

Public Hearing
STATE WATER RESOURCES CONTROL BOARD
DIVISION OF WATER RIGHTS
STATE OF CALIFORNIA

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Subject: Amendment of City of Los Angeles'
Water Rights Licenses for Diversion of Water
from Streams that are Tributary to Mono Lake

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Held in
Bonderson Building
Sacramento, California

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Tuesday, November 16, 1993
8:30 a.m.
VOLUME XIII

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1 TUESDAY, NOVEMBER 16, 1993, 8:30 A.M.

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3 MR. DEL PIERO: This hearing will again come to order.
4 Good morning, ladies and gentlemen. My name is Marc Del
5 Piero, I am Vice Chair of the State Water Resources Control
6 Board. With me is my colleague, Mr. John Brown, and we will
7 also be joined today briefly by Mr. Stubchaer, also a member
8 of the State Board.

9 This is a continuation of the hearing in regard to the
10 Board's consideration of the amendment to the Water Rights
11 Licenses held by the Los Angeles Department of Water and Power
12 on tributaries to Mono Lake.

13 When we left last night, we were discussing air
14 pollution. Mr. Flinn.

15 MR. FLINN: As I recall, Ms. Scoonover was going to
16 begin her examination.

17 MR. DEL PIERO: You were standing up.

18 MR. FLINN: Before she did, what I wanted to do is note
19 for the record that we have now marked as Exhibit 224 and 225
20 the reports from the Senate Committee and the House Committee,
21 respectively on the Clean Air Act Amendments. The Water Board
22 has been given copies and staff has been given copies, and I
23 passed out copies to the parties who are present, and, at this
24 time, we would ask that the two exhibits be admitted under the
25 Judicial Notice Doctrine.

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1 MR. DEL PIERO: Any objection to that?

2 MR. ROOS-COLLINS: No objection.

3 MR. DEL PIERO: So ordered.
4 (Whereupon Exhibits 224 and 225 were admitted into
5 evidence.)

6 MR. DEL PIERO: One additional clean-up, the gentleman
7 from the State Air Resources Board has asked that we accept
8 the Federal Register into the record. He left before it was
9 designated. Is that part of their original submittal?

10 MR. FRINK: I don't believe it is. In view of the fact
11 of it being a regulation, it would not have to be admitted as
12 an exhibit. It is equivalent to a statute.

13 MR. DEL PIERO: I indicated last night that I was
14 accepting it, so --

15 MR. FRINK: Do you wish to have it marked as an exhibit
16 then?

17 MR. FLINN: We would actually request that it be marked
18 as an exhibit ourselves, presumably as the Air Resource Board
19 next in order.

20 MR. DEL PIERO: It is my inclination to have it marked
21 so there is no question about it being in the record.

22 MR. FRINK: Okay, it would be Air Resources Board
23 Exhibit No. 14.

24 MR. DEL PIERO: Good. That's so ordered.
25 (Whereupon the Federal Register was identified as Air

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1 Resources Board Exhibit No. 14.)

2 MR. DEL PIERO: Now, Ms. Scoonover, good morning.

3 MR. ROOS-COLLINS: I do have one question for this
4 panel. May I ask that question now?

5 MR. DEL PIERO: Certainly.

6 MR. ROOS-COLLINS: My apologies, Ms. Scoonover. My
7 name is Roos-Collins, and I am the attorney for Cal Trout in
8 this matter.

9 CROSS-EXAMINATION,

10 BY MR. ROOS-COLLINS:

11 Q Do you have an opinion how the particulate matter
12 produced by the Mono Lake shores affects the vegetation along
13 the tributaries to Mono Lake?

14 DR. FEDORUK: A No.

15 MR. DEL PIERO: Please proceed.

16 MS. SCOONOVER good morning. My name is Mary Scoonover.
17 I represent the State Lands Commission and the California
18 Department of Parks and Recreation.

19 My questions are mostly for Mr. Pinsonnault, so,
20 Doctor, you can relax for a while. My colleague, Mr. Flinn,
21 already asked a number of the questions, so my cross-
22 examination is shortened considerably.

23 CROSS-EXAMINATION,

24 BY MS. SCOONOVER:

25 Q I want to start, Mr. Pinsonnault, with a little bit of

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1 your background. I wondered if you had any publications on
2 any aspects of and/or California air resources?

3 MR. PINSONNAULT: A No, I don't.

4 Q And you have been working on the Mono Lake issue for
5 the last four years?

6 A Approximately, yes.

7 Q Do you believe that the weather in California for the
8 last four years has been typical?

9 A We have been in a period of drought or there has been
10 a period of drought. I am not sure if that is typical,
11 however.

12 Q How does this drought compare with other historical
13 periods in California droughts, say 1850 to the present?

14 A I am not sure.

15 Q If you were to assume that this drought were, say, the
16 worst or second worst in both duration and severity, then
17 would the air quality taken in this nontypical meteorological
18 period also perhaps be nontypical?

19 A I believe there have been some air quality measurements
20 during the period when there has been lots of rain as well.
21 I believe it was 1982. I'm not sure of the exact years.

22 There was a great deal of rain, but there have been periods of
23 rain.

24 Q But you limited your use of monitoring data for Mono
25 Lake to the period 1986 to 1992, which lies entirely within

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1 most of the period of drought. Might these data be biased?
2 A It is possible there could be some differences during
3 wetter years, yes.

4 Q You are aware of Owens Lake, I believe, from your
5 review of the Los Angeles Department of Water and Power
6 documents of mitigation plans at that lake?

7 A Yes, I am.

8 Q Then you are also aware of a high correlation between
9 wind speed at Owens Lake to wind speed at Mono Lake, the
10 similarity of surface conditions and the air through reports
11 of similarities, and dust production between the zones?

12 A I believe there are some significant differences
13 between Mono and Owens Lake.

14 Q Are you aware of the similarity of the items I
15 mentioned, or do you disagree that the wind speeds are
16 similar, that the surface conditions are similar, and that the
17 dust production between the two are also similar?

18 MR. BIRMINGHAM: Objection, no foundation.

19 MR. DEL PIERO: Sustained.

20 MS. SCOONOVER: Q Are you aware of the high
21 correlation between wind speeds at Owens Lake to wind speeds
22 at Mono Lake?

23 A I am aware that you can have high wind episodes at both
24 lakes, whether or not those are correlated is a somewhat
25 different question.

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1 Q Are you aware of the similarities of surface conditions
2 between the two?

3 A I am aware that both lakes can develop a salt crust.

4 Again, I believe there are some significant differences
5 between the two lakes. Owens Lake is effectively a dry lake,
6 and at Mono we have still standing water. But I believe there
7 could be quite a difference between the two.

8 Q Are you aware of the Air Resources Board reports of the
9 similarities of the dust production between the two lakes?

10 A I am not sure which report you are referring to at this
11 point.

12 Q I believe there are several air reports that discuss
13 the similarities. Are you aware of any of them?

14 MR. BIRMINGHAM: I am going to object.

15 MR. DEL PIERO: Your grounds?

16 MR. BIRMINGHAM: On the grounds the question is
17 ambiguous when you say "air reports". If she has a specific
18 report in mind, if she wants to ask the witness if he has
19 reviewed a specific report, she can ask that question. He has

20 testified he is aware of ARB reports. If she wants to ask
21 about a specific report, I believe that would be less
22 ambiguous.

23 MR. DEL PIERO: I am going to overrule that. The
24 question was: Are you aware of any reports. That is a
25 foundational question, so go ahead and answer it.

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1 MR. PINSONNAULT: A I am aware of some reports that
2 try to draw conclusions concerning Mono Lake from events that
3 were happening in Owens Lake, yes.

4 MS. SCOONOVER: Q Are you aware that TSP, or total
5 suspended particulate data, was collected at Owens Lake before
6 1986?

7 A Yes.

8 Q And are you aware of the excellent correlations seen
9 between PM-10 and the earlier TSP data that was included in
10 the EIR showing that you divide the earlier data by roughly a
11 factor of two to get the PM-10 equivalent? If the question is
12 not clear, I will --

13 A Would you --

14 Q We will do it a little at a time. Are you aware of the
15 excellent correlation seen between PM-10 and the earlier TSP
16 data?

17 A From what I recall, I believe there is a range of PM-10
18 to the TSP ratio, the average of which was approximately 50
19 percent.

20 Q Then we could use the earlier data, all taken according
21 to EPA-State approved methods to gain information on this
22 drought and nondrought period at Owens Lake. Would you agree
23 with that?

24 A I think you can take TSP data and confer with the PM-10
25 results, and you could certainly make an attempt. There is

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1 going to be a lot of uncertainty in those calculations.

2 Q Making allowance for those uncertainties, how is the
3 air quality in Keeler, near Owens Lake, during the period 1979
4 to 1986, versus 1986 to 1992?

5 A I don't know.

6 Q Would you be surprised if that data for 1986 to 1992
7 shows that dust levels at Owens Lake was reduced by about a
8 factor of two from historic levels?

9 A No, I wouldn't be surprised.

10 Q Do you know what the air quality was like in general
11 terms at either Owens or Mono Lake during the spring of 1993?

12 A I believe there were approximately three exceedences of
13 the federal standard in May. I'm aware of that data. I
14 haven't reviewed the other information.

15 Q Would you describe these exceedences as gross
16 exceedences?

17 A They were several times the standard, yes.

18 Q Could you have used the air quality data from 1986 to
19 1992 to predict these exceedences in the spring of 1993?

20 A I don't think so, no.

21 Q If your analysis of the Mono Lake data, you looked only
22 at the 1986 to 1992 data, wasn't there monitoring by approved
23 State and Federal methods at Simas since 1979 that shows
24 massive violations of all State, Federal, and industrial
25 standards at Mono Lake?

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1 MR. BIRMINGHAM: Objection, compound.

2 MR. DEL PIERO: Sustained.

3 MS. SCOONOVER: Q Wasn't there monitoring by
4 approved State and Federal methods at Simas Ranch since
5 1970?

6 A Yes, there was monitoring taking place.

7 Q And did that monitoring show massive violations of
8 State and Federal standards?

9 A Yes, I believe there were violations.

10 Q Don't these data show, in fact, there were much higher
11 levels of fine particles near Mono Lake than occurred in
12 downtown Los Angeles?

13 A I believe that's true, yes.

14 Q And weren't these levels among the worst in the nation?

15 A Again, they were several times the standard.

16 Q Weren't some, in fact, exceeding State standards by a

17 multi-equivalent factor of 33?

18 A It is quite possible, yes.

19 Q Don't researchers who work at the Lake, who work on the
20 Lake bed, wear full-face respirators to protect themselves
21 from dust?

22 A I don't know.

23 Q The Warm Springs and Cedar Hill monitoring data that
24 you mentioned in your testimony from 1989 to 1992 when the
25 dust episodes were predicted don't meet State and Federal

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1 protocols because they were short-term samples keyed to
2 expected storms? Is that true?

3 A I believe the sampling took place according to accepted
4 methods, but what I stated is since they are not statistically
5 days, they can't be used to derive an annual average
6 concentration.

7 Q Were it to be tested by the DWP management levels, you
8 can expect eight to 21 exceedences of the State standards on
9 an annual basis extending as far as Cedar Hill; is that
10 correct?

11 A That's correct, yes.

12 Q Wouldn't some of these storms be enormous, covering
13 hundreds of square miles and leading to levels based on past
14 monitoring data that are among the highest in the country?

15 MR. BIRMINGHAM: Objection, compound.

16 MR. DEL PIERO: Sustained.

17 MS. SCOONOVER: Q Wouldn't some of these storms be
18 enormous, in fact covering hundreds of square miles?

19 A I don't know.

20 Q Based on past monitoring data, wouldn't these storms
21 create some of the highest exceedences in the country?

22 A I missed the last part of your question.

23 Q Based on past monitoring data, wouldn't some of these
24 storms actually exceed the State and Federal limits by several
25 times?

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1 A That's quite possible, yes.

2 Q Doctor, I have two quick questions for you.

3 Are you aware that in May, 1993, there were three gross
4 exceedences of the Federal 150 micrograms per meter cubed of
5 primary health standards in one month?

6 DR. FEDORUK: A I was aware there was one. I was
7 not aware there were three.

8 Q Were you aware that one of these was an exceedence of
9 981 micrograms per meter cubed?

10 A Was it 981? Yes.

11 Q Are you aware that at this dust level, State and
12 Federal Health and Safety Codes would require a worker in the
13 area to wear a respirator if this were -- strike that.

14 Let me make it more clear.

15 Do you know if a 981 micrograms per meter cubed level
16 occurred in a factory, whether the workers would be required,
17 under either Federal or State Health and Safety Code
18 regulations to wear respirators?

19 A The PM-10 is a mixture of materials, so maybe if you
20 could refer to which regulation, because you could look at
21 individual compounds. Some of the larger constituents are of
22 materials such as, for example, sodium sulfate or sodium
23 carbonate, and there aren't any particular regulations for
24 those compounds. If you're talking about treating it as
25 nuisance particulates, then that would not exceed the

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1 allowable standard for nuisance particulates.

2 Q 981 micrograms per meter cubed would not exceed Federal
3 regulations for particulate matter in the industrial segment?

4 A Well, there are no specific regulations that pertain to
5 particulate matter, using the term "particulate matter".

6 There are what's classified as nuisance dusts.

7 Q Correct. But they were classified as nuisance dust as
8 opposed to particulate matter. But, say if it was measured at
9 981 micrograms per meter cubed, are you aware of any Federal
10 or State health or safety provision that would require workers
11 to wear respirators?

12 A 981 micrograms per meter cubed, averaged over an eight-
13 hour period, which forms the basis of not an official

14 standard, and those obviously are a longer-term sample, so
15 you're really not comparing comparative sampling methods, but
16 at 981 micrograms per meter cubed, as a nuisance dust, there
17 would not be a requirement for respirators.

18 MS. SCOONOVER: That's all.

19 MR. DEL PIERO: Thank you. Who else do we have?
20 Any other parties besides our staff? Mr. Frink.

21 EXAMINATION,

22 BY MR. FRINK:

23 Q Mr. Pinsonnault, your testimony criticized both the
24 fugitive dust model used in the Draft EIR and the ICST model,
25 which was used by the Great Basin Unified Air Pollution

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1 Control District, because those models ignored the possible
2 creation of new emitting areas that could result from
3 elevation of the groundwater table that may occur at higher
4 lake levels. Have you done, or are you aware of any studies
5 that have been done that would define the extent of these new
6 emitting areas that you believe may develop?

7 MR. PINSONNAULT: A I am not aware of any studies
8 that have been conducted to define the potential increase in
9 area because of increase in the groundwater table. In terms
10 of the potential creation of a new area because of the advance
11 and fall of the lake as during a wet year, the lake would be
12 high and then it would, during a dry year, drop, and that of
13 course would leave behind saline water in the zone between the
14 high and low points, and I guess one could look at the various
15 studies that have been done to define potential variations
16 under different control conditions and come up with that.

17 Q We have a variation in the lake level under the
18 existing situation; isn't that true?

19 A That's true, yes.

20 Q Is it your understanding that there was an air quality
21 problem in the Mono Basin prior to the diversion of water for
22 uses outside of the Basin?

23 A No, it is not my understanding.

24 Q So, it is your understanding there was not an air
25 quality problem.

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1 A Prior to diversion?

2 Q Yes.

3 A I am not aware of any air quality problems prior to
4 diversion.

5 Q My next question is for Dr. Fedoruk. Doctor, if one is
6 trying to determine if there is an adverse effect from an
7 ongoing air quality condition on public health, would one look
8 at public health records such as the record of hospital
9 admissions during air quality events and records of complaints
10 regarding respiratory illnesses?

11 DR. FEDORUK: A Yes.

12 Q In this instance, have you had the opportunity to
13 examine any medical data regarding respiratory problems in the
14 Mono Basin?

15 A No, not specifically.

16 Q Do you know if there have been any studies that have
17 been done to determine the extent of respiratory problems in
18 the Mono Basin?

19 A I am not aware of any.

20 Q And do you know if there have been any studies on the
21 health impacts of air quality problems in the Owens Basin?

22 MR. BIRMINGHAM: Objection, relevance.

23 MR. FRINK: I believe the question is relevant. The
24 Doctor has cited the number of studies from Europe and other
25 areas where the air quality problems are substantially

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1 different from the evidence we have heard so far, the most
2 equivalent situation being the Owens Basin, where the air
3 quality problem is also from fugitive dust.

4 MR. DEL PIERO: Overruled.

5 MR. BIRMINGHAM: I withdraw the objection.

6 MR. DEL PIERO: It was overruled, you can answer,
7 Doctor.

8 DR. FEDORUK: A I believe there has been some
9 personal communications in one report I looked at between a
10 physician, and the name Armand comes to mind, but I don't know

11 if that is the exact name of the party, who was a resident of .
12 Owens Lake who had a greater prevalence of complaints related
13 to dust storms. I'm not quite certain of that.

14 Q Is that the only report you are aware of?

15 A That's the only one that comes to mind, yes.

16 MR. FRINK: That's all my questions.

17 MR. DEL PIERO: Mr. Satkowski.

18 EXAMINATION,

19 BY MR. SATKOWSKI:

20 Q I have a couple of questions for Mr. Pinsonnault. On
21 page 77 of your testimony, you discussed the air quality
22 records at Warm Springs and Cedar Hill. It's at the beginning
23 of the second full paragraph: The air quality record at Warm
24 Springs and Cedar Hill is less complete. And you go on to say
25 later on in the paragraph: Both stations were operated based

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1 on a prognostic wind analysis, that is, samples were only
2 collected when a dust episode was anticipated.

3 And, following that sentence, you say: "For this
4 reason, the data from these stations cannot be used to
5 estimate the number of exceedences that could occur each
6 year."

7 Could you explain that sentence or those sentences?

8 MR. PINSONNAULT: Q Yes. I guess the standard
9 approach for estimating the average air quality during a year
10 is to take a series of samples on a statistical basis, in
11 other words, one out of six days. For example, you would take
12 an air quality measurement and then you could extrapolate from
13 that information to an estimate of the air quality during the
14 entire year.

15 But if you go out and you know there's going -- and
16 that assumes then, therefore, that there is an equal chance
17 that you're going to take an air quality sample on a day in
18 which there is no air quality violations, as compared to a day
19 when there could be an air quality violation. It is random,
20 and, therefore, one can make some statistical extrapolations.

21 If, on the other hand, you go out on a day which you
22 know there's a very good chance you are going to have a storm,
23 and you skew your data. In other words, if you went out only
24 five times, and you know there was going to be a 40-mile wind
25 episode on that day, and on each of those days you got high

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1 dust concentrations, you couldn't then extrapolate that on
2 every day there's going to be a dust violation. Do you see
3 what I am trying to get at?

4 Q I believe I understand. Is it true there would not be
5 any less dust episodes reported if you were to go out on days
6 when there weren't high winds?

7 A That's true, you would not expect to have less.

8 Q The second question deals with Table S-1 of the Draft -
9 EIR, page 10 of 15, which also happens to be reprinted on page
10 96 of Dr. Fedoruk's testimony. This table is a summary
11 comparison of the effects of alternatives. Essentially, it is
12 a summary of the results of the air quality modeling runs that
13 were made. Do you disagree with any of these results?

14 A I believe some of the maximum 24-hour average PM-10
15 concentrations could be lower than you might actually get. If
16 you compare' for example, these numbers to some of the numbers
17 that were generated by the Great Basin TRC report, these could
18 be low.

19 Q How much lower?

20 A It is really hard to say. I mean, there is a huge area
21 of uncertainty here.

22 For example, and again, in some sense we are comparing
23 apples and oranges.

24 To give you an example, the 6,390 elevation maximum
25 concentration is predicted to be about 75 micrograms per meter

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1 cubed. If you look at the TRC report, I believe at the 6,393-
2 foot level, they have estimated concentrations during the
3 worst six episodes anywhere from approximately 350 to 510
4 micrograms per meter cubed. Under separate locations, they
5 were obviously different, which would affect the results.

6 Based on those comparisons, I think these could be low.

7 Q Are you putting together any sort of table summarizing

8 what you think the results ought to look like?
 9 A No, I'm not.
 10 Q Have you done any air quality modeling of the Mono Lake
 11 Basin, something that we could look at to compare with this
 12 table?
 13 A No, I haven't. Again, I think -- no, I haven't done
 14 anything of that type. If you're trying to get a good
 15 estimate of the existing studies, the TRC model does
 16 demonstrate there could be some significant impacts even at
 17 lake levels as high as 6,393, and that assumes again an
 18 emission rate that is much lower than other emission rates
 19 that have been determined out on the playa by the Great Basin,
 20 so you can extrapolate from there to come to the conclusion
 21 that even at relatively high lake levels could have some very
 22 significant impacts, but I haven't done another modeling
 23 study.
 24 MR. SATKOWSKI: Thank you.
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1 EXAMINATION,

2 BY MR. HERRERA:
 3 Q Dr. Fedoruk, I have a couple of questions regarding
 4 your statement in your written testimony discussing the
 5 effects of inhaling efflorescent salts which are alkaline,
 6 and, in that testimony, you suggest that residents or people
 7 exposed to that could experience some respiratory symptoms as
 8 a result of inhaling that dust. Are those effects cumulative?
 9 Let me give you an example. If one was to go out there and
 10 experience a dust storm and experience respiratory problems
 11 from alkaline dust on several occasions, would that be
 12 cumulative?
 13 DR. FEDORUK: A I think there is some uncertainty
 14 regarding that issue. One study has looked at cumulative
 15 exposure in the Trona miners, which included sodium carbonate
 16 and sodium bicarbonate, and over that five-year follow-up
 17 study, there was some declines that were associated with acute
 18 events, but I don't think that there have been any long-term
 19 studies to answer that question.
 20 Q Are these salts considered to be strong alkaline-type
 21 salts?
 22 A Well, it would depend on which salts. Sodium sulfate
 23 would not really be very strongly alkaline, but sodium
 24 carbonate, I think, would be a more alkaline salt.
 25 Q And which is the predominant salt in the Mono Lake?

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1 A I think you are dealing with sodium sulfate and sodium
 2 carbonate and sodium chloride.
 3 Q Are there laboratories capable of running electron-
 4 microscopy here on the West Coast?
 5 A Yes, sir.
 6 Q Do you have any idea why these samples were sent across
 7 the country?
 8 A I think R. J. Lee has, you know, a lot of experience in
 9 that particular area with computer scanning, electron-
 10 microscopy, and the quality of their staff and so forth, and
 11 the work product, you're talking very good, and that's
 12 probably why they were sent there.
 13 Q There was some discussion of integrity of these samples
 14 being shipped across the country and possibly
 15 recrystallization. In your opinion, would it have been more
 16 appropriate to have these samples done closer where the
 17 samples weren't exposed to this sort of thing, or is there
 18 some way to fix these samples to ship them?
 19 A Those samples, I think, had been stored for a period of
 20 time before the R. J. Lee analysis -- several years, so I
 21 think there were a lot of variables. I'm not sure of all the
 22 decisions that were made as to where to ship those samples.
 23 R. J. could ship them overnight by Federal Express probably as
 24 quickly as any other lab in the country.
 25 Q To your knowledge, they were stored for sometime?

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1 A Yes, sir.
 2 MR. HERRERA: I think that concludes my questions.
 3 Thank you.

4 EXAMINATION,

5 BY MR. CANADY:
 6 Q My questions are all directed to Mr. Pinsonnault.
 7 Did I understand correctly that you participated in the
 8 tag, the air quality tag that we had set up for the
 9 development of issues and modeling for the EIR?
 10 MR. PINSONNAULT: A Yes, I did.
 11 Q Were you provided opportunities to review some of the
 12 assumptions in the fugitive dust model before it was utilized?
 13 A I believe so, yes.
 14 Q On page 74 of your testimony, in the first paragraph,
 15 the last sentence, I just need some clarification. The
 16 sentence reads: This is indeed excellent, considering that in
 17 1992, the State annual average standard for PM-10 was violated
 18 in eight of the 14 air basins in California.
 19 Now those violations of PM-10, were those industrial
 20 PM-10 violations, or were they, to use the word that's been
 21 used here, coarse material PM-10 violations, or do you know?
 22 A I am not sure. I imagine there was a combination of
 23 the two. I believe some of these occurred in agricultural
 24 areas where there would be a lot of windblown dust from
 25 agricultural fields. Others would have been Los Angeles where

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1 it is vehicle traffic and things of that type.
 2 Q Other than your participation in the tag, did you bring
 3 up your concern about the formation of new dust emitting areas
 4 as the lake rises? Did you bring that to the attention of the
 5 tag?
 6 A From my recollection, I believe the tag meetings were
 7 somewhat limited in number. I did, at some point, visit and
 8 talk to the people at Jones and Stokes, who were involved with
 9 the modeling effort, and at the time I expressed my concern
 10 that they consider a lot of the uncertainties that were
 11 inherent in the modeling study, which was very important.
 12 I can't remember exactly what I said about the extent
 13 of the efflorescent zones. I remember we did have a lot of
 14 concern about how close the efflorescent zone would be to the
 15 lake level, so I did raise some concerns, yes.
 16 Q Did you provide them any data or examples from the
 17 literature that they could have evaluated to implement in the
 18 model relating to the particular issues?
 19 A No, I consider this a very difficult problem to look
 20 at, and I don't want to give the impression that I'm just
 21 dumping on people here that they haven't done a correct job.
 22 However, there are some significant uncertainties, and if
 23 you're looking at a problem of this type, you have to include
 24 some of that uncertainty into your analysis, at least
 25 acknowledge that uncertainties exist and could affect the

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1 results.
 2 Q So, in your professional opinion, these types of models
 3 dealing with fugitive dust are probably some of the most
 4 difficult models to deal with air quality issues; isn't that
 5 correct?
 6 A I believe that is true, yes.
 7 Q Finally, your testimony started off asking two
 8 questions, and I want to reference these questions now of
 9 interest to the Board, and we have heard earlier about Federal
 10 standards. So I'm going to give you some hypotheticals, and
 11 I would like you to answer if you would.
 12 Assume that you are going to respond to the question
 13 based on the number of violations of the Federal standard.
 14 Will the air quality at the lake level that's allowed to
 15 fluctuate between 6,374.6 and 6,385.3 -- will there be Federal
 16 violations of the 24-hour PM-10 standard?
 17 A There will be exceedences, yes.
 18 Q If other lake levels were chosen of a higher range,
 19 let's say 6,383.5, that's a protected standard, with a range
 20 up to a point of 6,389, do you believe there will be
 21 exceedences there?
 22 A Yes.
 23 Q If there was a protected lake level target at 6,390,
 24 with an average lake level of almost 6,392, will there likely
 25 be exceedence of the Federal standard?

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1 A Yes.

2 Q At 6,400?
 3 A I really don't know at 6,400. At 6,400 what kind of
 4 variation are we talking about?
 5 Q At 6,400 the average lake elevation would be around
 6 6,402.
 7 A There could be, if you had -- again, I would have to
 8 look at the potential area that would be inundated and then
 9 reexposed where you could have saline material and, therefore,
 10 efflorescent salts.
 11 I believe the modeling shows that at far less than two
 12 and a half square kilometers of emitting area, you could have
 13 some very significant exceedences. Two and a half square
 14 kilometers is not a very large amount of exposed area.
 15 Q Those higher lake levels, based on the models, do you
 16 know where the dominant source areas are? Do you recall?
 17 A They would be to the north of the lake.
 18 Q And possibly Paoha Island as well?
 19 A Above 6,400, I am not sure of Paoha Island. It may
 20 disappear actually.
 21 Q I have taken you from lower elevations to higher
 22 elevations, but the general trend would be a decline in number
 23 of exceedences; correct?
 24 A I am not sure if that's true. My own opinion is that
 25 the number of exceedences is truly dependent on the

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1 meteorological conditions that happen in any one year. The
 2 Great Basin has shown if you get an efflorescent salt, very
 3 fine, powdery salt crust that you have very high emission
 4 rates from the playa, something two orders of magnitude --
 5 could be up to two orders of magnitude higher than the
 6 emission rates being used in the models today.
 7 If you were to have that circumstance occur, then even
 8 with a fairly small emitting area, you could have a violation,
 9 which means that the number of violations could boil down to
 10 how many times during the year you have this combination of
 11 efflorescent dust and high winds, and I think that's really
 12 just a matter of what the conditions are during the year.
 13 Q Have you walked the playa from Ten-mile Road down to
 14 the lakeshore?
 15 A Yes, I have.
 16 Q Are all the substrates of playa exactly the same?
 17 A No, they are not.
 18 Q Do you recall the difference between substrates at say
 19 6,400 as opposed to 6,377?
 20 A Again, when I have been walking, I haven't exact
 21 reference to the elevation, but certainly at the higher
 22 elevation, the material tends to be more coarse sand. As you
 23 move down towards the lake, you get more and more crust, and
 24 towards the shoreline, the crust becomes, well, certainly the
 25 crust can vary a lot. I have seen a lot of different

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1 conditions when I have been there. It can vary anywhere from
 2 very hard, very obvious crust, to some sort of very broken
 3 crust mixed with sand. As you get very close to the edge of
 4 the water, then it becomes quite wet.
 5 Q But, as you get higher, your recollection is that the
 6 particle size becomes significantly larger at the higher
 7 elevations on the different slopes?
 8 A You get more coarse sand material mixed in with the
 9 easily-broken salt crust. I think there could still be a
 10 significant amount of fine material in that material.
 11 MR. CANADAY: That's all I have.
 12 MR. DEL PIERO: Thank you.
 13 EXAMINATION,
 14 BY MR. DEL PIERO:
 15 Q Doctor, given the lack of a better term, typical urban
 16 PM-10 with arsenic concentrations comparable to what one would
 17 find in the Mono Basin, which is more acutely toxic?
 18 DR. FEDORUK: A You are saying given typical urban
 19 PM-10?
 20 Q Yes. Comparison in the representations, I don't know
 21 if it was you or Mr. Pinsonnault's written testimony, related
 22 air pollution, particularly PM-10, to PM-10 of the urban area,
 23 and I am asking you the question because I'm interested in the
 24 direct health impacts of the comparison, so, given those two

25 terms, which is more acutely toxic? 00027
 1 A I am not sure that I understand the specific question.
 2 You're saying given equal amounts of PM-10 with equal
 3 concentrations of arsenic, between both or --
 4 Q No, arsenic levels are exceeded in a variety of areas
 5 in the State. They are also exceeded in the Mono Basin.
 6 A Yes, sir.
 7 Q They are exceeded by different magnitudes. Given
 8 typical urban PM-10 with its component parts of hydrocarbons
 9 and arsenic and all the rest of the constituents of a typical
 10 urban PM-10, and compare that to a typical PM-10 with its
 11 arsenic concentrations in the Mono Basin, which of those two
 12 is more acutely toxic?
 13 A You are assuming then that there is no arsenic in the
 14 urban --
 15 Q I am assuming there is arsenic in the urban and
 16 assuming there is arsenic in the Mono Lake PM-10. I am asking
 17 you to respond in regard to arsenic concentrations of both,
 18 which is more acutely toxic?
 19 A I think the concentration of arsenic in all of them is
 20 very, very low, so I don't think the arsenic per se is going
 21 to have much of a factor in producing acute toxicity.
 22 Q Which is more toxic?
 23 A I don't know at those low, low levels that you would
 24 have any acute toxicity from arsenic.
 25 Q Which is more chronically toxic? 00028

1 A From the point of view of arsenic toxicity?
 2 Q Yes.
 3 A It would be the ones that have the greater percent
 4 concentration of arsenic.
 5 Q In your experience, is that PM-10 in Mono Lake?
 6 A I think during the dust storms there can be a potential
 7 for arsenic that is higher than the arsenic in other
 8 populations.
 9 Q I just want to try to get an answer. In terms of PM-10
 10 that is commonly found in urban areas as compared to PM-10
 11 found in Mono Lake, the relationship relative to arsenic
 12 content, which is more chronically toxic?
 13 A Well, again, it is a matter of exposure.
 14 Q I understand it is a matter of exposure. I want you to
 15 assume that. I am assuming it, so I want you to assume it,
 16 which is more chronically toxic?
 17 A Which basin has the greater percentage of arsenic would
 18 then give a greater --
 19 Q I am asking which is more chronically toxic, not which
 20 one has the greater concentration of arsenic. There's no
 21 question about where the greater concentration of arsenic is.
 22 It's not all airborne PM-10.
 23 A In terms of the acute toxicity, it is going to be
 24 related to the extent or magnitude of the exposure.
 25 Q In relationship to those two types of PM-10 that I am 00029

1 asking you to compare, which one has the greatest
 2 concentration?
 3 A Well, the only way I could answer that would be to look
 4 at measurements of arsenic that have been made in various
 5 basins, and I could refer --
 6 Q I understand that. That's why I asked you to pick an
 7 urbanized area, a city of California with which you are
 8 familiar with the PM-10 exceedences.
 9 A Well, I would take Los Angeles.
 10 Q Fine. Let's take that as an example. On a specific
 11 day where there are PM-10 exceedences of both Federal and
 12 State Air Quality Standards, which PM-10 exceedence, the Los
 13 Angeles one or the Mono Lake one, is going to have a more
 14 chronic effect?
 15 A I think they are going to be similar. I think on an
 16 annualized basis, over time, the concentration is an
 17 annualized average --
 18 Q They would be comparable?
 19 A I would have to look at those particular numbers. If
 20 I was to be given a few minutes to review that --
 21 Q Do you have them available?

22 A I have some of those numbers with me in my car, and I
23 would be more than happy to go over and review them if you
24 gave me some time, and I have the specific numbers for the air
25 basins.

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1 MR. DEL PIERO: That's all I have. Mr. Brown.
2 EXAMINATION,
3 BY MR. BROWN:

4 Q I have a question for the panel as a matter of
5 interest. The airborne particles for beach areas is a
6 combination of several chemicals and toxic elements
7 accumulated over the years due to the impermeability of the
8 beach areas, which is probably brought on by the sodium
9 carbonate and calcium carbonate, which are highly impermeable
10 materials. I just wonder if an acidic soil was added to that
11 area, whether you could release the carbonates and leave
12 behind the sodium or the calcium which is highly permeable
13 material. Is there any leaching potential that could take
14 place with the elements of concern that might leach them past
15 the surface area and contributing to the dust?

16 MR. PINSONNAULT: A I am not sure whether Dr.
17 Fedoruk or I would be the best one to answer that, but it is
18 my understanding that the nature of the problem that you have
19 is the beach areas are saturated with saline water, that it's
20 slowly leaching out. That's a very long-term process, and I
21 am not sure if adding --
22 Q Well, it's hard to leach through sodium carbonate or
23 calcium carbonate materials. They are highly impermeable.
24 Consequently, the material would have a tendency to lay on the
25 surface, but if you could open up the permeability of those

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1 soils, I am asking you: Is there a potential to leach these
2 elements down past the area of influence to where they
3 contribute to the dust?

4 A If you mixed soil in with the clay-type materials that
5 are already there?

6 Q When you add an acid to an alkaline, you get a chemical
7 reaction. The alkali is usually calcium or sodium carbonate,
8 and if you put an acid on it, you release the carbonates.
9 Both those materials in the carbonated form are highly
10 impermeable materials. They don't leach. But if you put an
11 acidic compound with them and you leach the carbon, then both
12 those materials can be highly permeable, which might enable
13 the leaching of some of these concerns that you have been
14 discussing here. It is a question, is that doable?

15 A Again, my impression, and I am not an expert in this
16 area, so my impression is that the problem with the leaching
17 is that there's a lot of clay-type materials that do not allow
18 the water in which these salts are dissolved to leach. But,
19 again, I may be well out of my area.

