  
18 compare the playa dust to the dust from disturbed areas  
19 is looking at the P.M.10 concentration in Lee Vining  
20 and comparing that to what we see at Simis. On May 3rd  
21 of 1993, the date that Mr. Birmingham is asking about,  
22 the concentration in Lee Vining for P.M.10 was 41  
23 micrograms per cubic meter, and that's for a 740-minute  
24 run. The corrected average is 21 micrograms per cubic  
25 meter. During the same period as I had stated

0077

01 before -- let's see if I can find it, the value at  
02 Simis was 402, and so if disturbed dust from areas  
03 where the soil had been disturbed in the Lee Vining  
04 area or anywhere else in the basin was a major factor  
05 in the P.M.10 contribution, then we should have seen a  
06 much larger concentration at Simis. The 41 as compared  
07 to the 400 concentration at Simis is very small, so  
08 we're talking maybe less than 10 percent is due to  
09 disturbed areas, even on this extreme day.

10 Q Are you done, Mr. Ono?

11 A Okay.

12 Q I'm going to ask you the same thing that I asked  
13 Ms. McKee. In responding to my questions, if you would  
14 limit your answer to my question, I would appreciate  
15 that very much. I asked you a question a few minutes  
16 ago that could have been responded to yes or no, and  
17 you went on for two and a half minutes. And I do have  
18 a very limited time. So, again, I'm going to ask all  
19 members of this panel, if I ask you a question, just  
20 answer my question.

21 Now, Mr. Ono, you've just talked about Lee  
22 Vining. See, this is the problem when you go beyond  
23 the scope of my question, I have to ask three or four  
24 more questions just to follow up. You just talked  
25 about air quality monitoring at Lee Vining.

0078

01 HEARING OFFICER DEL PIERO: Mr. Birmingham, it's  
02 January. The December holidays are over and in the  
03 event that you need additional time for  
04 cross-examination, Sir, all you have to do is ask.

05 MR. BIRMINGHAM: Thank you. I had hoped to get  
06 through this panel in about five minutes. My hopes  
07 were dashed.

08 HEARING OFFICER DEL PIERO: Hope springs eternal.

09 Q BY MR. BIRMINGHAM: Mr. Ono, you've just talked about  
10 air quality monitoring in Lee Vining. You have a  
11 station in the Town of Lee Vining; is that correct?  
12 A BY MR. ONO: Yes.  
13 Q The Town of Lee Vining is at the base of the  
14 Sierra Nevada; is that correct?  
15 A Yes.  
16 Q As it enters the Great Basin?  
17 A Sounds right to me.  
18 Q Is that correct?  
19 A Right.  
20 Q Now, the Town of Lee Vining is protected from the  
21 prevailing winds in the Mono Basin, isn't it, Mr. Ono?  
22 A Not necessarily. It would really depend on which  
23 direction the wind is blowing from.  
24 Q Isn't it correct that on the days in which dust  
25 storms generally occur, the wind is blowing from the  
0079  
01 south by southwest?  
02 A Yes, that's true.  
03 Q And on those days, the Town of Lee Vining is  
04 protected from the wind; is that correct?  
05 A There are still high winds at Lee Vining.  
06 Q Again, Mr. Ono, in response to any question -- let  
07 me ask it differently. You're familiar with the work  
08 of Dr. Cahill? Thomas Cahill?  
09 A I am familiar with some of the work of Dr. Cahill.  
10 Q Dr. Cahill has studied the dust episodes in the  
11 Mono Basin extensively?  
12 A Yes, he has done studies.  
13 Q And he is active as a consultant for the Great  
14 Basin Unified Pollution Control District; is that  
15 correct?  
16 A BY MR. SCHADE: As a contract manager for the Great  
17 Basin's activities, I'd like to answer that.  
18 Q If you know the answer that would be fine.  
19 A No, he is not.  
20 Q Is it correct, Mr. Ono, that Dr. Cahill's work  
21 indicates that one of the factors that contributes to  
22 the generations of dust storms in the Mono Basin is  
23 winds that come over the eastern Sierra and then fall  
24 into the Mono Basin and then blow dust off of the  
25 playa?  
0080  
01 A BY MR. ONO: I don't know.  
02 Q And for the record, the attorney for the  
03 representative of the Department of Fish and Game is  
04 Dr. Cahill's spouse. And I say that not to impeach  
05 either one of them.  
06 MR. THOMAS: Object. Move to strike.  
07 HEARING OFFICER DEL PIERO: It's in. Let's  
08 proceed.  
09 Nice to see you, Mr. Thomas. I was wondering if  
10 you were awake back there.  
11 MR. THOMAS: I arise to defend all of my people.  
12 Q BY MR. BIRMINGHAM: Let's go back and talk about the  
13 state implementation plan. I've got a hypothetical  
14 question I'd like to ask you. I'm going to ask you to  
15 assume that the State Water Resources Control Board  
16 proceedings at which you're testifying today are not

17 ongoing. So let's just take these proceedings and put  
18 them aside, and let's just assume that they're not  
19 ongoing. I'm going to ask you to assume that the  
20 Environmental Protection Agency has designated the Mono  
21 Basin as a non-attainment area. I'm also going to ask  
22 you to assume that as a result of that designation, the  
23 Great Basin Unified Air Pollution Control District is  
24 going to develop a state implementation plan. And then  
25 I'm going to ask you to assume that in developing the

0081

01 state implementation plan, the Great Basin Unified Air  
02 Pollution Control District has determined that a  
03 mitigation measure to be pursued is raising the level  
04 of Mono Lake.

05 Do you understand the assumptions that I've asked  
06 to you make, Mr. Ono?

07 A BY MR. ONO: Yes.

08 Q Now, making those assumptions, if the Great Basin  
09 Unified Air Pollution Control District wanted to pursue  
10 raising the level of Mono Lake as a mitigation measure  
11 to deal with the impacts of dust being emitted from the  
12 playa, isn't it correct that the Great Basin Unified  
13 Air Pollution Control District would have to go to the  
14 legislature and ask for an amendment of the Health and  
15 Safety Code?

16 MR. BRUCE: Objection. Calls for a legal  
17 conclusion. Exceeds the scope of the direct  
18 examination and the witness' expertise.

19 MR. FLINN: There's another fault in the question  
20 and that has to do with the ambiguity of the term  
21 "pursue." Even assuming, hypothetically, that the  
22 Great Basin Air Pollution Control District's authority  
23 is limited so that they could not interfere with L.A.'s  
24 water-gathering efforts, even assuming that's the case,  
25 the question is whether or not proposing to a superior

0082

01 California agency that might be, for example,  
02 California's designee under the Federal Clean Air Act  
03 is pursuit or not, and the clarification of pursuit is  
04 important.

05 The question -- the other objection's overruled.

06 HEARING OFFICER DEL PIERO: I'm going to sustain  
07 the first objection. I'm not going to comment on  
08 Mr. Flinn's.

09 Mr. Birmingham, please proceed.

10 Q BY MR. BIRMINGHAM: I'm going to ask you another  
11 hypothetical question, Mr. Ono. I'm going to ask you  
12 to assume that on December 2, 1992, the level of Mono  
13 Lake was at elevation 6390. Do you understand that  
14 assumption that on December 2, 1992, the elevation of  
15 Mono Lake was at elevation 6390?

16 A BY MR. ONO: Yes.

17 Q Now, Mr. Ono, making that assumption, would there  
18 have been an exceedence of the federal P.M.10 standard  
19 at Simis Ranch on December 2, 1992, had the level of  
20 Mono Lake been at 6390?

21 MR. BRUCE: I'm going to object because I don't  
22 understand the hypothetical. I don't know that there's  
23 been sufficient facts given to the witness to allow him  
24 to answer this particular question. For instance,

25 meteorological conditions.

0083

01 HEARING OFFICER DEL PIERO: Mr. Bruce, I'm going  
02 to overrule your objection.

03 Mr. Ono, do you understand the question?

04 MR. ONO: Assuming --

05 HEARING OFFICER DEL PIERO: I don't want you to  
06 assume anything, Mr. Ono. I want you to tell me if you  
07 understand the question that's been put to you.

08 MR. ONO: Yes, I do.

09 HEARING OFFICER DEL PIERO: Okay. Then go ahead  
10 and answer it.

11 MR. ONO: I would have to defer this question to  
12 Mr. Ken Richmond who did the modeling, and I understand  
13 that we're assuming that the meteorology is the same as  
14 on 12-2-92, and that the lake level is at 6390 feet and  
15 what would the model say?

16 MR. RICHMOND: First of all, we didn't  
17 specifically look at a lower source boundary  
18 corresponding to a lake level of 6390. I guess the  
19 closest scenario that we simulated would be a lower  
20 source boundary of 6393, and on the other side of it,  
21 the lower source boundary that we simulated was 6387.  
22 What we did is we summarized the top ten values for  
23 that lake level at every separate location. So --

24 HEARING OFFICER DEL PIERO: Mr. Birmingham, do you  
25 want to know the information he's offering?

0084

01 MR. BIRMINGHAM: I don't think that it's  
02 responsive to my question.

03 HEARING OFFICER DEL PIERO: Mr. Richmond, I'm  
04 going to ask all of the members of the panel to respond  
05 specifically to Mr. Birmingham's questions rather than  
06 volunteering information because although we don't have  
07 unlimited time here, I want to make sure that he's  
08 afforded the best opportunity to get answers to the  
09 questions he's asked.

10 Q BY MR. BIRMINGHAM: Is there anybody on the panel who  
11 can answer this question?

12 A BY MR. ONO: Could you repeat the question again?

13 Q Sure. I'm going to just ask you to assume that on  
14 December 2, 1992, the level of Mono Lake was at  
15 elevation 6390. Making that assumption and assuming  
16 that all of the other meteorological conditions were  
17 correct, would there have been a violation of the  
18 P.M.10 standard at Simis Ranch?

19 HEARING OFFICER DEL PIERO: Does anyone on the  
20 panel know the answer to that question?

21 MR. RICHMOND: I don't.

22 HEARING OFFICER DEL PIERO: I see no one  
23 acknowledging that they have this information,  
24 Mr. Birmingham.

25 Q BY MR. BIRMINGHAM: Is there anyone here that is

0085

01 familiar with Great Basin Unified Air Pollution Control  
02 District Exhibit No. 20? This the Mono Lake transport  
03 report for the period December 12, 1992, through July  
04 6th, 1993?

05 A BY MR. ONO: Yes.

06 Q You're familiar with that report, Mr. Ono?

07 A Yes, I am.

08 Q And you relied on this report, Great Basin Unified  
09 Air Pollution Control District Exhibit 20, in the  
10 preparation of your testimony?

11 A I included it in my testimony. I don't know how  
12 much I relied on it.

13 Q Who is responsible for the preparation of this  
14 report?

15 A That would be me.

16 Q Does the report contain information about the  
17 movement of sand from different areas of the playa?

18 A Yes, it does. In the location of Ten Mile Road.  
19 It does not say anything about other areas of the playa  
20 around Mono Lake Basin.

21 Q Now, does the report contain data for December 2,  
22 1992?

23 A It does cover that period, yes.

24 Q Now, I'm looking at Page 2 of this report. In the  
25 middle of the page it talks about sand movement. It  
0086

01 states that, "The lower and middle playa areas up to  
02 the wave cut platform at 6390 showed negligible  
03 erosion. The upper playa from 6390 to 6400 showed a  
04 substantial increase in erosion from near zero to 700  
05 grams. Sand port samplers were not installed above  
06 6400 feet during this period. On December 2, 1992, the  
07 P.M.10 monitor at Simis Ranch measured 225 micrograms  
08 per cubic meter. It is assumed that almost all of the  
09 P.M.10 emissions were generated from the playas above  
10 6390 feet."

11 Is that what the report states, Mr. Ono?

12 A Yes, that's what the report says.

13 Q Now, does reviewing this refresh your recollection  
14 with respect to the question I asked about making an  
15 assumption that the lake was at elevation 6390 on  
16 December 2, 1992, would there have been a violation of  
17 the P.M.10 standard at Simis Ranch?

18 A If the lake came up to 6390 tomorrow, suddenly,  
19 there was a flash flood and it came up to 6390 and we  
20 had this type of erosion that occurred above that, yes,  
21 it would.

22 Q It's correct, isn't it, Mr. Ono, that there's  
23 erosion from the playa above 6400 feet which  
24 contributes to the emission of dust in the Mono Basin?

25 A There is sand movement above 6400 feet. Whether  
0087

01 or not that's erosion or whether or not that's  
02 deposition, you can't tell exactly from this  
03 information. But if I could add this, what we have  
04 found is that the area above 6390 appears to be a  
05 deposition area, and that's where a lot of the material  
06 from the lower playa is actually ending up. And so  
07 it's building up in those areas.

08 Q I'd like to talk about how you selected 6390 as  
09 the level which was going to be advocated by the Great  
10 Basin Unified Air Pollution Control District. Is it  
11 correct, Mr. Ono, that the Board of Directors of the  
12 Great Basin Unified Air Pollution Control District  
13 adopted a resolution that established 6390 as the  
14 elevation which would be advocated by the Great Basin

15 Unified Air Pollution Control District in these  
16 proceedings?

17 A Yes.

18 Q And when the Great Basin Unified Air Pollution  
19 Control District Board of Directors was debating that  
20 resolution, were there directors that wanted to support  
21 a lower level?

22 A I don't know. I wasn't there at that meeting.

23 Q So you don't know what the individual members of  
24 the District Board of Directors stated in the debate on  
25 that resolution?

0088

01 A No, I don't.

02 Q Mr. Ono, when you were with the Environmental  
03 Protection Agency, did it have a policy known as the  
04 Fugitive Dust Policy?

05 A Yes.

06 Q What was the Fugitive Dust Policy?

07 A Specifically, the Rural Fugitive Dust Policy. It  
08 allowed the exemption of some areas -- some rural areas  
09 with small populations to not have to submit state  
10 implementation plans for the total suspended  
11 particulate standard for, I think this was started in  
12 1977. And one of the things I would add to this as we  
13 stated -- the Environmental Protection Agency stated in  
14 their testimony, that policy no longer exists.

15 Q But at one point the Environmental Protection  
16 Agency, when you were with the agency, had a policy of  
17 allowing exemption from state implementation plans for  
18 rural areas with small populations where the dust was  
19 what was termed "fugitive dust;" is that correct?

20 A Yes. That's true.

21 Q Your testimony, your direct testimony talks about  
22 the health effects associated with inhaling P.M.10. Is  
23 that correct, Mr. Ono?

24 A It relates to the health effects as they are  
25 explained for the standard, yes.

0089

01 Q Now, you are not an expert on the health effects  
02 of P.M.10; is that correct?

03 A That's correct.

04 Q The dust which comprises the P.M.10 emitted from  
05 the playa is composed of different elements than the  
06 dust which was studied and served as the basis of the  
07 federal P.M.10 standard; is that correct, Mr. Ono?

08 MR. FLINN: Objection. Lack of foundation.

09 HEARING OFFICER DEL PIERO: Sustained. Go ahead,  
10 Mr. Birmingham. I'm interested in the line of  
11 questions, but you need to lay a foundation.

12 Q BY MR. BIRMINGHAM: Are you familiar with the  
13 studies, Mr. Ono, you relate them in your testimony,  
14 that served as the basis of the federal P.M.10  
15 standard?

16 A BY MR. ONO: I'm not familiar with the details of the  
17 studies, but I know that some studies were done and in  
18 general terms, I know of the studies, yes.

19 Q Is it correct that those studies generally  
20 involved the study of the effects of urban pollutants?

21 A The studies were done in urban areas, but the  
22 focus of the studies was on particle size, and in my



23 conversations with people who helped to set the  
24 standard, they explained to me that the standard was  
25 set purely on particle size and not on chemical  
0090 composition of those particles. And so the concern was  
01 for particles that would be small enough that they  
02 would be inhaled, and so the studies, even though they  
03 were done in urban areas, really reflected the size of  
04 the particles. At least, that's how it was explained  
05 to me by -- if I can say who it was Mr. John Bachman  
06 (phonetic) -- or Dr. John Bachman (phonetic) at the EPA  
07 in Washington D.C.  
08  
09 Q Now, when you were talking with Dr. Bachman  
10 (phonetic) at EPA, did you discuss how different  
11 elements that composed the P.M.10 might affect the  
12 health effect that P.M.10 has on individuals?  
13 A No, we didn't.  
14 Q And if there were testimony in this proceeding  
15 that the composition of the P.M.10 will affect how  
16 P.M.10 affects the health of individuals, you wouldn't  
17 have any basis for disputing that testimony, would you,  
18 Mr. Owen?  
19 MR. BRUCE: Objection. It's ambiguous. I mean,  
20 what testimony is he offering under this hypothetical  
21 that's been introduced?  
22 HEARING OFFICER DEL PIERO: I want to sustain the  
23 objection, Mr. Birmingham.  
24 Q BY MR. BIRMINGHAM: You were present during the  
25 testimony of Dr. Fedoruk; is that right, Mr. Ono?  
0091  
01 A BY MR. ONO: Yes, I was here.  
02 Q Did you listen to the testimony of Dr. Fedoruk?  
03 A Certainly.  
04 Q Did you listen to the portion of the testimony of  
05 Dr. Fedoruk where he opined concerning how the  
06 composition of P.M.10 would effect the health affect  
07 P.M.10 has on individuals?  
08 A Yes, I did.  
09 Q Now, you don't have any basis for disputing the  
10 opinions expressed by Dr. Fedoruk, do you?  
11 A No, I don't.  
12 MR. HERRERA: Mr. Birmingham, that's 20 minutes.  
13 MR. BIRMINGHAM: Can I ask for an additional ten  
14 minutes, Mr. Del Piero?  
15 HEARING OFFICER DEL PIERO: Granted.  
16 Q BY MR. BIRMINGHAM: Mr. Ranzieri, I have just a few  
17 questions for you. You reviewed the model developed by  
18 TRC for Great Basin Unified Air Pollution Control  
19 District; is that correct?  
20 A BY MR. RANZIERI: We reviewed the model they applied,  
21 yes.  
22 Q You are with the California Air Resources Board;  
23 is that correct?  
24 A That's correct.  
25 Q Do you know the question that was asked of Mr. Ono  
0092  
01 by Mr. Del Piero before the recess? Do you recall that  
02 question?  
03 A Could you repeat it, please?  
04 Q He asked whether or not the California Air

05 Resources Control Board has the authority to direct  
06 modification of, specific modification, of a state  
07 implementation plan developed by a regional air quality  
08 control district.

09 MR. OLIVER: Objection. Way way beyond the scope  
10 of this witness' direct testimony.

11 MR. BRUCE: Also, lack of foundation.

12 MR. BIRMINGHAM: I asked him if he knew the answer  
13 to the question.

14 HEARING OFFICER DEL PIERO: I'm going to overrule  
15 the objections and -- do you know the answer to the  
16 question, Mr. Ranzieri?

17 MR. RANZIERI: I do not.

18 Q BY MR. BIRMINGHAM: Fair enough.

19 Is it correct, Mr. Ranzieri, that in developing an  
20 air dispersion model, the accuracy of the model depends  
21 on the emission rates that are input into the model?

22 A BY MR. RANZIERI: Correct.

23 Q Now, you did not evaluate the emission rates that  
24 were input into the TRC model; is that right?

25 A That is correct.

0093

01 Q And so isn't it correct that you really cannot  
02 state with any certainty how accurate the dispersion  
03 model is?

04 A We evaluate the methodology that was used in  
05 carrying out those simulations. We did not evaluate  
06 the emission rates, so we have no way of estimating --  
07 "we" being my modeling group at the Air Resources  
08 Board.

09 Q So you don't have any basis for expressing an  
10 opinion concerning the accuracy of the model results,  
11 just the methodology that was used?

12 A Methodology that was used, yes.

13 Q Now, in your testimony you state that the model --  
14 actually, you state "it," and I presume you're  
15 referring to the model, "It is a sound modeling  
16 approach that reasonably estimates the ambient particle  
17 concentration which may be anticipated from the exposed  
18 playa of Mono Lake under various water level  
19 scenarios"?

20 A Correct.

21 Q Now, with respect to that statement, you were  
22 talking only about the methodology used by the model,  
23 not the model results; is that right?

24 A That is correct.

25 MR. BIRMINGHAM: I have no further questions.

0094

01 HEARING OFFICER DEL PIERO: Thank you very much,  
02 Mr. Birmingham.

03 Ms. Cahill? Who's doing air on behalf of the  
04 Department of Fish and Game?

05 MS. CAHILL: I am.

06 HEARING OFFICER DEL PIERO: Okay. Great.

07 CROSS-EXAMINATION BY MS. CAHILL

08 Q Good morning. All of my questions are for  
09 Ms. McKee. The rest of the panel can relax.

10 Good morning, Ms. McKee. Are you the hydrologist  
11 for the Inyo National Forest?

12 A BY MS. McKEE: Yes, I am.

13 Q And so to the extent that I have questions that  
14 are water related rather than air pollution related, I  
15 can also ask you those questions?  
16 A I guess so.  
17 Q Are you familiar with the ongoing Federal Energy  
18 Regulatory Commission relicensing process for Southern  
19 California Edison's Lee Vining Creek project?  
20 A I'm generally familiar with the process. It's  
21 been going on for many years, much of which I wasn't  
22 the hydrologist for the forest. But I'm generally  
23 familiar with the process.  
24 Q Insofar as FERC is looking at flows below the Pool  
25 powerhouse, what stretch of the stream are they  
0095 considering?  
26 A I was not involved in that particular analysis,  
27 although I have read the environmental assessment that  
28 FERC wrote, and I recall that they stopped their  
29 analysis at the L.A. diversion.  
30 Q Thank you.  
31 Are you aware of an agreement between Southern  
32 California Edison and Los Angeles Department of Water  
33 and Power regarding water storage in Saddlebag Lake,  
34 which is the largest storage reservoir on the Lee  
35 Vining Creek watershed?  
36 A Yes.  
37 Q And have you read that agreement?  
38 A I don't believe so. It's been referenced in  
39 numerous meetings, and I don't recall having seen a  
40 copy.  
41 Q Do you have any opinion on whether, if Saddlebag  
42 storage can be controlled by that agreement to some  
43 extent by Los Angeles Department of Water and Power,  
44 whether that means that storage could be controlled to  
45 affect flows at the Lee Vining diversion structure?  
46 MR. BIRMINGHAM: May I ask that that be reread,  
47 Mr. Del Piero?  
48 (Whereupon the record was read as requested.)  
49 MR. OLIVER: Objection. She's already testified  
0096 she hasn't read the agreement.  
50 HEARING OFFICER DEL PIERO: Sustained.  
51 MS. CAHILL: Actually, Mr. Del Piero, I would like  
52 to ask Mr. Birmingham if he would make that agreement  
53 available.  
54 MR. BIRMINGHAM: I don't have a copy of the  
55 agreement. I can ask the Department of Water and Power  
56 to send me a copy and if --  
57 HEARING OFFICER DEL PIERO: Is it a public  
58 document?  
59 MR. THOMAS: Mr. Downey's here. Perhaps we can  
60 ask --  
61 HEARING OFFICER DEL PIERO: Mr. Birmingham, is it  
62 a public document?  
63 MR. BIRMINGHAM: I would imagine that it is a  
64 public document. Mr. Downey states that all of the  
65 Department's documents are public. I don't think I  
66 want to go quite that far, but we will try --  
67 HEARING OFFICER DEL PIERO: And given the way  
68 malpractice is these days, I can understand that.

21 MR. BIRMINGHAM: But I will try to get a copy of  
22 it and provide it to the Department of Fish and Game.  
23 If we do, we will stipulate its admission into the  
24 record.  
25 HEARING OFFICER DEL PIERO: Can we see if we can  
0097  
01 secure that by the end of the week?  
02 MR. BIRMINGHAM: I'll try and have a copy sent to  
03 us by overnight mail so it will be here tomorrow.  
04 HEARING OFFICER DEL PIERO: Thank you very much.  
05 Please proceed.  
06 Q BY MS. CAHILL: Just one last question, Ms. McKee.  
07 Actually, it's not one last question, it's one last  
08 line of questions.  
09 I have given you a document that's entitled State  
10 and Federal Agencies Memorandum of Understanding,  
11 California's Coordinated Regional Strategy to Conserve  
12 Biological Diversity. Have you seen this document  
13 before?  
14 A BY MS. McKEE: Yes, I have.  
15 Q And has the Forest Service executed this document?  
16 A The Forest Service has signed the document.  
17 Q And do you understand this document to provide  
18 that the maintenance and enhancement of biological  
19 diversity will be a pre-eminent goal in the signatory  
20 parties' protection and management policies? And that  
21 would be found in Section Roman Numeral III-A of the  
22 agreement.  
23 HEARING OFFICER DEL PIERO: Do you know the  
24 answer?  
25 MS. McKEE: Could you repeat the question?  
0098  
01 Q BY MS. CAHILL: Is it your understanding that under  
02 the terms of this Memorandum of Understanding, the  
03 parties who signed the agreement agree to make the  
04 maintenance and enhancement of biological diversity a  
05 pre-emminent goal in their protection and management  
06 policies?  
07 A BY MS. McKEE: That's my understanding from looking  
08 at the document.  
09 MS. CAHILL: Mr. Del Piero, I would like to have  
10 this marked as DFG Exhibit 78. And I would also move  
11 its admission.  
12 HEARING OFFICER DEL PIERO: Any objections? This,  
13 just for my edification, I haven't had a chance to go  
14 through it, but I think this is the Nat Catcher  
15 Strategy, is that --  
16 MS. CAHILL: Like Bruce Dodge, I'll say I just ask  
17 the questions.  
18 HEARING OFFICER DEL PIERO: I think I'm right.  
19 MS. CAHILL: And that's, in fact, all the  
20 questions I'm going to ask at this time. Thank you so  
21 much.  
22 HEARING OFFICER DEL PIERO: It'll be ordered into  
23 the record.  
24 (DFG Exhibit No. 78 was marked  
25 for identification and  
0099  
01 admitted into evidence.)  
02 MR. BIRMINGHAM: In fact, Mr. Dodge is not here,

03 but he offers the answers to the questions most of the  
04 time.

05 HEARING OFFICER DEL PIERO: I'm reading Herb Caen  
06 regularly now to make sure that I can find something  
07 for him before the end of the process.

08 MR. GIPSMAN: But I will take the risk of  
09 answering the question and say this is not.

10 HEARING OFFICER DEL PIERO: This is not the Nat  
11 Catcher.

12 MR. GIPSMAN: No. It's just a general statement  
13 of principles among the signatories that were working  
14 for biodiversity.

15 HEARING OFFICER DEL PIERO: What was the date on  
16 this document? Ms. Cahill do you know, or  
17 Mr. Gipsman? There's no date here that's why I was  
18 wondering.

19 MR. GIPSMAN: It's at least a year old. I don't  
20 recall when I read it last.

21 HEARING OFFICER DEL PIERO: This was not the  
22 precursor to the ultimate resolution on the Nat  
23 Catcher?

24 MR. GIPSMAN: It may have been an umbrella  
25 document --

0100

01 HEARING OFFICER DEL PIERO: It thought it was. I  
02 think it is. I'm not positive of that. We'll look.  
03 We'll check.

04 Mr. Flinn.

05 MR. FLINN: Good morning. I want to begin by  
06 commending Ms. Cahill for her courage. It's a rare  
07 person who is willing to compare themselves to Bruce  
08 and adopt any of his particular mannerisms, and  
09 courageous it was.

10 CROSS-EXAMINATION BY MR. FLINN

11 Q Good morning. My name is Patrick Flinn. I'm one  
12 of the lawyers for the National Audubon Society and  
13 Mono Lake Committee, and I've got a few questions.

14 HEARING OFFICER DEL PIERO: Did you have a good  
15 holiday, Mr. Flinn?

16 MR. FLINN: I did. I did. I do want to point out  
17 that today was supposed to be the first day of my  
18 parental leave, a three-month leave. I don't believe  
19 that my spouse has taken to tying a ribbon around a  
20 tree in front of our house in Atlanta, Georgia, but  
21 that's going to happen any day, I think. With that in  
22 mind, I'll try to be as brief as I can.

23 I want to start, Mr. Ono, with a question to  
24 follow up on an area Mr. Birmingham asked you about,  
25 and I think this is to you, but anybody who wants to

0101

01 answer this -- and that has to do with whether there is  
02 a difference between dust that comes from the exposed  
03 lake bed playa as opposed to the dust that may be  
04 generated from the roads or the disturbed areas of  
05 general dirt that's out there on the desert.

06 Do you have an opinion, Sir, as to whether or not  
07 the P.M.10 concentrations that were measured exceeding  
08 federal and state law were caused simply by blowing  
09 generic desert dust or whether they were caused by the  
10 exposed lake bed?

11 MR. BIRMINGHAM: I'll object on the grounds it  
12 lacks foundation.  
13 HEARING OFFICER DEL PIERO: I'm going to sustain  
14 the objection.  
15 Q BY MR. FLINN: I'll lay this foundation. Mr. Ono, in  
16 the years of study that you've done of the air quality  
17 problem, have you had the opportunity to observe the  
18 sources of blowing dust?  
19 A BY MR. ONO: Yes.  
20 Q And have you studied the method by which dust is  
21 emitted from the features at Mono Lake?  
22 A Yes.  
23 Q And have you had the opportunity to observe both  
24 dust that may be blown from the surrounding desert area  
25 as well as dust that may be blown from the exposed lake

0102

01 bed playa?  
02 A I would have to admit that I have not seen dust  
03 blowing from the surrounding desert area in the Mono  
04 Basin. I have seen dust coming from the pit that's  
05 south of Mono Lake and from the playa, but I have not  
06 seen it from other areas other than in this video from  
07 the balcony of the visitor's center.  
08 Q Are you familiar with comparisons, elemental  
09 comparisons, of the material found in both the TSP  
10 filters and the P.M.10 filters on the Great Basin's  
11 samplers?  
12 A I am familiar with some of the information, yes.  
13 Q And are you aware that these showed that there is  
14 a difference in the composition of dust that comes from  
15 the exposed lake bed playa as opposed to dust that  
16 comes from the surrounding area in the desert itself?  
17 A In the Mono Basin. I never looked at that, so I'm  
18 not --  
19 Q You have been able to compare P.M.10 sampling data  
20 from areas that are in the path of dust blown from the  
21 exposed lake bed and areas like in Lee Vining that are  
22 not in the path of that dust; is that right?  
23 A Yes.  
24 Q And how do they compare?  
25 A Actually, I haven't looked at the TSP to P.M.10

0103

01 ratio, but I have looked at the concentrations  
02 themselves and the concentrations in Lee Vining, which  
03 is generally up wind of the dust storms, is very clean,  
04 and the concentrations of Simis and Warm Springs, which  
05 are on the downwind side of the eroding playa, are  
06 extremely high. In this one case on May 3rd, we had a  
07 concentration of 41 at Lee Vining and over 400 at Simis  
08 Ranch, and I think that Ken Richmond, who has reviewed  
09 the P.M.10 data for Lee Vining, can tell you that the  
10 concentrations over the five-year period we looked at  
11 were extremely low in Lee Vining even during all the  
12 dust storms.  
13 Q Are there any measured P.M.10 concentrations in  
14 Lee Vining in excess of 150 micrograms per cubic meter?  
15 A No, there were not.  
16 Q And approximately how many were measured in the  
17 area that's in the path of the playa?  
18 A I don't have a number.

19 Q Is it approximately on the order of from 88 to 92,  
20 a dozen or so?  
21 A That would make sense, yeah.  
22 Q Based on that comparison, Lee Vining, not in the  
23 path of the playa dust and Simis in the path of the  
24 playa dust, do you have an opinion as to whether or not  
25 it's the playa dust causing the Clean Air Act  
0104  
01 violations?  
02 A Yes.  
03 Q What is that opinion, Sir?  
04 A That opinion is that it is definitely the playa  
05 dust that's causing the exceedences of the P.M.10  
06 standard in the Mono Basin.  
07 Q Okay. Now, Mr. Ono, I believe you were asked an  
08 opinion about Dr. Fedoruk's testimony and whether or  
09 not you agreed or had ability to agree or disagree with  
10 some of his. I'd like to read to you some of his  
11 testimony that he gave on November 16th, 1993, on Page  
12 42 of the transcript and just simply ask you the same  
13 question as Mr. Birmingham when I'm done, do you have  
14 any reason to disagree with Dr. Fedoruk.  
15 I read Dr. Fedoruk's written testimony of the  
16 people who actually live out there in the north shore  
17 area, and I asked him the following question.  
18 "Question. Assuming that this is a typical  
19 experience for someone who has to live out there, would  
20 you characterize that as not some kind of public health  
21 problem? Answer. No. I think that does represent  
22 some type of public health problem."  
23 Do you have any basis for disagreeing with  
24 Dr. Fedoruk on that testimony?  
25 A No. In fact, I agreed with that statement that it  
0105  
01 is a public health problem.  
02 Q Now, earlier, we had testimony in this proceeding  
03 from the Environmental Protection Agency and this was,  
04 I believe, Mr. Calkins, and he was asked some questions  
05 about the timing of compliance with the Clean Air Act.  
06 Since his testimony, has the Great Basin Unified Air  
07 Pollution Control district received correspondence from  
08 the EPA on timing questions?  
09 A Yes, we have.  
10 Q I want to show you what's been marked as Exhibit  
11 246. National Audubon Society and Mono Lake Committee  
12 Exhibit 246.  
13 MR. BIRMINGHAM: May I take a look that the,  
14 please?  
15 MR. FLINN: Yeah. You've got your own copy  
16 there.  
17 MR. BIRMINGHAM: Before you ask any questions,  
18 Mr. Flinn, may I be given a moment?  
19 MR. FLINN: Sure. Sure.  
20 Q BY MR. FLINN: Can you identify Exhibit 246 as the  
21 correspondence the Great Basin received from the EPA?  
22 A BY MR. ONO: Yes, it is.  
23 Q And can you summarize for us what the EPA has told  
24 Great Basin about the time line for compliance with  
25 the Clean Air Act?

0106

01 A Okay. Under the Federal Clean Air Act, there are  
02 certain deadlines that have to be met in terms of  
03 submitting a state implementation plan or an air  
04 quality plan to show how the area would come into  
05 attainment and dates when compliance of the standard  
06 has to be met. There are, in addition, extensions that  
07 are available under some circumstances.

08 Basically, what we're given is based on the  
09 redesignation date of the Mono Basin to non-attainment,  
10 which occurred on December 29th, 1993. We are now  
11 given 18 months, which brings us to June 29th, 1995, to  
12 develop a state implementation plan or air quality plan  
13 that will show how we bring the Mono Basin into  
14 attainment with the federal air quality standards.

15 And just to be brief, there are about three  
16 extensions that can be given, and this brings us to  
17 about 16 years from now where, at that point, the final  
18 extension can be given, and that would require that we  
19 submit a plan that shows that we can reduce the  
20 emissions by 5 percent per year and ultimately reach  
21 the standard.

22 And that brings it out to about December 31st,  
23 2009, for the final plan.

24 Q You mentioned the redesignation. I will now show  
25 you a copy of of the Federal Register, which we've  
0107

01 marked as National Audubon Society and Mono Lake  
02 Committee Exhibit 255, and ask you if this is the  
03 publication of the final determination of the EPA of  
04 Mono Basin as a non-attainment site for P.M.10 under  
05 the Federal Clean Air Act?

06 A Yes, it is.

07 Q Mr. Ono, you and Ms. McKee were asked a certain  
08 number of questions about the typicality of the storm  
09 and the adjusted 24-hour -- I'll just throw my question  
10 out over here.

11 You were asked questions about a May 3rd storm  
12 that had a measured concentration of some 800, but if  
13 you adjusted it for 24 hours, it was down to about  
14 400. Do you recall that testimony?

15 A Yes.

16 Q Now, if you could look at -- I'm not sure of the  
17 exhibit number, but it is the modeling report that  
18 Mr. Richmond provided entitled Draft Mono Lake Air  
19 Quality Modeling Study. If you could find that  
20 document --

21 A Okay.

22 Q Let me just double-check with the -- I believe  
23 that's Exhibit 10. And if you look at Page 16, Table 5  
24 of that document.

25 A All right.

0108

01 Q Does this contain a table of observed -- among  
02 other things, observed P.M.10 concentrations measured  
03 at both Simis and Warm Springs sites?

04 A Yes, it does.

05 Q Now, the table speaks for itself, but I will just  
06 represent to you that I counted the observations or the  
07 days in which there was an exceedence of 150, and I  
08 found approximately a dozen or so, 11, 12, I don't



09 remember exactly, about 11 or 12 exceedences. Let me  
10 also represent to you that I counted the number of them  
11 that were 400 or above at either Simis or Warm Springs,  
12 and I found that there were about six.

13 Assuming that that is correct and that I counted  
14 approximately accurately, it would be then fair to  
15 characterize a storm of approximately 400 micrograms  
16 per cubic meter typical of a storm that exceeds the  
17 standard.

18 A One of the things about this table is that -- and  
19 maybe Ken, you can help me if I'm wrong, is that the  
20 observed values are the real values that we measured  
21 for sometimes shorter periods.

22 Q So these are unadjusted for 24 hours.

23 A They're unadjusted. To do the comparison to the  
24 model predictions we compare over the same time period,  
25 not over the adjusted 24-hour period.

0109

01 Q So you --

02 A But there's no reason to believe that the number  
03 of times that the value at Simis Ranch or at Warm  
04 Springs could be over 400 is any different from what  
05 you're stating.

06 Q Okay. The 24-hour concentration is a function  
07 both of how much dust there is in any one five-minute  
08 segment as well as for how long the dust storm blows,  
09 whether it blows one hour or 20 hours; is that right?

10 A Yes.

11 Q And so that if one were to assume that this video  
12 depicted simply what five minutes of a dust storm had,  
13 even if it blew for 20 hours and this was a high  
14 concentration as opposed to five hours and being a  
15 lower concentration, it would again be fair to  
16 characterize that as a typical dust event. Is that  
17 right?

18 A The length of the dust events varies tremendously,  
19 and I really couldn't say what's typical.

20 Q Okay. Finally, I want to ask you some questions  
21 about a report that I believe was Attachment F to  
22 Dr. Groeneveld's declaration. It's a Great Basin  
23 Exhibit 30. But my questions may end up in Mr. Ono's  
24 lap and yours, Dr. Groeneveld. This is a report by  
25 someone named David D. Rogers.

0110

01 Mr. Ono, are you familiar with this report at  
02 all?

03 A BY MR. ONO: I have read it, but I would refer the  
04 questions to David, who is more familiar with this than  
05 myself.

06 Q Let me ask you if you could take a look at -- it  
07 doesn't have page numbers on it, but Figure 5 of that  
08 report.

09 A What exhibit number is it?

10 Q 30.

11 A 30.

12 Q It's after Page 9. There'd be a cross section,  
13 the Ten Mile Road area of the Mono Basin shoreline.

14 A Yeah. I have it.

15 Q Okay. When you reviewed the report, did you  
16 happen to look at this figure?

17 A Yes.  
18 A BY DR. GROENEVELD: Yes.  
19 Q You did, doctor?  
20 A I did.  
21 Q Mr. Ono, did you look at it?  
22 A BY MR. ONO: I saw it, but I didn't look at it in  
23 detail. Again, I refer to Dr. Groeneveld.  
24 Q Dr. Groeneveld, does this chart tell us how close  
25 to the surface of the Ten Mile Road area the water  
0111  
01 table is?  
02 A BY DR. GROENEVELD: Yes, it does.  
03 Q And as a general matter, does this show us that  
04 from approximately a little bit above 6400 down to the  
05 lake, itself, that the water table actually curves and  
06 is fairly parallel to the slope of the lake -- exposed  
07 lake bed surface?  
08 A Yes, it does.  
09 Q Now, Mr. Ono, are you familiar with the process  
10 of the creation of the efflorescent salt crust?  
11 A BY MR. ONO: Yes.  
12 Q And is the efflorescent salt crust the surface  
13 condition on the playa that produces the material  
14 that's generated -- that emits in these dust storms?  
15 A It's some of it, yes.  
16 Q Now, you're familiar with Mr. Pinsonnault's  
17 testimony in this proceeding?  
18 A Yes.  
19 Q And you understand that among other things  
20 Mr. Pinsonnault expressed the view that possibly  
21 raising the lake level wouldn't necessarily solve the  
22 air quality problem because it would raise the water  
23 table and thus make areas that are not now efflorescent  
24 become efflorescent. Do you recall that part of his  
25 testimony?  
0112  
01 A Yes. Yes.  
02 Q Assuming that Figure 5 is an accurate depiction of  
03 the relative position of the water table, do you have  
04 an opinion as to whether or not Mr. Pinsonnault's  
05 concern is well founded?  
06 A In my opinion, there's no foundation for his  
07 opinion. There's nothing to support this conclusion  
08 that there's, what I would term, an expanding doughnut  
09 as the lake level rises.  
10 Q In fact, Dr. Groeneveld, if Table 5 is correct,  
11 the relative position of the water table to the  
12 surface -- I need to ask a foundational question.  
13 Dr. Groeneveld, is it correct that this  
14 efflorescent crust is created by the presence of  
15 subsurface water close to the surface of the lake bed  
16 playa?  
17 A BY MR. ONO: Yes.  
18 A BY DR. GROENEVELD: Yes.  
19 Q Both of you. Good. And so. Dr. Groeneveld, is it  
20 correct that the rising of the lake level, as between  
21 6400 and say 6375, would not make much difference with  
22 regard to the closeness of the water table to the lake  
23 surface?  
24 A In this zone of the lake, that's correct, and the

25 reason being that the water level is controlled mostly  
0113  
01 by the position of the silt layers which are of poor  
02 permeability underneath. Otherwise, if it was all just  
03 unconsolidated material, it would drain down, and you'd  
04 get a lower level. So the water level in the beach is  
05 not affected in that zone by the lake level.  
06 Q And this is one of the zones that, in fact,  
07 contributes to, Mr. Ono, the emission of dust in the  
08 storms; is that right?  
09 A BY MR. ONO: Yes, it is.  
10 Q One last question on the timing with regard to the  
11 complacency with the Clean Air Act. Let me ask you to  
12 assume that there will be direct testimony submitted by  
13 the National Audubon Society, the Mono Lake Committee,  
14 that a 6390 lake level can be reached in the future  
15 along the following time schedules, that if we have the  
16 wettest sequence of years in the historical record in  
17 the future, the lake could reach 6390 in as few as six  
18 to nine years, and that if you had the driest sequence  
19 in the historical record, the lake could reach 6390 in  
20 as long as 21 years.  
21 Is that consistent with -- so we have a range, a  
22 bracket of potential complacency with the Clean Air  
23 Act. To your understanding, is that kind of range  
24 consistent with the complacency schedule that you now  
25 understand the EPA to be giving?

0114  
01 MR. BIRMINGHAM: Objection. Calls for a legal  
02 conclusion.  
03 MR. FLINN: I'll withdraw the question. I have no  
04 further questions.  
05 HEARING OFFICER DEL PIERO: Thank you very much,  
06 Mr. Flinn.  
07 Mr. Roos-Collins? There you are.  
08 MR. ROOS-COLLINS: Good morning.  
09 HEARING OFFICER DEL PIERO: Good morning, Sir.  
10 I would note for the record that the State Water  
11 Resources Control Board's resident expert on P.M.10,  
12 Mr. John Brown, joined us earlier, and also Mr. Bruce  
13 Dodge has joined us. Mr. Flinn was making all kinds of  
14 wonderful accolades about you earlier.  
15 MR. DODGE: I'm sure they're all on the record.  
16 (Laughter.)  
17 HEARING OFFICER DEL PIERO: Those of them fit to  
18 print.  
19 Please proceed.  
20 MR. DODGE: I'm glad to see that you haven't lost  
21 your good humor.  
22 HEARING OFFICER DEL PIERO: Thank you. Did you  
23 have a good holiday, Sir?  
24 MR. DODGE: Yes, I did.  
25 HEARING OFFICER DEL PIERO: Good for you.

0115  
01 CROSS-EXAMINATION BY MR. ROOS-COLLINS  
02 Q Good morning. I'm Richard Roos-Collins, attorney  
03 for California Trout in this proceeding.  
04 Ms. McKee, my questions are for you. Your written  
05 testimony describes four petitions for water use. You  
06 are a hydrologist, correct?

07 A BY MS. McKEE: Correct.  
08 Q You're not a fish biologist?  
09 A No. I'm not a fish biologist.  
10 Q So you would have no opinion as to the impact of  
11 these petitions, if granted, on the fish in Lee Vining  
12 Creek?  
13 A No.  
14 Q Do you have your written testimony before you?  
15 A Yes, I do.  
16 Q Paragraph 2 on Page 3, the first line refers to  
17 "the plan," capital P. Which plan are you referring  
18 to?  
19 A The Comprehensive Management Plan.  
20 Q And that is the Comprehensive Management Plan for  
21 the Inyo National Forest?  
22 A For the Mono Basin National Forest Scenic Area.  
23 MR. ROOS-COLLINS: Thank you. No further  
24 questions.  
25 HEARING OFFICER DEL PIERO: Thank you very much,  
0116  
01 Mr. Roos-Collins.  
02 Mr. Valentine or Ms. Scoonover.  
03 MS. SCOONOVER: We have no questions of this  
04 panel.  
05 HEARING OFFICER DEL PIERO: No questions. It's  
06 nice to see you back from Minnesota.  
07 MS. SCOONOVER: Thank you.  
08 HEARING OFFICER DEL PIERO: Ms. Niebauer's not  
09 here. Mr. Haselton is not here. I guess that means  
10 Mr. Frink.  
11 MR. FRINK: Yes, I do have a few, Mr. Del Piero.  
12 Thank you.  
13 CROSS-EXAMINATION BY THE STAFF  
14 Q BY MR. FRINK: Mr. Richmond, your written statement  
15 indicated that in your modeling study, you used the ISC  
16 model. Did you use the ISC model because it is the  
17 model that is presently approved by the U.S. EPA?  
18 A BY MR. RICHMOND: That is one of the reasons, yes.  
19 Q I believe you also stated that you believe that  
20 the FDM model is a scientifically more accurate model,  
21 but that the FDM model and the ISC model produced  
22 similar results in analyzing air quality in the Mono  
23 Basin. Is that correct?  
24 A That's correct. In this application, they're very  
25 similar.  
0117  
01 Q Could you explain the reasons that you believe  
02 that the FDM model would be more accurate from a  
03 scientific standpoint?  
04 A Yes, I can. The model was written to solve  
05 problems of the plume depletion and deposition from  
06 coarse particles. By "coarse," I mean typically 30  
07 microns or between 20 and 30 microns and above, and the  
08 algorithms that are obtained in the model are, in my  
09 opinion, more scientifically correct than they are in  
10 the ISC model.  
11 The second area where the FDM model, in my  
12 opinion, has a better way of simulating things is the  
13 area source algorithm, and the FDM, in my opinion, is  
14 more precise than the area source algorithm in ISC.