20 Q If the permeability is restricted due to the chemical
21 aspects of the soil, that's one thing. If they are restricted
22 due to the chemical aspects of the soil, then amendments to
23 those soils might be made available to reduce the problem.

24 A It is possible. I really couldn't say.

25 MR. DEL PIERO: Any other questions?

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1 MR. BROWN: No.

2 MR. DEL PIERO: Mr. Birmingham.

3 MR. BIRMINGHAM: Thank you. I have just a few
4 questions.

5 REDIRECT EXAMINATION,
6 BY MR. BIRMINGHAM:

7 Q First, Mr. Pinsonnault, Ms. Scoonover asked you a
8 series of questions comparing the dust events in the Owens
9 Basin with dust events in the Mono Basin, and I believe that
10 you said there are differences between the two basins; is that
11 correct?

12 MR. PINSONNAULT: A I believe there are, yes.

13 Q What are those differences?

14 A Owens Lake is a dry lake. There's extensive areas
15 where you have a very well-formed crust on the earth. One of
16 the differences is the Owens Lake area is a dry lakebed in
17 which you have extensive areas of hard salt crust where many
18 times, for example, in order to generate dust you have to have

19 a process known as saltation, where salt particles are eroding
20 the surface.

21 I believe in the Mono Lake area that is not quite as
22 necessary. You have Mono Lake, a lake that is obviously still
23 very present, and a lot of the beach area is exposed sand and
24 clays, sometimes covered with a salt crust, sometimes not
25 covered with a salt crust. So there's some significant

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1 differences.

2 Q Are there differences in the prevailing wind direction
3 in the two basins?

4 A I believe they can be, yes.

5 Q And are there other differences in weather conditions
6 that would affect dust events between the two basins?

7 A I'm not sure.

8 Q Mr. Pinsonnault, in response to a question I believe by
9 Mr. Canady, and in fact by the Hearing Officer of last night,
10 your comments on the models that have been developed, are you
11 saying that the models are wrong?

12 A I think the models could underestimate the dust
13 concentrations that could occur at the higher lake levels. In
14 that sense, I guess they could be wrong.

15 Q What is the basic message which you want to leave the
16 Board concerning the use of the two models that were developed
17 by the Great Basin Air Pollution Control District and Jones
18 and Stokes?

19 A I guess the basic message is that neither of these
20 models can truly predict what is going to happen at the higher
21 lake elevations, and it is quite possible that given that as
22 the lake elevations vary, you will leave behind some saline
23 material in the playa, and also given that there may be some
24 increase in the groundwater table, which could also lead to
25 other areas of efflorescent salts, which have shown to be the

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1 major contributors to some of the dust events, that you could
2 raise the lake and still have very significant violations of
3 State and Federal standards, even at the 6,390 and 6,394
4 levels. And, therefore, it may be necessary to implement
5 other control measures.

6 Q I would like to read a brief statement that is
7 contained in the National Audubon Society/Mono Lake Committee
8 Exhibit 225, which is the report of the Committee on Energy
9 and Commerce, U. S. House of Representatives, which cites a
10 letter from the Environmental Protection Agency, which
11 comments about Mono Lake.

12 The letter states: At this time, EPA is not aware of
13 any credible arguments or evidence that refute your conclusion
14 that this particular PM-10 problem is anthropogenic in origin,
15 and thus is subject to control. We therefore support your
16 efforts to develop innovative emission control programs for
17 both lakes.

18 Q Is it your understanding that the Great Basin Unified
19 Pollution Control District is developing innovative emission
20 control programs at Owens Lake?

21 A Yes, it is.

22 Q And do those involve placing water on the lakebed?

23 A Yes, it does.

24 Q Does it involve creating a lake at Owens Lake?

25 A No, it doesn't.

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1 Q The control measure which is being considered on Owens
2 Lake which replaces water in the lake, what does that involve?

3 A I believe it involves tapping some deep aquifers,
4 pumping the water through a distribution system and then
5 allowing it to flow over the exposed lakebed to provide
6 wetting and hopefully reduce the dust emissions.

7 Q What are some of the other innovative control measures
8 that are being considered by the Great Basin Air Pollution
9 Control District at Owens Lake?

10 A They have considered sprinklers, although that was not
11 very successful. There are parties investigating the use of
12 wind fences to reduce the wind shear and perhaps collect sand
13 in dunes. I believe they have looked at chemical stabilizers,
14 though I am not sure how complete that was. And they also
15 considered the addition of a bed of gravel over the existing

16 lakebed.
 17 Q Is it possible to consider some of those same
 18 innovative emission-control programs at Mono Lake on the Mono
 19 Lake playa?
 20 A I think it is possible, yes.
 21 Q Is there a potential that wooden fences would reduce
 22 the frequency of dust events in the Mono Basin?
 23 A It is possible. I think that issue was still being
 24 studied at Owens Lake.
 25 Q I have two questions for Dr. Fedoruk.

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1 Dr. Fedoruk, last night, Mr. Flinn asked you a question
 2 about the fugitive dust policy that EPA had. Did you base
 3 your opinion concerning the health effects of air quality in
 4 the Mono Basin on EPA's rural dust policy?
 5 DR. FEDORUK: A No.
 6 Q On what did you base your opinion concerning the health
 7 effects of air quality in the Mono Basin?
 8 A Well, in reference to the public health issues, I based
 9 it on several factors. One was the kind of exposure that
 10 would be anticipated to occur in that area, based upon
 11 analysis of the PM-10 that had been conducted, and included
 12 work by R. J. Lee, both from looking at the computer control
 13 scan microscopy, as well as an elemental analysis of
 14 particular particles which show them to be composed largely of
 15 silicon and aluminum-rich particles which make up mixed clays.
 16 Regarding the toxicity potential of some of the
 17 alkaline dust that I mentioned previously, it also is a fact
 18 there is extremely limited population that is exposed from a
 19 public health point of view, and those types of exposures are
 20 going to have minimal impacts.
 21 MR. BIRMINGHAM: Thank you.
 22 MR. DEL PIERO: Thank you. Ms. Cahill.
 23 MS. CAHILL: I just have one or two brief questions.
 24 RE-CROSS-EXAMINATION,
 25 BY MS. CAHILL:

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1 Q I think these are for you, Dr. Fedoruk. The eighth
 2 issue in the Board's Hearing Notice is: What would be the
 3 expected impact upon human health and biological resources of
 4 the air quality expected to result from the different water
 5 elevation alternatives evaluated in the Draft EIR?
 6 Mr. Roos-Collins asked you if you had considered the
 7 impacts on riparian vegetation, and you answered no. Let me
 8 ask you whether you have an opinion regarding the impacts on
 9 birds in the Mono Basin?
 10 DR. FEDORUK: A No.
 11 Q On other wildlife?
 12 A No.
 13 Q On page 88 or your testimony, you stated that
 14 individuals, referring to people, in the affected area, will
 15 limit their exposure to PM-10 by taking avertive actions such
 16 as going indoors.
 17 Would you agree going indoors is not an option for the
 18 wildlife in the area?
 19 A Certainly.
 20 MS. CAHILL: Thank you.
 21 MR. DEL PIERO: Mr. Flinn.
 22 RE-CROSS-EXAMINATION,
 23 BY MR. FLINN:
 24 Q Speaking about going indoors, Dr. Fedoruk, I am going
 25 to ask you a hypothetical question.

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1 I'm going to read to you a statement, and I will ask
 2 you to assume that this is testimony of an individual who
 3 actually lives out in the path of these dust storms. First of
 4 all, let me ask you, you've read the testimony of John Denny,
 5 marked as National Audubon Society/Mono Lake Committee Exhibit
 6 1-F in this proceeding?
 7 DR. FEDORUK: A I believe I have, yes.
 8 Q Let me read you a portion of it. Mr. Denny says in his
 9 statement that he moved into a house on the north shore of
 10 Mono Lake in 1978. He said:
 11 "We have 15 acres of land. People have lived on our
 12 land since the 1850's. The barn is over 100

13 years old. The old ranch house burned down a
 14 long time ago. The local folks used to call it
 15 'green acres' because it was a truck farm for
 16 boating. We have a landscape business in June
 17 Lake. We maintain the landscaping in condo
 18 projects and private houses in June Lake. I
 19 bought our place for rural lifestyle. It is
 20 quiet. It is just like coming home. The view
 21 at our place is excellent. It's a million-
 22 dollar view. There isn't anything you can't
 23 see, the Sierra, the White Mountains, the Bodie
 24 Hills, and Mono Lake, and the Nevada country.
 25 "When the wind blows the dust, you can't see anything.

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1 I didn't know about the dust storms when I
 2 bought the place. The dust storms are
 3 incredible. You just have to see it, to
 4 experience it, to understand how bad it is.
 5 "We used to take pictures until we got tired of doing
 6 it. If you go outside, your teeth are
 7 instantly gritty, and it stinks. It smells
 8 like brackish seawater. It hurts to breathe.
 9 You either don't go outside or you go somewhere
 10 else. It is sand.
 11 "This year when I was around I documented when there
 12 were dust storms. I would just write down
 13 something in my calendar when there was dust.
 14 If it wasn't really big, I would just write
 15 down 'dust'. When they were bigger, I would
 16 write 'bad', and if it says bad, then you know
 17 I was really ad. On April 4th I wrote 'bad'.
 18 On April 17, I wrote 'bad, bad, bad'. I must
 19 have been really ticked that day.
 20 "What happens is you look outside, and it's really bad,
 21 so you write 'bed'. Then an hour later you
 22 look out again, and it looks worse, and you
 23 write 'bad' again. Later it was still going,
 24 so I wrote 'bad' again.
 25 "On May 3rd I wrote 'bad'. It was a big dust storm.

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1 We have 53-mile-per-hour winds. I wrote it
 2 down. They have an anemometer on our place, so
 3 I know.
 4 "On May 11, when we had so much dust in the house, I
 5 wrote 'dust, dust, dust, bad'.
 6 Let me stop right there. Were you aware that the May
 7 11 he is referring to was the 900 micrograms per meter cubed
 8 event recorded at the station?
 9 A I would just like to say I read Mr. Seemy's testimony.
 10 I have not read this, but I will assume that's true.
 11 Q Let me finish here.
 12 "On May 24th, I wrote 'dust', and May 25th, 'bad'. On
 13 the 4th of June, I noted that the dust blew to
 14 the east. June 20th was a bad day, and the
 15 28th was also a bad day. After that, we did
 16 not have anything until September 12th, when it
 17 blew to the south, kind of unusual."
 18 Now this is the part I wanted to get to about going
 19 inside.
 20 "The one that ticked me off the most was when it was so
 21 dusty inside you could shine the flashlight
 22 through the house and see the same amount of
 23 dust inside as out. You could not see five
 24 feet with the flashlight inside or outside.
 25 "This particular storm started in the daytime and kept

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1 blowing all night. That was on the 11th of
 2 May, 1993. Lots of times like that. You don't
 3 really notice the dust until you shine a
 4 flashlight, and suddenly you realize it is all
 5 over. It was dusty the next two days, the 12th
 6 and the 13th, three days in a row. It was
 7 miserable. You only have to deal with it three
 8 or four months a year, but it is enough to
 9 wonder why you live out here."

10 Let me stop there. Would you agree that that statement
 11 is true, going inside may not be a complete solution if you
 12 actually live out there?
 13 A I would agree with that. In terms of if you go inside,
 14 that's not going to eliminate your exposure to that dust
 15 completely.
 16 Q Now let me ask you, assuming that that is a typical
 17 experience for someone who has to live out there, would you
 18 characterize that as not some kind of public health problem?
 19 A No, I think that that does represent some type of
 20 public health problem.
 21 Q And just so we are clear, I want to revisit this
 22 discussion of arsenic and the elements in it. I believe you
 23 mentioned this last night, but PM-10, just the tiny particles
 24 that are small enough to get in your lungs, no matter what
 25 they are made of, it is just a bad thing to have in your

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1 lungs; right?
 2 MR. BIRMINGHAM: I think this question was asked and
 3 was answered. I am going to object.
 4 MR. DEL PIERO: It was asked.
 5 MR. FLINN: Q Mr. Pinsonnault, you recall last night
 6 I asked you to assume that Exhibit 216-B was a cross-section
 7 depiction of the emitting playa area, showing the changes both
 8 relative to different elevations and showing an internal
 9 cross-section of what lies beneath at least some of the playa.
 10 Do you recall that?
 11 MR. PINSONNAULT: A Yes, I do.
 12 Q In your testimony this morning, you talked about the
 13 possibility that there might be fluctuations at the lake
 14 level, wet years the lake goes up, then recedes, exposing
 15 playa, and you get dust emissions. Do you recall that
 16 testimony?
 17 A Yes, I do.
 18 Q And do you recall I asked you to assume the correctness
 19 of the change in slope depiction on this such that you have a
 20 much flatter slope at the lower lake elevations and a much
 21 steeper slope at the higher lake elevation. Do you recall
 22 that?
 23 A Yes, I do.
 24 Q Now all other things being equal, if you're going to
 25 have this exposure of playa by recessions, the rising and

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1 falling lake levels, wouldn't you agree that if that raising
 2 and falling took place at higher lake levels, you would expose
 3 correspondingly less efflorescent playa than if you had the
 4 same rising and falling of the lake level at lower elevations?
 5 A Assuming your slopes are correct, yes.
 6 Q And we didn't get into this level of detail last night,
 7 but I want to just touch on it very briefly. Could you
 8 describe how the efflorescent process works, that is, how are
 9 these efflorescent salt deposits created, to your
 10 understanding?
 11 A To my understanding, there is groundwater located in
 12 the spaces between the sand and clay particles. Those will
 13 rise to the surface through capillary action, and once that
 14 saturated liquid reaches the surface, it can dry and leave
 15 behind the salt crust.
 16 Q So you have saline water rising through permeable
 17 sediments near the surface, leaving behind a dry salt crust?
 18 A That is my understanding, yes.
 19 Q You testified about two things, and I want to see where
 20 they intersect. You told us that modeling is generally
 21 uncertain, and you also said that we can't really be
 22 completely sure what will happen to the air quality once we
 23 get the lake up to higher levels. Do you recall that?
 24 A Yes.
 25 Q Can you rule out the possibility that if we get the

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1 lake up to 6,390, 6,392, thereabouts, that additional, more
 2 precise modeling can be done that could show that higher lake
 3 levels will not be necessary to comply with the State and
 4 Federal law?
 5 A No, I can't rule it out. We do have, however, a study,
 6 for example the TRC analysis, which shows us that if the lake

7 was raised to 6,393, and based on the Great Basin analysis of
 8 dust-emitting areas, you still have, at this point, according
 9 to their analysis, dust-emitting areas at 6,393.
 10 We do, however, have an analysis prepared by the Great
 11 Basin in which the TRC and environmental consultants examined
 12 the potential for dust storms from areas that are thought to
 13 be potentially dust-emitting at this time.
 14 They assumed that there could be dust-emitting areas
 15 from 6,393 to 6,400 feet, and, based on that size of emitting
 16 area and estimate of the emission rate from salt crust covered
 17 with sand, which is one of the lower emission rates measured
 18 by the Great Basin, that you could have concentrations as high
 19 as 530 micrograms per meter cubed.
 20 Those concentrations were estimated at some distance
 21 from the playa. If you are looking at concentrations at the
 22 playa, I think you would find much higher concentrations.
 23 Based on that, I think one could be fairly confident
 24 that you are going to have some exceedences.
 25 Q So I guess what you are telling us is that, "Gee,

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1 things might be worse the Jones and Stokes' model tells us."
 2 A At the higher lake elevations, yes, it is possible.
 3 Q Now, in your experience, close to two decades of
 4 advising on environmental issues, are you aware of any
 5 regulatory regime that says, if an air pollution problem is
 6 worse than you might even think it is, we shouldn't bother
 7 trying to solve it?
 8 A Certainly not.
 9 Q Let me close now with a discussion about Owens. Mr.
 10 Birmingham asked you about all these things that are being
 11 done in Owens Lake, and could they be done at Mono Lake. You
 12 may or may not be aware of this -- are you aware of any State
 13 or Federal legislation protecting the scenic values of Mono
 14 Lake, for which there might not be equivalent legislation for
 15 Owens Valley?
 16 A I am aware, but I am not aware of all the details, but
 17 I am aware of that.
 18 Q Are you generally aware that Congress, in 1984, passed
 19 a statute creating the Mono Basin Scenic Area?
 20 A Yes, I am.
 21 Q And are you generally aware that in that statute,
 22 Congress restricted the kind of activities that might disrupt
 23 the scenic values of the playa?
 24 A Yes, I am.
 25 Q And you understand that the Forest Service is the

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1 agency charged by Congress with carrying out it's direction
 2 with regard to preserving the scenic areas of Mono Lake?
 3 A I will take your word for it.
 4 Q And you don't know of an equivalent regime at Owens?
 5 A Not that I am aware of.
 6 MR. FLINN: Thank you.
 7 MR. DEL PIERO: Thank you, Mr. Flinn. Mr. Roos-
 8 Collins.
 9 MR. ROOS-COLLINS: No questions.
 10 MR. DEL PIERO: Ms. Scoonover.
 11 MS. SCOONOVER: Yes, I have a couple of questions.
 12 RE-CROSS-EXAMINATION,
 13 BY MS. SCOONOVER:
 14 Q Mr. Pinsonnault, I believe you testified that at the
 15 higher lake levels, the models underpredict the number of
 16 exceedences that can be expected?
 17 MR. BIRMINGHAM: Objection, misstates the evidence.
 18 MS. SCOONOVER: I will restate my question.
 19 MR. DEL PIERO: Fine.
 20 MS. SCOONOVER: Q In Mr. Birmingham's redirect
 21 examination of you, he asked about your concerns of the Great
 22 Basin and the Jones and Stokes air quality model. Can you
 23 tell me what you told Mr. Birmingham was one of your major
 24 concerns with the predictions of the models at higher lake
 25 elevations?

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1 MR. PINSONNAULT: A I believe I said that the Jones
 2 and Stokes model could underestimate the concentrations that
 3 might occur under wind storm conditions at higher lake levels.

4 Q So at 6,390 or 6,393, you had earlier testified, I
 5 believe, that there was still going to be, or could expect to
 6 be exceedences of the Federal and State standards?
 7 A Yes.
 8 Q At 6,400, would you expect to have these exceedences?
 9 A I am not sure. Again, you would have to tell me what
 10 the potential variation was at 6,400. In other words, at
 11 6,400, are you at the high end of the lake level regime or
 12 does 6,400 represent a lake level after the lake has been up
 13 to 6,410 and then receded down to 6400 leaving behind
 14 efflorescent salts?
 15 Q Let's say that the lake rises to 6,400 and stays there,
 16 doesn't go higher, it doesn't go lower. Assume we have a
 17 stable lake level at 6,400.
 18 A Again, it would depend if there was an increase in the
 19 groundwater table which resulted in some efflorescent salts.
 20 I don't know.
 21 Q If we leave aside the discussions you had with Mr.
 22 Flinn on creating new areas of efflorescent salts, assume we
 23 are only dealing with the existing areas of efflorescent
 24 salts. If the lake level was raised to 6,400, have you at
 25 that level covered then the existing playa?

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1 A Well, you have covered all of the dust-emitting areas
 2 that I know in the Great Basin, that I have identified to
 3 date.
 4 Q At 6,400?
 5 A I believe, yes.
 6 Q I would like to ask a few questions about the arsenic.
 7 I believe you testified earlier, and Dr. Fedoruk relied upon
 8 the 50 parts per million by weight of arsenic.
 9 A Yes.
 10 Q Let's assume that's the case. Have you determined how
 11 much arsenic that would mean in say the top six inches of soil
 12 for every square mile of playa that's exposed at the lake?
 13 A No, I haven't.
 14 Q Would the number of about 4,500 tons per square mile of
 15 exposed playa in the top six inches of soil be a reasonable
 16 figure?
 17 A I have no idea.
 18 MS. SCOONOVER: Thank you. That's all.
 19 MR. DEL PIERO: Thank you very much. Mr. Frink.
 20 MR. FRINK: I don't believe staff has any questions.
 21 MR. DEL PIERO: No further questions. Mr. Brown, any
 22 questions?
 23 MR. BROWN: No, sir.
 24 DR. FEDORUK: Mr. Del Piero, I think I can answer the
 25 question you originally raised without having to make a --

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1 CONTINUED EXAMINATION,
 2 BY MR. DEL PIERO:
 3 Q Doctor, go ahead.
 4 A I think your question was: All things being equal
 5 relatively in terms --
 6 Q A comparison of the arsenic effect on the South Coast
 7 Air Basin.
 8 A Well, I have given some mean numbers for arsenic'
 9 concentrations in the Air Basin. Obviously, I don't have the
 10 upper and lower ranges for those, and I could get those.
 11 Q The mean numbers are just fine.
 12 A But, if you compare the mean numbers in the other
 13 basins, and those are variable from say --
 14 Q The North Coast doesn't have a lot of problems.
 15 A All right, compare to the mean concentrations at Simis,
 16 the annual geometric mean, the Simis data is actually lower.
 17 Q Than which?
 18 A Than the average for California.
 19 Q And the average for California is -- the average for
 20 California is based on the highest concentration of arsenic
 21 anywhere in the continental United States, so I think that's
 22 the South Coast.
 23 A Let me just restate. I am not sure I gave you the
 24 exact information. If you look at the mean for California, it
 25 is 1.9. The mean concentrations range from 2.8 times 10 to

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1 the minus three for the South Coast Air Basin, one times 10 to
 2 the minus three for Sacramento County, 9 for South Central
 3 Coast, 8 times 10 to the minus four for San Francisco Bay
 4 area, and the annualized average at Simas was 5.45 times 10 to
 5 the minus four, versus the mean for the State of California
 6 being 1.9 times 10 to the minus three.
 7 Q One last question. What is the source of arsenic in
 8 the urbanized areas?
 9 A Probably combustion products.
 10 Q Something that is not normally typically found in
 11 tremendous amounts in Mono Basin?
 12 A Correct.
 13 Q Mr. Pinsonnault, have you modeled groundwater
 14 immediately adjacent to Mono Lake?
 15 MR. PINSONNAULT: A No, I have not done water
 16 modeling.
 17 Q Have you calculated, or do you have any capability of
 18 calculating with any degree of accuracy the potential for
 19 salts surfacing at higher lake levels?
 20 A I personally do not, no.
 21 MR. DEL PIERO: That's all the questions. Thank you
 22 very much, gentlemen. I'm sorry, Mr. Brown.

EXAMINATION,

23 BY MR. BROWN:
 24 Q To the panel, have either of you ever been in a high
 25 desert or low desert sand storm?
 1 DR. FEDORUK: A I'm sorry, I missed the last part of
 2 your question.
 3 Q Have you ever experienced or been in a sand storm in
 4 the high desert or low desert?
 5 MR. PINSONNAULT: A I personally have not, no.
 6 DR. FEDORUK: A I have driven through what I thought
 7 was a low sand storm area.
 8 Q A two-part question to follow up on that. With a 53-
 9 mile-an-hour wind going through the area, what would be your
 10 estimate of how much of the dust could be omitted if we had
 11 restored elevations up to 6,400? How much PM-10 might be
 12 reduced? If you have a 53-mile-an-hour wind, you are going to
 13 have dust storms practically everywhere you are within the
 14 State. So the question is, how much could be eliminated by
 15 what is being proposed, just an estimate?
 16 MR. PINSONNAULT: A I'm not sure. I would have a
 17 hard time giving you that estimate. I really couldn't say.
 18 I know you can certainly have exceedences of State and Federal
 19 standards in desert areas during high-wind episodes.
 20 MR. BROWN: That's all, Mr. Chairman.
 21 MR. DEL PIERO: Gentlemen, thank you very much. I
 22 appreciate your time and your effort.
 23 MR. FRINK: Mr. Del Piero, I believe Mr. Smith has a
 24 designation of one of the exhibits.

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1 MR. SMITH: Yes. For Mr. Birmingham --
 2 MR. BIRMINGHAM: Oh, yes, thank you. Was that 49?
 3 MR. SMITH: This is 49. This is LADWP 49. Would you
 4 like to have it introduced concerning that testimony?
 5 MR. BIRMINGHAM: I failed to ask Dr. Fedoruk if he
 6 relied on LADWP Exhibit 49 when I examined him last night, and
 7 Mr. Smith was kind enough to bring it to my attention, and I
 8 forgot it. I will ask him if I may.
 9 Did you rely on LADWP Exhibit 49 in preparing your
 10 testimony?
 11 DR. FEDORUK: A Yes, I referenced it.
 12 MR. DEL PIERO: Very good. Mr. Birmingham, who is on
 13 next?
 14 MR. BIRMINGHAM: Well, at this point --
 15 MR. DEL PIERO: You don't have a witness?
 16 MR. BIRMINGHAM: Dr. Beschta is here.
 17 MR. DEL PIERO: I don't recognize any unfamiliar faces.
 18 MR. BIRMINGHAM: Mr. Dodge had requested that we not
 19 put him on until this afternoon. We expect to have about 14
 20 witnesses appear at 11 o'clock.
 21 MR. DEL PIERO: Folks, we'll see you back here at about
 22 11 o'clock.
 23 MR. BIRMINGHAM: Would it be possible so we don't

24 interrupt another panel for us to start at 1 o'clock with Dr.
25 Beschta?

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1 MR. DODGE: Dr. Stine won't be here at 11.
2 MR. DEL PIERO: We will do it at 1:30.
3 MR. BIRMINGHAM: Thank you very much.
4 MR. DEL PIERO: We will see everyone back here in an
5 hour.
6 MR. DODGE: I have a couple of procedural matters.
7 MR. DEL PIERO: Back on the record.
8 MR. DODGE: It will just take a minute. I remembered'
9 last night that I had failed to offer Exhibit 221, which is
10 Dr. Jehl's calculation of --
11 MR. BIRMINGHAM: No objection.
12 MR. DEL PIERO: So ordered.
13 (Whereupon National Audubon Society/Mono Lake Committee
14 Exhibit 221 was received in evidence.)
15 MR. DODGE: Yesterday we talked about the date for the
16 hearing in the Mono Basin, and you indicated we might hear
17 today on that.
18 MR. DEL PIERO: Well, that is right. We were supposed
19 to talk about that last night. I guess we haven't had a
20 chance to do that. Why don't you ask me at 11 o'clock when we
21 return, and I will answer it.
22 MR. DODGE: Thank you.
23 MR. DEL PIERO: Are we all done now?
24 MR. BIRMINGHAM: We expect to have here at 11 Dr.
25 Larsen and Dr. Wade. Dr. Larsen couldn't get an earlier

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1 plane, so he will be here early this afternoon, and we expect
2 to have our power men here at 11 o'clock.
3 MR. DEL PIERO: Okay. We will close the record with
4 that.
5 (Recess.)
6 MR. DEL PIERO: This hearing is back in order.
7 MR. DODGE: I wanted to ask if we have come to a
8 closure on the hearing in the Mono Basin or on the east side
9 of the Sierra?
10 MR. DEL PIERO: They have. Pack your bags for December
11 3.
12 MR. DODGE: And, secondly --
13 MR. DEL PIERO: We will figure out where it is going to
14 be, maybe in Bridgeport if that works out for a couple of
15 reasons. One, it is a little closer for us to drive over the
16 hill. Second, it is only about 25 or 30 miles from Mono Lake.
17 It's also got a bigger hall than any place else.
18 MR. ROOS-COLLINS: I could not hear your answer.
19 MR. DEL PIERO: December 3, Mr. Roos-Collins. We will
20 spend a pleasant morning and afternoon in the eastern Sierra.
21 MR. DODGE: Secondly, several weeks ago now, I was
22 asking questions regarding the household survey questions of
23 Mr. Casaday, and, as I recall, or Mr. Wegge and Mr. Hanneman,
24 and Mr. Frink asked me to mark as an exhibit the document for
25 which I was asking the questions, which is the booklet sent in

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1 conjunction with the household survey, as to the preferences
2 of various lake elevations.
3 So we have now marked that booklet as National Audubon
4 Society and Mono Lake Committee Exhibit 215-A, and I would
5 offer it into evidence.
6 MR. DEL PIERO: Any objection?
7 MR. BIRMINGHAM: Are we going to be provided copies?
8 MR. DODGE: Ms. Goldsmith is holding it.
9 MR. BIRMINGHAM: We have no objection.
10 MR. DEL PIERO: So ordered. Do we have an extra copy
11 of that?
12 (Whereupon Booklet Sent in Conjunction with Household
13 Survey as to Preference of Various Lake Elevations was entered
14 into evidence as National Audubon Society/Mono Lake Committee
15 Exhibit 215-A.)
16 MR. CANADY: I will bring copies to you after the lunch
17 recess.
18 MR. DEL PIERO: Thank you.
19 MR. CANADY: I have copies for you.
20 MR. DEL PIERO: Mr. Birmingham, please proceed.

21 MR. BIRMINGHAM: With the concurrence of the Hearing
22 Officer, at this point what we will do is present the oral
23 summary of the written testimony of one of the members of a
24 panel on economics, which will consist of William Wade and
25 Richard Larsen. Dr. William Wade is here, and so we will ask

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1 him to summarize his testimony.
2 WILLIAM W. WADE,
3 Not having been sworn, testified as follows:
4 DIRECT EXAMINATION,
5 BY MR. BIRMINGHAM:
6 Q Dr. Wade, would you please state your full name and
7 spell your last name for the record?
8 A I am William W. Wade, W-a-d-e.
9 Q And, Dr. Wade, by whom are you employed?
10 A Los Angeles Department of Water and Power.
11 Q You are a consultant to the Department of Water and
12 Power; is that correct?
13 A Yes, I am.
14 Q Is Los Angeles DWP your employer?
15 A I am employed by Foster Associates, Incorporated, a
16 consulting firm in Washington, D. C., that merged with
17 Spectrum Economic Offices of San Francisco and San Diego 15
18 months ago. I manage the San Francisco office of Foster
19 Associates.
20 Q Dr. Wade, LADWP Exhibit 61 is a document that is
21 identified as the curriculum vitae of William W. Wade, Ph.D.
22 Does that curriculum vitae accurately state your education and
23 experience?
24 A Yes, it does.
25 Q LADWP Exhibit 62 is a document that is identified as

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1 the Los Banos Grande Facilities Feasibility Report, Appendix
2 E, Economic Risk Model, California Department of Water
3 Resources, Division of Planning, 1990. Did you rely on that
4 document in preparing your testimony for this hearing?
5 A In part we relied on that document and the model which
6 that document explains.
7 Q And LADWP Exhibit 63-A is a document entitled Spectrum
8 Economics 1991, Executive Summary, the Cost of Industrial
9 Water Shortages, prepared for California Urban Water Users.
10 Did you rely on that document in preparing your testimony
11 today?
12 A Not explicitly. My testimony today actually is very
13 technically focused on the materials within Jones and Stokes'
14 Chapter 3-L and 3.
15 Q LADWP Exhibit 64 is a document entitled, The Direct
16 Testimony of Dr. William W. Wade; is that correct?
17 A I don't know the numbers of the exhibits.
18 Q I have handed you a booklet which contains the direct
19 testimony of Dr. William Wade; is that correct?
20 A This is my direct testimony.
21 Q And would you look at the reference list that is
22 contained at the back of LADWP Exhibit 60?
23 A Yes.
24 Q That document, the last page of the Exhibit, has a list
25 of citations.

00058

1 A Yes.
2 Q Included among the citations, Spectrum Economics 1991,
3 Executive Summary, Cost of Industrial Water Shortages,
4 prepared for California Urban Water Users; is that correct?
5 A Yes.
6 Q In preparing your written testimony, did you rely on
7 this document?
8 A Yes, I did cite that document in preparing my written
9 testimony in a very narrow context.
10 Q Exhibit 63-B is a document that is entitled, Spectrum
11 Economics 1991, The Cost of Industrial Water Shortages,
12 prepared for California Urban Water Users. Did you rely on
13 this document in preparing your written testimony? Is it
14 cited?
15 A Yes.
16 Q LADWP Exhibit 64 is a document entitled, Sycamore
17 Associates in Spectrum Economics 1992, The Economic Cost of

18 Drought-induced Urban Greenery Losses, SWC Exhibit 21 to Bay-
 19 Delta Hearings. Did you rely on this document in preparing
 20 your written testimony?
 21 A Yes, in the same narrow context.
 22 Q LADWP Exhibit 60, the Direct Testimony of Dr. William
 23 Wade, was prepared by you; is that correct?
 24 A That's correct.
 25 Q Before I ask you to summarize LADWP Exhibit 60, your

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1 written testimony, I would like to ask you to briefly state
 2 your education and professional experience.
 3 A I am a practicing agricultural and resource economist
 4 with a Ph.D. from the University of Minnesota and 20 years out
 5 of graduate school. During that period, I have been dealing
 6 with a variety of public policy issues, focused virtually
 7 exclusively on energy policy, environmental policy, and since
 8 1986, on water policy in the State of California and some
 9 Western States.

10 During the course of that time, I have conducted
 11 numerous econometric, economic analyses of an applied nature.

12 Q Would you briefly summarize the written testimony that
 13 was submitted as LADWP Exhibit 60?

14 A My submitted testimony picks up from the Los Angeles
 15 Department of Water and Power comments, and I would like to
 16 summarize seven comments that are relevant to the testimony
 17 that I subsequently will spend the rest of this presentation
 18 on. The comments submitted related to Chapter 3-L and 3-N.

19 Q These are comments on the Draft EIR; is that correct?

20 A That's correct, and these are in my written submittal
 21 and show the following seven points that I would like to
 22 emphasize here this morning.

23 The Jones and Stokes Water Supply Planning Model was
 24 inadequately executed. No statistical parameters were
 25 presented.

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1 With the Jones and Stokes approach, there is no way of
 2 knowing if or what certainty the estimated water availability
 3 represents the future.

4 Point two, the Metropolitan Water District water supply
 5 purchases for all cases were underestimated in the model.

6 Point three, Metropolitan supplies estimated in the
 7 model were not shown to be available to replace reduced
 8 diversions from the Los Angeles Aqueduct. The appropriate DWR
 9 planning model, referred to as DWRSIM wasn't relied on, wasn't
 10 used.

11 Number four, additional Metropolitan supplies therefore
 12 were assumed to be available by Jones and Stokes, and these
 13 supplies ignored the potential for incremental impacts to the
 14 Delta.

15 Point five, shortage costs were referred to as indirect
 16 costs to the other member agencies of Metropolitan were
 17 inappropriately estimated and then left out of the net
 18 economic benefits reported on Table S-1 and Table 3 and 14,
 19 the summary table likely to be seen by agency and political
 20 decision-makers as misleading to the policy decision.

21 Point six, the reported benefit-cost analysis was
 22 supported by inadequate estimates of the mix availability and
 23 cost of water resources. Indirect shortage costs and
 24 incremental impacts to the Delta were ignored. There is no
 25 showing of the potential or magnitude for either.

00061

1 Consequently, the costs presented in the net benefit analysis
 2 are understated.

3 Point seven, people's preferences and values to
 4 preserve Mono Lake are reported in the Draft EIR. People's
 5 preferences and values to avoid water shortages are not
 6 reported. This creates a bias in the results.

7 Now the work that we did and the testimony that we have
 8 submitted is to the point of correcting these deficiencies.
 9 We developed a simulation model of the Jones and Stokes supply
 10 planning spreadsheet, and that simulation shows that there is
 11 less Los Angeles Aqueduct water availability and more required
 12 Metropolitan replacement, point one. Point two, DWRSIM
 13 results, which we received from DWR, show that the State Water
 14 Project supplies can only replace a third of L.A.'s Aqueduct

15 deficiencies for the 6,383.5 case.

16 I would like to interject that we ran two cases, a
 17 point of reference case and a 6,383.5 case. So I'm going to
 18 make reference only to those two cases, and the reason we only
 19 did two cases instead of five or six were simply time and
 20 budget limitations. The points, I'm sure, would be
 21 generalizable to any of the other cases, but I do not have
 22 numerical answers to any but those two cases.

23 Point three, the estimated shortage costs provided by
 24 Jones and Stokes, due to reduced L.A. Aqueduct deliveries, are
 25 much smaller than those estimated with a second DWR planning

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1 model that would have been the appropriate planning model to
 2 use, a model referred to as the Economic Risk Model, also
 3 called ERM.

4 Those shortage costs estimated with DWR's ERM, are
 5 closer to \$95 million than to the very low numbers estimated
 6 by Jones and Stokes.

7 Point five, we have revised their net benefit table,
 8 and it shows indeed that the cost-benefit analysis changes
 9 sign, goes negative when the appropriate cost related to
 10 shortage replaced those estimated by Jones and Stokes.

11 Okay, now I can go into each one of those four points
 12 in more detail. I will try to keep this abbreviated.

13 Table A in our submitted testimony, which is depicted
 14 here in Figure 1, reported the simulation results of our
 15 model. Their model, in a nutshell, selected 20 years from the
 16 52-year water availability, from the 52-year hydrology of the
 17 Los Angeles Aqueduct, and estimated all of their results on
 18 those 20 points. We simulated 20 years 52 times, so
 19 simulation model refers to a repeat simulation, and it is the
 20 only way to do hydrologic modeling, and it's the way the DWR
 21 does all of their modeling, so this depicts the physical
 22 results of our simulation model, which getting a simulation
 23 model to run based on their spreadsheet wasn't all that
 24 difficult. It could have been done and should have been done
 25 in the Draft EIR.

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1 MR. DEL PIERO: Excuse me, is this model introduced as
 2 evidence? Has it been proposed to be introduced?

3 MR. BIRMINGHAM: The model itself that was prepared by
 4 Dr. Wade had not been introduced. The results of the model
 5 are contained in Table A of his testimony.

6 MR. DEL PIERO: I am aware of that. I wanted to know
 7 if the model itself was introduced.

8 MR. BIRMINGHAM: No, it is not.

9 MR. FLINN: Mr. Del Piero, we served a document request
 10 on the Department of Water and Power asking for a copy of the
 11 model, and to date we have been refused a copy of the model.

12 MR. DEL PIERO: Pardon me, Dr. Wade, you go ahead and
 13 finish your presentation, and then we will take that issue up
 14 again.

15 MR. BIRMINGHAM: Excuse me, Mr. Del Piero, I might ask
 16 Mr. Flinn, the document request that you served was in
 17 connection with this proceeding before the State Board?

18 MR. FLINN: The document was in connection with the
 19 Public Trust Litigation.

20 MR. BIRMINGHAM: Thank you.

21 MR. WADE: A I am unaware of that request and --

22 MR. DEL PIERO: Doctor, at this point, you don't need
 23 to be worried about it. Just go ahead with your presentation.

24 MR. WADE: A So, coming back to the point, the
 25 simulation approach simply corrects for the deficiencies of a

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1 one sample versus a 52 sample. You get more data, you get
 2 more reliable estimates.

3 The simulation results are a conceptual and empirical
 4 improvement over those presented in Chapter 3, and the Jones
 5 and Stokes results do not embed sufficient scientific
 6 methodology for the Board to rely on them. That's a single
 7 point there.

8 Now Table B actually reveals what we see when we do
 9 this. Table B compares the bottom-line results of what we see
 10 from their tables and our table. I would point out that Jones
 11 and Stokes was gracious enough to make available to us their

12 spreadsheet and, in fact, we embedded their spreadsheet into
13 our results, and basically changed one point in a line and
14 made one correction to their spreadsheet for these simulation
15 results. The one important line was we simulated the
16 hydrology 52 times rather than using 20 randomly selected
17 points once.

18 And then we corrected a double-counting problem, which
19 is brought out in the LADWP comments, which is actually a
20 small volumetric correction to the numbers.

21 So we showed the Jones and Stokes estimates here and
22 ours are down here. You can -- you can compare these two
23 numbers. The Jones and Stokes estimates show point of
24 reference supply 442,000 acre-feet of Los Angeles Aqueduct.
25 We show 433,000. They show a baseline requirement of 85,000

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1 acre-feet of Metropolitan water, we show a baseline
2 requirement of 112,000. That is a big difference, and then,
3 when you change to the 6,383 case, the requirement for
4 Metropolitan goes up to 143,500 acre-feet. Now that's a 69
5 percent increase in the demand for Metropolitan water over
6 their point of reference case, nearly 60,000 acre-feet.
7 that's the major point of this exercise here. We will come to
8 these other numbers out here later on.

9 So point two of my testimony is that DWRSIM results
10 should have been used. In fact, this exercise here revealed,
11 I discovered in the course of my doing this exercise, the
12 fatal flaw of the Jones and Stokes water supply model, which
13 is that if LADWP makes a request, if LADWP is deficient in
14 supplies, it makes a request of Metropolitan, which in turn
15 makes a request of the State Water Project for water.

16 Now to understand whether or not the State Water
17 Project would be able to meet that request, you have to run
18 DWRSIM. DWRSIM is the model that will simulate the operation
19 of the Central Valley Project-State Water Project system of
20 reservoirs and conveyance facilities. It is the standard for
21 estimating State Water Project deliverability under the
22 hydrologic sequence.

23 DWR ran the model for us. They ran it with Decision
24 1630 conditions assumed, which makes them conservative by
25 comparison to EPA standards and the limitations that the

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1 endangered species are perhaps imposing on the State today.
2 In any case, we ran DWRSIM, and Table C of my testimony shows
3 that in fact that Metropolitan relying on the State Water
4 Project would be able to provide only about a third of the
5 request, and so that revealed to me that this approach was
6 mistaken, and this is really nothing more than a
7 sophistication of Jones and Stokes supply planning model to
8 correct for the hydrologic sequence, and that was a fatal
9 flaw.

10 They assumed Metropolitan could supply these
11 deficiencies and Metropolitan could not, and this raises an
12 interesting question. Could Metropolitan be assumed to make
13 up this deficiency of the L. A. Aqueduct deliveries with
14 transferred water? Well, conceivably. There's a lot of low-
15 valued water being used in the Central Valley for agricultural
16 applications. However, there is nothing in the DEIR which
17 shows that Metropolitan could make up those deficiencies with
18 water transferred, and so you have to assume either that the
19 system will be sufficiently flexible to allow Metropolitan to
20 do that, and there are unaddressed environmental impacts to
21 the Delta in the Draft EIR, or you have to include acceptable
22 M&I shortage costs, acceptable in terms of the amount of
23 shortfall and acceptable in terms of the costs of the
24 shortfalls of a water shortage imposed on society.

25 The Draft EIR's failure to address where and how

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1 Metropolitan will fund the water to supplement the LADWP
2 shortfalls is a fatal deficiency in the Draft EIR planning
3 process.

4 That brings me to point three of my testimony. We
5 began to wonder about the shortage cost estimates embedded in
6 the Draft EIR.

7 There is a model that is standardly used in the
8 Department of Water Resources called ERM. It provides

9 benefits or negative benefits or shortage costs related to
10 changes to supply availability in the south coast, southern
11 California region.

12 The model was the appropriate model to use to estimate
13 shortage costs in the Draft EIR, and it was not used.

14 It is an accepted model. It was developed by the
15 Division of Planning. Ed Huntley's group gets a lot of credit
16 for use of work, thousands of man-hours having gone into this.

17 What the model does, the model, as seen on Figure 2,
18 shows the logic of the modeling, which is discussed in
19 Appendix E to the 1990, I think, Los Banos Grande document
20 that you asked me about, which we did rely on, and it is quite
21 detailed.

22 For instance, had Jones and Stokes used the ERM, they
23 would have discovered that before considering changes to the
24 Southern California water availability related to the Los
25 Angeles Aqueduct, they would have discovered the Southern

00068

1 California region has very poor supply reliability, based on
2 Decision 1630 conditions. And the ERM predicts that shortages
3 greater than 20 percent can be expected in seven of the 52
4 years in the hydrologic trace, based on the year 2000 demand,
5 and can be predicted in eleven of the 52 years, based on the
6 2010 demands, even before Los Angeles Aqueduct considerations.

7 In fact, the Draft EIR cites a Metropolitan forecast
8 that it faces a water shortage of 80,000 acre-feet in 1995,
9 rising to 740,000 acre-feet in the year 2010.

10 In spite of that citation, the document goes on to
11 assume that Metropolitan will be able to supply the
12 deficiencies imposed on Los Angeles associated with the Mono
13 Lake decision.

14 Now our results, the ERM results, are shown on Tables
15 D and E. Table D shows the year 2000 results, and we estimate
16 that there is an economic cost of nearly \$100 million for the
17 year 2000 associated with incremental changes to the Southern
18 California region related to the point of reference case
19 compared to the 6,383.5 water changes.

20 These estimates are estimated with a loss function
21 which was developed by Ray Hoagland from data provided and
22 developed by Carson and Mitchell under subcontract to us in
23 1987 contracting to Metropolitan Water District, which were
24 provided to the State Water Board 1987 Bay-Delta Hearings.

25 Like the Mono Lake CV study, a detailed scenario was

00069

1 developed. Respondents were probed about their motivations to
2 avoid water shortages. The reported median willingness to pay
3 values were developed in that 1987 study, and the survey
4 tended to show that these were related to people's desire to
5 avoid inconvenience and the loss of landscape associated with
6 water shortages. Households were found to be willing to pay
7 between \$100 and \$300-odd dollars a year in 1992 dollars
8 annually to avoid water shortages of varying severity and
9 periodicity. These numbers have been used since 1987 by the
10 Department of Water Resources. They have been used by
11 Metropolitan to value increases in or changes to the
12 reliability of the water supply system in Southern California.

13 These shortage cost estimates are the right approach.
14 It's right versus wrong almost. It's certainly a conceptual
15 improvement over the approach discussed within the Draft EIR,
16 but partially excluded even.

17 They serve to show the high valuation of reliable water
18 supplies and emphasize that ignoring these values, as the
19 Draft EIR does, is not acceptable.

20 Also, this table shows that the point of reference case
21 would change the supply availability marginally in the
22 Southern California area.

23 The change from the point of reference case to the
24 6,383.5 would cause one more year of shortage greater than 20
25 percent and two more years of some shortages.

00070

1 Table E simply repeats the analysis for the year 2010,
2 showing that as a function of rising demand, supply,
3 everything else constant, the shortage cost rises.

4 Now, the legitimate question is one which we have spent
5 quite a bit of time thinking about, is why are these numbers,

6 these shortage cost numbers, so very much different from, so
7 much higher than the Jones and Stokes numbers, or why are the
8 Jones and Stokes numbers so small.

9 Table 3-L-5 of the Draft EIR shows an average shortage
10 cost within the LADWP service area of \$1.8 million. These
11 numbers are small in part because of the unproven assumption
12 that Metropolitan and reclamation, systemwide, will be able to
13 provide replacement water.

14 Moreover, the indirect impacts to other Metropolitan
15 member agencies related to reduced L.A. Aqueduct deliveries,
16 were assumed to be too "speculative" in the Draft EIR, and
17 were excluded. They were simply left out.

18 I would assert the decision of the Board can't rely on
19 that assumption and that assertion.

20 The specific differences between our numbers and theirs
21 are four. The Jones and Stokes estimates started from a lower
22 baseline of Metropolitan requirements, 85,000 acre-feet.
23 Remember that our estimates supported by the simulation of the
24 52-year water history showed 112,000 baseline requirements for
25 Metropolitan water. Consequently, there is less supply

00071

1 available in the system than assumed to make up shortfalls
2 imposed by decisions within the Mono Lake Case and is a more
3 likely shortage than Jones and Stokes estimated.

4 Point two, Jones and Stokes' modeling approach, which
5 automatically plugged in 280,000 to 300,000 acre-feet of
6 Metropolitan without a demonstration of that available water,
7 discovered less likelihood of shortage than the appropriate
8 modeling approach supported by DWRSIM and the economic risk
9 model.

10 Point three, Jones and Stokes assumed that a larger
11 share of reduced Los Angeles Aqueduct deliveries could be met
12 with Metropolitan water while DWRSIM shows only 33 percent of
13 that needed water will be available on the State Water Project
14 under Metropolitan's State Water Contract; and that
15 furthermore, sometime after the year 2,000, another reason
16 these numbers go up, Metropolitan will be limited out on their
17 own entitlements on that contract.

18 Point four, Jones and Stokes did not use the
19 appropriate shortage and indirect cost estimates and
20 calculated shortage costs for only a subset of the affected
21 population, again to emphasize the point only over the BWR
22 service area, having left out the so-called indirect impacts
23 to Metropolitan's other member agencies.

24 We believe the ERM is the appropriate model because it
25 calculates shortage costs based on changes in deliveries to

00072

1 the entire Metropolitan service area due to, in this
2 particular application, due to reduced deliveries on the Los
3 Angeles Aqueduct.

4 We also believe that the Carson and Mitchell
5 residential shortage costs are the only values in the record
6 that measure lost consumer surplus related to reduced water
7 supplies in California.

8 This is the conceptually correct measure of shortage
9 costs to use, and it is in the record of the State Board.

10 The Carson and Mitchell reliability values, which are
11 the basis for the ERM cost estimates, were well received in
12 1987. No better basis exists today to estimate the value of
13 a change in reliability to residential water users, certainly
14 not the Griffin numbers referred to and relied on by Jones and
15 Stokes.

16 We now come to my last point: How does all of this
17 change the net benefit analysis shown on Table F? This is a
18 subset of Table 3-N-14 of the Draft EIR, and it emphasizes the
19 differences in our approach compared to Jones and Stokes.
20 They included a very small shortage cost. We assumed the mid-
21 point, the year 2000, \$95 million shortage cost as the
22 appropriate number to use.

23 Jones and Stokes estimated an incremental cost of DWP
24 water, that's Metropolitan water supply costs, that's a typo
25 there, which is not contained -- well, it seems to be. It is

00073

1 contained in my testimony, but I would assure you it was not
2 submitted by myself that way. That should be Metropolitan.

3 Jones and Stokes estimated --

4 MR. BIRMINGHAM: Excuse me, Dr. Wade, where it says
5 "DWP water supply costs", that should be "Metropolitan"?

6 A Yes.

7 MR. BIRMINGHAM: That is in Table F?

8 A Yes.

9 MR. DEL PIERO: That correction is noted.

10 DR. WADE: A Jones and Stokes, again to emphasize
11 the point, assumed that Metropolitan would be able to replace
12 the water at a higher cost, and they estimated a \$25 million
13 increase in resource cost imposed upon DWP by requiring
14 Metropolitan's higher-cost water to replace lower-cost water
15 from Mono Basin.

16 In fact, we show that the water that they assumed is
17 not available and the incremental cost of water that is
18 available is estimated to cost \$4 million more a year, but
19 that reduction in increased resource cost is substituted by an
20 increase in shortage costs, the next vertical column.

21 And jumping to the bottom line, the combined results of
22 these changes in net economic benefit related to the 6,383.5
23 case, go from a positive \$34 million to a negative \$39
24 million.

25 Now, again, I would like to make another point, make

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1 the same point I made before, which is: How would transfers
2 obviate these large costs? A key factor to these results is
3 that current institutional structures limit the water
4 available to Metropolitan and the Los Angeles Department of
5 Water and Power. The Los Angeles Aqueduct reductions
6 translate mostly to shortage in my analysis because water is
7 not available on the State Water Project to reduce the loss.
8 This we have shown.

9 If water laws and regulatory framework were to change
10 to induce water transfers, then Metropolitan reasonably might
11 be assumed to replace the reductions on the Los Angeles
12 Aqueduct, but the details of this are unknown and are not in
13 the record of the Draft EIR.

14 And, in fact, as we have seen, Metropolitan faces
15 pretty dire shortages in the baseline case. Therefore, some
16 very large transfer numbers would have to be assumed to make
17 up for the baseline case and incremental supplies associated
18 with reductions on the L. A. Aqueduct.

19 I don't know whether or not Metropolitan will be able
20 to effect those transfers, nor does the record of the Draft
21 EIR contain anything about that. This is simply left out of
22 the record.

23 So the Draft EIR is deficient in failing to include or
24 consider incremental impacts associated with a potential for
25 water transfers if the Draft EIR wants to assume that the

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1 water that Metropolitan can't get from the State Water Project
2 can be acquired by transfers because those transfers will
3 likely switch through the Delta in some fashion, so these are
4 left out of the Draft EIR.

5 An informed Board decision requires a great deal more
6 information about how Metropolitan might be expected to supply
7 the Southern California region in the shadow of the Endangered
8 Species Act, EPA Standards, and growing demand before
9 considering how the incremental changes associated with Mono
10 Lake might exacerbate that situation.

11 And that concludes my direct testimony.

12 MR. BIRMINGHAM: Thank you. Mr. Del Piero, I was not
13 personally aware of the request that Mr. Flinn had made for
14 the model that was prepared by Dr. Wade in connection with his
15 testimony, the results of which are contained in Table A.
16 What I would propose doing is making the model available to
17 Mr. Flinn, and if, after he has examined the model, he feels
18 it is necessary to further cross-examine Dr. Wade, what we
19 would like to do is make Dr. Wade available for additional
20 cross-examination because we don't want to deny Mr. Flinn the
21 opportunity to cross-examine him on that issue.

22 MR. FLINN: That's very thoughtful, and we accept
23 gratefully.

24 MR. DEL PIERO: And a copy of that would also be
25 delivered to Mr. Canady.

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1 MR. BIRMINGHAM: If that is the direction from the
 2 Hearing Officer, that will be done as well.
 3 MR. DEL PIERO: Mr. Stubchaer probably knows as much
 4 about the DWRSIM as anybody since he developed manipulations
 5 for the Board in terms of our D-1630 process.
 6 MR. BIRMINGHAM: Very good. We will make it available
 7 both to Mr. Canady, and is it necessary for us to supply ten
 8 copies to the Board, or will one copy be adequate?
 9 MR. DEL PIERO: Well, no --
 10 MR. SATKOWSKI: Mr. Del Piero, are we talking about the
 11 DWRSIM model?
 12 MR. DEL PIERO: No, we aren't. We are talking about
 13 the model that Dr. Wade just referred to as having been
 14 prepared in connection with the preparation of his testimony,
 15 which will be made available to Mr. Flinn.
 16 MR. SATKOWSKI: What is the name of that model?
 17 MR. BIRMINGHAM: What is the name of the model? Have
 18 you given it a name?
 19 DR. WADE: It is unnamed.
 20 MR. DEL PIERO: An unnamed model. Mr. Canady.
 21 MR. CANADY: I would request that Jones and Stokes be
 22 afforded a copy of that as well, so we would need one for our
 23 purposes and one to be delivered to Jones and Stokes.
 24 MR. DEL PIERO: Particularly inasmuch as the testimony
 25 commented on the Draft EIR. That is so ordered.

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1 MR. SATKOWSKI: So the record is clear, we do have a
 2 copy of the DWRSIM model in hand.
 3 MR. DEL PIERO: I am very much aware of the fact we
 4 have that, truly aware of the fact.
 5 MR. BIRMINGHAM: As is Mr. Stubchaer, apparently. Then
 6 we will make that available to Mr. Flinn and make Dr. Wade
 7 available for additional cross-examination if Mr. Flinn
 8 determines that is necessary.
 9 MR. DEL PIERO: Is the other party to this panel
 10 present?
 11 MR. BIRMINGHAM: He has not arrived yet. I will check
 12 in the lunch room.
 13 MR. CANADY: Dr. Wade, is there adequate documentation
 14 so that Jones and Stokes or Board staff could use that model,
 15 the package that is going to come to us?
 16 DR. WADE: It's an undocumented model, but it is a
 17 simple spreadsheet.
 18 MR. DEL PIERO: Is it possible for them to utilize it
 19 in order for purposes of checking its accuracy?
 20 DR. WADE: I would think so, and I would have thought
 21 they would have asked for it in fact by now.
 22 MR. DEL PIERO: Are they aware that you have it?
 23 DR. WADE: I'm sure they are.
 24 MR. DEL PIERO: Have you advised them of it?
 25 DR. WADE: We've had numerous coreo professional

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1 conversations, but it's never come up.
 2 MR. DEL PIERO: Did you send them notification prior to
 3 the release of the environmental document?
 4 DR. WADE: No, we made it up in response to our
 5 testimony submitted after the release of their Draft EIR
 6 document.
 7 MR. DEL PIERO: So, at this point, you have no way of
 8 knowing they have knowledge of it?
 9 DR. WADE: It's referred to in my written testimony.
 10 MR. DEL PIERO: It's in our record.
 11 MR. CANADY: They probably would have anticipated this
 12 model, based on comments that Dr. Wade provided in the --
 13 MR. DEL PIERO: It is appropriate to have it delivered
 14 to them. The environmental consultants are not State Board
 15 Staff.
 16 MR. STUBCHAER: Mr. Del Piero.
 17 MR. DEL PIERO: Mr. Stubchaer.
 18 MR. STUBCHAER: I would like to ask the witness one
 19 question. I probably won't be here for the cross-examination.
 20 When you began your summary, I believe you said that
 21 the benefit-cost ratio changed the sign, that it went negative,
 22 and I thought a benefit-cost ratio couldn't go below zero,

23 because if a benefit becomes negative, it's a cost. Were you
 24 referring to the net economic benefits instead of benefit-cost
 25 ratio?

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1 DR. WADE: I used the words colloquially. Their
 2 calculation was a net benefit calculation, and I simply
 3 replicated the net benefits calculation with changes to the
 4 data, and it goes negative.
 5 MR. STUBCHAER: It is my understanding that a benefit-
 6 cost ratio definition would not go negative.
 7 DR. WADE: Well, it would be either greater than one or
 8 less than one.
 9 MR. STUBCHAER: The range goes from zero to infinity.
 10 DR. WADE: This is true, and the decision point is one.
 11 If it is less than one, the benefits are less than cost.
 12 MR. STUBCHAER: I understand.
 13 DR. WADE: Yes, you are correct.
 14 MR. STUBCHAER: Thank you.
 15 MR. DEL PIERO: Dr. Wade, was the oath administered to
 16 you this morning?
 17 DR. WADE: It was not.
 18 MR. STUBCHAER: Can you give it retroactively?
 19 MR. DEL PIERO: Let me do this. Please stand up. Do
 20 you promise to tell the whole truth during the course of this
 21 proceeding?
 22 DR. WADE: I do.
 23 MR. DEL PIERO: Were the comments made by you in regard
 24 to your written testimony for the previous 30 minutes since
 25 Mr. Birmingham introduced you the truth as you know it?

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1 DR. WADE: Yes.
 2 MR. DEL PIERO: Good. Do we have the other member of
 3 the panel here?
 4 MR. BIRMINGHAM: He has not arrived yet.
 5 MR. DEL PIERO: The airplane didn't leave Los Angeles?
 6 What's going on?
 7 MR. BIRMINGHAM: With Dr. Carson --
 8 MR. McBAIN: Dr. Carson has a 2:15 flight, and he will
 9 be here at approximately 4 p.m.
 10 MR. DEL PIERO: We aren't going to get back to Carson
 11 at 1:30.
 12 MR. BIRMINGHAM: Dr. Beschta is here, and he is
 13 available at 1:30. Dr. Stine will be here at 1:30. I could
 14 conclude with Dr. Beschta at 1:30.
 15 MR. DEL PIERO: Who else do we have?
 16 MR. McBAIN: The power system witnesses should be here
 17 at 12:30.
 18 MR. DEL PIERO: All of them?
 19 MR. McBAIN: Yes, they will be available today after
 20 lunch.
 21 MR. DEL PIERO: Would you rather do the power folks?
 22 MR. BIRMINGHAM: Dr. Beschta has been here all day, and
 23 he does need to go back to Oregon to teach another class. The
 24 people who are on the power panel work for the Department of
 25 Water and Power, and we have a little more influence with them

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1 than we do with Dr. Beschta.
 2 MR. FLINN: In addition, I believe Dr. Stine is coming
 3 up here specifically to be here for Dr. Beschta's testimony,
 4 so our preference would be Dr. Beschta.
 5 MR. DEL PIERO: Fine. I just wanted to make sure Dr.
 6 Stine is here by 1:30. If not, I assured Mr. Dodge earlier
 7 that we would wait.
 8 MR. FLINN: I don't know Dr. Wade's availability, but
 9 I am ready to cross-examine him now or as soon as he is ready,
 10 so we can take up time doing that, too.
 11 MR. DEL PIERO: I think what we are going to do, ladies
 12 and gentlemen, we are going to take an hour and a half break
 13 and be back here at 1:30, and then we are going to go, and I
 14 think it is probably safe to assume we are not going to break
 15 for dinner. I don't mind if you eat in here so long as you
 16 don't mind if you eat in here. In order to get everyone done
 17 today that we had intended to get done, we are going to have
 18 to do that, since we have lost so much time this morning. So
 19 you now have six hours advance notice as to your selection

20 opportunities for the evening meal.
21 We will see you at 1:30.
22 (Noon recess.)
23 ---oOo---
24
25

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1 TUESDAY, NOVEMBER 16, 1993, 1:30 P.M.
2 ---oOo---

3 MR. DEL PIERO: Ladies and gentlemen, this hearing will
4 again come to order. When we left, we had completed the
5 direct, and we now have Dr. Beschta back.

6 MR. BIRMINGHAM: Dr. Beschta is back, and I hope that
7 we can very quickly wrap up his testimony. We will start with
8 his redirect examination and then he will be made available
9 for slaughter by Mr. Dodge and Dr. Stine. (giggles)

10 MR. DEL PIERO: Nice to see you, Dr. Beschta.

11 DR. BESCHTA: It's nice to be back, I think.

12 ROBERT BESCHTA,
13 Having been previously sworn, resumed the stand and testified
14 as follows:

15 REDIRECT EXAMINATION,

16 BY MR. BIRMINGHAM:

17 Q Good afternoon, Dr. Beschta. I would like to begin and
18 move through this as quickly as we can because of the limited
19 time that we have.

20 In response to a question last week asked of you by Mr.
21 Dodge, you stated that in your opinion Lee Vining Creek
22 suffers from a lack of fines. Do you recall stating that?

23 DR. BESCHTA: A I believe I did, yes.

24 Q Why do you believe Lee Vining Creek suffers from a lack
25 of fines?

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1 A Well, it's a fairly steep gradient system, and there is
2 a coarse material left, and the fines is a necessary component
3 for rebuilding the banks along those systems, and indeed, a
4 stream with more fines would rebuild banks more quickly.

5 Q Would you recommend a program of artificially
6 depositing fines into Lee Vining Creek?

7 A From outside sources?

8 Q Yes.

9 A No.

10 Q And why is that?

11 A Well, the stream system, although I have indicated
12 there is a lack of fines, nevertheless, as that channel begins
13 to rearrange itself, which it is already doing, fines will
14 begin to show up in that system, and so they are present, but
15 it will take a while for them to express themselves.

16 Q Mr. Dodge also asked you a question about the wetlands,
17 and in particular the wetlands at the mouth of Lee Vining and
18 Rush Creeks, and I believe that you responded to a question he
19 asked you about there being more at an elevation of 6,400
20 feet, a lake elevation of 6,400 feet. Did you understand Mr.
21 Dodge's question to mean that there would be more inundation
22 of wetlands at a lake level elevation of 6,400 feet than
23 exists today?

24 A There definitely would be more inundation of wetlands,
25 yes, at a higher elevation.

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1 Q At an elevation of 6,400 feet above sea level, will
2 there be more wetlands along the Rush and Lee Vining Creeks
3 deltas than exist there today?

4 A No, bringing the lake up to that level -- I haven't
5 made the measurements, but you would submerge a fairly
6 substantial portion of the deltas on both of those streams.
7 And by delta, that is the place where today we have these
8 wetlands.

9 Q Dr. Beschta, I have placed on the easel two photographs
10 which were discussed extensively during your direct
11 examination and cross-examination. These are photographs, one
12 taken in 1987, the other in 1993, at a place identified by Mr.
13 Tillemans as being approximately one-half mile from the mouth
14 of Rush Creek. Is that correct?

15 A That's my understanding, yes.

16 Q Now Mr. Dodge asked you some questions about what's

17 depicted in the photographs, and he asked you whether it was
18 possible that the narrowing and deepening of the channel
19 described by Mr. Tillemans in the video might be a result of
20 channel incision. Do you recall that question?

21 A I remember questions along those lines.

22 Q I believe you answered it was possible that the
23 deepening and narrowing depicted in those photographs might
24 have resulted in part from incision; is that correct?

25 A Could have resulted in part from the incision, yes,

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1 although I saw a heavy vegetation signature on the stream
2 also.

3 Q When you say you saw a heavy vegetation signature, what
4 do you mean by that?

5 A Well, vegetation is a very important natural means of
6 reducing channel width and causing local deepening in
7 channels, and so it is apparent to me that the vegetation is
8 changing quite dramatically through time on these photographs
9 and is an important component of any narrowing of that
10 channel.

11 Q So, in your opinion, the deepening and narrowing of
12 this portion of Rush Creek is not -- let me restate the
13 question. In your opinion, the deepening and narrowing of the
14 channel in this portion of the stream is not solely a result
15 of incision?

16 A That would be true.

17 Q Are you aware of any other portions of Rush Creek that
18 have begun to narrow and deepen where incision since 1987
19 would not have been a factor?

20 A If we are to move up-channel on Rush Creek into the
21 bottom lands, into what folks are calling the bottom lands
22 below the narrows, there are quite a few places in there where
23 channel narrowing is taking place, and it is not due to
24 incision since 1987. The narrowing taking place is because of
25 the vegetation and channel redirection.

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1 Q Among the questions asked of you by Mr. Roos-Collins,
2 questions related to the goal of this hearing in restoring
3 1941 conditions, and Mr. Dodge, I think, asked you a question
4 about what you meant by the term "functional stream". Do you
5 recall those questions?

6 A I think there were a whole series of questions related
7 to that topic, yes.

8 Q Now, in fact, Mr. Roos-Collins asked you if you had
9 ever reviewed the agreement on Rush and Lee Vining Creeks
10 Restoration Programs that were executed by the parties to the
11 Agreement in November of 1990, and I believe your answer was
12 that you were somewhat familiar with the Agreement; is that
13 correct?

14 A I am not sure exactly what the Agreement in this --
15 which document? I reviewed a lot of documents with regard to
16 these streams.

17 Q Let me actually show you a copy of a document entitled,
18 "Agreement on Rush and Lee Vining Creeks Restoration
19 Programs", and just ask you to look at it very briefly and
20 tell me if you have seen that document before.

21 A I don't believe I have seen this specific document.

22 Q Mr. Roos-Collins asked you a question about some of the
23 conditions which maintained and benefited the fisheries in
24 Rush and Lee Vining Creeks, and then he asked you a question
25 about the goal of the program as set forth in this Agreement.

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1 I would like to read to you from the Agreement and ask whether
2 you agree or disagree with the following statements. Let me
3 preface it by reading paragraph B-1 on page 2 of the
4 Agreement, which states that the overall goal of the Rush and
5 Lee Vining Creeks Restoration Programs is to develop and
6 implement action plans pertaining to channel modifications and
7 any actions needed to help reestablish the conditions which
8 benefited the fisheries which existed in the Creeks prior to
9 1941.

10 Then the second paragraph states, and this is the
11 statement I want to ask you about:

12 "Existing conditions may preclude restoration of some
13 specific pre-1941 physical conditions."

14 Do you agree or disagree with that statement, if you
 15 have an opinion?
 16 A Well, it depends upon what the pre-1941 conditions are.
 17 If you are trying to reestablish a functioning stream system,
 18 with pools, with riffles, with undercut banks, that is
 19 entirely possible, and it is underway. If it is necessary to
 20 create side channels and some of these other features that
 21 were artificially a part of that system and grazing and other
 22 things, then I would say no, you don't need to do that.
 23 Q Given the incision that is occurring on these streams,
 24 is it physically possible to reestablish the exact, specific,
 25 using the terms of the agreement, the specific pre-1941

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1 physical conditions?
 2 A No, it is not. The term "exact" recreates what was
 3 there before, and that's really impossible. Significant
 4 changes have occurred to that stream in the last 50 years, and
 5 so you cannot put it back together again in exactly the same
 6 condition.
 7 Q Mr. Dodge asked you a question about your 1992
 8 opposition to rewatering side channels on Lee Vining Creek.
 9 Do you recall that question?
 10 A Yes.
 11 Q Why were you opposed to the proposed action that was
 12 being advanced in 1992 by the Restoration Technical
 13 Specialists?
 14 A Well, the proposed rewatering also carried with it a
 15 lot of other activities, and the activities included such
 16 things as dredging, side-channel pools, creating pools, the
 17 addition of gravel, and rearranging the channel, so it was
 18 more than simply a rewatering. It was an incredible amount of
 19 other activities proposed for that entire channel.
 20 Q Now there was one channel in particular that I believe
 21 you were opposed to rewatering, the B-1 channel. Was part of
 22 your opposition to rewatering that specific channel due to the
 23 fact that the channel contained a functioning wetland?
 24 A That channel had a wetland at the time I saw it, and my
 25 feeling was it was going to get wetter with the

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1 reestablishment of the flows, and yes, it was a functioning
 2 wetland at that point in time.
 3 Q Was it your opinion that the functioning wetland would
 4 contribute more to the fishery than the rewatering of the
 5 channel?
 6 A Wetlands do different things other than provide
 7 physical rearing habitat. They are involved in nutrient
 8 transformations and the processing of nutrients, which are
 9 ultimately available to stream systems, so they do a different
 10 function, and it is hard for me to translate that into more or
 11 less for the fisheries.
 12 But, in this case, it was an established wetland. It
 13 was already in place, and the proposed treatment was basically
 14 going to greatly alter that.
 15 Q In 1992, did you express opposition to the proposed
 16 rewatering of side channels that involved nothing more than
 17 reopening through minimum work the head of a channel?
 18 A I think at that time I indicated that if it was easy,
 19 and by easy, just the removal of a couple of rocks by hand or
 20 whatever, to allow water to run down a channel, that
 21 additional water would indeed increase the amount of riparian
 22 vegetation existing on those valley bottoms, and so, if one of
 23 the goals is to have more vegetation, that was one way of
 24 doing it.
 25 Q So you were not opposed to that kind of work in 1992?