15 Q I'll pretend like I understood all of that.  
16 HEARING OFFICER DEL PIERO: Mr. Frink, I  
17 understood it.  
18 Q BY MR. FRINK: I take it that the fact that the FDM  
19 model has not been approved by the EPA, then, would not  
20 dissuade you from placing credence in the results of  
21 the output of that model in this instance; is that  
22 correct?  
23 A BY MR. RICHMOND: That's correct.  
24 MR. FRINK: I believe that's all the questions I  
25 have.

0118

01 HEARING OFFICER DEL PIERO: Thank you very much.  
02 Mr. Smith?  
03 MR. SMITH: Yes. I had a couple of questions from  
04 Mr. Satkowski --  
05 HEARING OFFICER DEL PIERO: I don't believe he's  
06 under oath here, Mr. Smith.  
07 Q BY MR. SMITH: Mr. Satkowski, before he left, asked  
08 some general questions about some of the EIR runs and  
09 the averages and medians that you were talking about.  
10 In doing some computer runs with the early version  
11 of the LAMP model, that's a computer model for  
12 averaging lake levels, we came up with a median of  
13 about 6387.5 from 6376.5 up to a maximum of about  
14 6395. Now, that was a median, and we have an average  
15 in the EIR Figure 3-A-20, I believe it is, shows that  
16 after the lake level has gotten to 6390, an average  
17 would be about 6392.5, or somewhere around that.  
18 You've been mentioning 92 as an average, and this  
19 brings me to my question, now.  
20 What is the 6392 for you? Is that an average that  
21 you try to attain? Is that a median? Is that, in a  
22 fancy statistical sense of the word, is that a minimum  
23 at the low end that you'd want to attain? For any one  
24 of you who'd like to --  
25 A BY MR. ONO: The 6392 level was based on our

0119

01 modeling, which was done at 6393 feet, and the one foot  
02 difference is because we believe that there may be a  
03 one-foot vertical buffer zone between the lake level  
04 and where the erodible area starts, and this is one of  
05 the things that we observed in our testing of the lake  
06 bed playa.  
07 And the 6390-foot alternative, if it does have an  
08 average lake level of 6392.5, that would satisfy our  
09 requirement for meeting the ambient air quality  
10 standard. As I mentioned before, the standard is a  
11 statistically based standard, so it does allow some  
12 exceedences on the standard. It doesn't mean that you  
13 have to meet it, you know, every year. You could have  
14 two exceedences one year and none the next, and so if  
15 the lake level goes low and we do have exceedences, you  
16 could make up for that in high water years where it's  
17 higher and you would have no exceedences. So, idea is  
18 that this would average out in the number of  
19 exceedences as well as averaging the lake level.  
20 Q Okay. A couple of other questions. Can you give  
21 me an approximation of the percentage of the playa more  
22 that would be covered? How much more would be covered

23 at 6390? Are you covering 50 percent of the exposed  
24 playa now? Are you going to be covering about 65  
25 percent? I heard all sorts of figures. Does anyone

0120

01 have any idea?

02 A We have some figures, if you'd like us to --

03 Q Brief. I don't want a dissertation on it, but if  
04 we could just get some approximation.

05 A BY MR. RICHMOND: I can speak to the areas that were  
06 monitored, the different lake levels, if you like. For  
07 6393 more source boundary which, as Duane said,  
08 corresponds to a 6392 lake level, that's approximately  
09 2.77 million square meters -- sorry for the units. If  
10 somebody wants to do the conversion -- as opposed to  
11 when we modeled or compared our model with ambient  
12 observations, we assumed a typical lake level on the  
13 order of 6376. The total source area under that  
14 configuration was 1.98 times ten to the seventh meters  
15 squared. So what's that, roughly eight times?

16 Q Okay. We can work out a simple percentage on  
17 that. Thank you.

18 One last question. I heard some mention, I think,  
19 of the fact that you had considered using sprinklers  
20 for mitigation, covering the playas. That was  
21 mentioned. I have only one question. Were they pop-up  
22 sprinklers, or were they --

23 A BY MR. SCHADE: It was a solid set of an above-ground  
24 aluminum pipe with 18-inch or 24-inch risers coming out  
25 of that pipe. They didn't disappear.

0121

01 MR. SMITH: That's all the questions I have.

02 HEARING OFFICER DEL PIERO: Thank you.

03 Mr. Herrera?

04 MR. HERRERA: I have no questions, Mr. Del Piero.

05 HEARING OFFICER DEL PIERO: Mr. Canaday?

06 Q BY MR. CANADAY: The first questions I have are for  
07 Ms. McKee. You testified that you were familiar with  
08 the goals and objectives of the scenic area management  
09 plan; is that correct?

10 A BY MS. McKEE: That's correct.

11 Q And in that plan, in your testimony, it identifies  
12 that it's the goal of the plan to protect the geologic,  
13 ecologic, cultural, scenic, and other natural  
14 resources; is that correct?

15 A Yes.

16 Q Further, in your testimony, I believe it's Point 6  
17 on Page 4, your statement reads, "We were mandated by  
18 law, both by the Scenic Area Legislation and by the  
19 Clean Air Act, to protect the scenic area resources and  
20 human health from anthropogenic dust events like the  
21 events you've just seen," and you're referring to a  
22 videotape. I want to read you two statements from  
23 previous testimony from Dr. Fedoruk and see if you  
24 agree if that's consistent with the goals and  
25 objectives of the management plan. I'm reading from

0122

01 Section 6, Page 105 and Point 6, Dr. Fedoruk's

02 testimony. "The population potentially exposed to dust  
03 storms resulting from emissions from the playa is

04 extremely small. Consequently, if the lake were raised

05 and the number and extent of dust storms were lessened,  
06 this benefit would only accrue to an extremely small  
07 segment of the population."

08 How would you react to that statement?

09 MR. BIRMINGHAM: Objection. Lacks foundation.

10 HEARING OFFICER DEL PIERO: I'm going to sustain  
11 the objection. You can ask some foundational  
12 questions.

13 Q BY MR. CANADAY: Do visitors uses these particular  
14 areas on the north and eastern shores of the lake?

15 A BY MS. McKEE: All of the areas of the Mono Basin  
16 scenic areas are open for public use and yes, visitors  
17 do use those areas.

18 Q Would you characterize the use as extremely small  
19 as compared to other use areas around the lake margin?

20 A I'm not qualified to make that judgment.

21 Q In the Simis and Warm Springs area, those areas  
22 are not paved; is that correct? To your recollection?

23 A I don't know.

24 Q Mr. Ono, Jones and Stokes used the FDM model in  
25 their modeling effort of air quality; is that correct?

0123

01 A BY MR. ONO: Yes.

02 Q And did Jones and Stokes consult with Great Basin  
03 Air Pollution Control District prior to choosing a  
04 model in that modeling effort?

05 A Yes, they did.

06 Q What was your recommendation of a model that they  
07 use?

08 A I did not specifically recommend a model. I  
09 realized that they had a choice between FDM and ISC. I  
10 suggested that they consult with the EPA find out what  
11 the appropriate model would be for the Mono Basin, and  
12 I can't say what happened after that.

13 Q Mr. Ranzieri, you also looked at the -- did you do  
14 a similar kind of analysis on the FDM model that Jones  
15 and Stokes used as you did on the ISC ST-2 model that  
16 was used by the Great Basin?

17 A We did not.

18 Q Do you have any reason to believe that the FDM  
19 model would not provide reasonable results?

20 A If it were applied properly with appropriate input  
21 data, it would probably give very similar results.

22 Q Mr. Ono, currently, how many sites does the Great  
23 Basin have in the Mono Basin for monitoring air quality  
24 events?

25 A Currently, we have two.

0124

01 Q Two. And those are located --

02 A At Lee Vining and at Simis Ranch.

03 Q Can you point on the map to approximately where  
04 Simis Ranch is? The map that we're talking about is in  
05 the Mono Lake EIR and is Figure 1-2.

06 A Okay. The Simis Ranch site is a little bit west  
07 of Ten Mile Road as is indicated on this map and  
08 probably about a mile from the water. The Lee Vining  
09 site is located at the CalTrans yard on the north side  
10 of Lee Vining.

11 Q And let me ask you a hypothetical. In the state  
12 implementation plan that the Great Basin Air Pollution

13 Control District would be required to develop, do you  
14 believe that more monitoring stations would be  
15 necessary than those existing currently?

16 A I don't know.

17 Q I'd like to refer you to the Great Basin's Exhibit  
18 20 and on Page 6 of that exhibit.

19 A Okay.

20 Q Could you describe what that exhibit or that  
21 portion of the exhibit explains?

22 A What this is is the labels that we put on the  
23 different sections of the Mono Lake playa, the exposed  
24 playa on the north shore near Ten Mile Road.

25 Q And the reason for identifying different levels or  
0125 bands on the playa is based on what criteria?

02 A Well, there are physical barriers or physical  
03 differences between those areas. There are wave cut  
04 platforms or the terraces between these playas, and so  
05 there are distinct changes in the elevation as you go  
06 from the lower playa, to the middle playa, to the upper  
07 playa.

08 Q Are there any changes in source material or  
09 particle size material that may be a source of P.M.10  
10 based on these different levels?

11 A We have seen differences in the types of material.  
12 The black cinder terrace on the part above 6400 feet is  
13 mostly coarse material coming from the Black Point type  
14 cinders. Below that on the upper playa area, we see a  
15 coarser material, mostly sand. Some salts are in that  
16 area, and the lower-middle playa area have a lot of  
17 salt during some periods of the year and then later go  
18 into sand. These are generalizations and are not  
19 specific to any one time.

20 Q Are the sand fractions in the middle and lower  
21 playas, are they of a different aerodynamic size than  
22 the upper playa?

23 A We haven't really done any analysis of that, so I  
24 can't tell you exactly what the differences are.

25 Q In the general P.M.10 condition, does sand play a  
0126 major portion of the P.M.10, or is it a minor portion?

02 And by "minor," I mean 10 percent or less.

03 A I can't really answer that.

04 MR. CANADAY: That's all I have. Thank you.

05 HEARING OFFICER DEL PIERO: Thank you very much.

06 Mr. Canaday.

07 Mr. Birmingham -- pardon me, I'm sorry. We've got  
08 redirect. We're going to start -- I'm sorry.

09 Mr. Dodge?

10 MR. DODGE: I just had a procedural point.

11 MR. BIRMINGHAM: I am not surprised.

12 HEARING OFFICER DEL PIERO: This is the first of  
13 the new year.

14 MR. DODGE: Happy New Year.

15 HEARING OFFICER DEL PIERO: Happy New Year to  
16 you.

17 MR. DODGE: We sat last Friday at five o'clock to  
18 set out subject matters of rebuttal, and we set five  
19 o'clock today to set out people who might respond to  
20 specific subject matters. And then we have the



21 rebuttal testimony itself, as I understand it, coming  
22 in on Wednesday, most of it, and the rest of it on  
23 Friday.

24 I don't think, realistically, that's workable. I  
25 mean, we've got subject matters from Los Angeles like  
0127

01 William Platt's, "stream restoration." I don't know  
02 what that man's going to testify about, Mr. Del Piero,  
03 and I don't know how I can be expected today or how you  
04 can limit me today as to who I might call to respond to  
05 him. It's just very, very general.

06 HEARING OFFICER DEL PIERO: I'll tell you what.  
07 We'll talk about this off the record. We're going to  
08 break for lunch. I'd like all the attorneys for all of  
09 the parties to come up here after break. Okay?

10 Ladies and Gentlemen, we'll return here at 1:15.  
11 (Whereupon the lunch recess was taken.)

12 HEARING OFFICER DEL PIERO: Ladies and Gentlemen,  
13 this hearing will again come to order. When last we  
14 left, we were getting ready for redirect.

15 Now, Mr. Bruce, I think you were on first, and  
16 then Mr. Gipsman and then Mr. Oliver; is that correct?

17 MR. BRUCE: Yes, Sir. We have no further direct  
18 testimony. Would this be the appropriate point in time  
19 to move into evidence what's been marked for  
20 identification --

21 HEARING OFFICER DEL PIERO: After recross.

22 MR. BRUCE: Thank you.

23 HEARING OFFICER DEL PIERO: Mr. Gipsman?

24 MR. GIPSMAN: I have no redirect.

25 HEARING OFFICER DEL PIERO: Thank you very much.

0128

01 Mr. Oliver?

02 MR. OLIVER: And likewise, I have nothing further,  
03 Mr. Del Piero.

04 HEARING OFFICER DEL PIERO: Thank you very much,  
05 Sir.

06 Mr. Birmingham?

07 RE-CROSS-EXAMINATION BY MR. BIRMINGHAM

08 Q During his cross-examination, Mr. Flinn asked some  
09 questions about Figure 5 in Great Basin Exhibit -- I  
10 believe it's 30. Is that correct, Mr. Flinn?

11 MR. FLINN: Yes.

12 Q BY MR. BIRMINGHAM: And it was a cross section of the  
13 groundwater table near Ten Mile Road. Mr. Ono, do you  
14 recall those questions?

15 A BY MR. ONO: Those were directed to Dr. Groeneveld.

16 Q I'm sorry?

17 A I believe those questions were directed to  
18 Dr. Groeneveld.

19 Q Dr. Groeneveld, do you know, does the  
20 cross-section that's depicted in Figure 5 of Great  
21 Basin Unified Air Pollution Control District Exhibit 30  
22 depict the groundwater table that underlies the entire  
23 area of the playa?

24 A BY DR. GROENEVELD: No. That's just a Ten Mile Road  
25 cross-section there.

0129

01 Q And the groundwater table that's depicted in  
02 Figure 5 may or may not exist in a similar condition in

03 other areas of the playa; is that correct?

05 seeing here at Ten Mile Road, I've observed for the  
06 majority of that north beach zone from here on into

08 Q So looking at Figure 1 from the Draft  
09 Environmental Impact Report, you've observed a similar  
11 Warm Springs?  
12 A Yes. Yes, I have.

14 table that underlies the area of the playa west of Ten  
15 Mile Road?  
17 Road. I've taken no other measurements.  
18 MR. BIRMINGHAM: I have no further questions.

20 Mr. Birmingham.  
21 Ms. Cahill?

23 HEARING OFFICER DEL PIERO: Thank you.  
24 Mr. Flinn?

0130  
01 HEARING OFFICER DEL PIERO: Thank you very much,  
03 Ms. Scoonover --  
04 MR. FLINN: I'm sorry. I did have one. I just  
06 RE-CROSS EXAMINATION BY MR. FLINN  
07 Q We have a blow up from Mr. Ono of Exhibit 7 of  
09 Mr. Ono, as a partial panoramic depiction of a dust  
10 storm?  
12 Q And when was this taken?  
13 A It was May 12th, 1993.  
15 A Yes, I was.  
16 Q And when you took this picture, did you observe  
18 specifically, was it emitting from the exposed lake  
19 bed, or was it emitting from the surrounding desert?  
21 I don't recall any dust coming from the surrounding  
22 desert.

24 HEARING OFFICER DEL PIERO: Thank you very much.  
25 Ms. Scoonover, no questions?

01 MS. SCOONOVER: No questions.  
02 HEARING OFFICER DEL PIERO: Mr. Frink?

04 HEARING OFFICER DEL PIERO: Thank you.  
05 Mr. Smith?

07 HEARING OFFICER DEL PIERO: Mr. Herrera?  
08 MR. HERRERA: I have no questions.

10 MR. CANADAY: One.

11 HEARING OFFICER DEL PIERO: Go ahead, Sir.  
12 RE CROSS EXAMINATION BY THE STAFF  
13 Q BY MR. CANADAY: This question's for Mr. Ono. I'm  
14 looking at a letter dated December 16th, 1993, and it's  
15 National Audubon Society/Mono Lake Committee Exhibit  
16 246, and the letter is to Ms. Ellen Hardabeck. It's a  
17 letter that has the schedules. I want to refer to the  
18 second page.  
19 So I'm clear on the timetables, I'll refer you to  
20 the December 31st, 2008 date and on the left-hand  
21 margin, it says, "Extension of attainment date. One  
22 extension of no more than five years." So if there is  
23 not -- my understanding of this, is this correct, is  
24 that as of December 31st, year 2008, if attainment has  
25 not been shown, that there is a one-time extension of  
0132  
01 five years from that date?  
02 A BY MR. ONO: I would have to look at this closer, but  
03 I believe that that five-year extension is from the  
04 previous date, 2003. Five years would bring it to that  
05 date. And 2008, we have, I think, until the next year,  
06 2009, to submit a new plan that shows that 5 percent  
07 per year reduction.  
08 Q And that 5 percent reduction would start as of  
09 December 31st, 2009, then?  
10 A Correct.  
11 MR. CANADAY: Thank you.  
12 HEARING OFFICER DEL PIERO: Thank you very much,  
13 Mr. Canaday.  
14 Mr. Bruce? Now.  
15 MR. BRUCE: We move into evidence Exhibit 33.  
16 HEARING OFFICER DEL PIERO: Any objections? So  
17 ordered.  
18 (Great Basin Exhibits No. 33  
19 was admitted into evidence.)  
20 MR. BIRMINGHAM: Can I have a moment,  
21 Mr. Del Piero?  
22 HEARING OFFICER DEL PIERO: Yes, Sir.  
23 I'm sorry. Mr. Smith? Did you have a question?  
24 Mr. Frink?  
25 MR. FRINK: Yes. Mr. Bruce, were you going to  
0133  
01 offer into evidence your other exhibits as well? The  
02 testimony was labeled as Exhibit 33, but you had  
03 Exhibits 1 through 32 identified previously?  
04 MR. BRUCE: Yes. All of those exhibits are  
05 referred to in the written testimony of the Great Basin  
06 staff and when they adopted their written testimony  
07 into evidence, it was my understanding that by  
08 inference and by my direct questions, they also adopted  
09 as their testimony the exhibits they referred to.  
10 MR. FRINK: And you're moving them all into  
11 evidence at this time?  
12 MR. BRUCE: I am moving Great Basin 1 through 33  
13 into evidence.  
14 MR. FRINK: Thank you.  
15 HEARING OFFICER DEL PIERO: Mr. Birmingham?  
16 MR. BIRMINGHAM: I do have an objection.  
17 HEARING OFFICER DEL PIERO: Which one?  
18 MR. BIRMINGHAM: To the testimony of Mr. Ono.

19 HEARING OFFICER DEL PIERO: To the testimony of  
20 Mr. Ono?  
21 MR. BIRMINGHAM: Mr. Ono.  
22 HEARING OFFICER DEL PIERO: The written  
23 testimony?  
24 MR. BIRMINGHAM: The written testimony of Mr. Ono  
25 because it contains many statements of legal  
0134  
01 conclusions that he has reached. Rather than taking  
02 the time to go through the testimony and --  
03 HEARING OFFICER DEL PIERO: You know how I'm going  
04 to rule, I think.  
05 MR. BIRMINGHAM: Yes, yes, I do.  
06 HEARING OFFICER DEL PIERO: Actually, I've changed  
07 my policy over the holidays. I'm sorry. Please  
08 finish, Sir.  
09 MR. BIRMINGHAM: We have had one stipulation. It  
10 was an understanding that we reached when Ms. Upland  
11 was testifying, and I think the same stipulation would  
12 apply here with respect to the testimony of Mr. Ono.  
13 And, in fact, for that matter, to Ms. McGee.  
14 Mr. Gipsman hasn't offered that testimony yet.  
15 If we could have a stipulation that Mr. Ono is not  
16 being offered as a legal expert on the Clean Air Act, I  
17 have no objection to the introduction of this  
18 testimony.  
19 HEARING OFFICER DEL PIERO: As I pointed out  
20 before, I'm going to overrule -- in similar  
21 circumstances where objections like this have been  
22 made, I've overruled the objection. Again, the  
23 testimony, both oral as well as written testimony, is  
24 given weight based on the qualifications of the  
25 individual presenting it. And this is a situation  
0135  
01 where it clearly goes to the weight of the evidence as  
02 to whether or not the individual's qualified to reach  
03 legal conclusions, in effect, whether or not those  
04 legal conclusions that he might reach might be based on  
05 any particular expertise. That's reflected in the  
06 record. Your objection is noted, and unless I hear  
07 anything else, I'm going to direct all those exhibits  
08 to be accepted into the record. Good.  
09 (Great Basin Exhibits Nos. 1  
10 through 32 were admitted into  
11 evidence.)  
12 HEARING OFFICER DEL PIERO: Mr. Gipsman?  
13 MR. GIPSMAN: At this time, we would like to move  
14 for admission of Exhibits U.S. Forest Service 3, 4, 5,  
15 6, 7, 13, and 22.  
16 HEARING OFFICER DEL PIERO: Same objection,  
17 Mr. Birmingham?  
18 MR. BIRMINGHAM: Same objection and with respect  
19 to the video, I'm going to object on the grounds that  
20 it lacks foundation. We don't know who took the  
21 video. We don't know who was narrating the video, and  
22 so there really is a lack of foundation. And also with  
23 respect to Exhibit 4, which is a series of monitoring  
24 sheets, I'm going to make the same objection on the  
25 grounds of lack of foundation.