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1 A I don't believe so.
 2 Q I would like to follow up if I can your last answer
 3 with some questions that relate to questions asked of you by
 4 a number of the representatives of the parties and in fact by
 5 staff. I think in particular Mr. Herrera asked you some
 6 questions concerning flows -- excuse me, I'm sorry, I'm
 7 mistaken. These questions were asked of you by Mr. Canady.
 8 Mr. Canady asked you whether you thought a minimum flow of 20
 9 cfs in Rush Creek would be enough to establish and maintain a
 10 stream that was functionally equivalent to streams that

11 existed prior to diversions in 1941, and I believe you
 12 testified that a minimum flow of 20 cfs would develop smaller
 13 channels and smaller floodplains than at present, and at 20
 14 cfs you would not see a dynamic stream. It would restrict the
 15 system.
 16 A That's true.
 17 Q And that was based upon your understanding that there
 18 would be a permanent flow of 20 cubic feet per second; is that
 19 correct?
 20 A That was my impression, just set at 20 cfs and you let
 21 it run indefinitely.
 22 Q Is it your understanding of the LADWP proposed
 23 operating plan that it would just establish a minimum flow of
 24 20 cfs and not add flows in excess of that down Rush Creek?
 25 A I don't think that's the case. These are minimum flows

00091

1 and there are many years it would be above the 20 cfs as I
 2 understand it.
 3 Q Have you had an opportunity to review any of the tables
 4 that are set forth in the testimony of Mr. Hasencamp?
 5 A Yes, I have.
 6 Q Is it your understanding that it is that testimony
 7 which generally describes the operation plan proposed by
 8 LADWP?
 9 A One of the tables in particular shows monthly flows
 10 that are anticipated in the streams, yes.
 11 Q I would like to refer to Table B from the testimony of
 12 William Hasencamp. Do you have a copy of that Table B in
 13 front of you, Dr. Beechta? It is on page 40.
 14 A Yes, I do.
 15 Q Now, is it your understanding Table B sets forth the
 16 simulated flows in the Mono Basin that would result from LADWP
 17 Management Plan?
 18 A It is my understanding these represent average flows
 19 and that there could be deviations around the maximums and the
 20 minimums. Let me take that back, there could be deviations
 21 from the monthly values here on a daily basis, but as far as
 22 the minimum flows go, it is my understanding it would never go
 23 to those minimums.
 24 Q Now, based upon the understanding that you have of
 25 LADWP's proposed Management Plan, the flows that would occur

00092

1 under that Plan, do you have an opinion concerning whether
 2 those flows would create and maintain functioning stream
 3 systems?
 4 A Going back to my testimony, I identified three criteria
 5 I thought would be necessary to look at with regard to flows,
 6 one to set a minimum flow, continuous flow, that would never
 7 go below that, and it appears to be set within the historic
 8 norms. I also indicated there was a ramping consideration,
 9 and it is my understanding that that's a consideration with
 10 regard to these flows, and the third criteria was with regard
 11 to peak flows, that there needs to be some dynamic component
 12 into whatever flows are moving through that system, and it is
 13 my understanding that those would be part of this also. In
 14 fact, they show up in the monthly averages.
 15 Q In fact, in some of the monthly averages, looking at
 16 Table B from Mr. Hasencamp's testimony, for instance in June
 17 there would be a maximum monthly average of 350 cfs in the
 18 Lower Rush Creek; is that your understanding?
 19 A That's what I read, yes.
 20 Q And so it is your opinion that these kinds of flows
 21 would create and maintain a functioning stream system?
 22 A Yes.
 23 Q And would that functioning stream system have
 24 equivalent instream habitat as existed prior to diversions, in
 25 your opinion?

00093

1 A I think it will develop that equivalent habitat, yes.
 2 Q Now, with respect to maintaining the --
 3 A Can I back up a little?
 4 Q Certainly.
 5 A I think it is even possible it will be doing better
 6 than 1941 because in 1941 it was already experiencing the
 7 effect of a whole lot of other activities. Flows were being

8 diverted for other purposes prior to 1941. There was grazing
 9 in the bottom lands, and some of those perturbations have been
 10 removed from the system, so it is conceivable to me you can
 11 create better conditions for fish than existed immediately
 12 prior to 1941.
 13 Q Now, with respect to the types of peak flows that you
 14 have talked about to establish and maintain riparian habitat,
 15 would it be necessary to have those flows every year?
 16 A Oh, no. They would never occur every year in a normal
 17 system.
 18 Q When you say "in a normal system", do you mean in a
 19 system that is unaffected by diversions by man?
 20 A Right. If we had a pristine system there, you would
 21 not have these higher resetting flows occurring every year.
 22 Q And how often would they occur, in your opinion?
 23 A Well, plants out there are spread throughout that
 24 landscape in various ways, and so every flow regime is doing
 25 something for some plants. We may see plants established even

00094

1 during low-flow years on some mid-channel bars where normally
 2 they would be flushed away, so it is always occurring to some
 3 degree, but it is really the larger flows that are important
 4 in regard to resetting cottonwoods and some of the willows,
 5 and those might occur once every third year. Certainly --
 6 well, not every other year, maybe once every third year, maybe
 7 once every fourth year or maybe less frequently than that.
 8 Q Now would the peak flows that you are talking about
 9 have to be of a duration that would occur naturally?
 10 A Well, ideally, from a plant standpoint, flows go up and
 11 go down in these systems. Look at any of the hydrographs in
 12 snowmelt systems, and they seldom come up and hold over an
 13 extended period of time. These fluctuations are part of what
 14 happens, and the vegetation reseeding and establishment of
 15 plants have developed with respect to that. So fluctuations
 16 are indeed a part of it.
 17 Q Would it be necessary to maintain these high peak flows
 18 for a period of 30 days?
 19 A No.
 20 Q Do you have an estimate as to the number of days of
 21 these peak flows?
 22 A I would say less than a week. Looking at the
 23 hydrograph peaks again, as they come up, they peak, they come
 24 down, and then they may come back up again in a secondary or
 25 even a tertiary peak may occur in a given year. They do not

00095

1 come up and hold for a month, and I would say several days,
 2 maybe a maximum of a week, for the high-peak flows.
 3 Q Mr. Roos-Collins asked you questions about the work
 4 that was performed on Lee Vining Creek by Mr. Trihey as part
 5 of the restoration process in 1992. Do you recall those
 6 questions?
 7 A Not specifically those questions, but I suspect I was
 8 asked those questions.
 9 Q Let me ask you a question directly. Have you inspected
 10 any of the work that was performed on Lee Vining Creek in
 11 1992?
 12 A Yes.
 13 Q What work have you inspected?
 14 A One of the beach channels, for example, where side
 15 channels have been excavated and where pools have been created
 16 and bars have been placed.
 17 Q Were any backwaters created on Lee Vining Creek in
 18 1992?
 19 A Yes, there was an excavation of backwaters on several
 20 places in Lee Vining Creek.
 21 Q With respect to pools and backwaters that you inspected
 22 that were constructed in 1992, what did you observe when you
 23 inspected them?
 24 A Well, by 1993, they were filling in with fine
 25 sediments, and these are the same fine sediments that are

00096

1 utilized for bank-building processes, and so they were
 2 becoming trapped with regard to fine sediments in the system,
 3 in essence, creating wetlands where there was originally this
 4 side channel pool that had been excavated.

5 Q To what extent had these pools or backwaters filled in?
 6 A Well, they had filled in to the extent that you had
 7 exposed soil now above the existing water so they are filled
 8 in quite a bit.
 9 Q Do you have an opinion as to whether or not the
 10 creation of those pools or backwaters would have impeded the
 11 natural bank-building process?
 12 A Well, this's one of those counter-productive
 13 approaches, I think, or one of the approaches that I would
 14 feel is counter-productive to the system, that is the digging
 15 or excavating of the side channel pools to create, I guess,
 16 rearing habitat. And they naturally fill in. They are
 17 basically taking fine sediments in particular out of the
 18 system.
 19 Again, that sediment becomes important in regard to
 20 building banks and narrowing channels, which is another
 21 objective of the restoration process on those streams.
 22 Q Do you have a copy of the National Audubon and Mono
 23 Lake Committee Exhibit 105 with you?
 24 A I am not sure what 105 is exactly.
 25 Q The National Audubon Society and Mono Lake Committee

00097

1 Exhibit 105 is a document which I am now handing to you, and
 2 I would ask you, have you ever seen the National Audubon
 3 Society and Mono Lake Committee Exhibit 105?
 4 A Yes, I have.
 5 Q Have you reviewed that Exhibit?
 6 A Yes, I have.
 7 Q What does Exhibit 105 purport to be?
 8 A Well, the subject is "Status of Report on Restoration
 9 Activities for Rush Creek" or "Restoration Activities for Rush
 10 Creek".
 11 Q And by whom was that National Audubon Society and Mono
 12 Lake Committee Exhibit 105 prepared?
 13 A It was prepared by Woody Trihey, and it is a copy of a
 14 memo to RTC.
 15 Q The RTC is the Restoration Technical Committee, which
 16 is composed of the Los Angeles Department of Water and Power,
 17 the Mono Lake Committee, the National Audubon Society, Cal
 18 Trout, and the California Department of Fish and Game?
 19 A I believe that's correct.
 20 Q Do you have an opinion about the -- I will state a
 21 foundational question. Does Exhibit 105 contain proposed
 22 restoration work for Rush Creek?
 23 A Yes, it does.
 24 Q And do you have an opinion concerning the
 25 appropriateness of the work that is proposed for Rush Creek in

00098

1 Exhibit 105 of the National Audubon Society and Mono Lake
 2 Committee?
 3 A Yes, I do.
 4 Q What is your opinion?
 5 A Well, much of what I see is indeed inappropriate for
 6 the stream system.
 7 Q Would you please explain that?
 8 A Let me take for an example --
 9 Q Would you refer specifically to page numbers on the
 10 Exhibit, if you can?
 11 A Page 5, for example, looks at Reach 3, the canyon --
 12 let me go beyond that. Let me go to the Narrows to the
 13 meadows, and this Reach 4 on page 7, and the proposal here for
 14 improving existing aquatic and riparian habitat included such
 15 things as deepening, enlarging pools, developing pools and
 16 bars, soft armoring of a stream bank as was done in 1991 as an
 17 example, developing backwater habitat, reduce the width and
 18 deepen portions of the existing channel, anchor large and
 19 small woody debris, loosen cemented gravel deposits in the
 20 existing channel, place gravels in channels, and it finally
 21 talks about plant native vegetation, so it is a very heavy
 22 structural approach to mitigating a stream.
 23 Q There was a reference on that page 7 of Exhibit 105 to
 24 a soft armoring of banks, as was done in 1991. I wrote that
 25 down. Is that what it says?

00099

1 A Protects stream banks from excessive erosion using soft

2 armoring, as was done in 1991, at Site RC-4.5.
 3 Q Have you reviewed the work that was done in 1991 at
 4 that site?
 5 A Yes, I have.
 6 Q Do you have an opinion concerning whether or not the
 7 work that was done at that site in 1991 had accelerated or
 8 impeded the restoration of habitat which might be beneficial
 9 to a fishery?
 10 A I think it has vastly impeded development of conditions
 11 of benefit to fisheries.
 12 Q Would you explain why?
 13 A Well, the armoring of that channel has basically locked
 14 in this meander. It is on a meander bend in the system.
 15 There is this large, sweeping meander where the outside has
 16 been riprapped. As you walk the channel today, the stream
 17 depths along this reach are some of the shallowest you are
 18 going to see, and you see no pool development taking place at
 19 the outside of any meander bend.
 20 You go immediately upstream and downstream, you find
 21 meander bends where you are getting deep pools in excess of
 22 three or four, and in some cases maybe five feet deep, yet
 23 here's a location where the stream can no longer work with its
 24 gravel to create these deeper features.
 25 Q In your opinion, would other work proposed for this

00100

1 segment of Rush Creek on page 7 of Exhibit 105 impede or
 2 accelerate the restoration of conditions which benefit fish?
 3 A Well, the terminology is a little bit vague because the
 4 quantitative information isn't here, but when I read "deepen
 5 and enlarge pools, develop pools, reduce the width and deepen
 6 portions of the existing channel," I am reading into these a
 7 heavy structural approach to a channel. And, to me, that
 8 would be incredibly counter-productive for this reach of
 9 stream.
 10 Q Now, the opinions that you have expressed, are they
 11 based on any other documents that were prepared for the RTC by
 12 the RTC specialist or his sub-consultants?
 13 A Yes, they would be.
 14 Q What are those documents?
 15 A This is a fairly recent one. This is September 17,
 16 1993.
 17 Q You say "this one". You're referring to 105?
 18 A 105, right. There was a brief one which is dated May
 19 of 1991, and it is entitled, "A Conceptual Plan for the
 20 Restoration of Aquatic and Riparian Habitat in Rush and Lee
 21 Vining Creeks", and this is prepared by Trihey and Scott
 22 English with assistance from others.
 23 Q Is it your understanding that that document was
 24 prepared for the Restoration Technical Committee?
 25 A That's my understanding.

00101

1 MR. BIRMINGHAM: I need to ask Mr. Dodge a question if
 2 I may, about the document. Mr. Dodge, was this document that
 3 Dr. Beschta is referring to marked as an exhibit by the
 4 National Audubon Society and Mono Lake Committee?
 5 MR. DODGE: I don't have any idea.
 6 MR. ROOS-COLLINS: It is a Cal Trout Exhibit.
 7 MR. BIRMINGHAM: Can you tell us the Exhibit Number so
 8 we can refer to it by that Exhibit Number?
 9 MR. ROOS-COLLINS: This has been marked as Cal Trout
 10 Exhibit 10, A Conceptual Plan for the Restoration of the
 11 Aquatic and Riparian Habitat in Rush and Lee Vining Creeks,
 12 Mono County, California.
 13 MR. BIRMINGHAM: Q With respect to Cal Trout Exhibit
 14 10, in what way have you relied on this in forming the
 15 opinions that you have expressed concerning the proposed work
 16 in Rush Creek?
 17 DR. BESCHTA: A Well, this is a planning document
 18 which indicates the kind of things that would be done in the
 19 field, and indeed which have been done in the field following
 20 the completion of this document.
 21 Q Are there any specific examples in the document that
 22 you can point us to that you looked at when you were forming
 23 opinions on this subject?
 24 A Towards the back of the document, after page 23 and

25 actually beginning on page 24, is a whole series of 00102
 1 diagrammatic sketches talking about the placement of rock and
 2 log deflectors, a conceptual drawing of rock weirs in
 3 channels, conceptual drawing of sequential spacing of spawnin
 4 beds, digger log placement, side channel development, and roc
 5 weirs, conceptual drawings of side channel development plan
 6 with cross sections, example of rock and vegetation riprap to
 7 stabilize the outside bend of streams, and these conceptual
 8 diagrams again are indicative of the kind of treatments that
 9 were going in in Rush and Lee Vining Creeks.
 10 Q And what is your opinion concerning the kind of
 11 treatments that are described in those conceptual drawings in
 12 Cal Trout Exhibit 10?
 13 A Well, it's a command-and-control approach to a stream
 14 restoration. It is going out there and managing the stream in
 15 a very heavy way with the intent that we know what is best for
 16 that stream in all cases, and these streams are restoring
 17 themselves quite nicely without these kinds of treatments, and
 18 again, where these treatments have been put in, they are
 19 counter-productive with regard to natural processes that are
 20 taking place in the stream. They may be trapping gravels.
 21 They may be preventing the stream from increasing its
 22 sinuosity, it may prevent the formation of pools, and
 23 preventing a lot of things.
 24 Q Mr. Dodge, and this is my last series of questions,
 25 asked you if you had prepared a report -- let me restate the

00103

1 question. Mr. Dodge asked you if you had reviewed a report by
 2 Scott Stine, dated September 1992, entitled, "Past and Present
 3 Geomorphic, Hydrologic, and Vegetative Conditions on Rush
 4 Creek", and I believe in response to that question, you said
 5 that prior to your testimony, you had not reviewed the
 6 document. Was that your answer to that question?
 7 A That was my response, yes.
 8 Q Was your response correct?
 9 A No. I had seen it before.
 10 Q What caused you to make that error?
 11 A I brought a copy of the document that I had seen and it
 12 had been sometime ago. The date on this is September 1992,
 13 and I am not sure when I received it, but it is a long
 14 document like that one is. It is an off-size document, but it
 15 didn't have this cover, was not bound at the top, and one of
 16 the reasons I think that I didn't rely on this much at the
 17 time is because the photographs I had gotten of this document
 18 were apparently Xerox reproductions, and there wasn't anything
 19 intelligible that I could get off the figures with regard to
 20 channels and things like that.
 21 Q Let the record reflect that Dr. Beschta is holding up
 22 photo copies of photographs from which very little detail can
 23 be gleaned.
 24 A They are just black copies, and so when you read the
 25 document and you attempt to think about the channels that are

00104

1 being discussed, it's really shooting in the dark literally,
 2 because I can't remember what the figures are telling me.
 3 Q Since your testimony, have you had an opportunity,
 4 after cross-examination by Mr. Dodge, have you had an
 5 opportunity to review better copies of the photographs than
 6 are contained in the report entitled, "Historic and Present
 7 Geomorphic, Hydrologic, and Vegetative Conditions on Rush
 8 Creek, Mono County, California"?
 9 A Yes, I have. Actually, the historic portion has been
 10 changed on here. It says "past and present" on the cover page
 11 here, and on this one it says "historic and present", so there
 12 is a typo problem with the cover, but I have had a chance to
 13 review that.
 14 Q And based on your review of the photographs, do you
 15 have an opinion concerning whether Rush Creek below the
 16 Narrows, prior to diversions by the Department of Water and
 17 Power, was it a primary channel system or a flow-through
 18 multiple channels?
 19 A It would have been predominantly a single thread
 20 channel with localized braiding.
 21 Q Can you please explain the basis of your analysis?

22 A Well, Mr. Dodge provided that copy to me. He asked me
23 to point out some channels and asked whether or not those were
24 natural or otherwise.
25 Q You mean Mr. Dodge asked you?

00105

1 A Yes. He asked me if I could identify where some
2 unnatural-type channels might exist and the actual page he was
3 showing me was a relatively recent photograph in here with
4 some superimposed channels.
5 So I went back to the aerial photographs and relooked
6 at the photographs to establish exactly where these channels
7 were.

8 Q Now, I noticed that on the copy of the document that
9 you are looking at, there are some plastic sheets overlaying
10 the photographs; is that correct?

11 A That's true.

12 Q And on some of them it appears you have drawn some
13 dashed or dotted lines in different colors; is that correct?

14 A Yes, that is.

15 MR. BIRMINGHAM: Mr. Nagel, whose name appears on this,
16 is not going to be very happy with my marking on here, but I
17 would like to have this marked next in order, if I may, as
18 LADWP Exhibit 82.

19 MR. DEL PIERO: Any objection?

20 MR. ROOS-COLLINS: No objection if we are provided with
21 a copy of this Exhibit.

22 MR. BIRMINGHAM: Unfortunately, I am not sure that I
23 will be able to provide a copy of the Exhibit. We will try
24 and reproduce the thing. That which I am interested primarily
25 in is the lines that Dr. Beschta has drawn on these plastic

00106

1 sheets that overlay the photographs, and we will try and
2 reproduce them as closely as we can.

3 MR. DEL PIERO: When?

4 MR. BIRMINGHAM: We will ask Dr. Beschta if he gets off
5 the stand early enough to do it this afternoon, or we can have
6 them photocopied this afternoon.

7 MR. DEL PIERO: This is the Trihey document.

8 DR. BESCHTA: A No.

9 MR. BIRMINGHAM: This is a document about which Mr.
10 Dodge asked Dr. Beschta last week. Dr. Beschta testified he
11 had not reviewed it, but in fact --

12 MR. DEL PIERO: It is a document authored by Dr. Stine?

13 MR. BIRMINGHAM: That is correct.

14 MR. DEL PIERO: The offered modification are the lines
15 Dr. Beschta has drawn on it?

16 MR. BIRMINGHAM: There some handwritten notes and some
17 overlining, which I presume were placed on the document by
18 Richard Nagel, who is an engineer with the Department of Water
19 and Power.

20 MR. ROOS-COLLINS: We have no interest in Mr. Nagel's
21 notes. Our interest is in the mapping by Dr. Beschta.

22 MR. DEL PIERO: That's my sense, too. It is going to
23 be difficult to be cross-examined if they aren't afforded the
24 opportunity to see that diagram, and if Dr. Beschta leaves to
25 go to reproduce it, he is not going to be back here for

00107

1 purposes of cross-examination.

2 MR. BIRMINGHAM: We will reproduce these just as
3 quickly as we can for distribution to the parties. They are
4 certainly free to examine them and ask questions about them.

5 MR. DEL PIERO: Do you need them now?

6 MR. BIRMINGHAM: I was going to ask Dr. Beschta to
7 explain what he did with them and the conclusions he has
8 reached based upon his examination of the photographs.

9 MR. DEL PIERO: Let me ask you this question. I don't
10 mean to be causing you some other problems. Do you have other
11 areas to question Dr. Beschta on at this point?

12 MR. BIRMINGHAM: No, this was my last area of
13 examination.

14 MR. DEL PIERO: Why don't you finish, and we will take
15 a 10-minute break, and I will have our staff go down and make
16 copies so everyone could have them and review it before they
17 begin cross-examination.

18 MR. BIRMINGHAM: This is going to become LADWP Exhibit

19 82.

20 MR. SMITH: That's correct.

21 MR. BIRMINGHAM: Thank you, Mr. Smith.

22 (Whereupon a document authored by Dr. Stine, with
23 alterations by Dr. Beschta was identified as LADWP Exhibit
24 82.)

25 MR. DODGE: We are not even going to be able to follow
00108

1 the Direct Examination, much less the Cross-examination. Why
2 don't we take a break now and have a copy of these.

3 MR. DEL PIERO: Mr. Birmingham, do you have an
4 objection to that?

5 MR. BIRMINGHAM: I don't have an objection. I find it
6 a little bit interesting Mr. Dodge is suggesting that he is
7 going to have trouble following Cross-examination when
8 repeatedly we have had Mr. Dodge present witnesses, including
9 this document, without our being provided copies of them. I
10 agree with Mr. Dodge it does make it a little bit harder to
11 follow, but I have been following the practice that was
12 established by Mr. Dodge of handing a witness a document and
13 then asking him a question.

14 MR. DODGE: Mr. Chairman, with all due respect to my
15 eminent colleague, the document I asked about is the National
16 Audubon Society and Mono Lake Committee Exhibit 122, and Mr.
17 Birmingham has had months to look at it. This document,
18 Exhibit 82, I have never seen.

19 MR. DEL PIERO: We are going to take a break for 10
20 minutes. Mr. Smith, would you be kind enough to copy them,
21 and then we won't have any problems. We are in recess for 10
22 minutes.

23 (Recess.)

24 MR. DEL PIERO: This hearing will again come to order.
25 Mr. Birmingham.

00109

1 MR. BIRMINGHAM: Mr. Del Piero, the reproduction
2 facilities here at the State Board are not particularly good,
3 so what I would propose doing, and I believe I have the
4 concurrence of opposing counsel, is to have reproductions made
5 of this, and I will bring this witness back to testify on the
6 subject as rebuttal testimony.

7 MR. DEL PIERO: Fine. We will note that for the record
8 so we will make sure that is accomplished.

9 MR. DODGE: We will get the mylar well in advance of
10 Dr. Beschta's return?

11 MR. DEL PIERO: I assume that's true.

12 MR. ROOS-COLLINS: I have a suggestion that Dr. Beschta
13 return after Dr. Stine's testimony. I believe it would be
14 most helpful if the Board could hear Dr. Stine and Dr. Beschta
15 discuss these channels more or less back to back. In fact, if
16 I had my druthers, I would suggest the two be engaged in a
17 discussion with me, but, failing that, if Dr. Beschta could
18 testify at a time when we can hear them at the same time.

19 MR. DEL PIERO: That assumes that the Hearing Officer
20 is capable of engaging in a discussion with Dr. Beschta and
21 Dr. Stine. I don't know that that is necessarily prudent or
22 wise for me to do.

23 MR. DODGE: I am very interested in that suggestion.
24 Mr. Roos-Collins might be able to take a subject-by-subject
25 approach that I was unable to convince anyone of --

00110

1 MR. DEL PIERO: Although I appreciate Mr. Roos-Collins'
2 suggestion, I think we are going to continue to follow the
3 course that we have planned.

4 MR. BIRMINGHAM: That concludes my Redirect.

5 MR. DEL PIERO: Fine. Mr. Thomas or Ms. Cahill.

6 RE-CROSS-EXAMINATION,

7 BY MS. CAHILL:

8 Q Good afternoon.

9 DR. BESCHTA: A Good afternoon.

10 Q Mr. Birmingham asked you some questions about the LADWP
11 Management Plan and referred, I believe, to Table B in Mr.
12 Hasencamp's testimony. Did you provide LADWP with
recommended

13 channel-maintenance flows for inclusion in that management
14 plan?

15 A No, I did not.
 16 Q Did you provide Los Angeles DWP recommendations for
 17 riparian maintenance flows to be put in that plan?
 18 A I have had a discussion, I guess, with them several
 19 months ago, but I never made specific recommendations.
 20 Q You didn't give them any numbers for incorporation in
 21 the plan?
 22 A No.
 23 Q Did you give them any specific ramping recommendations
 24 for incorporation in the plan?
 25 A Not numbers, but my feeling at the time was to look at

00111

1 the hydrographs, and that's your local data. I would look at
 2 that very much in regard to ramping changes.
 3 Q But did you tell them specifically what to do if they
 4 looked at the hydrographs?
 5 A Well, you get to see what the changes are, and that's
 6 how you begin to think about setting some ramping constraints.
 7 Q Did you give them sufficient information that it would
 8 have resulted in specific numbers?
 9 A Specific numbers, I'm not sure.
 10 Q A specific rate of going down following a peak, a
 11 specific ramping?
 12 A I am not aware of a specific number at this time.
 13 Q The last time you were here, you seemed to be only
 14 modestly familiar with the LADWP Management Plan. Was that
 15 true when you first appeared here?
 16 A Yes.
 17 Q And have you since studied it in more detail?
 18 A Not in great detail, but I have looked at it, yes.
 19 Q Are you primarily familiar with the information that is
 20 in Table B?
 21 A Table B and the previous figure, which is on page 39.
 22 Q Turning to Table B and Mr. Hasencamp's testimony, are
 23 these flow regimes that are set forth here?
 24 A It is my understanding these are model values that
 25 would tell you in general what the minimums -- in an average

00112

1 year, what the maximum flows might be in different years.
 2 Q Do you know how often these minimum flows would be the
 3 ones that would come about?
 4 A It is my understanding the minimums would always be
 5 exceeded, equal to or exceeded. As far as the frequency of
 6 occurrence, I do not know.
 7 Q Do you know about the frequency of the occurrence of
 8 the maximum flows that are here?
 9 A No, I do not.
 10 Q And do you know about the month-to-month variations?
 11 Do you know, for example, if it is possible that there may be
 12 a flow of 30 in one month and then a flow of 130, and then a
 13 flow of 30 again? Would you know from looking at this?
 14 A Well, I guess it is possible anything could happen,
 15 particularly let's say in Rush Lake, where you have total
 16 control, let's say, over the release, but I am looking at the
 17 hydrographs on the previous page, and I don't get that sense,
 18 that it is up and down and up and down as you are presenting
 19 it.
 20 Q I would like you to turn, if you would, in the EIR, to
 21 Table 3-C-2.
 22 MR. HERRERA: What was that reference?
 23 MS. CAHILL: Table 3-C-2, Comparison of Point of
 24 Reference and Prediversion Riparian Vegetation Acreages on
 25 Tributary Streams.

00113

1 DR. BESCHTA: A 3-C-2, the Table?
 2 MS. CAHILL: Q Yes. On Rush Creek, for example,
 3 what does that show for prediversion, mature, woody, riparian
 4 vegetation?
 5 A 271 acres, if I read this right.
 6 Q And for the point of reference?
 7 A 135.
 8 Q And that would be a loss of approximately how many
 9 acres?
 10 A It looks like 136.
 11 Q And then it also shows that there is presently

12 actually, I guess, at the point of reference, there were also
 13 33 acres of establishing riparian vegetation.
 14 A Next column over, okay.
 15 Q So, even if you add the establishing vegetation to the
 16 mature, woody vegetation, how many more acres were there
 17 prediversion?
 18 A Let me make sure I get it right. The estimated total
 19 of those two columns is 168.8 acres of establishing and point
 20 of reference mature -- is that what we are after?
 21 Q Yes.
 22 A Do you want to know the difference between that and
 23 prediversion?
 24 Q Yes.
 25 A There is a difference of 102.5 acres.

00114

1 Q And do you believe that the point of reference amounts
 2 are relatively similar to what's out there presently.
 3 A That number matches very closely the number that
 4 Stromberg and Patton came up with when they measured in 1987
 5 in Rush Creek.
 6 Q Okay, what is the difference again?
 7 A 102 acres.
 8 Q With regard to meadow and wetland prediversion, there
 9 was 131.2, and now there's 39.8; is that correct?
 10 A That's what these numbers show, yes.
 11 Q And that's a difference of approximately 90 acres?
 12 A Okay.
 13 Q Do you have any reason to doubt those figures?
 14 A Not the numbers, but the interpretation maybe.
 15 Q Knowing what you know about the LADWP Management Plan,
 16 and in particular the numbers on Table B, are you confident
 17 that that Plan would be able to result in the same amount of
 18 riparian vegetation that existed on Rush Creek prediversion?
 19 A Am I including the delta in this?
 20 Q Well, I think we are including whatever was included on
 21 Table 3-C-2.
 22 A Well, prediversion references a period of time when
 23 water was being put across that bottom land, so you have
 24 irrigated meadows, you have irrigation taking place across
 25 that bottom, so if that's your reference, no, you will never

00115

1 get back to the irrigated bottom land in 1941. I shouldn't
 2 say never, but it is unlikely.
 3 Q And the water that was irrigating those bottom lands
 4 did come from Rush Creek; did it not?
 5 A It had various sources, but Rush Creek would have been
 6 the primary component.
 7 Q If the water that used to go to irrigation is now
 8 exported from the Basin, it wouldn't be available to riparian
 9 vegetation.
 10 A Even prediversion there was an incredible amount of
 11 water used for irrigation that was not available from Rush
 12 Creek. If water is diverted out of the basin, it is not
 13 available to Rush Creek.
 14 Q And there was at least some return from prediversion
 15 irrigation?
 16 A I suspect there was, yes.
 17 Q And some subsurface percolation?
 18 A I suspect there was.
 19 Q So when you are saying that -- I don't want to put
 20 words in your mouth. I didn't quite hear what you said today,
 21 but I thought you suggested this plan might give us better
 22 riparian conditions than we had pre-'41. You didn't mean to
 23 imply that we would have more acreage of riparian vegetation?
 24 A Well, if your measure of better conditions is an
 25 acreage consideration, then I don't think we will match the

00116

1 pre-1941 conditions because of all the water spreading that
 2 was taking place across the bottom lands back at that time.
 3 If you are asking the question: Will we end up with as
 4 good as or better habitat for fish and the new channel
 5 riparian system, I think we are definitely going to do better
 6 than 1941.
 7 Q But you do, in fact, qualify that by near-channel
 8 riparian system.

9 A Well, it's definitely happening there. It's also
 10 happening away from the channel, but it is going to take
 11 longer to develop. There's recovery of willows taking place
 12 where you had the original die-back, and so it is happening.
 13 I don't know the full extent of what will happen through that
 14 system, but it is very encouraging.
 15 Q But let me just get back to the original question. The
 16 original question was in terms of recovering the net number of
 17 acres, we are not likely to?
 18 A I don't think you will get back to the level of acreage
 19 that is being called riparian and meadow and wetland
 20 vegetation that shows here because of the fact that there was
 21 a lot of water being spread around in that system in 1940.
 22 Q And now we have much more of a single channel or a
 23 single channel system?
 24 A Yes, you do.
 25 Q With regard to peak flows, you testified, I believe,

00117

1 that peak flows lasted just a period of a few days. Was that
 2 your testimony?
 3 A Peak flows are actually, from the standpoint of being
 4 totally accurate, a peak flow might be instantaneous, last for
 5 a few minutes to a few hours, and indeed on a daily basis they
 6 are fluctuating that way.
 7 Q So you were in fact talking about within a hydrograph
 8 that makes a curve, there are peaks and valleys that fluctuate
 9 widely within that ascending and descending hydrograph; is
 10 that correct?
 11 A On a daily basis, you will see these fluctuations up
 12 and down.
 13 Q So you are talking about these daily or multi-day
 14 peaks?
 15 A I was smoothing those out from the standpoint of the
 16 question being asked, and really looking at kind of a daily
 17 view, what the average values looked like. That's how I was
 18 interpreting those.
 19 Q This is a figure from the Department of Fish and Game's
 20 Rush Creek Streamflow Report, which is Exhibit DFG 52, and
 21 this figure shows the mean monthly streamflow at the LADWP
 22 gage in Rush Creek over the historic period of record. Dr.
 23 Beschta, when you look at this, would it be fair to say that
 24 the average flow in, let's say the month of November through
 25 April, are something on the order of 60 cubic feet per second,

00118

1 just roughly?
 2 A I would say slightly lower than that, but 50 to 60,
 3 would be lower.
 4 Q And then, in the month of June, what was the average
 5 flow?
 6 A Shows 176 cfs.
 7 Q And that's nearly three times the flow in those other
 8 months; is that right?
 9 A That's true.
 10 Q And in May and July, the flows are 123 and 152 as a
 11 monthly average; is that right?
 12 A Respectively, that's true.
 13 Q So more than twice as high as more or less the average
 14 of the other months; is that right?
 15 A It appears to be that's true.
 16 Q So, in fact, isn't it true that for a period of
 17 approximately three months there is a peak which although not
 18 the highest instantaneous peak is more than twice the average
 19 flow in the other months?
 20 A June would be more than twice any of the other months.
 21 Q So, in fact, while the instantaneous peaks may last but
 22 a few days, isn't it true that there are higher flows that
 23 last for a period of some weeks typically?
 24 A Higher flows than what?
 25 Q Higher than the average of the other months?

00119

1 A That's true, if you are talking about an unregulated
 2 system.
 3 Q Yes.
 4 A All right.
 5 Q And so, if you were to mimic the natural hydrograph,

6 you wouldn't expect to have high flows for just a few days;
 7 would you?
 8 A I don't mean to imply that. I meant to imply -- the
 9 question I think was when you have a peak flow, how long might
 10 it stay up there, and, indeed, over the high period, it might
 11 stay for a day or two or three, but then, indeed, it is going
 12 to be coming down at some particular rate. It would recede.
 13 Q And, in fact, that recession might take quite sometime?
 14 A Yes.
 15 Q We had some discussion today of fine sediments in Lee
 16 Vining Creek. Are you aware of any events in which fine
 17 sediments were deliberately sluiced through Lee Vining Creek?
 18 A Deliberately sluiced? Maybe if you tell me what you
 19 mean by that --
 20 Q Well, what I mean by that is -- I am going to need help
 21 on this. My understanding is that bulldozers went in there,
 22 pushed sediments out or over through Lee Vining diversion
 23 structure.
 24 A It's my understanding, and this happened a number of
 25 years ago, I believe, that indeed some sediments above LADWP

00120

1 diversion structure were released downstream, but I don't have
 2 any knowledge of how that operation took place, whether he
 3 needed his bulldozers or whatever.
 4 Q Would you recommend that in terms of protecting the
 5 fishery?
 6 A I recommend in my testimony that some means be
 7 considered, at least look at that structure from a long-term
 8 perspective of allowing fines to move through, fines, gravels,
 9 fine sand, and finer materials, to continue to be bypassed
 10 through that system.
 11 If that structure is going to be there for a long
 12 period of time, it would be nice to have those fines move
 13 through that system.
 14 Q You had in mind the gradual moving through?
 15 A Well, not in the sense that maybe you are implying, but
 16 I would see these materials generally moving during high
 17 periods, particularly in the rising level of a snowmelt
 18 hydrograph. That would be the most productive.
 19 Q Do you agree that regeneration of woody trees such as
 20 cottonwoods is important for recovery of the riparian system
 21 along these streams?
 22 A It is a very important component of the biota of
 23 streams, yes.
 24 Q Is it possible that quick growth of plants, such as
 25 willows, might inhibit the germination of cottonwoods?

00121

1 A It's a competitive world, you know. Yes, at a
 2 particular site, you've got willows, you may have a problem of
 3 getting cottonwoods there, but the site requirement of willows
 4 and cottonwoods don't always compete. There are locations
 5 that cottonwoods prefer. In clean gravels you might see a
 6 predominance of cottonwoods coming in. So you need channel
 7 disturbance to get cottonwoods in there.
 8 Q Would you ever recommend planting cottonwoods in order
 9 to assist them in getting established, given the fact the
 10 system is not totally functioning the way it did naturally?
 11 A Well, you are giving me an assumption which I am not so
 12 sure is true. I have walked both Rush and Lee Vining Creeks.
 13 I see lots of evidence of young cottonwoods coming in
 14 throughout those systems. There is only one location I didn't
 15 see cottonwoods, but, other than that, I see a fair amount of
 16 cottonwoods coming into those systems. They are not the
 17 mature trees, but they are coming in quite successfully.
 18 Q In the one location, are there any mature trees to
 19 provide a seed source?
 20 A Cottonwood seed blows around profusely. You don't have
 21 to have a tree onsite. Upvalley you do have trees, and you
 22 have cottonwood seeds in the system. You are seeing
 23 cottonwoods show up in a lot of different locations.
 24 Q Would the rate or recovery be increased if there were
 25 some plantings of cottonwoods?

00122

1 A I guess it is conceivable to think when we got out
 2 there and plant cottonwoods we are going to do a great benefit

3 to this ecosystem. I go back and look at the Stromberg and
 4 Patton data, which they measured in 1987, by the way, before
 5 the sheep were removed, and we have seen those prolific
 6 growths of riparian vegetation. If I take their data and I
 7 assume that their numbers represent Rush Creek, which I
 8 suspect they do, because they sampled along the system, had 51
 9 transects, and they come up with over 1.6 million stands that
 10 you would measure if you went out and measured every one of
 11 them today. When you tell me you want to go out and plant
 12 several cottonwoods, it is a very small dent in a very big
 13 picture. It is also meaningless in some ways.

14 MS. CAHILL: I think that's all I have. Thank you.

15 MR. DEL PIERO: Thank you very much, Ms. Cahill.
 16 Mr. Dodge.

17 RE-CROSS-EXAMINATION,

18 BY MR. DODGE:

19 Q Dr. Beschta, in light of the agreement that you are
 20 going to be brought back to talk further about the National
 21 Audubon Society and Mono Lake Committee Exhibit 122, which is
 22 Dr. Stine's report on past and present conditions on Rush
 23 Creek, I am going to defer further questions of you on that
 24 document, but I would ask you just one question, sir, and you
 25 previously told us that you hadn't read that document in

00123

1 preparation of your direct examination, but in fact you had;
 2 isn't that right?

3 DR. BESCHTA: A That is true. I indicated I had not
 4 seen it, but in reality, when you gave it to me, you gave me
 5 a little bit different document that had a cover I hadn't seen
 6 before, but you are right, I'd seen it before, and I had read
 7 it.

8 Q And not only that, but in fact at page 44 of your
 9 testimony you cited it; didn't you?

10 A That's true.

11 Q Now I just have a few questions for you, very few. Mr.
 12 Birmingham asked you about wetlands at the mouth of the
 13 creeks, Lee Vining Creek and Rush Creek, and you told him that
 14 you hadn't made any -- am I right, that he asked you about
 15 6,400 feet. Now you haven't made any measurements of the
 16 wetlands that would exist at 6,400 feet?

17 A No, I haven't. You mean in acreages?

18 Q Yes, sir.

19 A No, I have not.

20 Q Now you did say that the existing deltas would be
 21 submerged; correct?

22 A A major chunk of the existing delta would indeed be
 23 submerged.

24 Q Would you agree with me that prediversion the wetlands
 25 in the deltas are more abundant than they are today?

00124

1 A Prediversion the wetlands were more abundant than
 2 today?

3 Q Yes.

4 A No.

5 Q Do you have an opinion on that one way or another?

6 A I think they are more abundant today than they were
 7 then.

8 Q What is the basis for that opinion?

9 A The basis for that opinion is walking the lower end of
 10 the Lee Vining Creek area below the county road and also being
 11 on the delta below the county road on Rush Creek.

12 Q That would tell you the conditions today. What is the
 13 basis of your opinion for the prediversion conditions?

14 A The aerial photographs.

15 Q And your testimony is the wetlands today at the deltas
 16 are more abundant than the prediversion wetlands, based on
 17 your aerial photographs.

18 A Yes.

19 Q Now you were asked a series of questions about the
 20 LADWP proposed flow scheme, if you would, which had a
 21 minimum

22 and a maximum, and do you recall those questions, sir, and you
 23 were asked whether that would create a functioning stream
 24 system, and you listed three criteria and said, in effect, it
 25 would create a functional stream system; correct?

25 A I believe I did, yes.

00125

1 Q And then you were asked a subsequent question by Mr.
 2 Birmingham, and you testified in effect that under the DWP
 3 regime, that you would develop over time equivalent habitat.
 4 Do you recall that answer?

5 A Equivalent stream habitat, I believe.

6 Q Equivalent stream habitat?

7 A Yes.

8 Q We established earlier in your testimony that habitat
 9 for German brown fish is not a particular area of your
 10 expertise; is it?

11 A I worked on streams, a lot of streams where habitat is
 12 the primary issue, and indeed I do work on habitat. My
 13 expertise is taking that and making fishery determinations --
 14 that is where the biologists make their determination.

15 Q When you talk about a functioning stream system, that
 16 isn't necessarily equivalent to one which has maximum fish
 17 habitat; is it?

18 A When I look at a stream that is functioning, it has
 19 sustainable fish habitat that is expected for that particular
 20 system.

21 Now, whether in someone else's view that is maximum
 22 fish habitat, that's a different question.

23 Q Now this idea that under the DWP regime that you would,
 24 over time, develop equivalent stream habitat, I believe you
 25 told us now -- let me ask you, and we will get into this more

00126

1 I think when you come back on rebuttal, but let me ask you
 2 hypothetically that if there were thousands of lineal feet of
 3 stream that have been lost and were not below the Narrows in
 4 Rush Creek and were not returnable by DWP flows, would your
 5 answer be the same to that question?

6 A Well, these thousands of feet of stream that have been
 7 lost that I guess you are referring to, I think there's
 8 evidence to indicate that many of these thousands of feet were
 9 not natural channels.

10 Q That's the subject that we're going to get into later
 11 on. I want you to assume hypothetically that they were
 12 natural channels which carried water at normal flows. Make
 13 that assumption. You would agree that the DWP stream proposal
 14 will not restore those channels; correct?

15 A I am missing something. You are indicating that this
 16 hypothetical system that has multiple channels out there, and
 17 now you have told me, and I have agreed --

18 Q Let me start over.

19 A Please do.

20 Q Hypothetically, Rush Creek below the Narrows has
 21 multiple channels which carry water and have a fishery at all
 22 flows of Rush Creek. In other words, they are not overflow
 23 channels. All right?

24 A Okay.

25 Q Do you have that hypothetical in mind?

00127

1 A You have multiple channels without overflow.

2 Q And they don't exist today; right?

3 A Okay.

4 Q Do you agree with that?

5 A Well, this is a hypothetical question.

6 Q All right. Now would you agree that the DWP proposed
 7 flow regime would not restore that system?

8 A Well, they will be pushing water through a system with
 9 multiple peaks or peaks with highs, mediums and lows, or
 10 whatever flows, so with the flow regime that is being
 11 proposed, I suspect it would restore those hypothetical
 12 channels to some state, yes.

13 Q Do you have an opinion as to -- this is not a
 14 hypothetical now. Do you have an opinion as to whether the
 15 proposed DWP flow regime will in fact restore multiple
 16 channels below the Narrows?

17 A I think if you want to restore the multiple channels,
 18 you're going to have to physically -- let me back up. By
 19 calling them multiple channels, I presume that they were
 20 natural channels. If you want to restore the irrigation
 21 channels out there, you are going to have to do some by hand.

22 Q The flow proposal of DWP, by itself, will not do that?
 23 A It will not restore irrigation channels, no.
 24 Q I promise not hold you to any admission that you said
 25 they were natural. We'll get to that next month. Now let me

00128

1 ask you --
 2 MR. BIRMINGHAM: You're a dreamer, next month?
 3 MR. DODGE: Next month is December, and I have been
 4 told in no uncertain terms we are going to be done in
 5 December.
 6 MR. DEL PIERO: I don't sleep after the 30th of
 7 November, ladies and gentlemen.
 8 MR. DODGE: Q Again, getting back to your opinion
 9 that the DWP flow regime will develop equivalent stream
 10 habitat over time, let me ask you to assume hypothetically
 11 that below the Narrows on Rush Creek a large amount of spring
 12 water contributed to the historical fish habitat. Would you
 13 agree that the DWP proposed flow regime would not restore that
 14 spring water?
 15 A It will restore some of that spring water. The water
 16 which would normally be subsurface along those channels will
 17 occur. What you would be missing is the subsurface irrigation
 18 water, which is leaking down through the delta deposits from
 19 above.
 20 Q Do you have any opinion as to how much of the spring
 21 water will be restored under the DWP flow regime?
 22 A Well, it depends on how you define spring water. If
 23 you are concerned only about those toe slopes which are
 24 outside the zone of the channel, that's subsurface water
 25 coming from some other place, but if you are down in the

00129

1 valley bottom, that subsurface water that is rewatering the
 2 riparian areas in the side channels, that's indistinguishable
 3 from spring water. I don't need that spring water at all for
 4 rewatering those zones.
 5 Q I am not sure if you answered my question. I am
 6 talking about the springs that existed below the Narrows
 7 prediversion.
 8 A Okay.
 9 Q I am asking whether you have made any measurements or
 10 any estimates as to how much of that will be restored by the
 11 DWP proposed flow regime.
 12 A I have not made a quantitative effort on spring water
 13 below the Narrows adjacent to that.
 14 Q Last question: I want you to, if you would, pull out
 15 the National Audubon Society/Mono Lake Committee Exhibit 105
 16 again.
 17 A This is which one?
 18 Q Mr. Trihey's memorandum to the RTC dated September 17,
 19 1993.
 20 A Yes.
 21 Q Okay, let's go to the page that you quoted, Reach 4,
 22 Narrows to the meadow crossing.
 23 A Yes.
 24 Q Now you see there are three options there; correct?
 25 A Yes.

00130

1 Q One is maintain the status quo. Do you see that?
 2 A True.
 3 Q Two is restore the pre-1941 conditions to the degree
 4 possible. Do you see that?
 5 A Okay.
 6 Q And the third one is improve existing aquatic and
 7 riparian habitat; correct?
 8 A That's what the title says, yes.
 9 Q And then under two and three there are various options
 10 as to work that might be considered?
 11 A True.
 12 Q And these aren't recommendations, these are options;
 13 correct? I will withdraw that question. It really doesn't
 14 make any difference.
 15 When you talked about a heavy structural approach and
 16 you read through some things that you regard as heavy
 17 structural approach, you were reading from item 3, approve
 18 existing aquatic and riparian habitats; correct?

19 A True.
 20 Q By the way, this criticism of heavy structural
 21 approach, that's something you've already testified to in
 22 front of Judge Finney; isn't it?
 23 A I believe I have, yes.
 24 Q And that represented some testimony that you gave in
 25 the early summer of 1992 relating to Lee Vining Creek;

00131

1 correct?
 2 A I believe it was in the summer of 1992 regarding Lee
 3 Vining Creek.
 4 Q Predominantly Lee Vining Creek, but you had seen Rush
 5 Creek at that time?
 6 A Yes.
 7 Q But the subject matter at issue was whether the
 8 proposed work in Lee Vining would go forward, specifically
 9 some bar, pool, thalweg creation?
 10 A That, and rewatering channels and doing treatments
 11 along the bank and backwater excavation and what-have-you,
 12 yes.
 13 Q And that work was ultimately done; wasn't it?
 14 A I believe so. I don't know whether all that had been
 15 proposed was done, but some work had been done, yes.
 16 Q Now, instead of focusing on the third alternative, I
 17 would like you to focus on the second alternative, which is
 18 restore pre-1941 conditions to the degree possible, and I want
 19 you to focus specifically on 2-A and 2-B. 2-A is rejuvenate
 20 springs along the west side of the meadows. Do you see that,
 21 sir?
 22 A Yes, I do.
 23 Q And now that isn't necessarily, as you put it, a heavy
 24 structural approach; is it?
 25 A It depends on what you're going to do to get that water

00132

1 there.
 2 Q It could be a heavy structural approach or it might not
 3 be?
 4 A If you have to go up on the delta and run irrigation
 5 water out there, you can fill in channels. You can pipe it
 6 down, but let's say it isn't. You are somehow going to have
 7 to get water subsurface from the standpoint of the channel.
 8 It may not be a structural --
 9 Q It may or may not be?
 10 A Okay.
 11 Q Would you agree with that?
 12 A That's possible.
 13 Q Let me go to 2-B, rewater relic pre-1941 channels.
 14 Would you agree that is not necessarily a heavy structural
 15 approach?
 16 A Well, the presumption here again is the 1941 channels
 17 -- I am not sure which ones they are referring to, but there
 18 are some "channels" that I've seen on the document here which
 19 are outside the existing channel, and in order to rewater
 20 those would require a significant structural approach.
 21 Q Meaning what?
 22 A You're going to have to go out there with heavy
 23 equipment and dig channels to tie those together.
 24 Q You're going to have to go out there with heavy
 25 equipment and dig channels; is that right?

00133

1 A To make an entrance condition, you're going to have to
 2 come off the mainstream into one of these old relic channels
 3 or old relic irrigation channels, and you have to get water in
 4 there somehow.
 5 Q And that is a heavy structural approach?
 6 A I would consider that to be.
 7 Q Why is it a heavy structural approach?
 8 A Because you are modifying this system in a way that can
 9 have a very adverse effect on that stream channel. I mean,
 10 you have to get in there with heavy equipment generally.
 11 Q Your basic criticism is that you use heavy equipment?
 12 A Well, that's part and parcel of the end result. I mean
 13 when you do large structural approaches such as excavating
 14 pools, such as excavating entrances, you need heavy equipment.
 15 That is part of it. The other part of it is what is the

16 impact of that kind of feature on the rest of the system.
 17 Q How would you compare the impact of what you call the
 18 heavy structural approach of using equipment to reoccupy
 19 historic channels, how would you compare that impact with the
 20 impact of the L. A. diversions from 1940 to 1989?
 21 A Well, I think I have testified that those diversions
 22 were a component of a lot of things that were happening to the
 23 rush and Lee Vining Creeks. Obviously, they had significant
 24 impact. That is part of the history of those systems. I
 25 guess what we are looking at is what is the future of those

00134

1 systems.
 2 Q And bringing out an earth mover to occupy an
 3 historical channel would have less of an impact on those
 4 streams than the impact of the L. A. diversions by a factor of
 5 many hundreds; wouldn't it?

6 A Your questions was would the use of heavy equipment
 7 have a lesser impact than the result of the diversions than
 8 all the other activities that have taken place out there?

9 MR. BIRMINGHAM: By a factor of hundreds.

10 MR. DODGE: Q Yes.

11 DR. BESCHTA: A I don't know, I would have to think
 12 about that.

13 Q I will give you a chance to do that.

14 A Do I have to answer it now?

15 Q Not right now.

16 MR. DEL PIERO: Mr. Roos-Collins.

17 RECROSS-EXAMINATION,

18 BY MR. ROOS-COLLINS:

19 Q Good afternoon, Dr. Beschta.

20 DR. BESCHTA: A Good afternoon.

21 Q I renew the stipulation I entered into last time you
 22 were on the stand. Cal Trout stipulates that the flow in Rush
 23 and Lee Vining Creeks since the official orders were put in
 24 place have contributed to changes in channel and riparian
 25 vegetation that benefit the fisheries.

00135

1 As last time I wish to focus instead on the central
 2 question, how far away are we in reestablishing the conditions
 3 which existed before L. A. began diversions in 1941.

4 A Okay.

5 Q Let's begin with the objective of the restoration
 6 agreement entered into by the parties in the Mono Lake cases.
 7 Mr. Birmingham asked you a question about paragraph B-2 in
 8 that agreement, which acknowledges that existing conditions
 9 may preclude restoration of some specific pre-1941 conditions.
 10 Do you recall that question?

11 A I believe so.

12 Q And your answer?

13 A That's the case.

14 Q What is your understanding of how the 1990 agreement
 15 addresses that circumstance where the existing conditions
 16 preclude the establishment of pre-1941 conditions?

17 A Do I agree with that?

18 Q Yes.

19 A I don't know.

20 Q Let me read the remainder of paragraph B-2 and ask you
 21 to state your opinion of this commitment.

22 "The parties to this agreement agree to and adopt the
 23 goal of developing and implementing programs to
 24 establish aquatic and riparian conditions and
 25 resource values equivalent to those existing in

00136

1 the streams prior to 1941 as an acceptable
 2 substitute for the overall goal of the Rush and
 3 Lee Vining Creeks Restoration Program."

4 Where existing conditions preclude the establishment
 5 of the actual conditions that existed before 1941, in your
 6 opinion, is this substitute goal feasible?

7 A Can I look at it specifically?

8 (after looking)

9 Okay, now ask me again if you will, please.

10 Q Where existing conditions preclude the reestablishment
 11 of the actual conditions which existed before 1941, in your
 12 opinion, is establishing equivalent conditions a feasible

13 goal?

14 A Well, you are going to have to help me out and narrow
 15 the equivalent conditions. I am running through a whole lot
 16 of stuff in the back of my mind as to what's implied with
 17 regard to equivalent conditions. Does it have to do with
 18 flow, duration, timing and quantities of water, does it have
 19 to do with acres of riparian areas, does it have to do with
 20 the kinds of plant communities? I am not trying to be
 21 evasive, I just don't know exactly what these folks had in
 22 mind.

23 Q Dr. Beschta, that's a fair response. In our opinion,
 24 those are very tough questions which the Mono Lake cases need
 25 to address.

00137

1 What did you mean when you answered Mr. Birmingham's
 2 question about the ability of the LADWP Management Plan to
 3 reestablish equivalent conditions? What were you referring
 4 to?

5 A I was referring to a stream and its riparian system,
 6 and that stream can go back to conditions that existed not in
 7 the same location, not in the same pool and same location, but
 8 essentially the equivalent confirmation of pools and riffles
 9 and the same vegetation on it, and the vegetative cover that
 10 existed well prior to 1941.

11 Q I am coming back to this question later in my cross-
 12 examination. Let me move now to the restoration activities
 13 undertaken by the restoration consultants in rush and Lee
 14 Vining Creeks. Does your testimony state generally that those
 15 restoration activities were either unnecessary or harmful or
 16 both?

17 A I think I have words comparable to those.

18 Q And please state your conclusion in your own words.

19 A Well, I indicated they were counter-productive.

20 Q Are you familiar with the restoration activities which
 21 were undertaken by the restoration consultant with the
 22 approval of the City of Los Angeles, as expressed by an
 23 affirmative vote in the Restoration Technical Committee?

24 MR. BIRMINGHAM: I am going to object to the question
 25 on the grounds of relevance. Mr. Roos-Collins, I am sure, is

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1 going to say this is essentially an admission, but there are
 2 many, many factors that go into how the Department of Water
 3 and Power is going to vote on any particular item in the
 4 Restoration Technical Committee, and given the long prodigious
 5 history of the Restoration Technical Committee, which Mr.
 6 Canady can attest to, he has been in hearings many, many days
 7 in Judge Finney's courtroom.

8 Essentially what DWP does in the Restoration Technical
 9 Committee is tantamount to the settlement of litigation, so I
 10 am going to object to the question on the ground of relevance
 11 and materiality.

12 MR. DEL PIERO: Mr. Roos-Collins.

13 MR. ROOS-COLLINS: Mr. Del Piero, I am perplexed by
 14 that objection. Taken literally, it suggests that none of the
 15 activities undertaken by the Restoration Technical Committee
 16 were approved by Los Angeles on the merits, but instead were
 17 approved on the basis of a settlement strategy. I would not
 18 accuse the City of Los Angeles of that approach to the
 19 restoration program.

20 If Mr. Birmingham is objecting on that basis, then it
 21 is impossible for me to determine whether any of the
 22 restoration activities were undertaken on the merits of Los
 23 Angeles' approval.

24 MR. DEL PIERO: Question, Mr. Birmingham. Is it your
 25 contention that those activities taken on behalf of the L. A.

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1 Department of Water and Power during that process have been
 2 expressly for settlement purposes and not in furtherance of
 3 the expression articulated by you at the beginning of this
 4 hearing in terms of restoring the change in the tributaries to
 5 Mono Lake?

6 MR. BIRMINGHAM: May I confer with the counsel in the
 7 City Attorney's Office before I respond and with
 8 representatives of the Department of Water and Power who are
 9 present here?

10 MR. DEL PIERO: You may, sir.
 11 MR. BIRMINGHAM: Thank you.
 12 (A short intermission.)
 13 MR. DEL PIERO: Ladies and gentlemen, this hearing will
 14 again come to order. Mr. Birmingham.
 15 MR. BIRMINGHAM: May I ask to have the reporter read
 16 back the Hearing Officer's question to me.
 17 (The Reporter read the question as follows:
 18 Q Is it your contention that those activities
 19 taken on behalf of the L. A. Department of
 20 Water and Power during that process have been
 21 expressly for settlement purposes and not in
 22 furtherance of the expression articulated by
 23 you at the beginning of this hearing in terms
 24 of restoring the change in the tributaries to
 25 Mono Lake?

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1 MR. BIRMINGHAM: Since the late spring or the early
 2 summer of 1992, it has been the consistent position of the
 3 Department of Water and Power, expressed in open court, that
 4 what is in the best interests of restoring the conditions
 5 which benefited the fisheries in these streams is to implement
 6 a flow regimen or flow regime and maintain a moratorium on
 7 grazing to permit the reestablishment of the riparian
 8 vegetation, and but for, or other than restoring flows and
 9 maintaining a flow rate regime and removing grazing from these
 10 stream systems, the system should be left alone, and that
 11 there should be no intervention by anyone in terms of
 12 undertaking an engineered approach to restoring these streams,
 13 and it was based on the expert advice received from the
 14 Department of Water and Power by Dr. Beschta, Dr. Platts from
 15 whom the Board has heard, and another individual by the name
 16 of J. B. Kauffman, and it was based upon their review of the
 17 restoration work that has been done. Now the question that
 18 was asked of me was: Has the Department of Water and Power
 19 done things as part of a settlement in the RTC process that it
 20 thought was not in furtherance of what I stated as the
 21 Department's position in this hearing.
 22 MR. DEL PIERO: No, that's not the question I asked
 23 you. The question I asked, Mr. Birmingham, went to intent,
 24 because the nature of the objection raised goes to intent.
 25 MR. BIRMINGHAM: There have been occasions on which

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1 representatives of the Department of Water and Power to the
 2 RTC have sat down with representatives from other parties and
 3 have said, we will agree to do this. We will agree to do X if
 4 you will agree not to do Y, and part of the basis for our
 5 agreeing to do X is we think it will ultimately be less
 6 damaging to the streams than doing X and Y, and there have
 7 been those situations, and so it is tantamount to an agreement
 8 to avoid litigation because, under the 1990 Restoration
 9 Agreement before it was recently modified by the Court, if
 10 there was a split vote on any proposal that was acted upon by
 11 the RTC, and a split vote was a 4 to 1 vote, if there was one
 12 dissenting vote, then the controversy went to Court and was
 13 presented to the Court for resolution.
 14 Now that process has been changed, but there have been
 15 circumstances in which the Department of Water and Power
 16 agreed to do things to avoid litigation concerning the
 17 restoration program.
 18 MR. DEL PIERO: I am going to overrule the objection.
 19 I am going to overrule it (1) because, as I have stated
 20 before, this Board has the prerogative of attempting to
 21 solicit as much information as possible, and (2) at this point
 22 in time, it is impossible for me or for that matter for the
 23 attorneys for any of the other parties, to know what actions
 24 were taken in the course of that committee activity by the
 25 representatives of the L. A. Department of Water and Power in

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1 pursuance of environmental restoration as opposed to agreement
 2 for settlement purposes.
 3 Based on that, it seems to me that to exclude cross-
 4 examination on this issue would cause an error in terms of the
 5 Board having adequate full information as to these issues
 6 before it, so I'm going to overrule the objection. Mr. Roos-

7 Collins.
 8 MR. BIRMINGHAM: Mr. Del Piero, the point that you just
 9 made is exactly why I have objected. Let me restate it. Mr.
 10 Dodge, Mr. Roos-Collins, and Mr. Thomas, we all represent five
 11 principals to the RTC, have sat down in the jury room in the
 12 El Dorado County Courthouse, and have said, and this relates
 13 to some of the work that was done in 1992 on these streams, we
 14 have said, let's try and settle this issue. We will agree to
 15 do this if you will agree to do that, over the table, and what
 16 Mr. Roos-Collins is attempting to do through asking these
 17 questions is elicit an admission that the Department of Water
 18 and Power has endorsed all these things. DWP has not, and I
 19 don't honestly think that any of the attorneys who have
 20 participated in that process can dispute that there have been
 21 many of these actions that have been approved in furtherance
 22 of settlement of the litigation.
 23 MR. DODGE: May I be heard on this?
 24 MR. DEL PIERO: Actually, Mr. Dodge, I think not.
 25 MR. DODGE: I think I have a contribution to make.

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1 MR. DEL PIERO: Okay.
 2 MR. DODGE: It seems to me that the better objection is
 3 one of relevance. I mean, if the intent is to impeach Dr.
 4 Beschta by pointing out that someone else from Los Angeles
 5 voted for something that Dr. Beschta was unaware of, and
 6 indeed hasn't arrived on the scene yet, I am not sure it is
 7 terribly productive. I don't know whether that's Mr. Roos-
 8 Collins' approach, but I would think there would be a question
 9 of relevance here.
 10 MR. DEL PIERO: Thank you for your contribution.
 11 It seems to me, in response to Mr. Birmingham's last
 12 comment, that in the event that agreements are made during the
 13 course of that process established by the Court, that are
 14 tantamount to settlement, those points can be brought out in
 15 rebuttal.
 16 The Hearing Officer, as well as two other members of
 17 the Board, as constituting a majority, are now aware, based on
 18 the representations to counsel by LADWP for the fact how the
 19 process went on. The Board Members are capable of attributing
 20 weight to different bits of evidence, depending upon the value
 21 to which you put that in terms of the overall issue to be
 22 addressed. Nonetheless, the objection is overruled. Proceed.
 23 MR. ROOS-COLLINS: Thank you. Mr. Del Piero, I am
 24 troubled by Mr. Birmingham's statement of objection. Could I
 25 take one minute to respond to it before I proceed with my

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1 questions?
 2 MR. DEL PIERO: To Mr. Birmingham?
 3 MR. ROOS-COLLINS: Yes.
 4 MR. DEL PIERO: Off the record or on the record?
 5 MR. ROOS-COLLINS: On the record.
 6 MR. DEL PIERO: No. Mr. Roos-Collins, as the Hearing
 7 Officer, I am charged with moving this hearing along as
 8 expeditiously as possible, and I am going to try and do that.
 9 We lost an hour and a half this morning, we lost close to an
 10 hour this afternoon, all for very good reasons, none of which
 11 make any difference to the fact that we are way behind
 12 schedule. Please proceed.
 13 MR. ROOS-COLLINS: Q Dr. Beschta, are you familiar
 14 with the restoration activities that were undertaken in what
 15 is called the B-1 historic channel of Lee Vining Creek in
 16 August of 1992?
 17 DR. BESCHTA: A I believe some of those, yes.
 18 Q August 1992 followed your testimony before Judge
 19 Finney; did it not?
 20 A I will have to check.
 21 Q It isn't worth the time. I withdraw the question. Are
 22 you aware that the parties entered into an agreement on or
 23 about July 1, 1992, concerning the restoration activities to
 24 be undertaken in the B-1 channel of Lee Vining Creek?
 25 MR. BIRMINGHAM: I renew my objection with the

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1 expectation that it will be overruled.
 2 MR. DEL PIERO: Overruled.
 3 DR. BESCHTA: A Am I aware of an agreement, a

4 specifically written agreement? I don't remember offhand
 5 seeing that.
 6 MR. ROOS-COLLINS: Q Are you familiar with Cal Trout
 7 Exhibit 12, Overview of 1992 Restoration Treatments by Trihey
 8 and Associates?
 9 A If I could look at it. (after looking) I haven't seen
 10 that one.
 11 MR. ROOS-COLLINS: Mr. Del Piero, we request that this
 12 witness be instructed to review Cal Trout Exhibits before his
 13 return so I could ask him specific questions about the
 14 treatments discussed in that report as to which are
 15 unnecessary and which are fundable, with specific reference to
 16 the B-1 channel and also with reference to Table 1, which is
 17 a compilation of all measures undertaken by the restoration
 18 consultant in 1992.
 19 MR. BIRMINGHAM: Mr. Del Piero, I am unaware of any
 20 authority that this Board has to --
 21 MR. DEL PIERO: Mr. Birmingham, I am unaware of it
 22 also. Mr. Roos-Collins, I can't direct a witness to prepare
 23 himself for your cross-examination. We just don't have that
 24 authority. You can cross-examine him as to the information he
 25 has reviewed. If he has not reviewed it, if he has not seen

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1 it, I can't order him to read it.
 2 MR. ROOS-COLLINS: Mr. Del Piero, I have one last
 3 procedure.
 4 MR. DEL PIERO: You are fully capable of introducing
 5 the evidence from that report that would then be uncontested
 6 evidence in terms of the evidentiary record.
 7 MR. ROOS-COLLINS: We have introduced it.
 8 MR. DEL PIERO: I understand that. In terms of your
 9 direct, either you or some other party will cause that to be
 10 elaborated upon. If he chooses not to address the issue or
 11 not to contest the representations made, there is nothing I
 12 can do about it.
 13 MR. ROOS-COLLINS: I have one last question by way of
 14 procedural guidance. Can Cal Trout direct interrogatories to
 15 the City of Los Angeles requesting the City of Los Angeles to
 16 answer that question regarding specific agreements in specific
 17 channels of Lee Vining Creek?
 18 MR. DEL PIERO: Mr. Frink, do we have the authority to
 19 authorize interrogatories?
 20 MR. FRINK: Our regulations contain no provision
 21 regarding interrogatories. To the extent that they have
 22 discovery in preparation for this hearing, that isn't
 23 expressly authorized under our regulations. The parties have
 24 relied upon the discovery procedure, acting under the
 25 coordinated Mono Lake Water Rights Cases.

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1 MR. DEL PIERO: I don't have the authority.
 2 MR. BIRMINGHAM: Mr. Del Piero, we want the Board to
 3 have as much information as it can. We are not trying to hide
 4 anything. We will certainly ask Dr. Beschta to review it
 5 between now and the time he comes back, and we can direct him
 6 to do that. He doesn't have to, but we will ask him to.
 7 MR. ROOS-COLLINS: I appreciate the cooperation of Mr.
 8 Birmingham.
 9 Q Let me ask you specifically about the heavy equipment
 10 to which you object. Are you familiar with the specific
 11 equipment used by the restoration consultants in the
 12 restoration activities in Lee Vining and Rush Creeks?
 13 DR. BESCHTA: A I have seen pictures that have
 14 showed up in some of the reports as to the specific equipment
 15 used in restoring those streams. I have not been on the site
 16 when the equipment has been in use.
 17 Q When you say "heavy equipment", you mean in a literal
 18 sense or heavy in its impact on the ground.
 19 A I am talking about heavy impact on the stream.
 20 Q Let me ask you to assume that Cal Trout Exhibit CT-12,
 21 to which I just referred, lists four pieces of equipment --
 22 910 articulated loader, 24-C articulated loader, 310 backhoes
 23 and five-yard dump trucks. Let's take the articulated loader
 24 model 910, what is the pounds-per-square-foot pressure exerted
 25 by that loader on the ground?

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1 A I can do the calculations, but I do not know that
 2 number.
 3 Q Were you present when Judge Finney asked --
 4 MR. BIRMINGHAM: Objection.
 5 MR. ROOS-COLLINS: -- your colleague, Dr. Kauffman,
 6 that question?
 7 MR. BIRMINGHAM: Objection, relevance.
 8 MR. ROOS-COLLINS: It's directly relevant, Mr. Del
 9 Piero. This witness is characterizing backhoes and other
 10 equipment as heavy impact on the ground. I am attempting to
 11 establish the basis for that opinion.
 12 MR. BIRMINGHAM: He testified it was with respect to
 13 the impact that the equipment has on the stream, not with
 14 respect to the pressure that is applied by the equipment on
 15 the ground. And whatever Judge Finney asked Mr. Kauffman has
 16 absolutely no relevance to what this witness is testifying to
 17 or any decision that this Board has to make.
 18 MR. DEL PIERO: Mr. Dodge, do you know something that
 19 can contribute to this?
 20 MR. DODGE: I do, and I would like to represent my
 21 client here. We are talking about pressure on the ground per
 22 square foot, and that seems to me has a potential relevance to
 23 the effect on the stream, so it seems to me the question is
 24 perfectly proper.
 25 MR. BIRMINGHAM: If Mr. Roos-Collins wants to ask the

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1 witness to calculate the pressure, I have no objection to
 2 that. However, asking this witness what Judge Finney asked
 3 Mr. Kauffman is absolutely irrelevant.
 4 MR. DEL PIERO: Notwithstanding Mr. Dodge's
 5 contribution, I am going to sustain the objection. You can
 6 pursue the line of questions if you wish, Mr. Roos-Collins,
 7 that will elicit from this witness the same information you
 8 are looking for, I think. Nevertheless, I am sustaining the
 9 objection.
 10 MR. ROOS-COLLINS: Q Thank you. On page 33 of your
 11 written testimony, point four, you said:
 12 "Significant impacts to naturally-establishing
 13 riparian plants was evident following the 1991
 14 restoration efforts because of the use of heavy
 15 equipment, such as hydraulic excavators, front-
 16 end loaders, and dump trucks in riparian
 17 zones."
 18 How did those significant impacts occur?
 19 DR. BESCHTA: A Well, soil compaction may be the
 20 least of your worries in some of these systems. That's where
 21 you were asking the question. That equipment is disturbing
 22 the ground at ground level. It's running over vegetation
 23 which you then have to replace. It is indeed causing some
 24 compaction, but the rearrangement of soils that is taking
 25 place -- it can be the lightest back-end loader in the world,

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1 but when you are dredging out these wetlands and excavating
 2 this material and putting it up on spoils piles, impacts are
 3 heavy.
 4 Q Are you familiar with Cal Trout Exhibit 14, Rush and
 5 Lee Vining Creeks 1991 Restoration Work?
 6 A Yes, I have seen them.
 7 Q Can you point out to me where at the sites treated in
 8 1991 significant impacts occurred to riparian vegetation?
 9 A Well, if you turn to page 37, the upper picture shows
 10 an hydraulic excavator excavating a former wetland. In the
 11 process of that, that material was being placed behind by that
 12 front-end loader onto a spoils area.
 13 There is an additional picture, I believe, on the
 14 preceding page, page 36, which shows the before and after, and
 15 if you go to the top of the page, the wetland that exists on
 16 the right-hand side of that shrub is essentially gone, that
 17 side channel pool has been excavated, and all that material
 18 has been placed in the central left of that picture, and it
 19 shows up on the bottom as a very exposed, arid bar with no
 20 vegetation occurring today.
 21 Q Any other examples?
 22 A Of the heavy equipment creating impacts?
 23 Q Yes.