0136

01 HEARING OFFICER DEL PIERO: Based on?  
02 MR. BIRMINGHAM: Lack of foundation.  
03 HEARING OFFICER DEL PIERO: I'm going to -- do you  
04 want to respond to that?  
05 MR. GIPSMAN: No.  
06 HEARING OFFICER DEL PIERO: I'm going to overrule  
07 the objection. It's noted for the record.  
08 Anyone else wishing to object to any of these  
09 being introduced? No? Okay. Again, the absence of  
10 identification of the author of the person who took the  
11 videotape had been noted for the record.  
12 Mr. Birmingham's objections are noted for the record.  
13 The value of that evidence is based on what's been  
14 presented here, in fact, in the record.  
15 Yes, Sir?  
16 MR. SMITH: Could you go over that list again,  
17 please?  
18 MR. GIPSMAN: Yes. 3, 4, 5, 6, 7, 13, and 22.  
19 Now, we have some other witnesses on our list that  
20 we will not be bringing here to offer testimony, and so  
21 at this time, I would like to withdraw Exhibits 17, 18,  
22 and 21.  
23 HEARING OFFICER DEL PIERO: Any objections to his  
24 withdrawal of the written testimony of individuals not  
25 present for cross-examination? I can't imagine. Thank  
0137  
01 you very much, Mr. Gipsman. And all of the other  
02 exhibits referenced are, in fact, directed to be  
03 admitted into the record.  
04 (USFS Exhibits Nos. 3, 4, 5,  
05 6, 7, 13, 22, were admitted  
06 into evidence.)  
07 (USFS Exhibits Nos. 17, 18,  
08 21, were withdrawn.)  
09 HEARING OFFICER DEL PIERO: Now, Mr. Oliver, do  
10 you have anything else to introduce?  
11 MR. OLIVER: Yes, Mr. Del Piero. The Air  
12 Resources Board would move for the admission of ARB  
13 Exhibits 1 through 13 at this point.  
14 HEARING OFFICER DEL PIERO: Okay. Any  
15 objections? None? So ordered into the record. Thank  
16 you very much.  
17 (ARB Exhibits Nos. 1 through  
18 13 were admitted into  
19 evidence.)  
20 HEARING OFFICER DEL PIERO: Ladies and  
21 Gentlemen -- Mr. Flinn?  
22 MR. FLINN: I forgot to move them. We marked  
23 National Audubon Society and Mono Lake Committee  
24 Exhibits 246 and 255. I would move those at this time.  
25 HEARING OFFICER DEL PIERO: Any objection to those  
0138  
01 documents being introduced into the record? Hearing  
02 none, those are ordered into the record.  
03 (NAS/MLC Exhibits Nos. 246  
04 and 255 were admitted into  
05 evidence.)  
06 HEARING OFFICER DEL PIERO: Ladies and Gentlemen,  
07 thank you very much for your kindness and your  
08 participation here today. You're excused.

09 We have a witness on behalf of, what is it,

11 MR. DODGE: Both.

12 HEARING OFFICER DEL PIERO: It's amazing how right

14 MR. DODGE: Were you able to sell the Encyclopedia  
15 Britannica?

17 able to do that because I took it home, and my wife  
18 assured me I didn't know everything, so --

20 promise to tell the truth during the course of this  
21 proceeding?

23 HEARING OFFICER DEL PIERO: Thank you. Have a  
24 seat. Thank you.

0139

01 MR. DODGE: Thank you. This is a witness called

03 Committee and Cal-Trout. This is Dr. Carl Mesick.  
04 DIRECT EXAMINATION BY MR. DODGE

06 your last name, please?

07 A BY DR. MESICK: My name is Carl F. Mesick. My last

09 Q And can you, Sir, identify for me Cal-Trout  
10 Exhibit 4 as your written testimony in this matter?

12 Q And have you, at Mr. Roos-Collins' request,  
13 prepared an errata sheet dated January 10, 1994?

15 Q And I have marked my copy of the two-page errata  
16 sheet as Cal-Trout Exhibit 4-C. Can you identify that

18 A Yes, that is it. I believe there are some tables  
19 in there.

21 it?

22 MR. ROOS-COLLINS: Dr. Mesick, the changes to your

24 are made in the attached declaration.

25 DR. MESICK: The changes are included in the

01 letter.

02 Q BY MR. DODGE: And, in fact, due to the wizardly

04 understand it, a revised Cal-Trout Exhibit 4 which  
05 incorporates all of the changes, correct?

07 Q And that's been distributed to the parties?

08 A I believe so.

10 correctly states your testimony, Sir?

11 A Yes, it does.

13 substance of your testimony, can you briefly describe  
14 for Mr. Del Piero and everyone else in the room a

16 A Yes, I can. I began working in the Mono Basin in

17 1985 when I began to work for EA Engineering under  
18 contract to the Department of Water and Power. These  
19 studies consisted of fish population studies. They  
20 began in Rush Creek in 1985 and in Lee Vining Creek in  
21 1986. The fish population studies entail determining  
22 the abundance of fish in the stream and also computing  
23 the growth and survival of the fish.

24 And using that data, we conducted limiting factor  
25 analyses which compare changes in the habitat or  
0141

01 differences in the habitat in different areas of the  
02 stream and how it affects the abundance, growth, and  
03 survival of the fish.

04 I have also conducted two spawning habitat  
05 surveys, one in 1987 and another in 1991, where the  
06 amount of gravel suitable for spawning was estimated  
07 and identified throughout the stream, and also, we  
08 looked for nests where the fish were spawning and we  
09 call those "redds" in fisheries terms.

10 I've also conducted food habit studies in both  
11 streams in 1987 and 1988. I've conducted winter  
12 habitat surveys in both streams in Rush Creek in 1988,  
13 and in both Rush and Lee Vining Creeks in 1992.

14 Under contract to the Electric Power Research  
15 Institute, I evaluated whether or not the IFIM data  
16 typically used was suitable for predicting the areas  
17 where brown trout would feed from in Rush Creek, and  
18 that study was conducted by examining the behavior of  
19 the trout during extensive snorkeling surveys.

20 I have also examined the abandoned channels in  
21 both streams that used to function as the stream  
22 channels prior to 1941. That work was done during the  
23 summer of 1992.

24 I've also conducted other similar studies in other  
25 streams in Mono and Inyo Counties. So I've looked at  
0142

01 perhaps another five to ten streams and evaluated the  
02 fisheries and the habitat in those streams as well.

03 Q All right. Can you now, in approximately 20 to 30  
04 minutes, give us a summary of your testimony as set out  
05 in Cal-Trout Exhibit 4?

06 A Okay. Based on my studies, it is my opinion that  
07 the existing overall fisheries in Rush Creek and Lee  
08 Vining Creek are lower today, and by that I mean, that  
09 there's generally fewer fish, and in the case of some  
10 of the sections of Rush Creek, the fish are quite a bit  
11 smaller as well, than the fisheries and the habitat  
12 that was present in 1941. So they're lower today than  
13 they were in 1941, although there are some areas,  
14 particularly in Rush Creek, where the fishery is either  
15 similar to or better than it was prior to 1941. So the  
16 condition of the fisheries varies considerably between  
17 different segments, and I'll have to talk about the  
18 different segments independently.

19 Most of my summary is going to be based on the  
20 tables that are in Cal-Trout Exhibit 15, which is the  
21 summary comparison of the pre-1941 and post-1941  
22 conditions affecting fish populations in lower Rush  
23 Creek that was produced by Trihey and Associates, and  
24 also, Cal-Trout Exhibit No. 9, which is a similar

25 report for Lee Vining Creek. Basically, these tables  
0143  
01 just compare the fish populations prior to '41 and the  
02 existing conditions and also discuss the changes in the  
03 habitat.  
04 I'll start with Rush Creek. I'll, at least, point  
05 out the different segments on the maps.  
06 MR. HERRERA: The microphone comes off the stand,  
07 if you'd like.  
08 DR. MESICK: Starting from the upstream direction  
09 in Rush Creek, the first segment, which is Segment 1,  
10 which is immediately below the Old Grant Dam, was about  
11 three-quarters of a mile long. We have very little  
12 information about the habitat or the fisheries in this  
13 reach. Apparently, we couldn't find anybody who had  
14 ever fished this segment and the stream channel has  
15 been extremely altered today, so we don't even know  
16 what it looked like except that from aerial photos, you  
17 could tell that the stream was fairly straight relative  
18 to other sections. And so it was probably just  
19 typical, moderate, gradient habitat consisting of  
20 riffles and runs and I would say it probably produced  
21 average numbers of fish up to about 12 inches in  
22 length.  
23 However, there was a section in the lower third of  
24 this segment that was a large forebay to the eight-inch  
25 diversion, and that appeared to be like a large pond,  
0144  
01 had very low-velocity water, fairly deep water, and  
02 it's fairly good conditions for fish. And I think  
03 based on what the habitat looked like, it was likely  
04 that large fish, a few large fish were produced in this  
05 reach. We do know from studies conducted in the 1930s  
06 that large fish were produced in Grant Lake, which is  
07 fairly shallow and had similar conditions. So it would  
08 probably be likely that a few large fish would be  
09 produced in this forebay as well.  
10 Under today's conditions, the channel is  
11 dewatered. There is no flow and obviously, no  
12 fisheries in this section of the stream. That habitat  
13 has been excavated, just been widened and deepened, so  
14 there's not very much of the fish habitat left. Most  
15 of the riparian vegetation is dead, and there actually  
16 isn't any means of releasing stream flow to the reach  
17 as well. Today, this segment has been replaced by the  
18 Mono Ditch, which is this dotted line shown here. This  
19 section is approximately twice the length of the old  
20 Segment 1, and it actually has very good habitat for  
21 fish.  
22 During the fall of 1992, electrofishing surveys  
23 were conducted, and we found fairly abundant numbers of  
24 fish between one and two pounds in weight, which are  
25 quite large for most eastern Sierra streams. The  
0145  
01 reason that these fish were quite large is because the  
02 growth conditions were good. These fish were only  
03 three to four years old, which is an average age for  
04 fish in these streams. However, they grew at  
05 relatively rapid rates. It might take six or seven  
06 years to get half that size in other portions of the



07 stream. So they grew quite well. I think that was  
08 based on the conditions in the habitat and that the  
09 gradient is quite low, so the velocities in the channel  
10 are quite low regardless of the stream flow released.

11 The habitat is also quite complex, at least during  
12 the summer and the fall, because there are dense beds  
13 of aquatic plants that grow. They grow from the bottom  
14 all the way to the surface of the water, which can be  
15 as deep as four feet in this channel, so it's quite  
16 deep as well. And those aquatic plants create channels  
17 of flow through the stream such that the fish can find  
18 very low-velocity water, which helps them to conserve  
19 their energy and so they grow at a faster rate rather  
20 than trying to swim against the current and expending  
21 all their energy.

22 Food is quite abundant probably because some food  
23 is released from the lake. There are small fish that  
24 are released through the outlet and there's a lot of  
25 plankton, even large fish will eat minute organisms if

0146  
01 they're moving slow enough, and they catch them. The  
02 plants as well also produce a lot of food.

03 Water temperature is also fairly optimum for  
04 growth in that the releases are made from about the  
05 middle of the depth of the lake, so they're relatively  
06 cool. They're cool water releases especially relative  
07 to the rest of the stream, and they're very moderate in  
08 that they don't fluctuate very much. They're constant  
09 during the day where other sections of the stream can  
10 fluctuate considerably.

11 Another important part about the temperature is  
12 that warm water is generally released from the bottom  
13 of the reservoir in the wintertime, and so that helps  
14 the fish to grow a little bit. In other sections where  
15 the stream temperatures dropped near zero, they ceased  
16 to grow in conditions -- they must rely on the energy  
17 that they've stored up through summer. Sometimes  
18 that's not enough.

19 The next section of the stream, which is Segment  
20 2, which is a fairly high gradient, and the upper part  
21 of Segment 3, which is identified as Segment 3-A, this  
22 section, prior to 1941 probably produced average  
23 numbers of fish up to about 12 inches in length and a  
24 half a pound in weight in that neighborhood. That's  
25 because the channel, even though it was quite complex,

0147  
01 was higher in gradient, and because it was high in  
02 gradient, the velocities increased considerably in  
03 these reaches, and that forced the trout to expend a  
04 lot of their energy trying to maintain their position  
05 in the stream especially when floods occurred. So they  
06 didn't quite grow to the same size they did in Segment  
07 1.

08 And in the next sections, today I would say that  
09 the fishery is essentially about the same as it was  
10 prior to 1941. There have been some minor changes in  
11 the habitat, though. Primarily, the major one is that  
12 there's been a loss of woody debris, and woody debris  
13 is quite important because it provides roughness to the  
14 stream bottom. And the roughness tends to slow down

15 the stream velocities, especially during flood flows.  
17 low-velocity water and conserve its energy. And  
18 without the woody debris, they're expending virtually  
20 to maintain their position. So there's been some loss  
21 of this woody debris in the channel.  
23 kind of at the border between Segments 3-A and 3-B in  
24 that there's two sections of the original stream

0148

01 1941, there are two rock berms that block these  
03 thousand feet in length, but these abandoned channels  
04 are very complex, offering some pool habitat and other  
06 than they do now in the existing channel. But that's a  
07 small portion of the channel that's been abandoned  
09 changes, but they're not drastic.  
10 In Segments 3-B and 3-C, which are between the B  
12 this section was occasionally completely dewatered,  
13 especially during droughts in the 1930s, so obviously,  
15 well. In fact, the fish either died or they moved into  
16 another section. But the habitat was still very  
18 was moderate gradient, fairly complex but still the  
19 fish were exposed to moderate velocities and so there  
21 about 12 inches in length and maybe about a half a  
22 pound in weight.  
24 consistent in this reach and so the fishery is also  
25 consistent. And so this section has been slightly  
01 improved under the existing conditions, but on the  
02 other hand, the habitat has been degraded slightly and  
04 complex. And that's because the riparian vegetation  
05 has been degraded by the dewatering that's occurred,  
07 riparian vegetation along the channel, it's less dense  
08 and it's smaller, so it doesn't really afford the bank  
10 important because during flood flows, as the water  
11 rises, these trees are inundated, you know, willows,  
13 trees are inundated with water and that serves as a  
14 friction point that reduces the velocities. So these  
16 areas in the stream. Now we don't have that under the  
17 existing conditions.  
19 stabilizing the bank in that it prevents what used to  
20 be relatively narrow channels that were 20 to 25 feet  
22 of Section 3-B and 3-C, excuse me, the stream is up to

23 50, 60 feet wide in some areas. So it's widened  
24 considerably. And I would say on an overall average,  
25 there's indication that the stream channels increased  
0150  
01 by 10 to 15 percent since 1987. That's based on the  
02 fact that Beak Consultants conducted their IFIM studies  
03 in 1987, and they used large rebar to anchor their  
04 blocking nets across the stream when they were doing  
05 their electrofishing studies.

06 These pieces of rebar were put on the bank, and  
07 now when you examine the stream, they're two to three  
08 feet within the stream channel. And that means that  
09 has been about 10 to 15 percent of the stream channel  
10 where the banks have been eroding away so the water's  
11 getting shallower as the channels are right now. And  
12 this also allows velocities to increase along the  
13 stream bottom, the channel is becoming less complex.  
14 It's becoming smoothed out, and that helps to increase  
15 the amount of sediment that is mobilized during flood  
16 flows and, you know, we're getting more erosion and  
17 more simplification of the stream habitat.

18 I would say another minor change is that there  
19 used to be a small amount of pool habitat, and I would  
20 say that it's probably decreased by at least half  
21 because of the loss of the woody debris. Now, they  
22 have immature riparian vegetation, there's no large  
23 trees falling into the stream as they die, and so the  
24 riparian vegetation, the woody debris in the stream is  
25 very important for scour. During high flows, the trees

0151  
01 would scour out pool habitat and cause bottom  
02 roughness, so that the fish could find areas where they  
03 could avoid the high velocities.

04 From Segments 3-D -- we'll talk about that one  
05 separately in that there was always flow provided by  
06 Parker Creek and some spring action in this area, so  
07 there were fisheries fairly consistently prior to  
08 1941. However, again, the gradients were moderate, and  
09 I would say that the population was generally average  
10 in abundance, and a half-a-pound fish was about as  
11 large as you would expect to see in this segment.

12 However, currently, there are gravel operations in  
13 the area and when the stream had been dewatered after  
14 1970, they tended to push their crushed rock into the  
15 stream channel and then when the floods came through,  
16 there was extensive degradation to that habitat. So  
17 today, we still have fish in the area, but I believe  
18 that they would be slightly smaller, maybe they're only  
19 a third of a pound rather than a half of a pound, and  
20 there are slightly fewer fish because the channel is  
21 smoother and the riparian vegetation is not as dense  
22 and is not as mature. We don't have as much woody  
23 debris.

24 Another thing that's very important now between  
25 Segments 3-B through 3-D is because the gravel --

0152  
01 excuse me, the stream channel has been smooth, the  
02 sediment is being transported at a higher rate and most  
03 of the gravel that used to exist in this channel has  
04 been mobilized out and no longer exists in this segment

05 of stream and so reproduction has been decreased. I  
06 did a survey in 1987 and found small amounts of gravel  
07 in the small subsidiary channels, and then redid the  
08 survey in 1992, and found that essentially all the  
09 gravel is gone. So it's just been a gradual flushing  
10 from the stream, and the loss of this gravel has  
11 greatly reduced the production of young in the stream.

12 Sections 4 and 5 in Rush Creek, combining the  
13 whole length, was very similar in habitat prior to  
14 1941. The stream channels were quite sinuous, which  
15 caused them to be low in gradient. By winding back and  
16 forth through the stream, it slowed the flow of water  
17 down so the water became quite deep and very slow.

18 Another important factor to this reach is there  
19 was considerable spring activity near the area marked  
20 as The Narrows. And the springs actually produced  
21 probably on an average of about 50, 54 cfs of  
22 relatively cool water that was fairly high in dissolved  
23 minerals that was important to the production of  
24 aquatic insects which the trout feed on. So we would  
25 have had low-velocity water, optimum temperatures, and  
0153

01 the channels were quite narrow. So conditions were  
02 very good for growth at this reach.

03 The riparian vegetation was quite high. You can  
04 see evidence of that by looking at the abandoned  
05 channels that are still in the area. Some portions of  
06 them look intact as they probably were prior to 1941,  
07 and the habitat is quite complex, even spawning gravels  
08 are fairly abundant throughout the reach. Some of the  
09 pools appear to be six feet deep and up to 300 feet  
10 long. I'd say that's one of the biggest ones in the  
11 entire section, but remnants of it still exist, and  
12 it's quite impressive considering that a big pool today  
13 is probably 15 to 20 feet long and three feet deep. So  
14 they're quite a bit smaller.

15 MR. HERRERA: Excuse me, Dr. Mesick. Mr. Dodge,  
16 that's 20 minutes.

17 MR. DODGE: Mr. Del Piero, we would apply for an  
18 additional 20 minutes, and I believe that Dr. Mesick  
19 will complete his direct examination during that time.

20 HEARING OFFICER DEL PIERO: Granted.

21 DR. MESICK: Because of these conditions that  
22 existed in this reach, it is likely that large trout  
23 were produced. I've talked to Mr. Eldon Vestal, who  
24 used to work for the Fish and Game Department in the  
25 late 1940s, and Mr. Don Banta, who was a long-term

0154  
01 resident of Lee Vining, and he used to fish these  
02 streams as a teenager. And they recalled that trout  
03 between one and two pounds were commonly caught and  
04 that some trout up to four pounds were caught  
05 occasionally, so very large fish.

06 And I would say that the habitat conditions in  
07 Segments 4 and 5 all the way to Mono Lake were actually  
08 better than they are now in Segment 1 where numerous  
09 one- to two-pound fish are produced because we have  
10 permanent cover in these sections. They're not the  
11 aquatic plants that die off every winter and the fish  
12 have to leave, so the conditions were very adequate

13 year-round. You have all the food that's being  
14 produced, optimum temperatures, and the low-velocity  
15 water that helps produce the large fish.

16 Today, the changes have been dramatic in this  
17 reach. We've had many of the channels that used to  
18 flow are now abandoned, and so the stream is quite a  
19 bit straighter and that has increased the gradient.  
20 The new channels where they've relocated are very  
21 simple. They almost look as if a bulldozer has made  
22 the channels. They're very smooth, very uniform.  
23 There's very little bottom roughness, so the fish are  
24 exposed to relatively high velocities. There are still  
25 some areas that are complex, but I'd say in the most

0155  
01 part, most of the stream channels are quite simple in  
02 this reach.

03 The riparian vegetation is also greatly reduced in  
04 that it's less dense. It's pretty much confined to the  
05 stream banks, and it's very immature, so it's not  
06 really providing any refuge areas during floods or any  
07 bank stability. We're still seeing channel widening in  
08 this section, and there's just very little complexity.  
09 The amount of woody debris that's in a channel has  
10 decreased.

11 I've seen -- when I began the studies in 1985,  
12 there was more woody debris than there is now, so  
13 because of this simplification of the channel, the  
14 woody debris and substrate as well are being mobilized  
15 at a higher rate than what occurred naturally, so we're  
16 losing it over time. And as it's lost, that leads to  
17 further simplification of the channel and worsening  
18 conditions.

19 We have also lost a lot of the gravel that  
20 probably existed in the upper part of the reach.  
21 There's still adequate gravel in the lower portions,  
22 but for some reason, production of young has been  
23 limited in the lower part. I believe it's because the  
24 cover for juveniles is lacking and they're eaten by the  
25 larger fish. Today, we have also lost the spring

0156  
01 activity, so it's very likely that the stream  
02 temperatures have increased, particularly in the upper  
03 portion of this area, which is Segment 4. I believe --  
04 we've estimated that the stream temperatures from the  
05 spring would've been about 14 degrees Celsius, and now  
06 we're seeing anywhere upwards of about 19 degrees. So  
07 it's quite a bit of a change, and that would greatly  
08 reduce the growth of the fish compared to what it used  
09 to be.

10 The other thing is that with the loss of the  
11 springs and the straightening of the channel, we would  
12 have reduced food production. The springs provided  
13 minerals that were important to the food production,  
14 and the complex channel helped retain the organic  
15 matter that was supplied by the riparian vegetation.  
16 It stored it in the stream bottom, and that was an  
17 important food for the aquatic insects. Now that the  
18 channel is very straight and simple, much of this  
19 material is flushed into Mono Lake and no longer  
20 produces food. So there are many conditions that are

21 worse for the fish today.

23 because we have degraded habitat, there's another  
24 limiting factor reducing the size of the fish and the

0157

01 channel complexity where the fish are exposed to higher

03 particularly important during the winter because the  
04 water is so cold that the fish can no longer digest

06 amount of energy reserves that they've stored up  
07 through the summer, and if they're not growing well

09 tend to exhaust their energy reserves at a faster rate  
10 than lower stream flows would during the winter. And

12 as low growth when stream flows have been over 70 cfs  
13 in Rush Creek.

15 of the fish to the restoration treatments in Rush Creek  
16 very briefly. There were three large pools that were

18 monitoring the fish population since 1991, we've  
19 observed that they improved their growth by quite a bit

21 weight, which is about twice the size of the fish in  
22 the untreated sections of the stream. So by providing

24 restore the conditions that grew larger fish.

25 The problem is that these pools tend to attract a

01 lot of anglers, so we see a lot of turnover of fish in  
02 these pools. They're caught at incredibly high rates,

04 what the fish are actually doing.

05 There are also treatments in the side channels

07 essentially a large pond. These treatments also  
08 improve the growth of the fish. However, because

10 limited and very few fish use these treatments.

11 However, they were effective in improving the growth of

13 winter when streams flows were high. When fish were  
14 not doing very well in the main channel, they did quite

16 good refuge from the flood flows, especially during the  
17 winter.

19 the streams for spawning habitat increased the  
20 production of the young-of-the-year by four to five

22 times over stream wide. So that also shows the  
23 importance of gravel abundance, gravel availability for

25 Moving on to Lee Vining Creek, for Segments 1 and

0159

02 complexity, and some of the fish are exposed to

03 moderate velocities of water. And I don't believe that  
04 they've reached anything larger than about 12 inches in  
05 length or a half a pound, and that's based on the  
06 anecdotal information that we've gotten from  
07 Mr. Vestal. And I agree with that. There wasn't a lot  
08 of deep, slow water that we had like in the Rush Creek  
09 bottom lands.

10 Gravels are also quite abundant. They were even  
11 quite abundant through the 1980s when I began doing my  
12 studies, so reproduction was quite good in at least  
13 Segment 1. Segment 2 --

14 Q BY MR. DODGE: Dr. Mesick, could you clarify, this  
15 discussion of Segments 1 and 2, are you talking  
16 pre-diversions, or are you talking current --

17 A BY DR. MESICK: Pre-diversions. It's just that my  
18 basis that there were a lot of gravels in this section  
19 is because there still were in the 1980s. So there  
20 were average numbers of fish, about 12 inches in length  
21 in Segments 1 and 2 of Lee Vining Creek.

22 After the streams were diverted in the late 1940s,  
23 there were essentially no flow releases, but there was  
24 seepage past the dam and there was spring activity that  
25 kept a small amount of flow in the stream and that

0160  
01 seemed to keep the habitat intact. It kept the  
02 riparian vegetation alive and actually, there was a  
03 fairly abundant trout population in these reaches  
04 through 1989.

05 However, in May of 1990, there was an event where  
06 the stream flows fluctuated greatly. They changed from  
07 zero to over 100 cfs -- well, near zero to over 100 cfs  
08 in a matter of hours, and also a large amount of fine  
09 sediment was released that virtually buried the  
10 sediment in Segment 1. Also, during this period, all  
11 of the gravel essentially was flushed from Segment 1,  
12 and this resulted in virtual elimination of the  
13 fishery. I would say less than 5 percent of the fish  
14 were left after this event. So, on one hand, you lost  
15 all of the adult fish, almost, plus you lost most of  
16 the spawning gravel, so from then on, the fishery even  
17 got worse for a time. There was very little  
18 reproduction.

19 Also, during this period, I believe that the  
20 habitat became simplified to a small degree and a small  
21 amount of woody debris was flushed from the channel.  
22 And we have seen even worse survival of the fish during  
23 the winter periods. The highest percentage of the fish  
24 die during the winter, even though they appear to be in  
25 good shape during the fall, and I think it's because

0161  
01 they're exposed to high velocities and it just exhausts  
02 their energy and they die by the end of the winter. So  
03 the fishery is definitely not recovering in this  
04 section.

05 Although gravels were added in the late summer of  
06 1991 to this segment, they have since been mobilized  
07 through and there are still very little gravels left in  
08 the segment today.

09 In moving on to Segment 3, prior to 1941, there  
10 were multiple channels that had a wide band of dense

11 riparian vegetation. They actually referred to it as  
12 the jungle. It's very hard to even get to the stream.  
13 The channels were very narrow and very deep and quite  
14 complex. There wasn't a lot of pool habitat so, again,  
15 we're probably seeing high numbers of fish, but they  
16 weren't any bigger than 12 inches or maybe a half a  
17 pound in weight. They weren't huge, but they were  
18 probably fairly abundant.

19 Since the late 1940s, the dewatering and flood  
20 damages essentially eliminated the fishery from this  
21 section and the habitat became quite degraded. Many of  
22 the channels were abandoned. The channels became quite  
23 simplified, almost looking like a bulldozer made them.  
24 And there was virtually no fish in this segment until  
25 1990 and even so, now there are quite a few. The

0162

01 restoration work in Segments 3-A and 3-B has restored  
02 much of the habitat complexity to the stream channels.  
03 The only thing that seems to be missing in these  
04 segments is that the riparian vegetation is less  
05 dense. It's not as wide, and it's quite immature, so  
06 it doesn't provide that much stability to the channel,  
07 and it doesn't provide any refuge during the flood  
08 flows.

09 There's a few areas that are still low in the  
10 complexity in that they lack any kind of definition to  
11 the bottom scouring that would have been caused by the  
12 woody debris. I would characterize it as a small  
13 percentage, maybe 20 percent of the stream is still in  
14 degraded shape. And it's possible, I'm not sure, but I  
15 believe that there were multiple channels in this  
16 segment, and I know Mr. Trihey has rewatered some of  
17 them, but there are still other channels that are  
18 abandoned today. And I think it's a possibility that  
19 some of them used to be watered, and that represents a  
20 loss of habitat.

21 In Segments 3-C and 3-D, which are the lower most  
22 portions of the stream, the riparian vegetation is  
23 still quite immature. Very little work has been done  
24 in this segment, and it's still quite degraded. The  
25 woody debris is lacking. There's very little gravel

0163

01 for spawning, and the channel complexity is quite low.  
02 It's smooth and wide.

03 Throughout these segments, there was a little bit  
04 of work in this section, but most of it was in Segments  
05 3-A and 3-B, which are up above through in here. And  
06 in these areas, wherever treatment work was done,  
07 survival of the young-of-the-year through the winter of  
08 1992-93 was much higher than what occurred in the  
09 untreated segments. So it's getting back to what it  
10 used to be. It's improving the health of the fish and  
11 their growth and survival.

12 The other treatment aspect was that gravels were  
13 added to Segment 1 during the fall of 1991, and that  
14 increased the production of young by about five times  
15 in the vicinity of the gravel treatments, and most of  
16 them died during the next winter. Most of the  
17 treatments in Lee Vining Creek have not been utilized  
18 because there's been very few fish in the stream.



19 There's no more than a couple hundred in a total of  
20 four miles of stream, so the densities are quite low.  
21 So it's hard to tell with so few fish whether or not  
22 it's really benefiting them. But considering that most  
23 of them had been produced in Segment 1 and then they  
24 died within their first winter, I would say that  
25 additional work needs to be done in Lee Vining Creek.

0164

01 In my opinion, neither the habitat nor the  
02 fisheries of either Rush Creek or Lee Vining Creek is  
03 recovering to the pre-1941 levels nor will it, even if  
04 the stream flows are optimized or if the riparian  
05 vegetation recovers because we can't recover the  
06 channel complexity because the sediment that is being  
07 transported down the stream is captured by the upstream  
08 diversion points. And if you can't restore the narrow  
09 width of the channel by having sediment moving in and  
10 being deposited, we're going to end up with wide,  
11 shallow channels that provide very little habitat  
12 complexity for the fish. And some form of mechanical  
13 alteration will be necessary to restore the channel.

14 That summarizes my testimony.

15 HEARING OFFICER DEL PIERO: Thank you very much.  
16 Anything else, Mr. Dodge?

17 MR. DODGE: No. Thank you.

18 HEARING OFFICER DEL PIERO: And I assume,  
19 Mr. Roos-Collins, you have nothing else or do you,  
20 Sir?

21 MR. ROOS-COLLINS: I do have questions.

22 HEARING OFFICER DEL PIERO: Please come forward.

23 DIRECT EXAMINATION BY MR. ROOS-COLLINS

24 Q Dr. Mesick, good afternoon.

25 A BY DR. MESICK: Good afternoon, Mr. Roos-Collins.

0165

01 Q Let's begin with the term "limiting factor." Your  
02 written testimony at Paragraph 30 on Page 24 states, "I  
03 use the term limiting factors to describe those  
04 environmental conditions which limit the  
05 reestablishment of the pre-diversion fishery."

06 That is your testimony?

07 A Yes, it is.

08 Q So in your written testimony and also your  
09 testimony here today, you use the term "limiting  
10 factor" to refer to those environmental conditions  
11 which limit the reestablishment of the pre-1941  
12 fishery?

13 A Yes, I do.

14 Q There may be other factors which prevent the  
15 establishment of an optimal fishery, but those factors  
16 are not addressed by your testimony?

17 A That's correct.

18 Q Let's turn now to the limiting factors which you  
19 have identified for Rush Creek. Let's begin with  
20 habitat complexity which you discussed both in your  
21 written and your oral testimony. What is the meaning  
22 of the term "habitat complexity" as used in your  
23 testimony?

24 A Well, one way to describe it would be as  
25 represented by stream bottom roughness, anything like,

0166

01 large obstructions, woody debris, large boulders,  
03 down.  
04 Other factors that cause that would be low  
06 sinuous stream channel would slow down the stream flow  
07 and when you slow down the stream flow, it causes the  
09 decrease, and that's quite important to the fish.  
10 Narrow channels also do the same by creating most of  
12 allowing a deep channel portion where most of the flow  
13 moves through the stream such that there will be very  
15 but high velocity near the top. And the fish can  
16 simply utilize the areas near the bottom of the  
18 the stream can be referred to as stream channel  
19 complexity.  
21 complexity limits the fishery in Rush Creek today. Is  
22 that to say that more habitat complexity would benefit  
24 existed before 1941?  
25 A That's correct.

01 Q Would more habitat complexity benefit each age  
02 class addressed in your testimony?

04 Q Would it benefit one age class more than others?  
05 A It certainly would benefit the larger fish the  
07 abilities than the larger fish do, so high velocities,  
08 I believe, reduce the growth rates of large fish to a  
10 Q Your written testimony states at one point that  
11 older trout get heavier but not longer and, therefore,  
13 A Yes, it is.  
14 Q Inadequate habitat complexity is also a limiting  
16 A Yes, it is.  
17 Q For the same reasons you just discussed with  
19 A That's true.  
20 Q What limiting factors are present in Rush Creek  
22 A Well, the loss of the springs in the Segments 4  
23 and 5 of Rush Creek, those are limiting factors that  
25 sinuous channel that was present in Segments 4 and 5 of  
0168  
02 longer there.  
03 That sinuous channel is also important for the  
05 fish. I'd say that those are the main two factors that  
06 Rush Creek was unique.  
08 factor. Paragraph 33 of your written testimony on Page

09 26 refers to daily summertime fluctuations in water  
10 temperatures as a limiting factor. Is daily summertime  
11 fluctuations in water temperature a limiting factor on  
12 Rush Creek?

13 A No, it is not. I'd also like to point out,  
14 though, that the increases in fluctuation in  
15 temperature is related to the channel complexity. As  
16 the stream channel is widened, there's more area for  
17 solar radiation to heat up the water, and also heat is  
18 lost at night to the night sky, so the width of the  
19 channel simply exposes the water to a greater amount of  
20 environmental influence and causes that fluctuation in  
21 temperature. So it's related to the habitat complexity  
22 or channel, and also the loss of springs in the bottom  
23 lands.

24 Q Let me turn now to a related subject; namely, the  
25 capacity of flow alone to remove the limiting factors  
0169

01 you have identified for both creeks. Paragraph 41 on  
02 Page 35 referring only to Rush Creek states that,  
03 "Optimizing the stream flow releases for fish in  
04 combination with allowing the natural recovery of  
05 riparian vegetation will not result in the recovery of  
06 the trout population to its pre-1941 level."

07 Do you have the same opinion with respect to Lee  
08 Vining Creek?

09 A For some portions of Lee Vining Creek, probably  
10 not as large of a percentage of the stream as would  
11 occur for Rush Creek.

12 Q Why is it that optimizing the stream flow and  
13 allowing recovery of riparian vegetation will not  
14 establish a pre-41 fishery in Rush Creek in your  
15 opinion?

16 A Well, in order for the channels to regain their  
17 former width, which was a narrow width. They're much  
18 wider today, it requires the input of sediment, fine  
19 sediment, gravel, sand, that would be collected at the  
20 edge of the stream and slowly narrow the channel.  
21 Since the upstream dams stop the supply of the  
22 sediment, I don't see what material is available in the  
23 stream to rebuild the channels. So I assume what will  
24 happen is that the riparian vegetation may come back,  
25 but the channel itself will be wide and very simple.

0170  
01 It will certainly remain wide. It will not narrow, and  
02 I think that's crucial to rebuilding the streams.

03 We're going to have to be dealing with these  
04 widely fluctuating temperatures if we can't reduce the  
05 width of the channel, and I think that the fluctuating  
06 temperatures are going to minimize the growth of the  
07 fish, so we won't be seeing these large fish again  
08 especially in Segments 4 and 5 of Rush Creek.

09 Q This Board has heard, on several occasions, from  
10 Dr. Stine. You aren't a geomorphologist are you?

11 A No. I've had some minimal -- some training in it,  
12 but not as much as Dr. Stine.

13 Q On the other hand, you have observed conditions in  
14 these creeks since the mid 1980s, haven't you?

15 A Yes, I have.

16 Q Since the mid 1980s, other than the restoration

17 treatments undertaken by the restoration consultant,  
18 have you seen substantial progress towards the removal  
19 of the limiting factors you have identified for Rush  
20 Creek?

21 A No, I haven't. And as a matter of fact, I would  
22 say the limiting factors are gradually becoming worse  
23 through time.

24 Q Same question for Lee Vining Creek.

25 A No. They haven't been restored, and I'd say to a  
0171

01 lesser extent, they are becoming worse through time.

02 HEARING OFFICER DEL PIERO: Excuse me,

03 Mr. Roos-Collins. Why?

04 DR. MESICK: Because with the weakening of the  
05 riparian vegetation and the loss of woody debris in the  
06 channel, a lot of the sediment is simply being flushed  
07 into Mono Lake, and we're getting wider channels.  
08 They're becoming smoother. We're losing the habitat  
09 complexity gradually. We've seen, particularly on Rush  
10 Creek, the growth of the fish simply declines each  
11 year, although, you know, not in relation to the stream  
12 temperatures. So I think it's just a gradual  
13 simplification of the habitat exposing the fish to  
14 higher and higher velocities.

15 I've seen evidence where the stream channel in  
16 Rush Creek has gotten wider and I've seen evidence  
17 where incision of the channel in Lee Vining Creek is  
18 continuing since the mid 1980s, so it's going in the  
19 opposite direction than it should be.

20 MR. BIRMINGHAM: Could the Reporter mark that  
21 please?

22 Q BY MR. ROOS-COLLINS: Dr. Mesick, is it your opinion  
23 that the channel form of Rush Creek today is unstable  
24 in ways that allow limiting factors to get worse?

25 A BY DR. MESICK: Yes. Today I'd say that's true.

0172

01 Q Same question for Lee Vining Creek.

02 A Yes. Again, the channel is unstable today.

03 Q Now, your testimony discusses the effect of the  
04 restoration treatments undertaken by the restoration  
05 consultant. I believe it was your written testimony  
06 with respect to both creeks that these treatments have  
07 caused localized but generally not system-wide  
08 improvements in the fisheries.

09 Was that your written testimony?

10 A Yes. Except that the spawning gravels have  
11 provided system-wide improvement, but the creation of  
12 pool habitat or the creation of low-velocity water and  
13 deep water has had only localized effects. That's not  
14 entirely true. In Rush Creek, there was some work done  
15 in Segment 1 where rock weirs, large boulders were  
16 installed as a weir at the downstream portion of the  
17 reach. And it was mainly intended to keep the gravel  
18 in the segment, but it also had the effect of  
19 increasing the depths in the channel and also reducing  
20 the velocities. And since 1991 when those structures  
21 were put in place, we've been catching large fish  
22 downstream of Segment 1, only one or two, but these  
23 fish have been one pound in weight. And, I mean,  
24 they're not very frequent, but it still had not

25 happened before, so I think these fish are spreading  
0173  
01 out to the other segments of the stream.  
02 Q So some treatments, including the placement of  
03 spawning gravel and the structures you just described,  
04 have had system-wide effects, correct?  
05 A That's correct.  
06 Q And other treatments have not --  
07 A That's correct.  
08 Q -- had system-wide effects, but instead have had  
09 localized effects.  
10 A That's correct.  
11 Q What is your understanding of the purpose for the  
12 restoration treatments undertaken by the restoration  
13 consultant?  
14 A Well, to restore the conditions that existed prior  
15 to 1941.  
16 Q Given your opinion that the treatments have, in  
17 some instances, caused system-wide effects and  
18 otherwise not caused those effects, would you  
19 characterize the treatments to date as a success or  
20 failure or neither?  
21 A I would characterize them as a success because  
22 those treatments such as the large pools that were  
23 constructed, were simply intended to be a test of how  
24 the fish would respond to them, and since they  
25 represent localized areas where the stream habitat  
0174  
01 complexity was increased and we expect that, you know,  
02 the entire stream length was very highly complex, then  
03 it would simply be a matter of expanding on these  
04 treatments throughout the stream. So it's just that  
05 the work that was done where it was localized was  
06 simply a test, and those tests did show that some of  
07 the conditions were restored.  
08 Q One final line of questions. Do you have  
09 recommendations for this Board for further restoration  
10 treatments for Rush Creek?  
11 A Yes.  
12 Q In order of importance, beginning with the most  
13 important, what are they?  
14 A Well, for Rush Creek, I would say the most  
15 important thing that could be done is to rewater the  
16 abandoned channels wherever they occur. They  
17 particularly occur in Segments 4 and 5. As part of  
18 that rewatering, some work would have to be done on  
19 them. Some portions have been filled with gravel that  
20 came from the upstream gravel operations. They were  
21 washed into these channels during floods of the 1960s,  
22 and that gravel would have to be excavated first.  
23 It's also possible that some portions of these  
24 channels might have to be modified to permit flow  
25 again, some portions have lost their integrity, the  
0175  
01 stream banks have collapsed, and the streams might find  
02 a new course and not follow the original line of the  
03 abandoned channel, so that would have to be looked  
04 into.  
05 A second thing would be maintaining the amount or

07 think once that habitat complexity is restored to the  
08 stream, it shouldn't be a problem. But now that the  
09 stream channel is quite simple, the gravel is quickly  
10 flushed from the stream, even at very moderate flows,  
11 and it's because the habitat is so simple that the  
12 velocities are too high near the stream bottom.  
13 There's nothing to slow it down. So gravel may need to  
14 be replaced periodically.

15 A third way to restore the fishery would be to add  
16 channel complexity by adding woody debris to the  
17 stream. Simply adding large, intact trees to the  
18 channel would be a way to help scour out pools and help  
19 slow down the flows and provide areas of refuge for  
20 fish during floods. There are also sections of the  
21 stream that couldn't be replaced by abandoned channels  
22 and right now they've been degraded because the  
23 channel's quite wide, and they've lost a lot of their  
24 complexity. I would think that somehow these channels  
25 would have to be narrowed again.

0176

01 It's important to try to keep the temperatures low  
02 because the widened channels have a cumulative effect  
03 and by the time we get to Segments 4 or 5 in Rush  
04 Creek, they tend to cause the temperatures to fluctuate  
05 too greatly in these segments, so we're going to have  
06 to look at the entire length of stream and narrow it  
07 down to a width of 20 to 25 feet. It might have to be  
08 simply excavated.

09 I would say that the last thing of major  
10 importance would be to try to jump start the recovery  
11 of riparian vegetation. There are areas that have been  
12 damaged by floods, and they don't seem to be recovering  
13 very fast. The riparian vegetation is not very dense,  
14 if there's any at all in some areas, and it leaves the  
15 banks exposed to further widening and damaging, perhaps  
16 some planting would be necessary in these areas.

17 I would also say that temperatures in Segments 4  
18 or 5 of Rush Creek would have to be monitored and  
19 perhaps some program to try to replace the effect of  
20 the spring flow that used to exist or try to cool the  
21 temperatures. There is a variety of mechanisms,  
22 perhaps the management of Grant Lake, perhaps planting  
23 riparian vegetation in a very wide band to try to  
24 reduce the air temperatures in the vicinity of the  
25 stream might be another. I suppose it's also possible

0177

01 that the springs themselves could be restored to try to  
02 bring back this flow and reduce the temperatures, but  
03 something along those lines might be required in order  
04 to get the growth of the fish back the way it used to  
05 be.

06 Q In order of importance, what are your  
07 recommendations for Lee Vining Creek?

08 A I would say for Lee Vining Creek -- well, there  
09 are two things that are almost equal in importance.  
10 One is the amount of gravel available for spawning and,  
11 again, because the channel is quite simplified, it's  
12 rapidly flushed from the system. Once the stream has  
13 had its complexity restored, that might not occur. But  
14 in the meantime, it's going to have to be periodically

15 replaced.

16 The channel complexity is the other thing. I

18 be mechanically altered, like Mr. Trihey did in  
19 Segments 3-A and 3-B of Lee Vining Creek, just dig

21 working quite well so far.

22 And lastly, I would say that wherever the riparian

24 additional plantings could be made to bring back the  
25 riparian vegetation. It's extremely important.

01 Hopefully, no maintenance work will have to be done on  
02 the stream because the riparian vegetation will

04 banks and provide refuse during the flood, but it has a  
05 long way to go before that occurs, perhaps another

07 that process would be helpful.

08 Q Let me ask you now about monitoring of the fish

10 adopted by this Board and whatever restoration  
11 treatments are undertaken in the future. Do you

13 described it, be monitored?

14 A Well, I do because I'm not convinced as to whether

16 maintained. It's possible that high flows, flood flows  
17 in the future might degrade some of the habitat until

19 stabilize. And I believe that that might be 20 to 50  
20 years off. So in the meantime, it's possible for the

22 It's also possible that where abandoned channels  
23 have been rewatered, that the riparian vegetation is

25 could be becoming damaged over time, and it would be  
0179

02 the channels as well in these areas to make sure that  
03 we're not losing something that would cost a lot more

05 The same thing is true with the gravels. If the  
06 complexity of the channel has not been restored, these

08 system and reproduction will gradually be reduced  
09 through time. And eventually, it's possible to lose

11 Q My last question concerns a statement in the Draft  
12 Environmental Impact Report. Let me read that

14 This statement is on Page 3-D-115 of Volume One of the  
15 Draft Environmental Impact Report. It is as follows:

17 pre-1941 fishery conditions for at least 50 or more  
18 years."

20 refers to flow regime alternatives and does not  
21 contemplate specific restoration treatments. Are you

23 A Yes.

24 Q Can you envision a scenario that combines both  
25 flow regime and restoration treatments where the pre-41  
0180  
01 fisheries in these creeks will be reestablished in less  
02 than 50 years?

03 A Yes, I can.

04 Q What scenario is that?

05 A Well, to do the work that I just described,  
06 increasing the channel complexity, the gravel, and the  
07 riparian vegetation, particularly rewatering the  
08 abandoned channels to restore the sinuosity of the  
09 channel, especially in Segments 4 or 5 of Rush Creek,  
10 and then allowing for the new riparian vegetation to  
11 grow to a sufficient size, I think in that scenario, it  
12 would be necessary to guard against floods during this  
13 period until the riparian vegetation is large enough to  
14 stabilize the banks and prevent any further degradation  
15 to the habitat.

16 I would say that the channel can be restored  
17 immediately, you know, by physical means, but keeping  
18 it in good condition depends on the recovery of the  
19 riparian vegetation. So in order to be able to walk  
20 away from it and know that it's going to stay in  
21 pre-1941 conditions might require 40 years in order for  
22 the riparian vegetation to be sufficiently large to  
23 provide the protection and also to start providing  
24 woody debris. As the woody debris is flushed from the  
25 system, it supplies new woody debris to take its place.  
0181

01 So that takes quite a bit of time.

02 MR. ROOS-COLLINS: Dr. Mesick, thank you. No  
03 further questions.

04 HEARING OFFICER DEL PIERO: Thank you very much.  
05 Ladies and Gentlemen, we're going take a --  
06 Mr. Birmingham?

07 MR. BIRMINGHAM: I was just standing up to take a  
08 recess.

09 HEARING OFFICER DEL PIERO: We're going to take a  
10 ten-minute break, and we'll be back at -- between ten  
11 and five to the hour. Thank you very much.