24 A Go to page 38. Here is a wetland that has been
25 excavated, material placed on a bar, and you can see the
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1 vegetation has disappeared in large sections of that channel.

2 Q Dr. Beschta, have you been to these sites since these
3 photographs have been taken?

4 A Yes.

5 Q How recently?

6 A I have to check my records, but I believe I was there
7 this summer.

8 Q The last time you were here we discussed Cal Trout
9 Exhibit 16, which was an August 31, 1992, letter from ENTRIX
10 to the Army Corps of Engineers regarding the net change in
11 wetlands as a result of the restoration program. Have you had
12 an opportunity to review this exhibit since you were last on
13 the stand?

14 A I have had a chance to look at it. I haven't spent a
15 great deal of time on it, but I have looked at it, yes.

16 Q Do you agree or disagree with the conclusion that the
17 restoration program has created a net gain in wetland habitat?

18 A Well, it depends how you look at wetlands. The
19 depression of wetlands alongside these channels are very
20 unique and are relatively rare in these systems, so they are
21 very important. And what you traded off here is the fact you
22 have created some channels, and now you tally up all the
23 linear wetlands alongside those channels and say, acreage for
24 acreage, you end up with more. Indeed, that's kind of what
25 these numbers show.

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1 Q Given the Army Corps of Engineers' definition of
2 wetlands, did the restoration program result in an increase or
3 decrease of wetlands along Lee Vining and Rush Creeks?

4 A I am not sure he used the Army Corps of Engineers'
5 designation, and nowhere in the letter did I find he used
6 either the '89 or the '87 manual to delineate what those are.
7 So I am not sure what his interpretation was.

8 Q Are you aware of any effort by the Army Corps of
9 Engineers to withdraw the permit which Mr. Trihey had for
10 restoration work in 1992?

11 A I am not privy to what the Army Corps has done.

12 Q Let's turn now to the LADWP Management Plan that you
13 previously discussed with Mr. Birmingham, Ms. Cahill, and Mr.
14 Dodge. Before we turn to Mr. Hasencamp's exhibit, I have
15 several questions for you about Table A on page 38 of your
16 written testimony.

17 On page 37 coming onto page 38, you state:
18 "Thus, the occurrence of peak flows of varying
19 magnitudes and timing, within the range of
20 natural conditions, should be captured in flow
21 regimes specified for Rush and Lee Vining
22 Creeks."

23 Does Table A illustrate that point?

24 A Table A was an attempt to indicate the variability of
25 this particular system, and so I grabbed what I felt was an

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1 extensive period of record that was 57 years in one case and
2 20 years in the other, and I think that was all that was
3 available to me.

4 To get some sense of what this variability was all
5 about, I focused on again a value that was easily accessible,
6 the average for the annual peak, average daily flow for each
7 year. So I have 20 years in one case and 57 years in the
8 other.

9 Q Unlike Mr. Flinn, who is a whiz with math, I am not.
10 Are these terms, standard deviation, coefficient variation,
11 and so forth, statistical terms?

12 A Yes, they are.

13 Q What does standard deviation describe?

14 A Standard deviation is a measure of the variation about
15 the average, so it is an indication of when you look at the
16 average and you go plus or minus one standard deviation, it
17 tells you -- in a statistical sense, it is a measure of
18 variance, we call it.

19 Q And what does coefficient variation describe?

20 A It's another number which, if you take the standard

21 deviation and divide by the average, it is an indicator of the
22 amount of variability of a system, and it is strictly an
23 indicator of variability. In this case, the coefficient of
24 variation of 48 percent to 66 percent indicates that from year
25 to year there's some incredible differences occurring in those

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1 systems.

2 Q Now I understood your text in combination with your
3 Table A to mean that you were recommending that the flow
4 regime adopted by this Board capture the natural variability,
5 including the standard deviation and coefficient of variation
6 in flows set forth in Table A. Is that your intent?

7 A Well, I am assuming that somebody is going to take some
8 water out of the system. If that's the case, it may not be
9 possible to get those average or standard deviations exactly,
10 but that's a range that the system was functioning on before,
11 and so whatever is looked at into the future, this is an area
12 that I think is a target area. Whether it is attainable
13 specifically, I suspect not.

14 Q Let me put your recommendation in my own words and make
15 sure that we are seeing eye to eye.

16 You were suggesting that the flow regime should
17 establish a comparable standard deviation if possible?

18 A A standard deviation is made up of two parts. One is
19 the mean value and the variance, and that's a good question
20 actually, and I haven't thought a great deal about exactly
21 what the target should be and the coefficient variation might
22 be a reasonable target.

23 Q Let me ask you now about Table B in Mr. Hasencamp's
24 testimony, page 40. How does the standard deviation shown for
25 the lower Rush Creek in Table B compare with the standard

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1 deviation for Rush Creek shown in Table A of your testimony?

2 MR. BIRMINGHAM: Objection, ambiguous.

3 MR. DEL PIERO: You need to be more explicit. I am
4 missing the ambiguity.

5 MR. BIRMINGHAM: There is no standard deviation record
6 in Table B of Mr. Hasencamp's testimony.

7 MR. ROOS-COLLINS: If my question was understood that
8 way, I will withdraw it, and I will ask another.

9 Q Dr. Beschta, have you calculated the standard deviation
10 for the flows shown in Table B of Mr. Hasencamp's testimony?

11 DR. BESCHTA: A No, I can't calculate it from his
12 testimony.

13 Q So you don't know how the standard deviation which
14 might be calculated for Table B flows compare with the
15 standard deviation shown in Table A of your testimony?

16 MR. BIRMINGHAM: Objection, it assumes facts not in
17 evidence, lacks foundation. I think that before that question
18 could be asked, Mr. Roos-Collins needs to ask whether or not,
19 with this kind of data, you can calculate the coefficient.

20 MR. DEL PIERO: Will you read the question back. I
21 thought that question was asked and answered.

22 MR. DODGE: It was. He testified it can't be done from
23 this data.

24 MR. DEL PIERO: Overruled. Will you please read back
25 the question?

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1 (The Reporter read back the question as follows:

2 Q So you don't know how the standard
3 deviation which might be calculated for the
4 Table B flows compare with the standard
5 deviation shown in Table A of your testimony?)

6 MR. DEL PIERO: Thank you.

7 DR. BESCHTA: My turn?

8 MR. DEL PIERO: Your turn.

9 DR. BESCHTA: A You can't calculate the standard
10 deviation the way I calculate it from Table B, and you are
11 still comparing, even if you could calculate it, you are
12 comparing apples and oranges. These are monthly flows, and
13 I was working with daily average peak flows.

14 MR. ROOS-COLLINS: Q So, given the data set forth in
15 Table B of Mr. Hasencamp's testimony, you cannot express an
16 opinion whether the standard deviation or coefficient of
17 variation is comparable to the counterparts in Table A of your

18 testimony?
 19 A I guess I can't make that correspondence. They are
 20 different data.
 21 Q Do you have Mr. Hasencamp's entire testimony before
 22 you?
 23 A I believe I do.
 24 Q Please turn to page 36. Is it your understanding of
 25 Section 2-B, entitled "Stream Flow Criteria", that that

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1 Section sets forth the criteria used in LAASM to regulate
 2 streamflows?
 3 A Criteria set for by whom?
 4 Q LAASM?
 5 A LAASM Model?
 6 Q One too many acronyms, I withdraw the question. Is it
 7 your understanding of 2-B at page 36 of Mr. Hasencamp's
 8 testimony, that it set forth streamflow criteria used in the
 9 LADWP Management Plan?
 10 A I believe so.
 11 Q Does Section 2-B contain any criteria that refers to
 12 natural variability?
 13 MR. BIRMINGHAM: I ask that question be reread.
 14 MR. DEL PIERO: Read the question.
 15 (The Reporter read the question as follows.)
 16 Q Does Section 2-B contain any criteria that
 17 refers to natural variability?
 18 MR. BIRMINGHAM: Thank you.
 19 DR. BESCHTA: A Well, with regard to criteria, no
 20 diversion from Walker and Parker Creeks, because those are
 21 tributaries. There's no diversions, and there's a natural
 22 variability built into that. I don't even know what that is,
 23 but obviously that's part of what's going in there. The rest
 24 of these numbers are averages for those months, and the
 25 variability isn't there -- I take that back, the last one is

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1 spring or summer flushing flows set for each creek, but it's
 2 undefined.
 3 MR. ROOS-COLLINS: Q In order to evaluate whether a
 4 flow regime, whether L. A. or any other party captures
 5 natural variability, would you need more specificity than is
 6 set forth in Table 2 on pages 36 and 37 of Mr. Hasencamp's
 7 testimony?
 8 A Well, the fact that there's a low, a minimum, and a
 9 high value there indicates that some of this variability is
 10 indeed going to take place. There will be natural
 11 fluctuations, certainly, in Lee Vining Creek, that will happen
 12 on a daily basis. Rush Creek is a different situation because
 13 you are limited as to how much water at times you can run down
 14 the Mono Ditch, so there are restrictions in Rush Creek, as to
 15 what that variability might be on the upper end.
 16 Q My question was whether the table or Section 2, pages
 17 36 and 37, of Mr. Hasencamp's testimony contains all of the
 18 specificity you would want to determine whether natural
 19 variability has been captured?
 20 A I think it does.
 21 Q Section 2, pages 36 and 37.
 22 A It would be nice to have more, but I realize they are
 23 projecting into the future, so that's certainly one of the
 24 difficulties with flow regimes.
 25 Q You stated that the spring or summer flushing flow was

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1 not defined in Section 2-B on page 36 of Mr. Hasencamp's
 2 testimony. Is that your testimony?
 3 A Those criteria just indicate a flushing flow.
 4 Q So a flushing flow of 50 cfs or flushing flow of 200.
 5 cfs would fit within the criteria as set forth on page 36; is
 6 that correct?
 7 A I guess that's possible.
 8 Q Let me turn finally to your recommendations. We have
 9 discussed your recommendations on natural variability in flows
 10 being captured.
 11 A Yes.
 12 Q Do you have an understanding of the release mechanism
 13 at Grant Lake?
 14 A Not a very good one.

15 Q Do you have an understanding of the diversion mechanism
 16 into the Los Angeles Aqueduct system?
 17 MR. BIRMINGHAM: Objection, ambiguous.
 18 DR. BESCHTA: A Where?
 19 MR. ROOS-COLLINS: Q From Grant Dam.
 20 MR. DEL PIERO: Wait a minute. I am going to sustain
 21 the objection because it was ambiguous, and the response is
 22 indicative of that. You need to be more precise.
 23 MR. ROOS-COLLINS: Q Do you have an understanding of
 24 the diversion mechanism from Grant Dam into the Los Angeles
 25 Aqueduct system?

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1 DR. BESCHTA: A The physical structure?
 2 Q The physical structure.
 3 A No, I don't.
 4 Q Do you have an opinion whether the physical structure
 5 at Grant Dam is capable of allowing for the natural
 6 variability in flow that you recommend?
 7 A Well, these tables indicate they can go up to 350 cfs.
 8 I am assuming there is some degree of control that they can
 9 exert up and down in rearranging flows, but I don't remember
 10 seeing their physical structure, how it works.
 11 Q Thank you. And, finally, on page 42 of your testimony,
 12 you recommend that the ongoing restoration program be
 13 monitored. Is that your recommendation?
 14 A I didn't make the recommendation towards monitoring.
 15 I recommended a scientific panel should provide general
 16 recommendations regarding monitoring these end protocols, and
 17 they might decide it is perhaps unnecessary.
 18 I would have views regarding monitoring, I guess, but
 19 I wasn't planning, but I was saying, hey, it should be looked
 20 at, and, depending upon the direction of where this all goes,
 21 monitoring needs may change because that's an objective-driven
 22 decision.
 23 Q Assuming that the purpose of the license amendment here
 24 is to reestablish the fishery that existed before 1941, do you
 25 have a recommendation how long such a monitoring program

00161

1 should continue?
 2 A Again, it depends upon what your objectives are and
 3 what you want to monitor. If you take my recommendations, I
 4 would say you could fly this area once every five years, you
 5 may take some other kinds of channel measurements, but there
 6 is really not a need for intensively monitoring the channel
 7 changes on a year-to-year or month-to-month basis. It doesn't
 8 require that.
 9 MR. ROOS-COLLINS: No further questions. Thank you.
 10 MR. DEL PIERO: Thank you very much, Mr. Roos Collins.
 11 Ms. Scoonover.
 12 MS. SCOONOVER: I have no questions of this witness.
 13 MR. DEL PIERO: Anyone else? Mr. Frink.
 14 MR. FRINK: I have no questions. Mr. Herrera has.

EXAMINATION,

16 BY MR. HERRERA:
 17 Q You stated, in response to a question regarding the
 18 delta primarily in the lower Lee Vining Creek, I believe,
 19 possibly Rush Creek as well. You indicated that there appears
 20 to be more riparian vegetation there today than you believe
 21 was there in 1941; is that correct?
 22 A That's true.
 23 Q In your evaluation of vegetation being in larger
 24 quantities, is that on acreage or just -- how did you derive
 25 that? Is that the number of trees or just in acreage?

00162

1 A I would say in rough areas, yes.
 2 Q Did that take into consideration the areas that
 3 were previously inundated in 1941 that are now exposed?
 4 A Yes, the reduction in lake levels have increased the
 5 area, if you will, available to the stream. In fact, using
 6 the definition of creating wetlands, you have created wetlands
 7 by the fact that you have lengthened that stream system, so
 8 you have got that going on. You also have depositional areas'
 9 and wet areas forming across the delta, and you have an areal
 10 increase taking place, and a lot of this is indeed below where
 11 the lake was at in 1941.

12 Q Do you have any idea how much of an area this would
 13 encompass?
 14 A I haven't calculated those areas.
 15 Q In reestablishing vegetation in areas that have been
 16 previously inundated by lake levels, are there any specific
 17 problems with vegetation coming back in those areas, and
 18 specifically I am thinking about salt-tolerant plant types in
 19 these areas, or is that a consideration?
 20 A Certainly it is a consideration. You have a lot of
 21 salt in these soils. In fact, if you take the Rush Creek
 22 delta here, you walk out there, you see salt and crustaceans
 23 at the surface. That's one location I don't see a lot of
 24 cottonwoods coming in. The salt tolerance of cottonwoods is
 25 not all that great, so that may be limiting cottonwoods on

00163

1 that site, but we are getting an incredible amount of willow
 2 vegetation coming in. Through time I expect that's only going
 3 to get better. And, indeed, someday you are going to see
 4 cottonwoods coming in along these gravel bars.

5 Q Do you want to speculate on what "some day" is?

6 A If I could predict the weather --

7 Q You wouldn't be here.

8 A Yes, I wouldn't be here.

9 MR. DEL PIERO: Doctor, you mean you wouldn't be
 10 joining us even if you could do this?

11 DR. BESCHTA: Not if I could have more fun someplace
 12 else.

13 MR. BIRMINGHAM: I can't imagine anything that would be
 14 more fun than this.

15 MR. DEL PIERO: Please proceed.

16 MR. HERRERA: That's all, thank you.

17 MR. DEL PIERO: Mr. Canaday.

18 EXAMINATION,

19 BY MR. CANADAY:

20 Q Dr. Beschta, I want to make sure I understand you, that
 21 we are talking about Rush Creek now, below the Narrows. Let's
 22 assume for the sake of argument, or to avoid an argument, that
 23 some of these channels are not ditches, but in fact historical
 24 channels, and the ability to rewater those channels would very
 25 likely not take, to use your term, the heavy equipment

00164

1 approach, you wouldn't be opposed to rewatering those
 2 channels?

3 A Well, you are playing a net sum game here with regard
 4 to what's going on out there. I can't answer that because I
 5 don't know what you are proposing as far as the amount of
 6 water. Let's suppose you split the channel in half. You are
 7 going to greatly impede the process in one for the benefit of
 8 the other. But whether that is a net beneficial impact for
 9 fish, you may actually be losing because you're not going to
 10 get the deep habitat, so you're actually asking a very
 11 difficult question.

12 Q I am not talking about fish habitat, I am talking about
 13 riparian vegetation that we can establish on those channels.
 14 You went a step farther. I wasn't asking maybe a hypothetical
 15 about the kind of flow necessary for those channels, but the
 16 general premise that you are not opposed to rewatering those
 17 channels that may be historic?

18 A Well, okay, the assumption being you want to create
 19 riparian vegetation?

20 Q Yes.

21 A That is your objective.

22 Q Yes, sir.

23 A More water across the bottoms would give you indeed
 24 more obligate wetland species, and indeed water would spread
 25 across those bottom lands pre-1941.

00165

1 Q I am talking not so much about the flat lands spreading
 2 where there's points of debate, I am talking about channels
 3 that are very definitely historic channels that can be
 4 rewatered without a great deal of engineering effort, and if
 5 it were the goal, the primary goal of doing that was to
 6 achieve greater linearity of riparian vegetation or extent of
 7 riparian vegetation, you wouldn't be opposed to that; would
 8 you?

9 A Easily done without heavy equipment --

10 Q It's not a trick question.

11 A Well, I realize it is not a trick question, but what
 12 seems to be a simple question to you carries a whole bunch of
 13 things with regard to, you know, and I apologize for that.

14 Q I understand it is complex, but we have to simplify
 15 things here.

16 A If your objective is to create more plants, irrigating
 17 the bottom lands, yes.

18 MR. BIRMINGHAM: I have never objected to the response
 19 of one of my own witnesses, but I don't think that was
 20 responsive to Mr. Canaday's question.

21 MR. CANADAY: I don't think so either.

22 MR. DEL PIERO: Dr. Beschta, I thought it was an okay
 23 answer. (laughter)

24 Why don't you try again just to make Mr. Birmingham and
 25 Mr. Canaday happy.

00166

1 MR. CANADAY: May I repeat the question?

2 MR. DEL PIERO: Go ahead.

3 MR. CANADAY: Q Is this New Zealand channel, true
 4 right that we have talked about before, and there's no doubt
 5 -- it is not a ditch.

6 DR. BESCHTA: A Okay, and it's down below the
 7 Narrows.

8 Q It is below the Narrows, and the entrance to that
 9 particular channel, to open that channel up and to achieve
 10 some true restoration benefits of riparian vegetation, we are
 11 not talking about speculating about the fisheries benefits
 12 that we would get, you are not opposed to doing that; is that
 13 correct?

14 A Well, the presumption here is -- there's several things
 15 built in to that. That channel already has water in it today,
 16 not the entire reach, but it is not subsurface water in it
 17 today, and it's not ponded water down at the bottom. It's
 18 already creating some type of a benefit. What you are asking
 19 me to do, from a science standpoint, is say, gee, that benefit
 20 you want to create is better than what exists there today. I
 21 am having a tough time saying it is better because that's a
 22 judgment call on my part. If it will indeed give you a longer
 23 stretch of water running through that system, but what you are
 24 trading off is existing already wet channel bottom and wetland
 25 which holds water today at the bottom of that channel. I

00167

1 don't want to trade those off.

2 Q I am not debating the amount of flow. That isn't part
 3 of the question.

4 A But you want more plants, and part of that channel is
 5 already seeing more plants, but they are not the kind of
 6 plants that perhaps you would want to see, but it is happening
 7 out there. Yes, you can grow more plants along that old
 8 channel if you put water in the top.

9 Q Another question, you testified that the stream is
 10 restoring itself quite nicely, to use your words.

11 A Yes.

12 Q And that in fact the stream is forming deep water
 13 habitat and deep pools, in some places in excess of four feet;
 14 is that correct?

15 A That's true.

16 Q So, based on what you have seen naturally occurring
 17 along Rush Creek, you would say that if the stream is typified
 18 in 1987 as being very shallow, without much deep water, you
 19 would say that was atypical?

20 A Well, the number of six inches to two feet sticks in my
 21 mind as what it was like before, and I think it would be a
 22 very interesting experience for anybody in this room to walk
 23 Rush Creek today and ask that very same question, what is the
 24 depth of that channel. It is considerably more than six
 25 inches to two feet in many, many places.

00168

1 Q Finally, you testified to some of your concerns about
 2 the recommended treatments along the creeks, and you spoke
 3 specifically of depressional wetlands streamside.

4 A True.

5 Q And you are concerned about altering those. Is it your

6 opinion that where there are depressional wetlands and the
7 goal would be to achieve backwater pools, that's assuming that
8 was going to happen on that stream, that there are places
9 elsewhere where that should happen rather than disrupting
10 those depressional wetlands?

11 A Those near-channel depressional wetlands, yes, I would
12 say you would not want to work in those areas.

13 Q That they are more valuable than the backwater pool
14 that you would create?

15 A This is the value judgment story again, and I can't
16 give you that answer. I would have to know a lot more about
17 the animals and creatures that live in that area and really
18 have to understand a lot more than I do today. But those have
19 been found in other basins to be incredibly important areas,
20 and we have dismissed them in the past, and I would argue we
21 should not be dismissing them in the future.

22 Q The reason why I asked that is that if in fact
23 decisions are made by this Board for some sort of instream
24 channel work, we should be aware or take notice that these
25 depressional wetlands have very high values, intrinsic values

00169

1 in themselves, and that we shouldn't be disturbing these sites
2 if we can avoid them; correct?

3 A I would agree that they do indeed have high value, yes.

4 MR. CANADY: Thank you.

5 MR. BROWN: Any other comments by staff?

6 MR. FRINK: Staff has no further questions.

7 MR. BROWN: Okay. We will take a five-minute break.
8 (Recess.)

9 MR. DEL PIERO: Ladies and gentlemen, this hearing will
10 again come to order.

11 Someone pointed out to me during the break that it did
12 appear that we weren't keeping track of time as prudently as
13 we have in the past. Forgive me, but that's Mr. Stubchaer's
14 job, and he is not here, so I am going to assign that
15 responsibility to Mr. Herrera, who has promised me he is going
16 to do it with vigor and enthusiasm.

17 MR. HERRERA: Hopefully this clock works better than it did
18 for staff. It limited us to about a minute and a half. Mr.
19 Birmingham,

19 we will try to give you the full benefit.

20 MR. BIRMINGHAM: Thank you, and I fully expect that we
21 can make up some of the time that we have lost earlier, with
22 this panel.

23 MR. DEL PIERO: Please proceed, Mr. Birmingham.

24 MR. BIRMINGHAM: Thank you. I would like to introduce
25 to the Board a panel comprised of three individuals from the

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1 Department of Water and Power, the Power Section: Allan
2 McFarlane, Art Tanaka, and Michael Webster, and these
3 witnesses have not been sworn, Mr. Del Piero.

4 (Thereupon the witnesses were sworn.)

5 My first questions will be directed to Mr. McFarlane.

6 ALLAN McFARLANE,

7 Having been sworn, testified as follows:

8 DIRECT EXAMINATION,

9 BY MR. BIRMINGHAM:

10 Q Mr. McFarlane, would you please state your full name
11 and spell your last name for the record?

12 A My name is Allan McFarlane, III. The last name is
13 spelled M-c-capital F-a-r-l-a-n-e.

14 Q Mr. McFarlane, by whom are you employed?

15 A Los Angeles Department of Water and Power.

16 Q And what position do you hold there?

17 A I am Assistant Group Supervisor over the Resource and
18 Financial Planning Group.

19 Q And, Mr. McFarlane, LADWP Exhibit 72 is a document
20 entitled, "Declaration of Allan McFarlane, III." Is that a
21 declaration that you prepared for submittal to this Board in
22 connection with these proceedings to state your education and
23 qualifications?

24 A Yes.

25 Q Would you please briefly summarize your education and

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1 employment history?

2 A I have a Bachelor's Degree in Engineering from the
3 California State University of Northridge. I have a Master's
4 Degree in Electric Engineering from USC. I have been employed
5 by the Department of Water and Power since 1967. I have
6 worked in the Transmission Design Group in which we design an
7 construct transmission lines. I was in Electric Planning
8 where we planned the electrical system for the power system.
9 And I am currently in the Resource and Financial Planning
10 Group, and we analyze what resources the power system needs.
11 Q Have you completed your answer, Mr. McFarlane?

12 A Yes.

13 ART TANAKA,

14 Having been sworn, testified as follows:

15 DIRECT EXAMINATION,

16 BY MR. BIRMINGHAM:

17 Q Mr. Tanaka, would you please state your full name and
18 spell your last name for the record?

19 A My name is Art Tanaka, T-a-n-a-k-a.

20 Q And Mr. Tanaka, LADWP Exhibit 73 is a document
21 entitled, "Biographical Summary for Art Tanaka." Does LADWP
22 Exhibit 73 correctly state your education and employment
23 history?

24 A Yes, it does.

25 Q Does it correctly state your qualifications?

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1 A Yes, it does.

2 Q Would you please tell us by whom you are employed?

3 A The Los Angeles Department of water and Power.

4 Q And would you please briefly state what your education
5 and experience has been?

6 A I have a Bachelor of Science in Electrical Engineering
7 from California State University, Long Beach; a Master of
8 Science in Electrical Engineering from the University of
9 Southern California.

10 Q And would you briefly describe your responsibilities at
11 the Department of Water and Power?

12 A I am a Group Supervisor of Parts and Supply Planning
13 and Governmental Affairs Group.

14 MICHAEL WEBSTER,

15 Having been sworn, testified as follows:

16 DIRECT EXAMINATION,

17 BY MR. BIRMINGHAM:

18 Q Mr. Webster, would you please state your full name and
19 spell your last name for the record?

20 A My name is Michael Webster, W-e-b-s-t-e-r.

21 Q And, Mr. Webster, LADWP Exhibit 74 is a document
22 entitled "Statement of Qualifications for Michael S. Webster."
23 Does LADWP Exhibit 74 correctly state your qualifications and
24 education?

25 A Yes.

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1 Q And by whom are you employed, Mr. Webster?

2 A Los Angeles Department of Water and Power.

3 Q And would you briefly state your education and
4 professional experience?

5 A Educationwise, I graduated from UCLA in Mechanical
6 Engineering with a B.S. Degree and later went on and obtained
7 a Master's Degree in Business Administration from USC.

8 Professionally, I am currently Supervisor of Air
9 Quality and Compliance Planning in the Conservation Planning
10 Division. I've held that position for approximately a year
11 and a half. Before that, I was Mechanical Project Manager of
12 several air quality control projects and held various
13 positions in mechanical engineering within the Power Design
14 and Construction Division.

15 Q LADWP Exhibit 71 is a document that's entitled, "Direct
16 Testimony of Allan McFarlane, Art Tanaka, and Michael
17 Webster." Is LADWP Exhibit 71 the written testimony that the
18 three of you jointly prepared for presentation to the Board in
19 connection with these proceedings?

20 MR. McFARLANE: A Yes.

21 Q And, in preparing LADWP Exhibit 71, did you rely on
22 LADWP Exhibit 75, a document entitled, "Electricity Report
23 Appendices (P-105-90-002A) NP Prepared for the California
24 Energy Commission, Energy Forecasting and Planning Division,

25 Sacramento, California," by Griffin, K. and M. Merritt in 00174

1 1990?
 2 A Yes.
 3 Q And, in preparing LADWP Exhibit 71, did you rely on a
 4 document identified as LADWP Exhibit 76, entitled, "South
 5 Coast Air Quality Management District Rule 1135"?
 6 A Yes.
 7 Q As I understand it, Mr. McFarlane, you are going to
 8 summarize LADWP Exhibit 71?
 9 A Yes.
 10 Q Will you please present that summary?
 11 A Okay. As I stated, I am Allan McFarlane, with the
 12 power system of the Los Angeles Department of Water and Power.
 13 I would like to state that the power system is chartered to
 14 serve the electricity needs of the City of Los Angeles which
 15 has over 3 million people.
 16 The power system meets these needs from three sources
 17 that include hydroelectric, natural gas, coal or nuclear fuel
 18 facilities, power purchases, and conservation. Hydroelectric
 19 generation is a very important component because of the energy
 20 costs, flexibility, and because it emits no air pollutions.
 21 This testimony concludes that reduced diversions will
 22 clearly impact the operation and competitiveness of the power
 23 system. The energy that will be lost will affect thousands of
 24 households in Los Angeles.

25 The energy generated from the Mono Basin was equated to 00175

1 the energy equivalent of approximately 44,000 homes in Los
 2 Angeles.
 3 Even the preferred alternative, which was the 6,383.5
 4 level alternative, equates to the energy requirements of
 5 approximately 22,500 homes.
 6 All the power system's hydroelectric facilities, except
 7 purchases we get from Hoover and from a local pump storage in
 8 Castaic will be impacted by reduced diversions from Mono
 9 Basin. Approximately half the energy that is lost would be
 10 assumed to be made up from natural gas fuel facilities located
 11 in Los Angeles, and the remaining half from purchases from
 12 resources located in the Western States.
 13 The power system will incur additional costs to replace
 14 lost energy and capacity. The annual fuel costs could go as
 15 high as \$8 million a year, depending upon which alternative is
 16 selected, and the capacity that would have to be replaced with
 17 purchases or new resources could cost an additional million
 18 dollars annually.
 19 Although not catastrophic to the power system
 20 operation, reduced Mono Basin water diversion will clearly
 21 impact the competitiveness of the power system, especially in
 22 an era of deregulation.
 23 The Draft EIR minimized the effect of increased air
 24 pollution. However, air emissions in Los Angeles and the
 25 Western States will increase as clean hydroelectric generation

00176

1 is replaced with fossil fuel generation.
 2 The natural gas fuel facilities that would replace some
 3 of this lost generation is located in the South Coast Air
 4 Basin, which is classified as an extreme non-attainment area,
 5 according to the Federal Clean Air Act, and also this
 6 hydroelectric generation will only make reaching attainment
 7 more difficult.
 8 The Draft EIR did not consider the cost to this society
 9 for residual emission impacts on local and global air quality.
 10 These costs are the value society places on protecting
 11 property held and quality of life from the dangerous effects
 12 of severe air pollution.
 13 The California Energy Commission and their Electricity
 14 Report '90 made certain assumptions, that is, they assumed
 15 \$11,600 per ton for NOx emissions located inside California,
 16 and \$2,700 a ton for NOx emissions located outside California.
 17 Using these societal costs would further increase power
 18 system costs by more than \$3 million.
 19 The Draft EIR labels potential air quality regulatory
 20 changes as speculative and discounts their impact. However,
 21 in the changing regulatory environment, there are many

22 proposed regulations and studies which would make it
 23 increasingly more difficult to replace hydroelectric
 24 generation with fossil fuel generation.
 25 In order for the Draft EIR to be complete, it needs to 00177

1 appropriately address the effects of increasing air emissions,
 2 and consideration must be given to future regulations.
 3 In conclusion, effects of lost generation through
 4 reduced diversion from Mono Basin, combined with the effects
 5 of rewatering the Owens Gorge, will adversely affect the
 6 operation of the power system's hydroelectric system and
 7 increase the costs, and further degrade air quality in the
 8 City of Los Angeles.

9 This concludes my testimony. If you have any
 10 questions, I will be happy to answer them.
 11 In addition, Mr. Tanaka and Mr. Webster are also here
 12 to answer questions.

13 MR. DEL PIERO: Thank you very much. Mr. Birmingham.
 14 MR. BIRMINGHAM: I can almost guarantee Mr. McFarlane
 15 there will be questions.

16 MR. DEL PIERO: Let's see. I guess Ms. Cahill, are you
 17 on first?
 18 Mr. Thomas.

19 CROSS-EXAMINATION,
20 BY MR. THOMAS:

21 Q Good evening, gentlemen. I heard Mr. McFarlane testify
 22 a moment ago that the effects of rewatering the Owens Gorge
 23 were incorporated into your cost analysis; is that correct?

24 MR. McFARLANE: A No, they weren't. My statement
 25 was the reduced diversion from Mono Basin, combined with the 00178

1 effects of rewatering the Gorge, will degrade or seriously
 2 further hurt operation of our hydroelectric system, or at
 3 least reduce the flexibility of it.

4 Q And the rewatering of Owens Gorge is not a factor that
 5 emanates from this proceeding?

6 A No. It is something that happens to be occurring.

7 Q And is my understanding correct that rewatering of
 8 Owens Gorge is to comply with Section 5937 of the Fish and
 9 Game Code?

10 A I don't know the number of the Code, but it was to
 11 comply with Fish and Game regulations.

12 Q Does your analysis contained in the direct testimony
 13 exclude impact analysis derived from the Owens Gorge matter?
 14 A Yes.

15 MR. THOMAS: Thank you.
 16 MR. DEL PIERO: Mr. Flinn.

17 CROSS-EXAMINATION,
18 BY MR. FLINN:

19 Q Good evening, gentlemen. I am Patrick Flinn. I am one
 20 of the attorneys for the National Audubon Society and Mono
 21 Lake Committee. I must say it is a pleasure after being on
 22 this case about ten years I finally get to meet the power
 23 guys. We have met the water people, but not the power people.
 24 It is nice to finally see you.
 25 You all have read or some unified combination of you 00179

1 have read the power section in the Draft EIR; is that right?
 2 MR. TANAKA: A Yes.

3 MR. McFARLANE: A Yes.

4 Q I take it if there were material things that you would
 5 expect would matter to the Water Board in the Draft EIR that
 6 you just didn't agree with, it was your effort to put them in
 7 your written testimony. Would that be right?

8 MR. TANAKA: A Yes, that is correct.

9 Q So I take it then, if there is something you don't
 10 contradict in your written testimony that is in the EIR, that
 11 is something that one could reasonably expect to be material
 12 to the Water Board, and we could accept as true what is in the
 13 Draft EIR?

14 MR. McFARLANE: A Yes.

15 Q Do any of you gentlemen know the relative cost to the
 16 Department of Water and Power energy compared to that supplied
 17 by Southern California Edison?