12 (Whereupon a short recess was taken.)

13 HEARING OFFICER DEL PIERO: Ladies and Gentlemen,  
14 this hearing will come to order again. We had just  
15 concluded with Mr. Roos-Collins, and Mr. Birmingham had  
16 decided he spent too much time in the chair and wanted  
17 to stand up and do some cross-examination, I would  
18 assume.

19 CROSS-EXAMINATION BY MR. BIRMINGHAM

20 Q Carl, how are you this afternoon?

21 A BY DR. MESICK: Pretty good.

22 Q You worked for EA Engineering for many years; is  
23 that correct?

24 A Correct.

25 Q I think everybody in the room knows that EA  
0182  
01 Engineering Sciences and Technology is a consultant to  
02 the Department of Water and Power.

03 A That's correct.

04 Q And you worked on many of the projects -- while



05 you were at EA, you worked on many of the projects  
06 undertaken by EA for the Department of Water and Power;

08 A That's right.

09 Q Now, is it correct that when you were with EA

11 Department of Water and Power, the opinions that you  
12 expressed to the Department of Water and Power on the

14 that you held as a biologist at that time?

15 A That's correct.

17 that you held because you were working for the  
18 Department of Water and Power?

20 Q I asked that the Reporter mark an answer to one of  
21 the questions that was asked of you actually by

23 back and read Mr. Roos-Collins' previous question, your  
24 answer to Mr. Del Piero's question, and then your

0183

01 ask after that.

03 Q BY MR. BIRMINGHAM: Dr. Mesick, you've said that the  
04 limiting factors, since the mid 1980s, the limiting

06 to talk specifically about Rush Creek. In the mid  
07 1980s, the flow in Rush Creek was generally limited to

09 A BY DR. MESICK: That's correct.

10 Q And then, in 1990, pursuant to an order of the El

12 were increased beyond 19 cfs; is that correct?

13 A That's correct. Actually, I believe it was fall

15 Q Fall of '89. Thank you.

16 Did the increase in flows resulting from the

18 releases from 19 cfs to those flows specified in the  
19 order, contribute to the gradual simplification of the

21 by Mr. Del Piero?

22 A Yes. But not as much as the flows that occurred

24 Q This is a question I was going to conclude my  
25 examination of you with, but I'll ask it now. You were

01 involved in the preparation of the IFIM report that was  
02 prepared by EA Engineering for the Department of Water

04 A To a very small extent.

05 Q Did you consult with Mr. Hanson on the preparation

07 A Not in the preparation of the report.

08 Q Did you consult with Mr. Hanson in the study that

10 A Yes, I did.

11 Q Mr. Hanson has expressed an opinion in this

13 time, but Mr. Hanson has expressed an opinion in this  
14 proceeding that a flow in Rush Creek of approximately  
15 20 cfs would, in his opinion, maintain the fish that  
16 exist in the stream in good condition. That is an  
17 opinion that you agree with, isn't it?

18 A Considering the existing conditions in the stream,  
19 that they have been degraded, I would agree with that.

20 Q Now, Dr. Morhardt expressed an opinion in this  
21 proceeding that the current population of fish in Rush  
22 Creek is comparable to other eastern Sierra streams.  
23 Are you aware of the report on which he based that  
24 conclusion?

25 A Well, there were several that mentioned that  
0185 conclusion.

02 Q That is also an opinion with which you agree,  
03 isn't it, Dr. Mesick?

04 A Well, it depends, I would say that was more true  
05 in the 1980s than it is today.

06 Q You identified in your testimony a number of  
07 limiting factors that, in your opinion, contribute to  
08 the existing population of brown trout in Rush Creek.  
09 Is that correct?

10 A That's correct.

11 Q Let's see if I can find the area. On Page 20 of  
12 your written testimony, and I'm referring to the  
13 original Cal-Trout Exhibit 4, this is Paragraph 26-D on  
14 Page 20, it states, "I believe that the production of  
15 large adult trout in Segments 2 to 5 is currently  
16 limited by a combination of a lack of deep,  
17 low-velocity water with cover provided by complex woody  
18 debris that provides refuge from high-water velocities  
19 and predators, high and widely fluctuating summer water  
20 temperatures, especially in Segments 4 and 5, which are  
21 downstream of The Narrows, and a limited supply of  
22 food."

23 Is that correct?

24 A That's correct.

25 Q Attached to your testimony is a report that is  
0186

01 identified as Cal-Trout 4-B. And actually, there are a  
02 number of documents that make up Cal-Trout 4-B; is that  
03 correct?

04 A I'll have to refresh my memory.

05 Q If you take a moment, there's a letter that is  
06 addressed to Mark Hill followed by a couple of pages  
07 that are identified as restoration monitoring overview  
08 dated July 28, 1992. Actually, I believe that's five  
09 pages. And then there is a document, a third document  
10 which makes up exhibit Cal-Trout 4-B, which is a  
11 proposed plan for the monitoring of fish populations in  
12 Rush and Lee Vining Creeks, Mono County, California.  
13 Do you see those documents?

14 A Yes, I do.

15 Q You were involved in the preparation of those  
16 documents; is that correct, Dr. Mesick?

17 A Not all of the documents, I believe.

18 Q Were you involved in the portion of Cal-Trout 4-B  
19 entitled A Proposed Plan For The Monitoring of Fish  
20 Populations in Rush and Lee Vining Creeks, Mono County,

21 California, which is the third document in Exhibit 4-B?  
22 A Yes. But not in the final production of this  
23 document. I was on vacation for the entire month of  
24 July.  
25 Q 1993?

0187  
01 A Yeah --  
02 Q Or '92?  
03 A Yes. That's correct.  
04 Q It doesn't seem like it could be that long ago,  
05 but I guess it was.  
06 Now, you did this work while you were with EA; is  
07 that correct?  
08 A That's correct.  
09 Q And it was shortly after you did this work that  
10 you left EA?  
11 A That's correct.  
12 Q Specifically, I'd like to look at Page 4, and this  
13 is the second Page 4 in Exhibit Cal-Trout 4-B. Are you  
14 able to find a second Page 4 which is in Section 3.0 of  
15 the document?  
16 A Is this within the proposed plan for monitoring  
17 the fish populations?  
18 Q Yes, it is.  
19 A Yes, we verified it's the second Page 4.  
20 Q There is a sentence in the top paragraph of  
21 Cal-Trout Exhibit 4-B, second Page 4, that states,  
22 "During summer months, water temperatures increased  
23 which may cause a corresponding increase in the  
24 metabolic rate of trout. During some summers, high  
25 water temperature may result in poor growth or weight  
0188  
01 loss."  
02 A A slight change in that, the first sentence you  
03 said "which may cause" and my text says "which causes."  
04 Q Which causes, excuse me. I beg your pardon.  
05 You're correct.  
06 A Otherwise, yes.  
07 Q Now, it says, "During some summers, high water  
08 temperature may result in poor growth or weight loss."  
09 At the time this document was written, it was unknown  
10 whether high temperatures were a limiting factor;  
11 isn't that right, Dr. Mesick?  
12 MR. DODGE: Objection. Ambiguous. By whom?  
13 MR. BIRMINGHAM: By the authors of the report.  
14 I'll clarify it. But to that extent --  
15 HEARING OFFICER DEL PIERO: Thank you. Saved us  
16 all a lot of time.  
17 DR. MESICK: I would disagree with that,  
18 Mr. Birmingham, because the evidence that we had was  
19 that the growth of the trout ceased in the summer, and  
20 the only thing that's different about summer than any  
21 other season of the year is that the water temperatures  
22 increase. So it's a very logical conclusion that high  
23 summer water temperatures were reducing the growth of  
24 the fish.  
25 Q BY MR. BIRMINGHAM: There are other things that could  
0189  
01 reduce the growth of the fish; isn't that right,  
02 Dr. Mesick? For instance, food availability would

03 reduce the growth of fish?  
04 A BY DR. MESICK: That's true.  
05 Q And, in fact, you've expressed the opinion that  
06 food availability is a potential limiting factor for  
07 adult brown trout in Rush Creek?  
08 A That's true.  
09 Q So you can't say with certainty that temperature  
10 is a limiting factor. It's a limiting factor that you  
11 would want to analyze, isn't that right, a potential  
12 limiting factor?  
13 A Well, in combination with temperature. None of  
14 these factors stand alone. Obviously, if food is  
15 limiting so that there's not a lot and temperatures  
16 become a problem, the problem is aggravated more so  
17 than if food is very abundant. It's possible, even  
18 with the high temperatures, if food was quite abundant,  
19 the growth would not stop. So it's a combination of  
20 things. I would say that while food could have been a  
21 factor, I think that all of us in the fishery  
22 subcommittee would agree that temperature was part of  
23 the problem.  
24 Q Just give me one moment, Dr. Mesick, if you will.  
25 A I would also -- there was temperature data  
0190 existing at this time. Dr. Stacy Lee, who worked for  
01 Beak Consultants and had done the Fish and Game study  
02 in 1987 and 1988 and had recorded stream temperatures  
03 during the summer found them to be quite high, so we  
04 know at least during those two years, the stream  
05 temperatures were way above the levels where brown  
06 trout will even cease feeding. So, obviously, that  
07 would have a direct impact on their growth rates.  
08 Q Isn't it right, Dr. Mesick, that while you were  
09 previously employed at EA, you prepared a document  
10 concerning the potential limiting factors of adult  
11 brown trout in Rush Creek?  
12 A Was the document entitled --  
13 Q No. I'm specifically referring to a document that  
14 you prepared in 1990 entitled "A Sixth Year of Fish  
15 Population Studies in Lower Rush Creek 1990."  
16 A Okay. Yes. Most of the fish population reports  
17 contained a discussion of limiting factors.  
18 Q And isn't it correct that at that time, you  
19 concluded that temperature in lower Rush Creek was not  
20 a limiting factor?  
21 A I believe that that statement -- that's true.  
22 That statement was made, but I think it was referring  
23 more to mortality of fish rather than their growth. It  
24 was not limiting the number of fish in a stream, but it  
0191 was certainly limiting their size.  
02 MR. BIRMINGHAM: May I take a moment,  
03 Mr. Del Piero? Thank you.  
04 Q BY MR. BIRMINGHAM: Now, in your description of  
05 historical conditions on Rush Creek, you talked about  
06 the existence of a forebay in Segment 1 of Rush Creek  
07 below Old Grant Lake, and you indicated that that  
08 forebay provided good habitat for adult fish; is that  
09 right?  
10 A BY DR. MESICK: That's correct.

11 Q You said that there were large fish, average  
12 length 12 inches long and reaching weights up to a  
13 pound in that portion of Rush Creek; is that correct?  
14 A Well, they would have been larger than 12 inches,  
15 but I would say in the pound vicinity.  
16 Q Now, the forebay that existed in this portion of  
17 Rush Creek below Grant Lake in 1941, that was an  
18 artificial structure; is that right?  
19 A That's correct.  
20 Q When you talked about the conditions of Rush Creek  
21 today, you talked about Segment 1 of Lee Vining  
22 Creek -- I'm sorry, Rush creek -- Segment 1 of Rush  
23 Creek including the Mono Gate return ditch.  
24 A That's correct.  
25 Q Is it correct that the Mono Gate return ditch

0192

01 provides some of the best habitat for adult brown trout  
02 in the entire length of Rush Creek?  
03 A Today, that's true.  
04 Q And that's an artificial structure?  
05 A That's correct.  
06 Q You've testified, Dr. Mesick, that in portions of  
07 Rush Creek, spawning gravels is a limiting factor.  
08 A That's correct.  
09 Q I'd like to refer to the tables that are contained  
10 in your report or your written testimony, Cal-Trout  
11 Exhibit 4. And these tables contain data that were  
12 collected during your studies of Rush Creek while you  
13 were at EA and then after you left EA; is that right,  
14 Dr. Mesick?  
15 A That's correct.  
16 Q Now, is it correct that the number of  
17 young-of-the-year are an indication of the availability  
18 of spawning gravels?  
19 A To some degree. Other factors could be involved  
20 as well, and I would say that's not always true for  
21 even Rush Creek.  
22 Q Well, is it correct that there were more  
23 young-of-the-year in Rush Creek before spawning gravels  
24 were placed there by Mr. Trihey than after spawning  
25 gravels were placed there by Mr. Trihey?

0193

01 MR. ROOS-COLLINS: Objection. Ambiguous as to  
02 time.  
03 HEARING OFFICER DEL PIERO: You want to specify  
04 time?  
05 Q BY MR. BIRMINGHAM: In 1987, in the summer of 1987,  
06 Dr. Mesick, there were 59,710 young-of-the-year in Rush  
07 Creek; is that correct?  
08 A BY DR. MESICK: That's correct.  
09 Q That's an estimated number?  
10 A That's true. It's based on the estimates from six  
11 index sites, six study sites.  
12 Q And then for 1990, you prepared another estimate  
13 of the total number of young-of-the-year in Rush Creek,  
14 Lower Rush Creek. Is that correct?  
15 A That's correct.  
16 Q And in 1990, there were 5,934 young-of-the-year  
17 estimated in Rush Creek; is that correct?  
18 A That's correct.

19 Q And in 1991, you estimated that there were 4,344  
20 young-of-the-year in Rush Creek; is that correct?  
21 A That's correct.  
22 Q And in 1992, in the fall of 1992, you estimated  
23 that there were 13,676 young-of-the-year in Rush Creek.  
24 A That's correct.  
25 Q Now, 1987 was before Mr. Trihey placed any  
0194 spawning gravels in Rush Creek; isn't that right?  
01 A That's correct.  
02 Q And 1990 was the year in which Mr. Trihey placed  
03 spawning gravels in Rush Creek?  
04 A That's incorrect. It was the fall of 1991.  
05 Q Fall of 1991. I see.  
06 A Which would have affected only the numbers of  
07 young-of-the-year that were observed in the fall of  
08 1992, fish spawned in the previous year.  
09 Q So in the fall of 1992, we have one year of data  
10 which show that there were an estimated 13,676  
11 young-of-the-year after Mr. Trihey placed spawning  
12 gravel in the stream; is that correct?  
13 A That's correct.  
14 Q And that is compared to 59,710 young-of-the-year  
15 in 1987 before Mr. Trihey placed spawning gravel in  
16 Rush Creek.  
17 A That's correct.  
18 Q Now, Lee Vining Creek, is it correct that you have  
19 opined that spawning gravel is a limiting factor in Lee  
20 Vining Creek?  
21 A Today, it is.  
22 MR. HERRERA: Excuse me, Tom, 20 minutes have  
23 expired.  
24 MR. BIRMINGHAM: Thank you, Mr. Herrera. I'd make  
0195 an application for an additional 20 minutes.  
01 HEARING OFFICER DEL PIERO: Granted.  
02 MR. BIRMINGHAM: Thank you.  
03 Q BY MR. BIRMINGHAM: Now, you collected data similar  
04 to those data collected on Rush Creek in Lee Vining  
05 Creek; is that correct, Dr. Mesick?  
06 A BY DR. MESICK: Yes. Sometimes they were in  
07 different seasons so the numbers would be slightly  
08 different based on the number of young-of-the-year.  
09 Q Now, looking at Table 7, Table 7 contains an  
10 estimate of the total number of fish in Rush Creek  
11 during the years represented in the table; is that  
12 correct?  
13 A In Lee Vining Creek?  
14 Q Lee Vining Creek, excuse me. Let me restate the  
15 question. Table 7 on Page 38 of your testimony  
16 represents the estimate of the total number of fish in  
17 Lee Vining Creek in the years represented.  
18 A That's correct except it's only Segments 1 through  
19 3-B. It does not include the section of stream below  
20 the county road.  
21 Q Has Mr. Trihey placed any spawning gravels in the  
22 section below the county road?  
23 A I believe he did.  
24 Q Let's look at the number of young-of-the-year. In  
0196

01 1987, there were 9,000 young-of-the-year estimated in  
02 Segments 1 through 3-B of Lee Vining Creek; is that  
03 correct, Dr. Mesick?

04 A That's approximately correct, 9,007.

05 Q 9,007. And then in 1988, there were 8,676  
06 young-of-the-year estimated in Lee Vining Creek.

07 A That's correct.

08 Q And then in 1992, there were 2,583  
09 young-of-the-year estimated in Lee Vining Creek; is  
10 that correct?

11 A You're reading from the uncorrected testimony.

12 Q That's correct. I thought I told you at the  
13 beginning I was reading from the original four --  
14 okay. I've got a corrected version now.

15 The corrected version of Table 7 shows that in the  
16 fall of 1992, there were 2,308 young-of-the-year in Lee  
17 Vining Creek; is that right?

18 A That's correct.

19 Q Okay. Now, I've got a corrected version of the  
20 table. When did Mr. Trihey place spawning gravel in  
21 Lee Vining Creek?

22 A The late summer of 1991.

23 Q So we have one year of data since Mr. Trihey  
24 placed spawning gravel in Lee Vining Creek?

25 A That's correct.

0197

01 Q And from that one year of data, you concluded that  
02 the placement of spawning gravel in Lee Vining Creek  
03 was successful?

04 A Yes, by looking at the trends over time.

05 Q Now, looking at the trends over time, isn't it  
06 correct, Dr. Mesick, before Mr. Trihey placed spawning  
07 gravel in Lee Vining Creek, the data that's reflected  
08 in Table 7 shows that there were more young-of-the-year  
09 in Lee Vining Creek than after Mr. Trihey placed  
10 spawning gravels in Lee Vining Creek?

11 A Well, if you simply look at the numbers of  
12 young-of-the-year, that is correct, but if you look at  
13 the numbers of Age One fish, you can see that they've  
14 been reduced dramatically since after 1990. And that  
15 is because the surveys that I did show that there were  
16 ample gravels in the stream prior to that May 1990  
17 event and immediately after that, the production of Age  
18 One fish decreased dramatically, went from between 1100  
19 to 3,000 to less than 65 for three years in a row.

20 Q Now, you indicated that there was a major event in  
21 the fall of -- excuse me, May 1990, that resulted in  
22 an increase, a fluctuation in flows, an almost  
23 instantaneous fluctuation from near zero cfs to  
24 approximately 100 cfs; is that right?

25 A Thereabouts. I'm not sure of the upper limit, but

0198

01 I know it was quite high.

02 Q And it's correct, isn't it, that that immediate  
03 fluctuation in flows washed a lot of the fish out of  
04 the stream?

05 A That's correct.

06 Q Now, isn't it possible, Dr. Mesick, that it was  
07 that immediate fluctuation in flows that resulted in  
08 the decreased number of young-of-the-year and Age One

09 fish after 1990?

10 A Could you repeat that again, please?

11 Q Yes. Isn't it right, Dr. Mesick, that it was that  
12 almost instantaneous increase in flows in May 1990 that  
13 decreased the number of Age One class fish in 1991,  
14 1992, 1993?

15 A Well, certainly that was part of it because it  
16 reduced the numbers of adult-sized fish, but on the  
17 other hand, physical inspections of the stream shows  
18 that the gravel had since disappeared from Segment 1,  
19 and Segment 1 was where most of the reproduction had  
20 been occurring.

21 Q Now, we've heard testimony from Dr. Stine that  
22 Segment 1 of Lee Vining Creek has remained  
23 substantially unaffected as a result of diversions by  
24 the Department of Water and Power; is that correct?

25 A I don't know exactly what Dr. Stine's testimony  
0199 was.

02 Q If Dr. Stine had testified that Segment 1 of Lee  
03 Vining Creek had remained essentially unimpaired, that  
04 the riparian corridor in Segment 1 of Lee Vining Creek  
05 had remained essentially unimpaired as a result of  
06 diversions by the Department of Water and Power, would  
07 you agree with that opinion?

08 A Yes, I would.

09 Q Now, Mr. Trihey placed spawning gravel in Segment  
10 1 of Lee Vining Creek in 1990; is that correct?

11 A 1991.

12 Q 1991. And since 1991, I think you've said that  
13 the fish in Segment 1 of Lee Vining Creek are not  
14 recovering.

15 A That's correct.

16 HEARING OFFICER DEL PIERO: Excuse me,  
17 Mr. Birmingham. Why?

18 DR. MESICK: Well, again, with the lack of  
19 spawning gravel, there's been no reproduction to  
20 produce new fish. If you look at Table 8 on Page 39 of  
21 my written testimony, it shows the numbers of fish in  
22 Segment 1, and since 1990, there have been very few  
23 fish compared to what was there prior to 1989 and  
24 earlier. So for one thing, we have very few adult  
25 fish, and then there's no spawning habitat for them to

0200 utilize and produce young the next year.

02 And then we still have a problem with habitat  
03 being degraded by lack of woody debris. The upstream  
04 diversion dam traps the debris and prevents it from  
05 being recruited into Segment 1, and so we have slightly  
06 less complex habitat and less refuge for the fish  
07 during flood flows. So we've got low survival of the  
08 young that are produced. There's very few young being  
09 produced and very few adult fish to produce the young.  
10 So those three things in combination are keeping the  
11 population low.

12 MR. BIRMINGHAM: May I ask that that be repeated?  
13 Repeated?

14 (Whereupon the record was read as requested.)

15 HEARING OFFICER DEL PIERO: Thank you.

16 Excuse me, Mr. Birmingham, one question. On that



17 chart on Page 39, you've got two categories, 1-SP,  
18 1-FA. and 92-SP and FA. What do those refer to?  
19 DR. MESICK: The SP are spring and the FA are  
20 fall. And you would only expect to have  
21 young-of-the-year in the fall samples, so when there's  
22 an NA, they weren't present.  
23 HEARING OFFICER DEL PIERO: Thank you. I'm sorry,  
24 Mr. Birmingham.  
25 Q BY MR. BIRMINGHAM: I want to go back and ask you  
0201  
01 about some things you just said because it fascinates  
02 me, Dr. Mesick. And maybe it doesn't fascinate anybody  
03 else, but after we ran back up the stream with  
04 Judge Finney to look at what's been designated the  
05 Birmingham Pool, I know there are a lot of things that  
06 fascinate me that don't fascinate other people, but I  
07 wanted to ask you a few things.  
08 You just said that there was a lack of spawning  
09 gravel in Segment 1 of Rush Creek or Lee Vining Creek;  
10 is that right?  
11 A BY DR. MESICK: That's correct.  
12 Q But in 1991, Mr. Trihey put spawning gravel into  
13 Segment 1 of Lee Vining Creek.  
14 A That's correct, but it was flushed from the  
15 segment during the high flows that occurred in the  
16 summer of 1992.  
17 Q That's something you hadn't mentioned yet.  
18 A Excuse me. Last year.  
19 Q The summer of 1993.  
20 A Correct.  
21 Q So last summer there were high flows that flushed  
22 the spawning gravel out?  
23 A That's correct.  
24 Q Now, you've said that in Segment 1, there was a  
25 lack of woody debris. That was a limiting factor. Is  
0202  
01 that your testimony?  
02 A That's correct because when I began my studies in  
03 1986, there was more woody debris than there is now.  
04 Q In 1986, there was more woody debris than there is  
05 now. And so you would think that it would be  
06 counterproductive to go out there and take woody debris  
07 out of the stream, wouldn't you, Dr. Mesick?  
08 A It depends.  
09 Q Well, isn't it right that if the presence of woody  
10 debris in Segment 1 of Lee Vining Creek is a limiting  
11 factor, that generally, it would not be a good idea to  
12 take woody debris out of  
13 Segment 1 Lee Vining Creek?  
14 A That is true unless it forms a complete dam across  
15 the stream. If it blocks the flow such that the stream  
16 will jump the channel and form a new channel, that is  
17 not helpful. It should be removed.  
18 Q And except in those limited circumstances that you  
19 just described, you think that it would retard the  
20 restoration of the fishery to go out and take woody  
21 debris out of the stream in Segment 1 of Lee Vining  
22 Creek except in those circumstances that you just  
23 described?  
24 A Yes.