18 A Approximately 20 percent, it is our understanding it is

19 approximately 20 percent lower than Edison.
 20 Q Have any of you gentlemen heard a proposal generated by
 21 the Mayor of the City of Los Angeles that the Department of
 22 Water and Power increase its power charges to the rate payers
 23 in order to generate revenue for the City?
 24 A We have not seen anything on that.
 25 Q Have you ever heard anything, nothing out of the

00180

1 Mayor's office at all?
 2 A No.
 3 Q I was struck by page 109 of your testimony, as I
 4 thought about Southern California Edison and the 20 percent
 5 price differential. You write, in the third paragraph of that
 6 testimony:
 7 "Although the potential impacts resulting from
 8 lower water diversions are not catastrophic to
 9 the operation of the power system, they clearly
 10 impact the system's ability to operate in a way
 11 that remains competitive with neighboring
 12 utilities, particularly in an era of
 13 deregulation."
 14 Did you have any particular competitor in mind when you
 15 wrote that statement?
 16 A Okay. We would answer this question like this. We are
 17 competing with other forms of energy sources, whether it be
 18 electricity or whether it be natural gas. Another thing I
 19 want to clarify is that although our electric rates are lower
 20 than our large neighbor's, Southern California Edison, it is
 21 my understanding that Edison's rate structure is such that
 22 communities adjacent to our boundaries have very similar rates
 23 to us. But maybe overall their rates are higher than ours.
 24 Q You must have misheard my question because it was not
 25 intended to ask you again the relative costs between Southern

00181

1 California Edison and yourselves. I had a different question.
 2 I asked you if you had a particular competitor in mind when
 3 you wrote that sentence on page 109 of your testimony that I
 4 read aloud?
 5 A Basically, we always have to make sure our rates are as
 6 -- okay, we compare our rates to our neighboring utilities,
 7 whether it be Southern California Edison or other municipal
 8 utilities. We use these as yardsticks, but, in addition, we
 9 also have to be cognizant of the fact that the electric
 10 industry is probably going to go through a major change, and
 11 we may be having to compete with industries that are just
 12 coming into existence, third-party generation. We want to
 13 make sure that the power system of L. A. Department of Water
 14 and Power is in a position to be competitive with any change
 15 in electricity.
 16 Q Some of these third-party generators include things
 17 like wind power, geothermal, that sort of thing?
 18 A It could be any -- whatever they try to sell to
 19 customers on our system.
 20 Q That could include things like geothermal and wind
 21 power?
 22 A This is true.
 23 Q In essence, what you are saying is you would like to
 24 keep your rates as low as possible because you want to be able
 25 to compete with people like wind power sellers and geothermal

00182

1 sellers; is that right?
 2 A Correct.
 3 Q So I take it that we shouldn't necessarily assume,
 4 given these third-party generators that might be coming down
 5 in the future, that all of them are going to be generating NOx
 6 air pollution; is that right?
 7 MR. BIRMINGHAM: Mr. Del Piero, I'm not sure, despite
 8 my efforts, that the panel understands that any member of the
 9 panel may answer a question that is directed to the panel by
 10 Mr. Dodge.
 11 MR. FLINN: Or Mr. Flinn.
 12 MR. BIRMINGHAM: Excuse me.
 13 MR. FLINN: You might want to read back the question.
 14 (The Reporter read the question as follows:)
 15 Q So I take it that we shouldn't

16 necessarily assume, given these third-party
 17 generators that might be coming down in the
 18 future, that all of them are going to be
 19 generating NOx air pollution; is that right?
 20 MR. WEBSTER: A I don't think we can assume what the
 21 future generation is going to hold in store for us. It's
 22 possible based on economics that alternate forms of generation
 23 will be available, but we can't assume that is going to be
 24 true in the future. It's the economics that will have to play
 25 themselves out.

00183

1 MR. FLINN: Q But you would agree we can't assume
 2 that all of these third-party generators are going to be using
 3 power generation forms that produce vast quantities of air
 4 pollution?
 5 A As of today, we don't know what to assume in the
 6 future. We have to look at the time period down the road. We
 7 have to look at the technology, and it is quite feasible that
 8 there will be some sort of combustion process and will not be
 9 alternate energies in the South Coast Air Basin.
 10 Q You can't say one way or the other; can you?
 11 A True, we do not know.
 12 Q Let me ask you to look at Table B of your testimony.
 13 This is the one entitled, "Comparison of Residual NOx Emission
 14 Costs to the Point of Reference Alternative." Can you give us
 15 an idea how you came up with those cost numbers? It is just
 16 not real clear to me reading the testimony.
 17 A Are you referring to Table 3-M-B, "NOx Emission, No
 18 Diversion Alternative"?
 19 Q I am talking about Table B in your testimony at page
 20 110.
 21 A Okay, by way of description of how those were
 22 calculated, first ER 90, Electricity Report 90, goes through
 23 a modeling process and calculates the number or the amount in
 24 tons of NOx emissions from our in-basin facilities.
 25 Q Let me stop right there. That give you a nitrous oxide

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1 volume from your South Coast Basin generating facilities; is
 2 that right?
 3 A Yes.
 4 Q Okay, go ahead. I am trying to do this in steps.
 5 A Okay. Then what was actually done to come up with a
 6 cumulative cost was using what is called external values or
 7 residual emission values for NOx, nitrous oxides, that are in
 8 that Electricity Report 90, and, in this case, in 1992
 9 dollars, it's \$14,700 per ton.
 10 Q Let me stop there. You had tonnage values from this
 11 model, and then you multiplied that by \$14,000 per ton; right?
 12 A That's correct.
 13 Q Okay, then what did you do?
 14 A Well, that calculates in annual cost, if you will, by
 15 the multiplication of those two numbers, and then an
 16 accumulative cost is developed by summing those numbers year
 17 by year throughout the period of Electricity Report 90, which
 18 is \$2,011.
 19 Q Okay. Here's the gap that I am missing. We can get a
 20 per ton dollar value figure for nitrous oxide, but presumably
 21 there is some tonnage per kilowatt or some tonnage versus
 22 power relation; isn't there?
 23 A Yes.
 24 Q Where did you get that from?
 25 MR. McFARLANE: A The actual tonnage was determined

00185

1 by Jones and Stokes in their analysis in the EIR. And Jones
 2 and Stokes took the ER 90 data base, which is developed by the
 3 California Energy Commission utilizing ELFIN, which is the
 4 program that the California Energy Commission uses for doing
 5 their analysis. They had a reference case, and then they had
 6 these alternative cases, and they determined the changes and
 7 emissions for each of these alternatives.
 8 Q Do you know offhand whether or not, in doing this
 9 assumption, Jones and Stokes assumed that all of the
 10 replacement energy would be generated by facilities that would
 11 emit nitrous oxide?
 12 A I stress this is the analysis Jones and Stokes used in

13 the Draft EIR. Using the tables they had in there, it was
14 approximately 50 percent in-basin. What I mean by "in-basin",
15 in the South Coast Air Basin, in which the City of Los Angeles
16 is located, and approximately half the generation came from
17 external sources in California.

18 Q So did you change that in some way?

19 A We just utilized what Jones and Stokes used in the EIR.
20 We are utilizing Jones and Stokes determined numbers.

21 Q So whether it is Jones and Stokes or somebody else, the
22 fact is this assumes that 50 percent of the replacement power
23 would be generated by nitrous oxide emitting facilities in the
24 South Coast Basin; right?

25 A Correct, approximately 50 percent.

00186

1 Q Now just looking at this, this is in thousands of
2 dollars; is that right?

3 MR. WEBSTER: A Yes.

4 Q So we go from the 6,377 alternative, which you may or
5 may not understand, the one proposed by DWP, to say a higher
6 lake level, 6,390, am I right, the difference there is
7 \$800,000?

8 A Approximately.

9 Q Now, that number just seems to strike me as ringing a
10 bit of a bell, and I was wondering if any of you gentlemen
11 were familiar with kind of an economic controversy in the
12 Department of Water and Power relating to contentions by city
13 officials that the Department of Water and Power wasted money
14 during a recent strike.

15 A Are you asking are we aware?

16 Q Yes.

17 A Yes.

18 Q Were you aware there were allegations that particularly
19 the Power Division spent \$800,000 on catering for managers
20 during the strike?

21 MR. BIRMINGHAM: Objection, relevance.

22 MR. FLINN: It is relevant, Mr. Del Piero. An \$800,000
23 burden is being asserted here. I believe the fact that Los
24 Angeles was able to fund \$800,000, if in fact it is true they
25 were able to fund \$800,000 for catering during the strike of

00187

1 some short dimension is relevant to whether or not there is a
2 genuine burden on Los Angeles.

3 MR. DEL PIERO: Sustained.

4 MR. FLINN: Did the Draft EIR say at page 3-M-10:

5 "The amount of total capacity, both inside and
6 outside California, available to LADWP from
7 existing and planned resources is projected to
8 be greater than LADWP's capacity requirements
9 under all water diversion alternatives."

10 I take it that you gentlemen don't dispute that?

11 MR. TANAKA: A Will you repeat that question?

12 Q Reading from page 3-M-10 of the Draft EIR, the top
13 paragraph:

14 "The amount of total capacity, both inside and
15 outside California, available to LADWP from
16 existing and planned resources is projected to
17 be greater than LADWP's capacity requirements
18 under all water diversion alternatives."

19 MR. McFARLANE: A Let me ask one clarifying
20 question. Do you mean lost capacity, or do you mean our total
21 system capacity?

22 Q I guess I am interpreting the statement to mean when we
23 look at what your demand is projected to be as opposed to your
24 capacity, that under all alternatives you have got the
25 capacity to meet your demands.

00188

1 MR. BIRMINGHAM: Excuse me, I wonder if the panel
2 members could be given an opportunity to review the paragraph
3 Mr. Flinn is asking them about, and perhaps that would --

4 MR. FLINN: By all means. It is the top one there.

5 MR. TANAKA: A Yes, that's correct. The power
6 system does project to have sufficient capacity to meet its
7 load under all water diversion alternatives. However, the
8 question is not whether there is sufficient capacity inside
9 and outside of California, but the quality and type of

10 capacity that we are losing by the loss of diversion.

11 Q I do understand that, and I want to ask you a question
12 about that. The demand projections that you use in your
13 testimony and that Jones and Stokes uses, are 1990 power
14 demand estimates; is that right?

15 A That is correct.

16 Q Are you familiar with any more recent power demand
17 estimates?

18 MR. McFARLANE: A Well, the California Energy
19 Commission has to come up with an ER 92 report, which would
20 replace the 90 report, and they are currently working on ER
21 94. That's not available yet, but we have submitted our data,
22 but they really haven't completed their public hearings on
23 that.

24 Q ER 92 or the 94?

25 A 94.

00189

1 Q Have you looked at the demand projections in the year
2 92 and compared them to ER 90 demand projections?

3 A We have looked at the two reports. I just can't
4 remember how they compared at this time.

5 Q Would it surprise you if the 92 report showed a lower
6 demand than was projected in the 1990 report?

7 A I would have assumed that the ER 92 report would have
8 probably showed a lower demand than ER 90, but I think growth
9 in California has dropped off somewhat over the years.

10 Q And if the demand goes down, then consequently the need
11 for replacement energy would go down; is that right?

12 A This is true.

13 Q And thus the costs could go down?

14 A This is true, unless the cost of the energy replacing
15 them were to go up.

16 Q All other things being equal, the cost goes down?

17 A All other things being equal, that would be true, but
18 we would have to look --

19 Q One last question. You gentlemen may or may not be
20 familiar with -- I don't know how they divide the

21 responsibilities up, but as water goes from the Mono Basin to
22 the Upper Owens and Crowley Reservoir and then on down through

23 the system, that system is used both to supply water when it
24 is needed and to generate electricity when it is needed; is
25 that right?

00190

1 A Yes, this is true. Well, the water is generating power
2 as well as meeting the water needs of the City of Los Angeles.

3 Q Now do I understand it right that power varies by time
4 of day, the cost of power varies by time of day?

5 A Yes, this is generally true.

6 Q So generating kilowatts, if that is the right measure
7 of power, at 2 o'clock in the afternoon is more valuable than
8 generating the same kilowatt at midnight?

9 A This is true.

10 Q Now do you know whether or not the operations of the
11 power systems between Crowley and all the way down to Los
12 Angeles are operated to maximize them so they generate power
13 at peak times during the day without regard to water supply
14 needs, or is there some balancing between getting the water
15 there to optimize water supply needs as opposed to optimize
16 power needs, and that is a complex question, and if it is hard
17 to understand, I will try and break it down.

18 A Okay. I need to kind of describe the Aqueduct system
19 a little bit.

20 Q There is a figure back there, Figure 1.5 from the Draft
21 EIR, which I believe shows part of it. At least, feel free to
22 use that if that is helpful.

23 A Between Crowley and Pleasant Valley, there are three
24 generators, Upper Gorge, Middle Gorge, and Lower Gorge, and
25 our control boards. These particular facilities are operated,

00191

1 what we call peak shaving, that is they start off at some very
2 low value to begin the day, quite often zero, they are ramped
3 up to meet system requirements during the peak hours of the
4 day, and then they are brought down to zero in the evening
5 when cost of electricity is not as great. We are trying to
6 cut down the peak costs of our system.

7 However, from Pleasant Valley on in, the demand of the
8 water system precludes the optimal operations of the power
9 system. So, from Crowley on, it's what we call a run of the
10 river, that is power is generated in the plant from Pleasant
11 Valley on in, depending upon the flow of water through that
12 Aqueduct.

13 MR. HERRERA: That's 20 minutes.

14 MR. FLINN: I will just stop.

15 MR. DEL PIERO: Thank you very much, Mr. Flinn. Mr.
16 Roos-Collins.

17 MR. ROOS-COLLINS: We don't have any questions.

18 MR. DEL PIERO: Ms. Scoonover.

19 MS. SCOONOVER: No questions.

20 MR. DEL PIERO: Mr. Frink.

21 EXAMINATION,

22 BY MR. FRINK:

23 Q My questions are of anyone on the panel who has the
24 answer first.

25 Approximately what percentage of the electrical power
00192

1 that is generated by the Los Angeles Department of Water and
2 Power is produced with water exported from the Mono Basin?

3 MR. McFARLANE: A It's approximately less than one
4 percent.

5 Q On page 109 of your written testimony, you mentioned
6 the need to maintain the competitiveness of the power system
7 in an era of deregulation. Does that imply you believe the
8 electricity costs of power available from competing suppliers
9 will be decreasing?

10 A What we are saying is that to replace the generation
11 from the water that comes from Mono Basin, with increased
12 power system costs in terms of increased capacity and
13 increased energy, this is in a direction that makes total cost
14 to the ratepayers in Los Angeles higher and makes costs to the
15 power system higher, which just costs more money.

16 Q The portion of the statement on page 109 of your
17 testimony that I am focusing on is the statement that you need
18 to operate in a way that remains competitive with neighboring
19 utilities, particularly in an era of deregulation. My
20 question is, do you anticipate a lowering of the power supply
21 costs available from neighboring utilities?

22 A What we are saying is as an institute serving the
23 electricity needs of the City of Los Angeles, we must do a
24 better job than anyone else can do, which includes any
25 neighboring utilities or any independent power producer.

00193

1 Q I understand that. I guess I will simplify the
2 question. Do you expect that the cost of obtaining power in
3 the future from other suppliers will be increasing or
4 decreasing?

5 A We don't know that for sure.

6 MR. DEL PIERO: Excuse me, Mr. McFarlane. Which don't
7 you know, whether it is increasing or decreasing?

8 MR. McFARLANE: A Okay. It is our assumption,
9 including which is the assumption of most data base, including
10 the ones in the California Energy Commission, that fuel costs
11 will be rising throughout the years, so costs throughout the
12 years definitely is expected to go up.

13 MR. FRINK: Q Okay, and the economic cost estimates
14 of implementing the various lake level alternatives that were
15 identified in the Draft EIR, your estimate for doing that are
16 shown in Table A of your testimony. How did you calculate
17 those costs, on the basis of current costs of the energy?

18 A Okay. I went to stress one thing. These are not costs
19 developed by the Los Angeles Department of Water and Power.
20 These are costs developed by Jones and Stokes in the
21 electricity report in the Draft EIR. We reproduced them here.
22 What we are stating is that when we made our own independent
23 analysis, we found these values to be reasonable, but I have
24 to point out these are Jones and Stokes numbers.

25 Q Do you know if those numbers were based on an assumed
00194

1 increasing cost of power that could be purchased from other
2 suppliers?

3 A Jones and Stokes utilized Electricity Report 90, which

4 is assumptions developed by the California Energy Commission
5 after an exhaustive series of public hearings, and they have
6 assumed in their data base increasing fuel costs and also
7 increasing costs of purchased power from the various regions
8 that we would be purchasing from.

9 Q Thank you. I wonder, have you done an analysis of the
10 effects on power generation of implementing the Mono Lake
11 Management Plan that was developed by the Department of Water
12 and Power?

13 A Pardon me, would you please restate your question.

14 Q Mr. Hasencamp's testimony in the proceeding, which has
15 not yet been presented, but it is written testimony, discusses
16 the Mono Lake Management Plan that the Department of Water and
17 Power is now proposing. My question is, have you done an
18 economic analysis of the power generation costs of
19 implementing that plan?

20 A Do you mind if we talk to Mr. Hasencamp before we
21 answer this question?

22 Q Actually, you would know if you had done an economic
23 analysis.

24 MR. DEL PIERO: Either the staff has done it or they
25 haven't done it.

00195

1 A We have done an economic analysis of all these
2 alternatives, and one of these alternatives is in the plan.

3 MR. DEL PIERO: You have done an economic analysis of
4 all of them?

5 A Well, yes, we have.

6 MR. FRINK: Of all alternatives identified in the Draft
7 EIR; right?

8 A Yes, we have done it, and we have concluded that using,
9 you know, ER 90 assumptions, we thought it prudent to verify
10 the numbers developed by Jones and Stokes, and, utilizing ER
11 90 assumptions, we analyzed each of these plans, and this is
12 why we figure that Jones and Stokes values here look
13 reasonable with the assumptions that they started off with.

14 Q Okay, I understand that. My question goes to -- have
15 you done an economic analysis of implementing the Department
16 of Water and Power's Mono Lake Management Plan, which was
17 an alternative identified in the Draft EIR?

18 A No, we haven't.

19 Q Recognizing that the numbers in Table A are basically
20 reprinted from the Draft EIR, as you have explained, the
21 alternative shown for lake level 6,383.5 assumes there would
22 be an average annual export of water from the Mono Basin of
23 44,000 acre-feet per year. The Mono Lake Management Plan,
24 developed by the Department of Water and Power staff, proposes
25 a plan where water exports from the Mono Basin would be

00196

1 approximately 45,700 acre-feet per year, a quantity of water
2 that is very close to the 44,000 acre-feet of exports shown
3 under the 6,383.5 alternative.

4 Would you assume that the cost of lost power generation
5 under the Mono Lake Management Plan would also be in the range
6 of \$4 million?

7 A Utilizing the assumptions in ER 90, yes.

8 Q Now I realize that there is some dispute over the
9 amount of water that would actually be available for export
10 under the various alternatives identified in the Draft EIR,
11 but if we assume for the moment that those estimates of water
12 available for export are reasonably accurate, the power
13 production costs of implementing the 6,383.5 alternatives are
14 \$4.2 million, and the power production costs of implementing
15 the 6,390 alternative are \$5 million.

16 Would you agree that the power production costs that
17 are subject to dispute in this proceeding between L.A.'s
18 proposal to implement the Mono Lake Management Plan and the
19 cost of implementing the 6,390 water level elevation
20 alternative in the Draft EIR, that the difference in power
21 production costs is approximately \$1 million?

22 A Yes.

23 Q Similarly, in Table B, you have a comparison of the
24 residual NOx emission costs for the various alternatives
25 identified in the Draft EIR. Have you estimated the residual

00197

1 NOx emission costs for implementing the Mono Lake Management
 2 Plan developed by the Department of Water and Power staff?
 3 MR. WEBSTER: A No.
 4 Q Would you assume that implementation of the Mono Lake
 5 Management Plan, which proposes water exports from the Mono
 6 Basin of approximately 45,000 acre-feet per year, I believe,
 7 would result in a significant increase in the NOx emission
 8 costs?
 9 A I don't think I can say that because I don't know what
 10 "significant" is and I don't know what the numbers are.
 11 Q Okay, I will rephrase the question. Is the basis for
 12 determining the NOx emission costs referred to in Table B --
 13 was that based on the decrease in water exports from the Mono
 14 Basin?
 15 A Yes, it was.
 16 Q And if you had a similar decrease in water exports from
 17 the Mono Basin under the Mono Lake Management Plan proposed
 18 by the Department of Water and Power, you would have a similar
 19 increase in NOx emission costs; is that right?
 20 A Yes, you would have an increase.
 21 MR. FRINK: Okay. Thank you. That's all I have.
 22 MR. DEL PIERO: Mr. Smith.
 23 EXAMINATION,
 24 BY MR. SMITH:
 25 Q I have a question about the statement you made on page

00198

1 109. You talk about the reduction in the Mono Basin water
 2 diversions directly affect the capacity run of the river power
 3 plants, and at the end of the paragraph, you say the
 4 replacements could increase the power system's cost by as much
 5 as \$1 million per year. Is that in addition to the \$8
 6 million?
 7 MR. McFARLANE: A Yes, it is.
 8 Q In other words, we are talking about \$9.2 million?
 9 A Just to clarify something, the table on page 108 refers
 10 to replacement energy costs. In addition to replacing energy,
 11 there would be some reduction in capacity, which would have to
 12 be accounted for, and this is what it could be, up to a
 13 million dollars, depending upon the diversion case you select.
 14 Q But we're talking about a loss of approximately \$9.2
 15 million?
 16 A Correct.
 17 Q And you said formerly that the capacity of the Mono
 18 Lake Water is about one percent of your total capacity?
 19 A No, I said the energy generated from Mono Basin water
 20 is a little less than one percent of our energy requirements.
 21 I didn't mention capacity.
 22 Q I am trying to figure out how that one percent works
 23 out. Correct me if I am wrong. Is the one percent, one
 24 percent of \$9.2 million, so that you would be losing \$92,000,
 25 or is that \$1 million a loss of one percent of a hundred

00199

1 million?
 2 A Let me just give a comparison. Maybe this would answer
 3 your question. The power system's energy requirements, or
 4 energy demand, if you want to look at energy demand, is
 5 approximately 25,000 gigawatts per year. As you can see from
 6 this table, the energy generated by Mono Basin water is 210
 7 gigawatt hours, so that's not even one percent. That's what,
 8 about .08 or .07 percent? I didn't bring my calculator with
 9 me, but it would be approximately that -- taking the 2,011 and
 10 dividing it by the energy requirements of the power system,
 11 is approximately 25,000 gigawatt hours a year.
 12 Q Okay, the \$9.2 million represents one percent.
 13 A The energy and capacity.
 14 MR. SMITH: Thank you.
 15 MR. DEL PIERO: Mr. Herrera.
 16 MR. HERRERA: I have no questions.
 17 MR. DEL PIERO: Mr. Canaday.
 18 EXAMINATION,
 19 BY MR. CANADAY:
 20 Q I would like to take off where Mr. Smith left it.
 21 So the worst scenario would be if we are looking at capacity
 22 per year, cost of replacement capacity in lost energy

23 replacement costs, plus the cost of residual NOx. That is
 24 about the worst case, \$9.2 million a year? Is that the impact
 25 to the District?

00200

1 MR. WEBSTER: A No, I think we need to add in the
 2 residual NOx cost. The \$9.2 million was 8.2 for energy,
 3 approximately \$1 million for capacity, and I believe there
 4 would be \$3.435 million using ER 90 data for the residual NOx
 5 emissions.
 6 Q Excuse me for a moment, I want to go back.
 7 A I think I need to correct something. The \$3.5 million
 8 is a cumulative cost, and one is annual, 8.2 plus 1 million,
 9 and I think what we need to do is look at the annual cost and
 10 add that.
 11 Q So what then would be the cost?
 12 A Well, I kind of need to average this, but let me give
 13 you a range to be accurate. The range goes up to 1993. The
 14 annual costs is \$323,000 per year, and it goes down from
 15 there, not in a straight line, but up and down.
 16 Q Give me your high.
 17 A The highest is \$323,000 per year.
 18 Q So I have the worst case using your numbers, 9.2 for
 19 capacity and energy, a million dollars a year, and then, and
 20 what was that 300?
 21 A That was \$323,000.
 22 Q Call it 3.5 thousand. My math tells me it is
 23 \$9,550,000.
 24 A That sounds about right.
 25 Q In the first page of your testimony in describing the

00201

1 power system, you say that you supply energy to 3 million
 2 people, actually more than 3 million people; correct?
 3 MR. McFARLANE: A Correct.
 4 Q So let's divide this 9 million number by 3 million, and
 5 we get \$3.18 a year, and let's divide that by 12. I guess
 6 that is Julian calendaring, and that comes to 26 and a half
 7 cents a month per person per rate payer. Is that a reasonable
 8 number then that that would represent?
 9 MR. WEBSTER: A Sounds about right also.
 10 Q But that would be a worst-case ratepayer impact, 26
 11 cents a month.
 12 The model that Jones and Stokes used to generate this
 13 analysis, what was that model?
 14 MR. McFARLANE: A Jones and Stokes used ELFIN.
 15 ELFIN is a model developed by the Environmental Defense Fund,
 16 and this model is utilized by the California Energy
 17 Commission.
 18 Q Okay, so the model is recognized by the California
 19 Energy Commission, and their analysis is used in the
 20 generation of their energy reports?
 21 A ELFIN is used by the California Energy Commission for
 22 the determination of production cost analysis in their report,
 23 and also I want to point out ELFIN is the model that is used,
 24 it is my understanding, in the PUC rate hearings.
 25 Q So ELFIN, the model that Jones and Stokes used, is the

00202

1 model that is used by the PUC and the California Energy
 2 Commission in their analysis of energy supply and demand in
 3 California?
 4 A That's correct.
 5 Q In part of your testimony you talk about potential
 6 future impacts of rewatering the Gorge. Is that likely to
 7 change the operation of the existing power plants from a
 8 peaking facility or peaking demand facility to more run of the
 9 river?
 10 MR. TANAKA: A It is not a complete conversion, but
 11 impacts the extent to which we can offer it as peaking. We
 12 lose some peaking capacity because of the dewatering.
 13 Q Living in Sacramento, in our public utility district we
 14 have some innovative rebate programs to reduce demand energy
 15 supplies. What kind of programs does LADWP have for demand
 16 side reductions?
 17 MR. McFARLANE: A I just want to point out one
 18 thing. In our current resource plan, which has just been
 19 signed, we show the demand requirements rising by

20 approximately 1,300 megawatts. Of that 1,300 megawatts, we
21 are showing --

22 MR. DEL PIERO: Excuse me, I'm sure that's important
23 information, but it is not responsive to the question.

24 MR. McFARLANE: A We are assuming approximately
25 1,000 megawatts of demand reduction coming from our

00203

1 conservation and DSM program.

2 MR. CANADAY: Q How many megawatts again?

3 A Approximately a thousand.

4 Q What is the production of the water, what are the
5 megawatts produced by the diversion of water from Mono Basin?
6 Do you have a number?

7 A Well, I didn't quite understand your question, but the
8 entire Aqueduct system from the Owens Gorge clear to the city
9 is 200 megawatts. Is that what you meant? But that includes
10 water that comes from tributary streams all through the Inyo
11 and Mono Counties.

12 Q So, you expect a demand side reduction of over 1,000
13 megawatts, and the annual production from the entire Aqueduct
14 system is roughly 200 megawatts?

15 A That entire Aqueduct system is rated at 200 megawatts.

16 MR. CANADAY: Thank you.

17 MR. DEL PIERO: Mr. Brown.

18 EXAMINATION,

19 BY MR. BROWN:

20 Q I am a little confused on the megawatts and dollars, if
21 I could ask the question a little bit different. The total
22 system, the drop in elevation is around 5,000 to 6,000 feet
23 total. What is the capacity?

24 MR. DEL PIERO: If you don't know the answer --

25 MR. WEBSTER: A We don't know the answer to that.

00204

1 MR. BROWN: Q Who is a major supplier of power to
2 you?

3 MR. McFARLANE: A I think I need to clarify the
4 question.

5 Q You buy power wholesale and then retail it.

6 A We buy power from other utilities, depending upon price
7 and availability, and it is used to provide our customers in
8 the City of Los Angeles.

9 Q Right. Who do you buy from?

10 A We make long-term and short-term purchases. We have
11 long-term purchases from Montana Power Company, the Deseret
12 Transmission Generation --

13 Q With Montana Power, what is the cost of replacement
14 power?

15 A You mean what is the cost of the power?

16 Q Per kilowatt hour, how much do you pay?

17 A I don't have that number here.

18 Q You don't know what the cost of replacement power is
19 from any of the wholesalers you buy from?

20 A I don't have those numbers right here.

21 Q Do you have a range, an estimate? Is it two cents a
22 kilowatt hour or three?

23 A As I said, I don't have them here.

24 Q Do you have an idea of kilowatt hours per acre-foot
25 that is generated on the system on an annual basis? If the

00205

1 supply was reduced 5,000 or 10,000 acre-feet, how does that
2 calculate back on an energy per acre-foot basis. Tell me in
3 kwh's.

4 A Okay. Well --

5 MR. TANAKA: A As Mr. McFarlane has pointed out, our
6 generation in the Owens Valley is made up of peaking capacity
7 as well as run of the river type of generation, and, depending
8 on those two types --

9 Q Well, you have an acre-foot of water, and you run it
10 through the system, how many kilowatts do you get out of it?

11 A Depends on, because you are taking advantage of the
12 head in a peaking generating facility.

13 Q Peaking only has to do with value. I am just
14 interested in what the total energy is that's developed, not
15 whether it is onpeak or offpeak, on an annual basis, and how
16 much, or on a per acre-foot basis rather.

17 A Maybe I am not making myself clear. When you can
18 generate with a peaking type of facility, you can get more
19 kilowatt hours per acre-foot than you can with a run of river
20 type of facility, and I don't know off the top of my head --
21 I think it varies.

22 Q I don't understand that. You have an acre-foot of
23 water, you are dropping it through a series of turbines, you
24 have so much head and so much capacity, that calculates out in
25 kilowatt hours.

00206

1 A To give a rough ballpark number, Mr. McFarlane suggests
2 ratiating the numbers in this table. But, to answer your
3 question as I understand it, what is the amount of kilowatt
4 hours per acre-foot --

5 Q It becomes an important figure if the supply is
6 diminished. I would like to know how many kilowatt hours that
7 it may be diminished. Whether it is onpeak or offpeak is not
8 the question.

9 MR. DEL PIERO: Do you gentlemen know?

10 MR. McFARLANE: Q As I say, you could get a ballpark
11 number by just ratiating the lost energy in this table on page
12 108 to the acre-feet of water. You have the energy, you have
13 the acre-feet, you could just make a ratio there, which would
14 give you a ballpark number. Is that what you want? I mean
15 that would be ballpark, but it might answer your question.

16 MR. DEL PIERO: Mr. McFarlane, will you do that?

17 MR. McFARLANE: A I don't have a calculator here.

18 (A calculator was supplied to Mr. McFarlane.)

19 A If you look at the ratio of each of these alternatives,
20 it varies. That's because of the fact the run of the river,
21 and there's elevation differences.

22 You see, Jones and Stokes, in developing these numbers,
23 had a fairly sophisticated hydroelectric model, where they had
24 to take all the tributary streams and everything on the
25 system.

00207

1 MR. DEL PIERO: Mr. McFarlane, you are missing the
2 point of Mr. Brown's question. He is not asking about Jones
3 and Stokes, he is asking for a very simple calculation that
4 you indicated you could perform. If you can't do that, that's
5 okay.

6 MR. McFARLANE: A We cannot do this.

7 MR. DEL PIERO: He asked for a real simple answer.

8 MR. McFARLANE: A We cannot do it at this desk here.
9 It would require some sophisticated model, which we don't have
10 with us.

11 MR. BROWN: That's fine, Mr. Chairman.

12 MR. TANAKA: I have another nonsophisticated way at
13 looking at generation and amounts of water that was used for
14 generation as a rough estimate, but after looking at this
15 table, even for the different elevations, a simple division
16 wouldn't give you that average.

17 MR. DEL PIERO: Do you have any other questions?

18 MR. BROWN: No.

19 EXAMINATION,

20 BY MR. DEL PIERO:

21 Q I have a couple. You didn't finish your list of power
22 producers with whom you have both long- and short-term
23 contracts. Would you complete that for me?

24 MR. McFARLANE: A Do you want me to list them right
25 now?

00208

1 MR. TANAKA: A Just a point of information, most of
2 our energy that we provide to the City of Los Angeles is
3 generated by our own facilities and facilities that we are in
4 partnership with. The purchases that Mr. McFarlane is
5 referring, to make up, I don't know what percentage of the
6 total.

7 MR. McFARLANE: A I will read them off right now.
8 74 megawatts from Deseret.

9 Q Is that annual?

10 A It is a capacity, so therefore this is the rate at
11 which the energy can flow, up to 74 megawatts.

12 Q I understand that.

13 A We have this capacity around the clock. When this

14 particular facility which it is based on is available.
 15 Q Is it on call to you?
 16 A This is --
 17 Q Is it on call to you?
 18 MR. TANAKA: A It's on call continuously.
 19 MR. McFARLANE: A Long-term. Next is Montana, 105
 20 megawatts. This expires in the year 2010.
 21 Q Okay.
 22 A UP&L, 63 megawatts of capacity. This is also long-
 23 term.
 24 Q When does the contract terminate?
 25 A It is contingent on the availability of the

00209

1 Intermountain Generating Station, which is at least a 35-year
 2 project.
 3 Q From now?
 4 A Since 1986.
 5 Q Is it renewable?
 6 A At the end of --
 7 Q It's a real simple question. In your contract, is
 8 there a provision for renewal? Do we know?
 9 MR. WEBSTER: A I don't know what date. They can
 10 call that back to you. There are renewal elements, and
 11 there's a date in there where UP&L can withdraw that from us.
 12 Q That's contingent on your not committing to a contract
 13 prior to that date?
 14 A Renewing the agreement that we have in the contract,
 15 that's right.
 16 Q Okay. Do you know when the date is?
 17 A No, I don't know.
 18 Q Next.
 19 MR. McFARLANE: A Hoover Power Plant, 491 megawatts,
 20 expires in the year 2017.
 21 Q Is there a renewal provision in that contract?
 22 A This I don't know. The Hoover contracts were recently
 23 renewed after a very extensive court case.
 24 Q I am assuming, gentlemen, from your response to Mr.
 25 Brown in terms of his questions as to whether or not you know

00210

1 the price per kilowatt hour of those contracts is true, that
 2 you don't know. Is that true?
 3 A I don't have those numbers right here.
 4 Q Nor any of them?
 5 A This is correct.
 6 Q Why don't you go on with the list?
 7 A That's the extent of our long-term purchases.
 8 Q Okay. Short-term purchases. And, Mr. Tanaka, if you
 9 have short-term contracts, I would like you to differentiate
 10 those between spotlight purchases, if you differentiate those.
 11 MR. TANAKA: A I can't recall any of the short-term.
 12 Q But there are some?
 13 A Yes.
 14 Q Let me ask in terms of Deseret, is it common for you to
 15 demand the full amount of power that is available to you
 16 pursuant to your contract? I'm not talking about systemic
 17 capacity to accept. The question I am asking, is it common
 18 for you to demand of them the full amount of power that is
 19 available to you pursuant to the contract?

20 MR. McFARLANE: A The answer is yes, but I went to
 21 qualify something. The way the contract is written, there are
 22 capacity factor requirements that almost make us take it flat
 23 out around the clock when available.

24 Q Can you explain what those capacity factors are?
 25 A It's approximately 74 percent we have to maintain. We

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1 have to take an annual capacity factor of approximately 74
 2 percent, which is close to the base load of the facility.
 3 This would account for down times on units and everything
 4 else, so it is a fairly high capacity factor.
 5 Q That was Deseret?
 6 A This is Deseret.
 7 Q Montana the same question.
 8 A The way the price structure -- as I said, I don't have
 9 the cost.
 10 Q I wasn't asking about price structure unless the way

11 you take power is a function of price.
 12 A Montana is typically taken base loaded, and what I mean
 13 by that is full amount.
 14 Q Twenty-four hours a day?
 15 A Twenty-four hours a day.
 16 Q Three hundred sixty-five days a year?
 17 A When available. There are times when the facilities
 18 from which they are providing it to us go down, and they
 19 cannot provide it.
 20 MR. BROWN: Why are you committed to Montana?
 21 A Why are we committed?
 22 MR. BROWN: Yes, why?
 23 A This was a contract that was negotiated between the
 24 Department and Montana Power several years ago, and it's been
 25 signed and everything. We are committed to it.