25 Q Now, I'm going to ask you a hypothetical question,  
0203

01 Dr. Mesick. I'm going to ask you to assume, and  
02 unfortunately I don't have the report here in front of  
03 me, so I can't show it to you to ask you, but I'm going  
04 to ask you to assume that in 1990, Mr. Trihey went out  
05 to Lee Vining Creek and took woody debris out of  
06 Segment 1 of Lee Vining Creek in a place where the  
07 woody debris did not completely block up the channel so  
08 that it would cause the channel to jump its banks.  
09 Now, I'm going to ask you just to assume that that's  
10 true.

11 In your opinion, that retarded the restoration of  
12 the fishery in that portion of Lee Vining Creek, didn't  
13 it?

14 A Well, it certainly would have retarded the natural  
15 recovery of the stream. I don't know what Mr. Trihey  
16 did in its place.

17 Q Now, you've talked in your testimony about the  
18 success of the pools, the deep pools that were placed  
19 in Rush Creek by Mr. Trihey back in 1990. Is that  
20 correct?

21 A That was in 1991.

22 Q 1991. I've got to keep these years straight.  
23 1991 was the first year of restoration; is that right,  
24 Dr. Mesick?

25 A Yes. In September, I believe.

0204

01 Q Now, you talk about the success of these pools  
02 that were put in Rush Creek in 1991, and part of the  
03 basis of your opinion is the observation of large fish  
04 in those pools; is that correct?

05 A That's part of the basis of my opinion.

06 Q Okay. What is the other basis of your opinion?

07 A By looking at the growth rates of the smaller  
08 fish, in particular the young-of-the-year that would  
09 migrate into these pools, they were larger than  
10 young-of-the-year in the untreated sites, and that also  
11 held true for one-year-olds and the two-year-olds, all  
12 ages of fish. They all were slightly larger in the  
13 pools than they were in the untreated sections. So  
14 considering that we had large fish in these pools after  
15 one season, you would assume that there would be a  
16 cumulative effect as each age class grew at a higher  
17 rate over time.

18 Q Now, we were involved in a very long debate on  
19 monitoring in the El Dorado County Superior Court; is  
20 that correct?

21 A That's correct.

22 HEARING OFFICER DEL PIERO: This debate took place  
23 during cross-examination.

24 MR. BIRMINGHAM: This debate went on for months,  
25 not Dr. Mesick and I, but all of the parties in this

0205

01 room, or virtually all of them. I don't think the  
02 State Lands was there, but virtually everyone else was.

03 HEARING OFFICER DEL PIERO: Gee, just imagine what  
04 a great time you folks missed.

05 MS. SCOONOVER: Damn.

06 MR. BIRMINGHAM: No. It was not a great time.

07 Q BY MR. BIRMINGHAM: But as I recall from what I heard  
08 then, the study during which this data were collected  
09 on the growth rate of the larger fish in these pools,  
10 that data was collected by electrofishing the pools; is  
11 that right, Dr. Mesick?

12 A BY DR. MESICK: That's correct.

13 Q Now, when you electrofish Rush Creek, it's  
14 correct, isn't it, that the flow in Rush Creek is  
15 reduced -- let me ask specifically so I don't get an  
16 objection.

17 In the spring of 19 -- in the spring and fall of  
18 1992, you fished Rush Creek; is that right?

19 A That's correct.

20 Q Electrofished Rush Creek.

21 A That's correct.

22 Q And in the spring of 1992 and in the fall of 1992,  
23 in order to electrofish Rush Creek, it was necessary  
24 that the flows in Rush Creek be reduced.

25 A It was a matter of degree. I think one of those  
0206 periods was reduced more than during the other.

02 Q And in the period when it was reduced more for the  
03 electrofishing than the other, it was because flows had  
04 already been reduced to permit construction in Rush  
05 Creek. Is that right? Actually, I don't think that is  
06 right. I'm thinking of Lee Vining Creek,  
07 Dr. Mesick, so I'll withdraw that question.

08 But looking at Rush Creek, when the flows were  
09 reduced to permit electrofishing, isn't it correct that  
10 some fish that would have occupied other portions of  
11 the stream moved into the pools because of the reduced  
12 flows?

13 A I don't see where that would have been the case.  
14 I mean, the fish were there and about the same size and  
15 abundance as they were during 19 cfs releases. If they  
16 stayed within, you know, the different areas of the  
17 habitat, I don't see why there would have been any  
18 reason for them to have to move.

19 MR. BIRMINGHAM: Could I ask that that be reread?  
20 (Whereupon the record was read as requested.)

21 HEARING OFFICER DEL PIERO: Excuse me. After  
22 having heard the answer, it was nonresponsive to the  
23 question.

24 Do you want an answer to the question you asked,  
25 Mr. Birmingham?

0207  
01 MR. DODGE: Mr. Chairman, I think the answer was  
02 responsive.

03 HEARING OFFICER DEL PIERO: I don't think so,  
04 because he asked whether or not -- well, Mrs. Anglin,  
05 would you be kind enough to read the question back.

06 (Whereupon the record was read as requested.)

07 HEARING OFFICER DEL PIERO: The question elicited  
08 a response either they did or they did not.

09 MR. DODGE: And the answer was no.

10 HEARING OFFICER DEL PIERO: The answer was he  
11 didn't know.

12 Q BY MR. BIRMINGHAM: It's correct, Dr. Mesick, that in  
13 response to the question that Ms. Anglin just read to  
14 us, you don't know the answer to that question

15 definitively?

17 definitively.

18 Q And you said something -- in the response you gave

20 curiosity again. You said, "During 19 cfs releases,"

21 and when you said "during 19 cfs releases," you meant

23 Superior Court ordered the increased flows. Isn't that

24 what you meant when you said "during 19 cfs releases"?

0208

01 Q Now, we had a discussion during the monitoring

03 That discussion went on for months as well; is that

04 right?

06 Q Now, the fact -- when you conduct a survey to

07 determine the distribution of fish in a stream by

09 that you do it by electrofishing may be a confounding

10 factor? Is that right, Dr. Mesick?

12 Q Not necessarily, but it may be, isn't that right?

13 A Depends on the methods that you use, and I don't

15 Mr. Trihey caused the fish to redistribute.

16 MR. BIRMINGHAM: May I take just a moment,

18 I have no further questions of Dr. Mesick at this

19 time.

21 Mr. Birmingham.

22 Ms. Cahill?

24 Q Good afternoon, Dr. Mesick.

25 A BY DR. MESICK: Good afternoon.

01 Q When you gave your summary of the comparison

02 between the historic and the current conditions on Rush

04 the Rush Creek bottom lands was the existence of more

05 large fish pre-diversion than there are now?

07 Q You have indicated, I believe, that habitat

08 complexity is simpler now on Rush Creek than it was

10 A I believe so.

11 Q And you recommend, I believe, that habitat

13 that right?

14 A That's correct.

16 Creek trout to better withstand winter flows closer to

17 the natural winter flows?

19 Q And let me ask the same questions on Lee Vining.

20 On Lee Vining Creek, is there a lower level of habitat

22 A Yes, I believe so.

23 Q And you recommend restoration measures that would  
24 increase habitat complexity on Lee Vining?  
25 A That's correct.

0210  
01 Q And if you had increased habitat complexity, would  
02 the fish on Lee Vining be better able to withstand  
03 flows close to the natural level of inflow?  
04 A That's correct.  
05 Q And one of the types of restoration measures then  
06 would be the creation of what we would call winter  
07 refugia; is that right?  
08 A That's correct.  
09 Q And you would recommend the creation of some  
10 winter refugia?  
11 A Yes, I would.  
12 Q And you're also recommending the creation of some  
13 high-flow refugia?  
14 A That's correct.  
15 Q You have indicated in your testimony that the  
16 basic elements that comprise fish habitat include  
17 channel geometry, riparian vegetation, bordering  
18 wetlands, stream bed substrate, and stream flow. Are  
19 water temperature and food also basic elements?  
20 A Yes, they are.  
21 Q And are these factors some of the basic components  
22 that are needed to develop and maintain a healthy  
23 ecosystem in a stream?  
24 A Yes, they are.  
25 Q And those are some of the factors that when they  
0211  
01 are positive, would allow a stream to attain its  
02 biological potential?  
03 A They are some of the factors, yes.  
04 Q Are there others that come to your mind as you sit  
05 here?  
06 A Well, those are the primary ones.  
07 Q Some of the factors that you have listed as  
08 limiting factors, are those aspects of habitat?  
09 A I believe they all are aspects of the habitat.  
10 Q You answered a question regarding flows of 20 cfs  
11 in Rush Creek. Were you assuming when you answered  
12 that question that flows would be at 20 cfs both winter  
13 and summer?  
14 A I don't recall the original question.  
15 Q Perhaps Miss Kelsey could find that. It was a  
16 question by Mr. Birmingham who asked whether you  
17 believe that a flow of 20 cfs would maintain fish in  
18 good condition.  
19 MR. DODGE: I can help. He said, "Yes, given the  
20 greatest conditions."  
21 Q BY MS. CAHILL: In fact, I believe you said  
22 considering the existing conditions existing in the  
23 stream.  
24 HEARING OFFICER DEL PIERO: Do you need her to  
25 find it, then?

0212  
01 MS. CAHILL: Do you recall that?  
02 DR. MESICK: Yes. And I would say that when I  
03 said "20 cfs," I was referring to year-round stream  
04 flows.

05 MS. CAHILL: I don't need it, then. Thank you  
06 anyway.

07 Q BY MS. CAHILL: And your answer basically was  
08 qualified by the fact that you were taking into account  
09 existing conditions on the stream; is that right?

10 A BY DR. MESICK: That's true. And also, maybe it  
11 would be helpful to define "keeping fish in good  
12 condition." It simply means keeping them alive but not  
13 restoring the pre-1941 conditions.

14 Q Do you believe that a year-round 20 cfs flow would  
15 restore the pre-diversion conditions?

16 A No, I do not.

17 Q And if the habitat were able to be restored, then  
18 would the stream be able to accommodate flows that were  
19 closer to the natural flow levels?

20 A Yes, I do.

21 Q And if we had restoration and flows closer to the  
22 natural flow levels, then would you expect to get  
23 closer to recovery of the pre-41 fish populations?

24 MR. BIRMINGHAM: Excuse me. I'm going to object  
25 on the grounds that this question is -- actually,  
0213

01 excuse me. Well, go ahead. I beg your pardon.

02 HEARING OFFICER DEL PIERO: Excuse me. Doctor, do  
03 you understand the question?

04 DR. MESICK: I would like to have it repeated,  
05 first.

06 (Whereupon the record was read as requested.)

07 DR. MESICK: If you mean by "restoration"  
08 restoring all the features that I've discussed in my  
09 summary on the habitat complexity of the gravels and  
10 all the other features, I'd say yes.

11 Q BY MS. CAHILL: Thank you.

12 Do brown trout like deep water?

13 A BY DR. MESICK: Yes, they do.

14 Q And is more deep water available at flows greater  
15 than 20 cfs than is available at 20 cfs in Rush Creek?

16 A In some areas, it gets quite a bit deeper with  
17 higher flows, but in other areas, it mainly gets faster  
18 because of the lack of complexity.

19 Q But, in fact, even where it is getting faster,  
20 it's also getting somewhat deeper?

21 A Somewhat deeper.

22 Q But there are some pool areas where it gets deeper  
23 without involving excessive velocities; is that right?

24 A That's correct.

25 Q Do you have any explanation for what generated  
0214

01 such a large 1987 young-of-the-year class on Rush  
02 Creek?

03 A I do. I believe that the high flows that occurred  
04 during the summer of 1986, which ranged up to 350 cfs  
05 and probably averaged about 250 cfs for five months  
06 straight, caused the stream channel to change its  
07 location in some areas, and that excavated or produced  
08 an additional supply of gravel that accumulated within  
09 the side channels of the stream, and then the fish were  
10 able to spawn there. So it increased the availability  
11 of gravel for the fall of 1986, the fish spawned and  
12 the young were produced in the summer of 1987.

13 Q So in other words, abundant gravel led to abundant  
14 young-of-the-year?  
15 A That's correct.  
16 Q With regard to the Lee Vining gravel placement and  
17 movement, if the Los Angeles diversion dam were not on  
18 Lee Vining Creek, would you expect additional gravels  
19 to come into Segment 1 from upstream?  
20 A Yes, I would.  
21 Q Do you believe that there is a potential  
22 temperature problem in Lower Rush Creek at flows of  
23 approximately 20 cfs?  
24 A Yes, I do. In particular during drought years.  
25 I'm not sure about normal water years or wet years, but  
0215  
01 when air temperatures and amount of snow pack is low, I  
02 believe that it is a problem.  
03 MS. CAHILL: Give me just a moment.  
04 I think that's all the questions I have. Thank  
05 you.  
06 HEARING OFFICER DEL PIERO: Thank you very much,  
07 Ms. Cahill.  
08 Ms. Scoonover?  
09 MS. SCOONOVER: I have no questions of this  
10 witness.  
11 HEARING OFFICER DEL PIERO: Mr. Gipsman, are you  
12 still here? He's departed.  
13 Mr. Frink?  
14 MR. FRINK: Yes, I do have some questions.  
15 HEARING OFFICER DEL PIERO: I've not missed  
16 anyone, have I? Good. Mr. Frink.  
17 MR. FRINK: Thank you.  
18 CROSS-EXAMINATION BY THE STAFF  
19 Q Yes. Dr. Mesick, you stated that the Mono ditch  
20 is about twice as long as the pre-diversion channel was  
21 that composed Reach One of Rush Creek and that it  
22 provides excellent fish habitat; is that correct?  
23 A BY DR. MESICK: That's correct.  
24 Q On the basis of what you know about pre-diversion  
25 conditions, do you believe that the fishery habitat  
0216  
01 provided by the Mono ditch equals the habitat that was  
02 present in Segment 1 of Rush Creek prior to 1941?  
03 A It's difficult to say --  
04 MR. BIRMINGHAM: Excuse me, I'm going to object on  
05 the grounds of lack of foundation. I believe it was  
06 Dr. Mesick's testimony that they have no data  
07 concerning the condition of the Segment 1 prior to  
08 diversions by --  
09 MR. DODGE: I don't know what Counsel means by  
10 "data," but he also testified as to certain  
11 observations that he made about historical channels.  
12 HEARING OFFICER DEL PIERO: I'm going to overrule  
13 the objection. In fact, the witness did testify as to  
14 information about the historical channel, albeit not  
15 particularly detailed. The way Mr. Frink phrased his  
16 question, he asked with the caveat "given what you  
17 know," and so I'm expecting the answer with that in  
18 mind.  
19 Do you understand the question, Sir?  
20 DR. MESICK: Yes, I do

21 HEARING OFFICER DEL PIERO: Would you please

23 DR. MESICK: That's the hard part. It's  
24 different. Some areas are better. Some areas are

0217

01 now consists of a completely different nature than it

03 as it was prior to 1941. There's more habitat, and  
04 there could be more fish, but I believe that that

06 was probably good year-round and therefore, maybe even  
07 though it was shorter habitat, the fishery was actually

09 that in my opinion, they were probably similar.

10 Q BY MR. FRINK: In what respect does the habitat in

12 A BY DR. MESICK: The presence of cover, it's only  
13 provided currently by the existence of aquatic plants

15 virtually nonexistent during the winter. There is some  
16 cover provided by riparian vegetation along the banks,

18 removes it to maintain conveyance in the channel. So  
19 some years it's there, and other years it's not. But

21 maturity, so it doesn't really provide a significant  
22 amount of cover throughout the entire segment.

24 that are there only during late summer and through the  
25 fall.

01 Q If the riparian vegetation along Mono ditch were  
02 allowed to remain in place, do you believe that Mono

04 than existed in Segment 1 of Rush Creek prior to the  
05 diversions?

07 Q I believe you stated that channel widening and  
08 erosion have been a problem on Rush Creek. Have

10 Vining Creek?

11 A I have noticed some portions of Segment 1 of Lee

13 mid 1980s, but I would say it's no more than 10 percent  
14 increase in width. I have not noticed any channel

16 Segment 3 was already as wide as it was about to get  
17 as a result of the 1960 floods. But channel widening

19 of Lee Vining.

20 Q In recent years, then, the majority of the problem

22 correct?

23 A That's correct.

25 by using -- excuse me. I have to clear my throat -- by  
0219

02 A I don't believe so. It's still the magnitude of



03 the flow and the duration of the flow that's  
04 important. The channel lacks bottom roughness that  
05 would slow the flow of water and reduce the  
06 velocities. So even though if you increase it slowly,  
07 it's the final magnitude that's important.

08 Q Okay. You testified that one of your  
09 recommendations for stream restoration on Rush Creek  
10 would be to narrow the channels which have been  
11 widened. How would you recommend the channels be  
12 narrowed?

13 A There are two ways of doing it, I imagine. One  
14 would be to simply excavate the material in the channel  
15 and deposit it along the banks, making it deeper in the  
16 center and, you know, piling substrate on the stream  
17 banks that narrow the channel.

18 The other way would be to simply bring in material  
19 and add it to the stream banks and, therefore, narrow  
20 the channel.

21 Q How long of a stream section are you concerned  
22 about having problems resulting from channel widening  
23 on Rush Creek?

24 A Well, in most cases, the channel widening is  
25 occurring where the floods that occurred in the 1960s  
0220

01 have changed the location of the stream, and therefore,  
02 the riparian vegetation is very weak. And you can see  
03 by looking at the map in the areas where the stream  
04 channels change, and now there's a dotted line  
05 representing the existing channel, whereas the  
06 historical channel is a solid black line. So in those  
07 areas of the stream where it's changed, those are the  
08 problem areas, and it appears to be about half of the  
09 stream.

10 Q I believe that we heard some testimony from  
11 Dr. Stine earlier in the hearing about the possibility  
12 of the channel narrowing down eventually as a result of  
13 vegetation. Do you not believe that that would occur?

14 A Well, the vegetation, itself, does not narrow the  
15 channel. The vegetation traps fine sediment that's  
16 being transported down the stream, and if the upstream  
17 reservoirs collect all the fine sediment, there's  
18 nothing to narrow the channels with. So I really don't  
19 see how that process is going to occur, or if it's  
20 going to occur, it's going to be an extremely long  
21 period of time.

22 Q Now, if there is erosion in an immediately  
23 upstream area as a result of a degraded channel  
24 condition, wouldn't that erosion provide some of the  
25 fine material that could collect in the vegetation  
0221

01 along the edge of the channels?  
02 A Well, the problem with that occurring is we're  
03 assuming that in that case, one area of the stream is  
04 going to continue to degrade while another area  
05 improves. And if one area's going to improve, it's  
06 because the riparian is beginning to recover and  
07 stabilize the banks. And if it happens in one  
08 location, it should be happening throughout the stream.  
09 So if we're stabilizing the stream banks, there will be  
10 less erosion in the future, so there will be less of a

11 sediment source from the existing channel. And we need  
12 to depend on sediment from upstream areas above the  
13 reservoirs.

14 Q The last paragraph on Page 22 of your written  
15 statement states, and I quote, since the fall of 1989,  
16 stream flows under the judicial orders in the Mono Lake  
17 case has increased 100 to 110 cfs during the first  
18 year, channel maintenance flows of 160 cfs were set for  
19 two-week periods during summers, and stream flows were  
20 resumed in Walker and Parker Creeks. These changes  
21 resulted in further widening and smoothing of the  
22 stream channels and also flushed much of the spawning  
23 gravel from the streams, end of quote.

24 In view of the problems that you mentioned  
25 regarding widening and smoothing of the stream channel,  
0222

01 do you believe that it would be advisable to provide  
02 channel maintenance flows of the order of 160 cfs in  
03 future years?

04 A It's my opinion that the two weeks of 160 cfs had  
05 much less of an effect than 12 months of 100 cfs. I  
06 don't feel that channel maintenance flows are having  
07 that much of a detrimental effect. However, I believe  
08 it's important to monitor because I don't think anyone  
09 can predict the effects of the channel maintenance  
10 flows. It won't necessarily help the recovery of the  
11 stream. It might, but it might not. It all depends on  
12 the recovery of the riparian vegetation and then  
13 recruitment of woody debris to the stream channel.

14 Q Would you suggest reducing both the channel  
15 maintenance flows for the period of two weeks as well  
16 as the flows during the rest of the year in order to  
17 maintain channel stability?

18 A If no restoration work is done to increase the  
19 channel complexity, I would say so. It would be best  
20 to wait until the riparian vegetation has been  
21 reestablished before high flows are released in the  
22 stream.

23 However, if channel complexity has been increased,  
24 either through restoration or recovery of the riparian  
25 vegetation, then high flows should have no damaging

0223  
01 effects and I believe that they would have a beneficial  
02 effect towards recovery of the fishery.

03 Q Do you have an opinion as to how long it would be  
04 before the type of channel complexity that you desire  
05 could be achieved?

06 A Well, the riparian vegetation would have to become  
07 large enough to stabilize the banks, and then also for  
08 the riparian vegetation to be large enough that some of  
09 it, you know, as it dies due to natural senescence, it  
10 falls over into the stream and provides woody debris.  
11 Those are important features that probably would take,  
12 I would say -- I'm not an expert on riparian  
13 vegetation, but from my observations, I would say at  
14 least 30 years and perhaps as long as 100 years. I  
15 don't know.

16 But the third part that's key to this is the  
17 supply of the sediment from upstream. And it would be  
18 difficult to totally recover the channel complexity

19 until there's some supply of sediment has been  
20 reestablished.

21 Q If you were to undertake artificial stream  
22 restoration measures, would that greatly reduce the  
23 period of time you're speaking of?

24 A Yes, it would.

25 Q Do you have an idea as to how long would be  
0224

01 required under the sort of restoration measures that  
02 you've recommended in your testimony?

03 A Well, based on the observations that I made in Lee  
04 Vining Creek, there was extensive restoration done in  
05 Segment 3 of Lee Vining Creek, and then high flows were  
06 released -- they weren't extremely high, but I believe  
07 in the vicinity of maybe a little over 150 cfs during  
08 the summer of 1993.

09 And I think high flows were also released in some  
10 areas during the summer of 1992, and there was very  
11 little degradation of this habitat. Apparently, there  
12 was enough channel complexity that it reduced the  
13 velocities near the bottom, and there was very little  
14 incision or channel widening going on in these areas.  
15 In fact, there was very little sediment transport at  
16 all, so the stream bed started to become stable.

17 So it's possible that with reestablishing riparian  
18 vegetation in the areas where it's not growing at this  
19 time and that by doing the work in the channel to  
20 increase the complexity, I would say it would recover  
21 fairly quickly and could withstand high flows without  
22 any problem at all maybe within less than five years.

23 Q Have you reviewed the stream evaluation reports  
24 prepared for the Department of Fish and Game for Rush  
25 Creek and Lee Vining Creek?

0225  
01 A The report for Rush Creek prepared by Beak and --  
02 Q Yes.

03 A I have reviewed preliminary drafts but not the  
04 final draft, so probably most of it I'm familiar with.

05 Q And how about the stream evaluation report for Lee  
06 Vining Creek?

07 A A preliminary draft.

08 Q Have you reviewed the flow recommendations that  
09 the Department of Fish and Game has made for Rush Creek  
10 and Lee Vining Creek in this hearing?

11 A I'm most familiar with those for Rush Creek. I  
12 haven't thoroughly reviewed those for Lee Vining Creek.

13 Q As a biologist, are you familiar with the IFIM  
14 instream flow study analysis that was used in the  
15 reports?

16 A Yes, I am.

17 Q Is it your understanding that a major factor used  
18 in making the DFG flow recommendations was the amount  
19 of weighted usable area present at differing flow rates  
20 in each of the two streams?

21 MR. DODGE: Objection. Lacks foundation.

22 HEARING OFFICER DEL PIERO: Sustained. You go  
23 ahead and -- ask foundational questions.

24 MR. BIRMINGHAM: Excuse me. I'm sorry. May I ask  
25 that the question be reread because I think Mr. Frink

0226

01 started the question by asking did he know? I may be

03 MR. FRINK: Okay. I know -- I've actually got the  
04 question written down. I could reread it.

06 Q BY MR. FRINK: Is it your understanding that a major  
07 factor used in making the DFG flow recommendations was

09 rates for Rush Creek and Lee Vining Creek?

10 HEARING OFFICER DEL PIERO: I'm going to change my

12 MR. DODGE: May I speak to the objection? He  
13 hasn't established that this witness knows why DFG is

15 HEARING OFFICER DEL PIERO: No, he's not. He's  
16 asked whether or not he knows one element of it.

18 HEARING OFFICER DEL PIERO: This -- you need to  
19 qualify it from the standpoint of whether or not -- I'm

21 If it is, then you need to qualify it. You need to be  
22 able to not run into the problem that's being addressed

24 Q BY MR. FRINK: I believe, Dr. Mesick, you stated that  
25 you had reviewed the preliminary report on Rush Creek

01 is that correct?

02 A BY DR. MESICK: That's correct.

04 preliminary or the final report on Lee Vining Creek?

05 A The preliminary report on Lee Vining Creek.

07 it your opinion that the flow recommendations that were  
08 made, at least in the preliminary reports, were based

10 A That was used. I don't believe it was the only  
11 component that was used for the recommendation, but it

13 Q And in using the IFIM study methodology, is a  
14 major factor in making flow recommendations the amount

16 rates?

17 A Yes, it's a major factor.

19 and the absence of riparian vegetation on Rush and Lee  
20 Vining Creeks. Do you believe that channel erosion and

22 recommending lower instream flows than would ordinarily  
23 be recommended if one were to apply the IFIM study

25 A If you were dealing with only the existing channel  
0228

02 done, those would be considerations to make sure the  
03 erosion wasn't occurring and channel widening was not

05 Q Until the restoration work that you have suggested  
06 in your testimony is undertaken, do you have an opinion

08 Department of Fish and Game should be revised due to

09 the concerns you've mentioned about channel erosion or  
10 channel stability?

11 MS. CAHILL: Objection. Ambiguous as to which  
12 flows. Which periods of the year.

13 HEARING OFFICER DEL PIERO: Sustained. You need  
14 to specify which flows.

15 Q BY MR. FRINK: Not having the DFG flow  
16 recommendations in front of me right now, this is going  
17 to be a little more difficult.

18 Do you have a concern about the flow  
19 recommendations of the Department of Fish and Game for  
20 Rush Creek during any months of the year in view of the  
21 concerns you've stated about channel erosion or channel  
22 stability?

23 A BY DR. MESICK: Of the flow recommendations that I  
24 saw, they were all within the range that I believe  
25 probably will not cause problems. However, they're

0229

01 also in the range where maybe monitoring should be  
02 conducted to make sure that problems aren't being  
03 caused. They're in the gray area. I don't think that  
04 they're automatically going to cause a problem.

05 The highest flows are only for a relatively brief  
06 period during the summer period, and I don't think that  
07 they're high enough or of sufficient duration to cause  
08 a lot of damage. But there also should be caution used  
09 and monitoring of the stream channels should be  
10 conducted.

11 Q In your experience as a fishery biologist, are you  
12 familiar with any instances in which the IFIM study  
13 methodology has been applied to determine the  
14 recommended flows to be provided for restoring the  
15 fishery in a stream channel that has been severely  
16 degraded?

17 A Not that I'm aware of, no. Not that I can  
18 remember.

19 Q Do you believe, then, that the condition of the  
20 channel in a degrade -- strike that. In the case of a  
21 stream channel that has been severely degraded, do you  
22 believe that the existing condition of the channel  
23 should be carefully considered in evaluating the  
24 instream flow recommendations of an IFIM study?

25 MR. DODGE: Objection. Ambiguous.

0230

01 HEARING OFFICER DEL PIERO: You want to expand on  
02 that?

03 MR. DODGE: It's just that I listened to the  
04 question, and I have no idea what a yes or a no would  
05 mean. I couldn't understand the question.

06 HEARING OFFICER DEL PIERO: Mrs. Anglin, would you  
07 be kind enough to read it back?

08 (Whereupon the record was read as requested.)

09 HEARING OFFICER DEL PIERO: Sustained. You need  
10 to restate that question.

11 Q BY MR. FRINK: You testified that in your experience  
12 as a biologist, fisheries biologist, that you could not  
13 recall an instance in which an IFIM study had been used  
14 to recommend instream flow rates for the protection of  
15 fish. In the case of Rush Creek and Lee Vining Creek,  
16 I believe you also have testified that the channel

18 pre-diversion conditions of those channels; is that  
19 correct?

21 that question you asked if I had any recollection of  
22 IFIM studies where flows have been recommended for

24 order to protect the fishery.

25 Q Correct.

01 A In that case, yes. Most of the IFIM studies I'm  
02 familiar with are in relatively healthy channels. So,

04 in damaged channels.

05 Q Okay. And you testified that you believe that the

07 have been severely degraded as compared to the  
08 pre-diversion conditions; is that correct?

10 Q Do you believe that in applying the results of an  
11 IFIM study to a severely degraded stream channel, that

13 degraded condition of the channel?

14 MR. DODGE: Same objection.

16 Mr. Chairman

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

19 Do you understand the question, Sir?

20 DR. MESICK: Yes.

22 answer it?

23 DR. MESICK: Well, yes and no, because insofar as

25 that represents the damaged channel. So in some ways,  
0232

01 the IFIM is taking that into account. Yes, in some  
02 degree, you're taking that into account. But as far as  
03 the possibility of continuing damage to the habitat,  
04 no, it does not.

05 So special considerations need to be taken into  
06 account so that there isn't continued damage to the  
07 habitat, such as channel widening, flushing of the  
08 gravels, and channel incision, and events like that.  
09 So those need special consideration. But if you're  
10 simply using the IFIM in a straightforward manner, I  
11 think you've already taken into account the effects of  
12 the damaged channel on the fishery.

13 MR. FRINK: Okay. I appreciate that. I believe  
14 that's all my questions.

15 HEARING OFFICER DEL PIERO: Thank you very much.

16 Mr. Smith?

17 MR. SMITH: Yes. I have a couple of questions for  
18 Dr. Mesick.

19 Q BY MR. SMITH: There have been several suggestions  
20 that we should perhaps consider, we, the Board, should  
21 consider a bypass facility of some sort on Lee Vining.  
22 It sounds like, from your testimony, that you would  
23 consider something like that vital in your coordinated  
24 approach to restoration; is that correct?

25 A BY DR. MESICK: That's correct. But I have a  
0233

01 difficult time imagining how that would occur because  
02 with the diversion structure, there's a pond habitat  
03 above upstream of the diversion such that velocities  
04 are reduced and most of the larger sediment is going to  
05 be trapped by the lower velocity, and what will be  
06 bypassed are fine sediments. So if there's a way to  
07 transport all sizes of sediment, fines as well as also  
08 the gravels and the cobbles, the larger substrate, up  
09 to perhaps 12 inches in diameter through the system,  
10 yes, that would be very beneficial.

11 Q Are you aware of any attempts to do something like  
12 that, to create such a facility?

13 A I've never seen one. I've never seen an example  
14 of one.

15 Q Okay. We have also heard a lot of testimony about  
16 what rewatering the side channels all the way from just  
17 scraping it out with shovels all the way to going in  
18 with cats and digging out these large plugs. What is  
19 your expert opinion on something of that sort? Do you  
20 think it would do any good just to rewater those side  
21 channels and let them go, or do you think we would have  
22 to do some active work in these existing channels? I  
23 think you said something like that.

24 A Yes. I said that there are some areas where it's  
25 likely that active work would be necessary because the

0234  
01 stream channel has been degraded and is virtually  
02 eliminated in some areas. Perhaps sheep that were  
03 grazing in the area trampled the banks. They're  
04 weakened because the riparian vegetation is dead and  
05 the integrity of the channel has been lost. Those  
06 sections would have to be restored because if you  
07 release flow into it and the stream channel disappears,  
08 the water could flow in any direction and not  
09 necessarily go and continue down in the historical  
10 channel. So you would want to make sure that the water  
11 followed its original course. So there are some areas  
12 where work would be necessary.

13 But in the areas where the channel is in fairly  
14 intact shape, I would not do any work other than work  
15 to insure that the shape of the channel would be stable  
16 while water is passed through it initially, until the  
17 riparian vegetation can be reestablished.

18 Q And that leads me to my last question. You've  
19 been emphasizing the fact that during all this period  
20 of time, there needs to be some monitoring going on.  
21 Would you recommend that the Board set up a river  
22 keeper or someone of that sort? Are you familiar with  
23 that term, excuse me, first off?

24 A Not really.

25 Q Someone who would be actively monitoring the  
0235

01 restoration work, the temperature, the flow regime, the  
02 restoration in terms of how much, how little, and this  
03 kind of thing, coordinating all of that kind of work.  
04 Those kinds of general kinds of things. Would you  
05 recommend something like that?

06 A Certainly, the monitoring needs to be done and

07 should be done, in particular, in a concentrated effort  
08 after, you know, the flows have been optimized to make  
09 sure that there isn't continuing damage that everyone  
10 is unaware of and it costs far more money to restore  
11 the damage that's been done as a result of change,  
12 continuing stream flows, or doing other work. So  
13 whatever the form of this person or group or whoever  
14 monitors, yes. I think that monitoring is important.  
15 Q Your basic admonition to the Board, then, would be  
16 be careful.

17 A Yes.

18 MR. SMITH: Thank you.

19 HEARING OFFICER DEL PIERO: Mr. Herrera?

20 MR. HERRERA: I have no questions, Mr. Del Piero.

21 HEARING OFFICER DEL PIERO: Thank you very much.

22 Mr. Canaday? I'd be surprised if you didn't.

23 MR. CANADAY: Yes.

24 Q BY MR. CANADAY: Dr. Mesick, you talked about, in  
25 your earlier testimony, that you need to guard against  
0236

01 flood flows. And I think you were talking specifically  
02 in that time about Lee Vining Creek; was that correct?

03 A BY DR. MESICK: I think probably -- I probably would  
04 have meant both streams.

05 Q Both streams. Could you expand on that more so we  
06 understand what "guard against flood flows" means?

07 A If it would be possible to manage the reservoirs,  
08 the upstream reservoirs, such that rather than a high  
09 spike of flow, let's say, a thousand cfs could come  
10 down the stream, it would be better to release it over  
11 a long period of time by managing the upstream  
12 reservoirs, observing a heavy snow pack, anticipating a  
13 flood, and then making sure that the reservoirs are  
14 adequate to intercept the flow and spread the releases  
15 out over a longer period of time rather than a short  
16 duration where perhaps more damage would occur.

17 Q Are you familiar with the upstream storage  
18 capability on Lee Vining Creek?

19 A Fairly much, yes. It's quite small.

20 Q So do you believe that that ability to regulate  
21 potential flood flow events exists on the Upper Lee  
22 Vining Creek?

23 A Certainly, some type of agreement would have to be  
24 worked out with the Southern California Edison Company  
25 who controls the three or four reservoirs that are  
0237

01 upstream. I can't recall which.

02 Q Could the possibility of diverting additional  
03 flows from Lee Vining Creek and putting them into  
04 storage at Grant for later release, could that possibly  
05 be an alternative?

06 A It certainly could be an alternative.

07 Q You've discussed with various different  
08 questioners about population monitoring. What is your  
09 professional opinion that needs to be -- how often do  
10 we need to monitor fish populations on an annual basis  
11 in Rush Creek and Lee Vining Creek?

12 A It depends on -- on an annual basis?

13 Q How many times a year? Once or twice?

14 A Depends on what your goals are. If you want to



15 determine whether or not there are still factors that  
16 are preventing the recovery of the fishery, it's  
17 important to measure, I would say, twice, so you can  
18 separate the conditions from the winter and the  
19 conditions from the summer.

20 If you simply want to see if the fishery is  
21 responding and increasing over time, once would be  
22 adequate.

23 Q If you were going to sample twice a year under one  
24 scenario, you would sample in the springtime and the  
25 fall, correct?

0238

01 A Correct.

02 Q And then one time per year, you would sample in  
03 the fall?

04 A It depends on the stream, I would say, and it also  
05 depends on the goal, what information you want to  
06 collect. If you want to match it with the existing  
07 data, the majority of the data exists for spring in  
08 both streams.

09 However, if you want information on production of  
10 young-of-the-year, you should sample in the fall.

11 Q Getting back to monitoring, again, your testimony  
12 suggests that we should monitor the streams, at least  
13 until the riparian vegetation stabilizes and the  
14 channel margin stabilizes, certainly, the fishery  
15 response, the channel response itself, and the  
16 availability of spawning gravels in the streams at  
17 least in those three areas; is that correct?

18 A That's correct. I would also suggest that perhaps  
19 stream temperatures as well in Segments 4 and 5 of Rush  
20 Creek could potentially be a problem.

21 Q A continuous monitoring program?

22 A At least during the summers.

23 Q During the summers. And you believe that some  
24 sort of planting, I assume that's what you meant by  
25 "jump start." You used the words "jump start" riparian

0239

01 vegetation in some areas. You mean active planting of  
02 cuttings?

03 A That's the method that I'm most familiar with.

04 Q Okay. And you were also advocating in the  
05 short-term, meaning before some of the riparian  
06 vegetation stabilizes the bank subchannels, adding  
07 woody debris to recover?

08 A I would think that that would be one way to  
09 increase the channel complexity, and it would be a  
10 fairly natural means to do it.

11 Q Based on some of your -- I have a question on  
12 spawning gravels. Based on your testimony and some of  
13 the responses I've heard to the questions, is it your  
14 opinion that an ongoing gravel recruitment, or gravel  
15 placement in Rush and Lee Vining Creek is going to be  
16 necessary?

17 A Until the channel complexity has been restored,  
18 yes.

19 Q You're familiar with the EA Rush Creek study; is  
20 that correct? The IFIM study that was done on Rush  
21 Creek?

22 A I am familiar, primarily, with the collection of

23 data rather than the modeling.  
24 Q Your opinion, then, is -- are you familiar with  
25 the status of the stream at the time of the collection  
0240  
01 of that data? The stream complexity?  
02 A Yes.  
03 Q Is it your opinion that the complexity at the time  
04 the data was collected in the late 1980s was  
05 significantly different than in many sections of Rush  
06 Creek, different than it was pre-41?  
07 A Yes.  
08 Q And how is that different?  
09 A Well, that the gradient is higher in the stream  
10 channel. The channel is wider. It doesn't have the  
11 complexity, and that would set up a completely  
12 different distribution of velocities across the stream  
13 channel.  
14 Q And the data -- to your recollection, was the data  
15 collected over a range of flows?  
16 A Yes, it was.  
17 MR. CANADAY: It was? Thank you.  
18 That's all I have.  
19 HEARING OFFICER DEL PIERO: Thank you very much.  
20 I have a question. Actually I've got a couple of  
21 questions I think. They're all the same issue.  
22 CROSS-EXAMINATION BY THE BOARD  
23 Q BY HEARING OFFICER DEL PIERO: You indicated -- and I  
24 forget who asked the question -- that in order to  
25 restore or in order to restore the process for the  
0241  
01 deepening of channels -- and I think you were referring  
02 to Rush Creek at the time, and it may have  
03 applicability to Lee Vining, so you tell me if it does  
04 or does not -- there were various alternatives that you  
05 could use to attempt to deepen the channels for the  
06 restoration of pools. One was excavation of the center  
07 channel and deposition of the material excavated on the  
08 side of the streams.  
09 The other was to bring in material from some other  
10 location and deposit them along the stream banks.  
11 I've got a couple of questions for you -- and then  
12 you indicated a third, and you talked about sediment  
13 bypass from, I think that was in response to  
14 Mr. Smith's questions on Lee Vining.  
15 This is the question. If one were to excavate in  
16 the center, would one not have to replace that which  
17 was excavated with gravels in order to accommodate the  
18 need for spawning gravels? That's the first question.  
19 A BY DR. MESICK: Okay. First of all, I was primarily  
20 talking about Rush Creek.  
21 Q Okay. That's fine. If that's the case, then  
22 let's just talk about Rush Creek.  
23 A Okay. For Rush Creek, in the existing channel  
24 today, where Mr. Trihey has not placed gravels, there's  
25 very few gravels in the center of the main channel  
0242  
01 today. Most of been flushed out of the channel. There  
02 are gravels where this might be the case in, I believe,  
03 Segment 5 of Rush Creek. They're fairly abundant down  
04 there, but you would still have gravels left after you

05 excavate the center of the channel. I don't think that  
06 that would be a problem.

07 Q Okay. In those areas where the gravels don't  
08 exist, could you excavate the center channel?

09 A Yes.

10 Q And would you have to backfill, then, with  
11 gravels?

12 A Well, that would be --

13 Q Would you be down to -- would you be down to soil?  
14 Would you be down to bedrock? What would you be down  
15 to?

16 A I believe you'd be down to virtually the same as  
17 what you have now, fairly large rocks from six inches  
18 on up.

19 Q Okay.

20 A Depends on the segment -- most segments are --  
21 especially down below what's called The Narrows in  
22 Segments 4 and 5, rocks are generally between six and  
23 12 inches in diameter. And I believe you'd probably  
24 hit the same sizes as you excavate down.

25 Q Okay.

0243

01 A They don't really provide very much channel  
02 complexity. There's not very much roughness to them.

03 Q Were you to choose the process of adding material  
04 to the banks, describe for me what the process would be  
05 if materials were added to the banks.

06 A Well, first of all, you would have to transport  
07 the material to the stream causing minimal damage to  
08 the riparian vegetation and the existing banks. That  
09 would be difficult to do. You would probably have to  
10 run the equipment down the center of the stream that  
11 you're working in do that, and just choose one entry  
12 point to minimize any damage.

13 And you would simply use a backhoe to carry the --  
14 or some type of payloader to carry the material to the  
15 site --

16 Q That's not what I'm asking. I'm not being clear.  
17 Tell me the process -- describe for me the process of  
18 the deepening of the channel that would result after  
19 those improvements were put in. That's what I'm more  
20 interested in. Would the channel, in fact, be  
21 deepened? Or would you, in fact, simply have  
22 established a circumstance where you had a deeper  
23 channel that was higher than either side of the banks  
24 that you'd established?

25 A Well, in Rush Creek, incision has occurred in the

0244

01 lower half of the stream, which means it has very high  
02 banks. It would be very hard -- you could probably  
03 reduce the width of the channel by half, and you still  
04 would not be causing the water to flood across the  
05 surface of the --

06 Q In the area where there's incision, though, why  
07 would you be adding materials to the banks?

08 A Because not only has it incised, it has also  
09 widened. It's wider than it used to be.

10 Q So would you be adding material, then, actually  
11 within the stream course, itself?

12 A Yes, you would.

13 Q Okay. So you'd be eliminating a portion of the  
14 stream course that had resulted from the widening  
15 process?

16 A Right.

17 Q Okay. By adding that material, then, would --  
18 I'll get back to my question again. Would you be  
19 establishing what, in effect, amounts to an artificial  
20 levee where you'd end up with the bottom of the stream  
21 actually being higher than either side of the  
22 artificial bank that you reestablished?

23 A I don't envision that at all because you wouldn't  
24 be adding material to the bottom. You would not be  
25 raising the bottom of the stream.

0245

01 Q So are you suggesting that -- I'm trying to  
02 understand this because if there's a sedimentation  
03 process that goes on and you've established what might  
04 be considered artificial banks at this point simply  
05 because of the erosion that's gone on and the widening  
06 process that's taken place, whether that's artificial  
07 or not remains to be seen. Assuming that you've  
08 established these artificial banks somewhere within the  
09 current course of the stream, would the channelization,  
10 then, result in a deepening, or would the  
11 sedimentation, the sediment that's carried along with  
12 the water that's passing through that now-established  
13 channel, cause an elevation, if you will, of the stream  
14 bottom? Or do you know?

15 A I believe -- I've seen the results of a lot of  
16 restoration work where the channels have been  
17 narrowed. And, in fact, by returning the channel width  
18 to its natural width, it increases the ability of the  
19 stream to transport the sediment through the system in  
20 a normal manner such that the sediment that would be  
21 normally deposited in the center of the channel,  
22 because the channel's too wide and the velocities are  
23 too low, that process stops. So that you no longer  
24 have deposition of sediment in the stream channel, if  
25 you return the channel width to its normal dimensions.

0246

01 Q Okay. So the result of that, then, would be the  
02 ultimate development of ponds?

03 A Ponds?

04 Q Not ponds. Pools, I'm sorry. Pools.

05 A Well, it depends on the gradient. You can still  
06 have narrow riffles, narrow runs. They would be better  
07 than they would before, but they would not be pools.  
08 They still would not produce two-pound trout, but they  
09 would produce more half-pound trout like they used to.

10 Q Okay.

11 A You would slightly enhance the growth of the fish.

12 Q Okay. Last aspect of that. In the event that  
13 there were a sediment diversion established to allow  
14 for sediment to pass those areas that are currently  
15 catching sediment, particularly gravels, how long would  
16 the restoration process take if you only used gravel  
17 bypasses as opposed to being more, for lack of a better  
18 term, pro-active methods that were the subject of my  
19 first two questions?

20 A Well, it would still be a long process because on



24  
25  
25

Kelsey Davenport Anglin, RPR,  
CM, CSR No. 8553