00212

1 MR. TANAKA: A The contract was just structured that
 2 way. In fact, they have a high penalty cost associated with
 3 not providing us close to 100 percent capacity.
 4 MR. BROWN: Generally there is a favorable cost
 5 associated with those contracts when they do that; isn't that
 6 right?
 7 MR. McFARLANE: A This particular contract is
 8 structured so that it has a very low energy cost, which makes
 9 that power very attractive to our system.
 10 MR. BROWN: That was the point, Mr. Chairman.
 11 MR. TANAKA: A I would like to go back to Deseret.
 12 I just recall the price on the Deseret as 30 mills or 3 cents.
 13 MR. DEL PIERO: Q Three cents a kilowatt hour.
 14 Intermountain. First of all, is that all hydro?
 15 MR. McFARLANE: A Hoover is hydro. The others are
 16 coal based.
 17 Q Intermountain is coal based?
 18 A Yes. Now Intermountain is coal based and is based on
 19 coal prices, which means it has a very low energy cost, and
 20 because of the energy cost, it is taken base loaded. A very
 21 high capacity factor.
 22 Q One last question, gentlemen. In terms of your long-
 23 term contracts, is it sometimes less expensive for the
 24 Department to take power from your long-term contractors than
 25 it is to produce it in your own facilities?

00213

1 A Would you repeat the question?
 2 Q Given your long-term contracts, is it sometimes less
 3 expensive for the Department to take power pursuant to those
 4 contracts than to generate it in your own facilities? I am
 5 not talking hydro. I am talking about your own generating
 6 facilities, fossil fuel burning or what-have-you.
 7 A Okay. In answer to your question, the energy costs
 8 associated with those contracts are lower than what we could
 9 generate in basin with our natural gas fueled facilities.
 10 MR. DEL PIERO: Mr. Brown, do you have any further
 11 questions?
 12 MR. BROWN: No more questions.
 13 MR. DEL PIERO: I have none either. It is 6:30. We
 14 are going to take a ten-minute break and allow everyone to
 15 move their cars and then come back. Mr. Birmingham.
 16 MR. BIRMINGHAM: Mr. Del Piero, I have no question of
 17 this panel on redirect, and I understand Mr. Flinn has no re-
 18 cross, and if no other parties have --
 19 MR. THOMAS: I have one.
 20 MR. DEL PIERO: Who's got questions of these folks on
 21 recross? Mr. Thomas, one, maybe two; Mr. Roos-Collins is
 22 gone. Ms. Koehler, where is she?
 23 MR. THOMAS: Outside.
 24 MR. DEL PIERO: Do you want to ask her, please. Come
 25 up. Gentlemen, we will see if we can get this panel. We've

00214

1 got two coming back?
 2 MR. BIRMINGHAM: Yes, Dr. Carson is here. He is the
 3 other member of the panel with Dr. Wade.
 4 MR. DEL PIERO: Okay.
 5 RE-CROSS-EXAMINATION,
 6 BY MR. THOMAS:
 7 Q On page 111 of your direct testimony, the last two

8 paragraphs, which of you wrote that section?
 9 MR. TANAKA: A What paragraph?
 10 Q The last two paragraphs on the page.
 11 MR. WEBSTER: A Section VI.
 12 Q Section VI. It seems like we have a serious operation
 13 here.
 14 MR. TANAKA: A Mr. McFarlane and I both.
 15 Q The last paragraph states:
 16 "As a result of the rewatering of the Owens
 17 River, up to 13 megawatts of capacity and 11
 18 percent of the energy generated in the Owens
 19 Power Plant is lost."
 20 Is that on Owens Gorge you were speaking of?
 21 MR. TANAKA: A That is correct.
 22 Q So is this in fact not even relevant to this testimony?
 23 A It is relevant to the fact that reduction in diversions
 24 would further exacerbate this problem.
 25 Q But there is no current decline in diversions, you are

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1 diverting today just what you have always historically
 2 diverted.
 3 A Right.
 4 Q You haven't lost 13 megawatts of capacity today?
 5 A We have lost, as a result of our requirements to water
 6 the Gorge.
 7 Q But you are putting 16 cubic feet per second of water
 8 down the Gorge; right?
 9 A Yes.
 10 Q And that's not generating 13 megawatts of power?
 11 A That's correct, it is 13 megawatts of capacity.
 12 Q You are not attributing the loss of 13 megawatts of
 13 capacity to 16 cfs from two power plants; are you?
 14 A That is correct.
 15 MR. DEL PIERO: Excuse me, I didn't understand the
 16 question, and I didn't understand the answer, so why don't you
 17 reask the question, then maybe I can understand the answer.
 18 MR. THOMAS: Q There are three generating facilities
 19 on the Gorge system, power plants one, two, and three; right?
 20 MR. TANAKA: A That's correct.
 21 Q And currently you pick up -- well, prior to the change
 22 in regime, you picked up water at Power Plant Two from the
 23 bottom of the Gorge and ran it through Power Plants Two and
 24 Three; right?
 25 A Will you repeat the question?

00216

1 Q Prior to the recent change in regime, you picked up
 2 water at Power Plant Two and ran it through Power Plants Two
 3 and Three?
 4 A Okay.
 5 Q And when you rewatered the Gorge, you no longer picked
 6 up that 16 cfs, you let it run all the way down to the bottom
 7 of the Gorge?
 8 A That's correct.
 9 Q So the 16 cfs of flow that was picked up and generated
 10 power at Plants Two and Three, you attribute to the loss of
 11 the 13 megawatts of capacity?
 12 Well, let me ask another question.
 13 MR. DEL PIERO: Wait, wait. There's a discussion going
 14 on. Gentlemen, do you have an answer?
 15 MR. McFARLANE: A I want to point out one thing
 16 here.
 17 MR. DEL PIERO: Excuse me, Ms. Book, would you be kind
 18 enough to ask the question again?
 19 (The Reporter read the question as follows.)
 20 Q So the 16 cfs of flow that was picked up
 21 and generated power at Plants Two and Three,
 22 you attribute to the loss of the 13 megawatts
 23 of capacity?
 24 MR. McFARLANE: A The answer is no, the 16 cfs does
 25 not equate to 13 megawatts of lost capacity. The 13 megawatts

00217

1 of lost capacity is attributed to some of the alternatives
 2 which we analyzed. We analyzed many alternatives for the
 3 rewatering. The rewatering could involve diverting from above
 4 the upper Gorge, below the upper Gorge, and, depending on the

5 particular alternative, it could mean up to 13 megawatts of
 6 lost capacity.
 7 MR. THOMAS: Q So there's an error in the first
 8 sentence of the last paragraph; is that correct?
 9 A No, it's up to 13 megawatts. I guess currently the 16
 10 cfs flows all the way down into Pleasant Valley. However, my
 11 understanding, and I can be corrected if I am wrong, this is
 12 not the end of this issue. The exact amount of water that we
 13 must put in the lower part of the Gorge is yet to be
 14 determined.
 15 Q I understand that, but the sentence says, "As a result
 16 of the rewatering of the Owens River, up to 13 megawatts of
 17 capacity and 11 percent of the energy generated in the Owens
 18 Power Plant is lost." That's present tense.
 19 A It should say, "could be lost".
 20 Q Could be lost, under some possible scenario; am I
 21 correct?
 22 A That is correct.
 23 Q And is it true none of those scenarios are related to
 24 this project but are in fact related to your obligation to
 25 rewater, under 5937?

00218

1 A That is correct.
 2 MR. THOMAS: Thank you. That's what I am looking for.
 3 MR. DEL PIERO: Thank you very much, Mr. Thomas. Other
 4 folks? Mr. Frink.
 5 MR. FRINK: No.
 6 MR. DEL PIERO: Anyone else on staff? Mr. Brown?
 7 MR. BROWN: No, Mr. Chairman.
 8 MR. DEL PIERO: Gentlemen, thank you for your patience
 9 and time in presenting your testimony here. We will be in
 10 recess for 15 minutes and then begin again.
 11 (Recess.)
 12 MR. DEL PIERO: Ladies and gentlemen, this hearing will
 13 again come to order.
 14 MR. BIRMINGHAM: Mr. Del Piero, at the risk of being
 15 accused of tag-teaming again, I am wondering, with the Hearing
 16 Officer's permission, and no objection from any of the
 17 parties, if Ms. Goldsmith could continue with the examination
 18 of this panel.
 19 MR. DEL PIERO: Certainly.
 20 RICHARD T. CARSON,
 21 Not having been sworn, testified as follows:
 22 DIRECT EXAMINATION,
 23 BY MS. GOLDSMITH:
 24 Q Dr. Carson, would you please state your name and spell
 25 it for the record.

00219

1 A My name is Richard T. Carson, C-a-r-s-o-n.
 2 Q What is your employment, sir?
 3 A I am an Associate Professor of Economics at the
 4 University of California, San Diego.
 5 Q Is LADWP Exhibit 57 a true statement of your education
 6 and experience?
 7 A Yes, it is.
 8 Q Would you briefly summarize that for us?
 9 A I have been an Economics Professor at the University of
 10 California since 1985 where I specialize in Environmental
 11 Economics, and particularly in nonmarket valuations, that is,
 12 putting a dollar value on environmental amenities that are not
 13 normally bought and sold in the market place. I have
 14 published extensively in this area, and I published the
 15 standard reference text on contingent valuation, which is the
 16 major technique used in this area.
 17 Q Was contingent valuation the method used in preparing
 18 the EIR?
 19 A Yes, it was. That was the principal means of
 20 estimating the public trust benefits.
 21 Q Are LADWP Exhibits 58 and 59 papers which you have
 22 authored?
 23 A Yes, they are.
 24 Q And have you relied on the conclusions and data in
 25 presenting your testimony?

00220

1 A Yes.

2 Q Is Exhibit 56 an accurate statement of your testimony
3 today?
4 A Yes, it is.
5 Q Do you have any additions or corrections to make?
6 A No, I don't.
7 Q Would you briefly summarize your testimony for the
8 Board?
9 A Okay. What I plan to do is address several key issues
10 regarding the assessment of economic benefits and costs of
11 different Mono Lake water levels. First I will focus on the
12 contingent valuation surveys that were used by Jones and
13 Stokes to estimate most of the public trust benefits
14 associated with those different water levels. Then I will
15 focus on the cost side of the equation.
16 In many ways the contingent valuation study done by
17 Jones and Stokes is a remarkable piece of economic work. It
18 demonstrates that neither the traditional position of Los
19 Angeles draining Mono Lake to supply water to a thirsty city,
20 nor the traditional position of the Mono Lake Committee and
21 other environmental groups of restoring the lake to its
22 prediversion levels is in the public interest. It's actually
23 unusual for a piece of economic work to draw such a black and
24 white conclusion.

25 This statement can be made almost irrespective of the 00221

1 actual cost in terms of water supply and other factors, and
2 that's because the public is willing to pay a very sizeable
3 amount of money to maintain a viable Mono Lake ecosystem.
4 They are willing to pay a little bit more for a water level
5 above that, and they are willing to pay substantially less for
6 a very high water level.

7 What happens effectively is the public is very
8 concerned with maintaining a viable Mono Lake ecosystem. In
9 other words, it clearly does not want to lose tufa, it does
10 not really want to displace the wildlife which have come to
11 occupy Mono Lake at its lower level.

12 I should, however, note here that there are non-trivial
13 factions of the population that favor either extreme position.
14 The contingent valuation studies used and innovative
15 design to attempt to cope with the limited budget and a very
16 limited timeframe relative to what you might have wanted for
17 a decision of this magnitude.

18 It asked respondents to value three programs, and it is
19 important to keep in mind it asked respondents to value only
20 three programs, and it asked them to do this, and it asked
21 them to do that relative to a base, which was a fairly degraded
22 Mono Lake ecosystem.

23 There are two key things to pay attention to, at what
24 level are public trust benefits at their maximum, what lake
25 level, and what lake level does the middle program that was 00222

1 valued in the contingent valuation Program B actually
2 represent. Let me address the first issue.

3 I believe that there has been much confusion created by
4 the statement made in the Draft EIR that the public trust
5 benefits are maximized at Program B, which was associated in
6 the surveys with a lake level of 6,390. This statement was
7 simply a logical conclusion as a result of an assumption to
8 draw a straight line between Program A, Program B, and program
9 C.

10 You should note it is basically just a convenient
11 assumption. It was not driven at all by the data.

12 Mike Hanneman, Michael Hanneman, in his written
13 testimony, has gone to substantial lengths to clarify this
14 point, and in doing so has now presented a very agnostic point
15 of view that the place where the public trust benefits may be
16 at their maximum could be anywhere, I repeat, anywhere in the
17 range from 6,375 to 6,410.

18 This is not an unreasonable sort of stance to take, but
19 it should be clear that this is a fairly big range, that all
20 this work that has been done has chopped off the two very
21 extremes, and nothing more. I think it is reasonable to ask
22 whether it is not possible to narrow this range down a bit
23 more so as to be more useful to the Board in making the
24 decision at hand.

25 This can be done in a number of ways. The first is to 00223

1 ask, what is it about the nature of Programs B and C, relative
2 to Program A, which makes the public trust benefits first go
3 up and then go down?

4 On the positive side, Program B provides somewhat
5 better environmental conditions. On the negative side, one
6 sees at Program B a small amount of tufa begins to be toppled
7 or inundated with water. At Program C the effects on tufa
8 become much more amplified, and the changes in environmental
9 conditions become mixed.

10 This suggests that the point at which the public trust
11 benefits are to maximize is either between Program A and B, or
12 at the maximum is between Programs B and C. It is much closer
13 to B than C.

14 This range can be further narrowed by looking at the
15 reasons respondents gave for valuing the various programs and,
16 in particular, Program B. Here it is clear that other
17 respondents are willing to pay more for Program B than Program
18 A.

19 The most common reasons given were either helping to
20 save Mono Lake or simply believing a higher water level helped
21 contribute to this purpose.

22 Such benefits would be expected to rise fairly rapidly
23 as you moved from Program A, 6,375 feet, but then increase at
24 a slower rate as you approach Program B.

25 MR. BIRMINGHAM: Mr. Del Piero, I don't believe Dr. 00224

1 Carson was sworn.

2 MR. DEL PIERO: Dr. Wade, you still are. Please stand
3 up, Professor, and raise your right hand.
4 (Dr. Carson was thereupon sworn.)

5 I need to have you state that the statements you have
6 made during the course of the last several minutes in regard
7 to your submittals are in fact true.

8 A They are.

9 MR. DEL PIERO: Thank you. Please proceed.

10 A Okay. To back up just a little bit, one needs to look
11 at the reasons that people stated -- they were asked why they
12 were willing to pay for the highest level of water that they
13 wanted to pay for, and with Program B, the most common reasons
14 were simply providing more water for helping to save Mono
15 Lake.

16 If indeed this is the case, one would expect to see the
17 increase in the public trust benefits to be the most rapid
18 near Program A and to slow down as one moved toward Program
19 B,
20 that is, providing more water you would expect those benefits
21 to increase at a declining rate.

22 The only other aspect of the environment mentioned by
23 any sizeable number of respondents is increasing the amount of
24 duck habitat. Finally, toppling or inundating the tufa,
25 making them appear smaller, seems to be viewed negatively by
most respondents as evidenced by the much lower public trust 00225

1 benefits associated with the very high water level at Program
2 C. This suggests public trust benefits are likely to be at a
3 maximum between Program A and Program B.

4 Now I turn to the issue of what lake level Program B
5 actually represents. A Mono Lake contingent valuation survey
6 was developed before the Draft EIR was completed.

7 As a result, the descriptions of what happens at those
8 levels out of necessity was taken from preliminary information
9 available at the time.

10 Program B is nominally associated with a lake level of
11 6,390 in the survey.

12 However, the description of what actually happens at
13 6,390 is actually closer to what happens at 6,385. This can
14 best be seen by comparing the description of the effects of
15 the tufa from the survey to that reported in the Draft EIR for
16 6,383.5. For the other impacts, the description at 6,383.5 is
17 virtually the same as that for 6,390.

18 It is important to note that much of the benefits
19 associated with Program B can be achieved in other ways other
20 than directly raising the water quality because most of what

21 is happening is people want to ensure that a viable ecosystem
22 is present at Mono Lake. This can be done principally through
23 an extensive monitoring program and/or through specific
24 mitigation measures.
25 Now I would like to turn to the cost side.

00226

1 MR. FLINN: Excuse me, would you mark that part.
2 DR. CARSON: Now I would like to make a few brief
3 comments on the water supply impact results in the draft EIR.

4 The Draft EIR sets out three criteria for determining
5 whether water supply impact is significant. All three of
6 these criteria are either logically flawed or incorrectly
7 calculated.

8 The first of the criteria that has to do with the cost
9 to LADWP is based on not exceeding a 12 percent annual average
10 increase in cost, which LADWP has been experiencing since
11 1981.

12 There are two problems here. First, a good part of the
13 12 percent is inflation, whereas the projection
14 water costs do not have an explicit inflation component built
15 in.

16 Second, this period reflects both drought and loss of
17 some of the Mono Lake water. As a result, one is comparing
18 apples and oranges, and it is not surprising, therefore, that
19 most actions the Board could take do not result in a
20 significant impact.

21 The second has to do with the treatment of the cost of
22 water shortages used in the model. Here the estimates used
23 are those associated with the price necessary to choke off a
24 given amount of demand. These estimates are too low because
25 they fail to take into account that a large and very expensive

00227

1 advertising program was simultaneously taking place at the
2 same time to persuade people to voluntarily cut back.

3 The third has to do when a significant impact on
4 Metropolitan occurs as a result of the Mono Lake Decision.
5 There are two problems here. The first is a technical one.
6 The base case scenario has LADWP only getting 2.6 percent of
7 Metropolitan's water supply. LADWP, for the last several
8 years, has been taking substantially more water than that, and
9 thus it makes sense to normalize the model at the present
10 level.

11 The second is basically there is very little
12 exploration in the Draft EIR in terms of where Metropolitan is
13 going to come up with the water they are supposed to supply.

14 Finally, I want to make two other points about the
15 water supply cost. The first of these is that the marginal
16 costs in Figure 3-N go down in various places, at various
17 places, as the lake level increases. Something is basically
18 fundamentally wrong with this because marginal costs should
19 either be flat or more typically increasing in terms of this.
20 So somebody needs to investigate what the problem is.

21 Lastly, there needs to be an explicit accounting of the
22 cost of the water needed to raise Mono Lake in recognition of
23 the difference in the time period under which the various
24 public trust and water supply costs are incurred, and by this
25 I mean the model here is not indifferent to an assumption not

00228

1 to discount either side of the benefit to the cost.

2 Finally, I would like to make a few observations of
3 benefits and costs. The first point is that the sensitivity
4 of the water supply model to various types of uncertainty
5 needs a great deal more attention than they are given in the
6 Draft EIR. The relationship of this issue in the Bay-Delta
7 should be considered, and as soon as one starts to take into
8 account all the sources of uncertainty on both the public
9 trust benefit estimate and the water supply cost, the point
10 between 6,375 and 6,390, at which you maximize the difference
11 between public trust benefits and water supply cost, is very
12 sensitive to the set of assumptions made about those benefits
13 and costs.

14 In closing, I would say, in comparing the public trust
15 benefits and the cost of water supply impacts, a very strong
16 case can be made for a water level of at least 6,375. A good
17 case can be made for a water level somewhat above 6,375. How

18 far above 6,375 is difficult to pin down, given the available
19 data. However, you can probably make the statement that it is
20 substantially less than 6,390, that in other words the range
21 you should be looking at is somewhere between 6,375 and 6,390,
22 and probably closer to the lower end of that range.

23 That concludes my oral comments.

24 MS. GOLDSMITH: Thank you.

25 MR. DEL PIERO: Ms. Cahill or Mr. Thomas.

00229

1 MR. THOMAS: No questions.

2 MR. DEL PIERO: Mr. Flinn.

3 MR. FLINN: Yes. To be blunt, I have really tried very
4 hard to keep within the 20 minute limit in some of the other
5 areas, pollution and power, but I'm not confident that I will
6 be able to do that with this panel. This is, to my mind, one-
7 half of the entire case, so I am planning on requesting more
8 time.

9 MR. DEL PIERO: Thank you, Mr. Flinn.

10 MR. FLINN: I am going to need the overhead projector.

11 MR. DEL PIERO: I would point out at this point we have
12 40 minutes before the time at which I have said we are going
13 to close this evening. If you in fact take all 40 minutes,
14 everyone else can go home.

15 MR. FLINN: There is no question I will be taking all
16 40 minutes.

17 MR. DEL PIERO: Let me point out I think it is safe for
18 everyone else to assume, unless you have some overwhelming
19 desire to witness Mr. Flinn's exemplary lawyering skills here,
20 I would suggest that you choose the occupation of your time
21 for the rest of the evening in the best way that you see fit.

22 MR. BIRMINGHAM: Mr. Downey apparently accepted your
23 invitation.

24 MR. DEL PIERO: Obviously, from his gait, with vigor.

25 CROSS-EXAMINATION,

00230

1 BY MR. FLINN:

2 Q For Dr. Carson and Dr. Wade, I am Patrick Flinn, and
3 I am one of the attorneys for the National Audubon Society and
4 Mono Lake Committee, and I have some questions, and I want to
5 start with Table F, Dr. Wade, in your testimony. As both of
6 you gentlemen may know, if either one of you can answer the
7 question, or both of you want to, just feel free to jump in.
8 I don't really have a view as to who answers it. I want to
9 start and sort of work backwards a little bit from Table F
10 here.

11 Dr. Wade, you said basically that what you would do
12 with regard to this 6,383.5 is that you would go from a net
13 economic benefit of \$34 million that Jones and Stokes
14 calculates for this alternative and go to a negative \$39
15 million net cost of this alternative; is that right?

16 DR. WADE: A With any arithmetic luck at all.

17 Q Okay, and just so I am reading these numbers correctly,
18 the figures to the right are basically the net results of some
19 of these negative numbers here with some of these positive
20 numbers here; right?

21 A Yes.

22 Q I take it with regard to either one of these, as this
23 number goes up, the \$63 million number would go up, then both
24 of these numbers would go up; is that right?

25 A Correct.

00231

1 Q If this \$63 million went up by more than \$39 million,
2 then this number would go from being a net cost to a net
3 benefit. Am I reading the table right?

4 A Yes, is a simple answer to the question.

5 Q Now the biggest difference, we will get to this, as I
6 can see from Jones and Stokes and your analysis, is they pick
7 up one \$1.8 million in shortage costs, and you have got \$95
8 million. Is that really where the big difference is?

9 A Well, that's a big difference, but I left alone the
10 benefit number. I just wasn't making any point about it.

11 Q I want to talk now about the benefit number, and I will
12 do that from up there. That \$63 million number and the other
13 numbers calculated for the various lake levels was derived,
14 was it not, from a survey of 600 households that were given

15 information about Mono Lake?
 16 DR. CARSON: A That's correct.
 17 Q And National Audubon Society/Mono Lake Committee
 18 Exhibit 215-A, you recognize this as a copy of the survey
 19 instrument?
 20 A It looks like one, yes.
 21 Q Now were you aware that the respondents in the survey
 22 were told that there would be a negative impact on the snowy
 23 plover at Program C?
 24 A Yes, I was.
 25 Q And are you aware now that it is pretty much undisputed
 00232

1 that that negative impact would in fact not occur?
 2 A I haven't been attending hearings --
 3 Q Let me ask you to assume that's the case. Let me ask
 4 you to assume the respondents were misinformed about one
 5 negative impact on Program C. Were you also aware that there
 6 is at least a dispute, if not agreement, there was an error
 7 about the effects on tufa as the lake level rose?
 8 A As I said, again, I have not been attending this
 9 hearing, so I am not party to any sort of dispute that the
 10 lawyers may have been having previously.
 11 Q Am I not right that tufa and the snowy plover were two
 12 bad things the public was told would happen at higher lake
 13 levels?
 14 A That's correct.
 15 Q Do you have an opinion, either one of you, as to what
 16 the CV Survey would show with respect to willingness to pay
 17 for Program C if, in fact, the public had been told something
 18 different about --
 19 A Why don't you be specific about what you want to be
 20 different?
 21 Q Do you have an opinion as to what the numbers or the
 22 differences would be if the public were told that there would
 23 be no negative impact on the snowy plover identified as an
 24 endangered species at the higher lake levels?
 25 A The numbers would have been somewhat higher between
 00233

1 Programs B and C.
 2 Q And if the public were told -- let's talk a little bit
 3 about the tufa. I don't know if either one of you have an
 4 opinion about this, how an average person might react, given
 5 all this information and whether or not one item of
 6 information may be made more salient than other pieces of
 7 information simply based upon the graphics in the piece. Do
 8 either of you have any opinions on this subject?
 9 A Again, you're going to have to be somewhat specific on
 10 what you want me to react to.
 11 Q Do you see in the upper left-hand corner of Exhibit
 12 215-A?
 13 A I can't see that too well.
 14 Q I have a copy I will pull out for you. Can you share
 15 that copy there? You see the drawing of the tufa in the upper
 16 left-hand corner as you open this thing up, the first thing?
 17 A Yes, I do.
 18 Q And as we open from Program A, that same drawing
 19 appears right smack-dab in the middle on the top?
 20 A Yes.
 21 Q And it appears once again smack-dab in the middle at
 22 the top?
 23 A Yes.
 24 Q And as you go to Program C, it is right there in the
 25 middle again?
 00234

1 A Yes.
 2 Q Do you have an opinion as to whether or not this
 3 emphasizes tufa towers over other environmental features that
 4 the public is told about Mono Lake?
 5 A Over other environmental features?
 6 Q Yes, such as ducks or brine shrimp or alkali flies.
 7 A Let's see, I think you really need to pull out your
 8 resources affected. What happens here is tufa lend themselves
 9 much more easily to that sort of graphical display. I was not
 10 the principal designer of this survey. In other words, if you
 11 want me to make a statement, did this emphasize tufa, it

12 emphasized basically the changes that were happening to tufa
 13 because that is one of the elements that lends itself to
 14 graphical display. Other elements lend themselves more to
 15 verbal display, and it just depends on a contingent valuation
 16 survey on exactly what it is. Some things are better done one
 17 way than others.
 18 Q I don't mean to criticize anybody for it, and all we
 19 are saying is one is easier to draw than another. You would
 20 agree with me though that among all the environmental features
 21 of Mono Lake, tufa is probably emphasized more in this
 22 brochure than any other single feature.
 23 A I mean I am certainly willing to say tufa are
 24 emphasized in this booklet quite a bit.
 25 Q How many pictures of ducks are there in this book?
 00235

1 A There are no pictures of ducks.
 2 Q How many pictures of grebes?
 3 A Well, those pictures, I should say here, on the
 4 resources affected sheet, which was the thing that people were
 5 told to have in front of them when they answered the question
 6 -- in other words, this is actually the piece of the survey
 7 which had the most effect on people and what they were
 8 valuing.
 9 Q That's your opinion, you think in the entire mix of
 10 information, assuming people read this and they read this?
 11 A Right, because if you look at the survey instructions,
 12 it tells people to basically pull this out, and this is what
 13 they are supposed to have sitting in front of them when they
 14 answer the questions and go through the survey. In other
 15 words, if you actually had had a lot more money, what you
 16 would have done is done this in person with a very stylized
 17 sequential presentation of all of this information.
 18 In an effort to do this with the money available, what
 19 was used was a combination mail/telephone survey, so that you
 20 sent them the visual exhibits for them to look over and then
 21 they were supposed to pull this piece out and use this in
 22 front of them when they were answering the questions.
 23 Q So this is the thing you should focus on, and this
 24 piece of information presents basically everything on a
 25 largely equal basis, but leaving aside what people focused on
 00236

1 and just looking at the total mix of information they were
 2 given about Mono Lake, and assuming that they remember the
 3 total mix of information they were given about Mono Lake, you
 4 would agree with me that tufa was featured more prominently
 5 than any other single item?
 6 A Actually, I would say the overall environmental
 7 impression of the Lake is to what most of the overall space is
 8 devoted.
 9 Q Beyond that, tufa wins?
 10 A Tufa wins beyond that.
 11 Q Now, assuming that the public was misinformed about the
 12 negative effects on tufa and --
 13 A You're going to have to tell me how the public was
 14 misinformed about the tufa.
 15 Q They were told that more tufa would be actually toppled
 16 and covered than was the case, and they were not told that
 17 there would be substantial remaining tufa in other areas that
 18 would be exposed, and they were not told of the advantages of
 19 water-based tufa as opposed to land-based tufa, and they were
 20 not told of the environmental advantages of submerged tufa.
 21 Assuming all of that, and asking you not to quarrel with the
 22 assumptions, but accept the assumption the public was
 23 misinformed about tufa, as I told you, and misinformed about
 24 the snowy plover, as I told you, can you give us any opinion
 25 as to whether or not you would see the same drop in the
 00237

1 willingness to pay from Program B to Program C?
 2 A I certainly would probably not see a drop of the same
 3 magnitude if indeed those statements were completely true. My
 4 reading of the Draft EIR and actually my reading of Scott
 5 Stine's testimony on this issue, suggests that that's an
 6 incorrect statement.
 7 Q Now, sir, do you claim to be an expert on the
 8 geomorphological effects on tufa, based on the changing lake

9 level?
 10 A No.
 11 Q You would rather that this Board rely on people
 12 qualified as experts in this area, than yours?
 13 MS. GOLDSMITH: Objection, argumentative.
 14 MR. DEL PIERO: Overruled.
 15 A What I am saying here is that in terms of describing
 16 the effects of tufa to people and what those effects are,
 17 basically I am a specialist in the description of
 18 environmental injuries to the public, to describe them in
 19 layman's terms, and I can take what is in the Draft EIR or I
 20 can take what is in Scott Stine's recent submission, and say
 21 clearly in those cases, in both the Draft EIR and in Scott
 22 Stine's testimony, you are toppling tufa, you are inundating
 23 some tufa with water, and you are making the amount of tufa
 24 coming up out of the water visible to the public less visible.
 25 The stands that would remain, largely land-based, and

00238

1 the most accessible to the public, are not currently the
 2 places which are being principally visited, and so I would say
 3 that, what you're basically, if you were to change some of the
 4 things in the survey along the lines you would suggest, you
 5 would still see, given that you are getting toppling of tufa,
 6 you are getting some inundation of tufa, and given that these
 7 things are not sticking up out of the water as much, you would
 8 still likely see somewhat of a drop between lake level B and
 9 lake level C.

10 It's only if you can take basically the extreme
 11 position that there were no changes happening to tufa as you
 12 raised the water level that you might expect lake level C to
 13 be above lake level B, and the same thing is true with snowy
 14 plover. The snowy plover may be responsible for a drop
 15 between lake level B and lake level C to some degree, but
 16 taking that out is not going to cause willingness to pay for
 17 lake level C to greatly increase.

18 Q Can you quantify the effects of separating out accurate
 19 information about the plover from the information about tufa?
 20 A In a quantitative sense, no. I mean, this is something
 21 that you would have to empirically do. My sense is probably
 22 tufa is the more important of the two. What you would do with
 23 the snowy plover is that you would remove a negative effect,
 24 but that's not replacing it with some positive gain that you
 25 would get going from B to C.

00239

1 Q I want to go back to one prior question. You asserted
 2 yourself as an expert in conveying the meaning of Dr. Stine's
 3 report to the public. Assuming that this case is not about
 4 interpreting Dr. Stine's written statements, but assuming that
 5 this case is really about what happens to the tufa --

6 A I have no expertise in tufa --

7 Q Let me finish my question. Assuming that this case is
 8 not about interpreting Dr. Stine's testimony, but assuming
 9 that this case is instead about what actually happens to the
 10 tufa, you would agree that somebody other than yourself ought
 11 to be an expert that this Board should rely on?

12 A Yes. I have no expertise with respect to the physical
 13 properties of the tufa. But clearly, your statement was not
 14 consistent with Dr. Stine's testimony.

15 Q I am going to put up -- this is a photocopy of Table
 16 3-N from the Draft EIR. Do you gentlemen recognize this?

17 A Yes, I do.

18 DR. WADE: A Yes.

19 Q Are you familiar with what's going on in this table?

20 DR. CARSON: A It is complicated, but yes.

21 Q I want to start to see if I can -- this is a
 22 complicated chart, and I want to try and work my way through
 23 it a little bit here. I want to start with the --

24 MR. DEL PIERO: Mr. Flinn, your first 20 minutes is up.

25 MR. FLINN: At this point, I do request --

00240

1 MR. DEL PIERO: Your request is granted. I just wanted
 2 you to be aware you are halfway through your time.

3 MR. FLINN: Q I would like to start with this L. A.
 4 water supply column. Now this is supposed to represent costs
 5 to the City of Los Angeles for replacement water; is that

6 right?
 7 A Correct.
 8 Q Now I know that you gentlemen, either jointly or
 9 separately, quarrel with the magnitude, but you agree with the
 10 signs, that is, there's a plus some amount of no restriction
 11 compared to the point of reference, and a minus for the other
 12 alternatives?
 13 A That's correct. There's a little bit of difficulty
 14 with respect to where everything is normalized and exactly
 15 what the no restriction thing is, which makes this a little
 16 messy, but, in general, the pattern is if you go one way, you
 17 get a plus, and if you go the other way, you get a minus, and
 18 we are talking about at most one row here.
 19 Q What I wanted to --
 20 DR. WADE: A I should also point out that column
 21 that you are referring to includes in it two numbers which sum
 22 to those numbers. Those are the Metropolitan resource cost
 23 and the so-called shortage cost, which I broke out on my
 24 table.
 25 Q We will get to that. I am going to circle the 6,372-

00241

1 foot alternative. Is the reason that's shown as a negative
 2 cost is because, compared to the flows that were assumed at
 3 the point of reference in order to maintain a 6,372 lake
 4 level, L. A. would have to give up water?

5 A The reason why that is \$11 million negative or higher
 6 is because they are assuming they are replacing their water
 7 with \$11 million worth of Metropolitan.

8 Q A much simpler question, let me rephrase it. Is the
 9 reason why that is a negative number simply because, as
 10 compared to the flows at the point of reference, Los Angeles
 11 is losing water, and that is to replace it?

12 A Yes.

13 Q Now I take it then that you would agree that if the
 14 flows, according to this chart, that were assumed to exist at
 15 the point of reference, then the level of Mono Lake would be
 16 maintained at something less than 6,372? Doesn't that follow?

17 DR. CARSON: A No. Part of the problem here is that
 18 each of these alternatives actually represents a range of
 19 levels, and so this is the point at which I said there is
 20 basically some confusion over the no restriction. The no
 21 restriction, in most years, is supplying more water. So it is
 22 just a little messy because these things aren't defined, these
 23 alternatives, quite exactly.

24 Q These are really simple questions, and I don't think
 25 you are understanding my questions -- much simpler. Assuming

00242

1 that what we mean by 6,372-foot alternative, as described in
 2 some detail in the modeling, and we all know it is a range, it
 3 goes up and down and the like, but am I reading this correctly
 4 that if the flows that were assumed under the point of
 5 reference condition were continued, you would have some kind
 6 of a lake level regime lower than the 6,372 regime?

7 DR. WADE: A No, is the simple answer to your
 8 complex question, and the reason is, I think, that you are
 9 trying to direct us back to some sort of something in the real
 10 world. These numbers are analytic numbers that are derived by
 11 subtracting one spreadsheet from another. Now one spreadsheet
 12 if labeled "point of reference". Another spreadsheet in this
 13 particular case, the one you are talking about, is labeled
 14 "6,372". These numbers come from some person's spreadsheet
 on

15 a computer, which have no bearing whatever in the world, might
 16 be in the lake with respect to water. It is the water flow
 17 change between these two spreadsheets that governs those
 18 answers. It has nothing to do with water levels in the lake.

19 DR. CARSON: A I tried at one time to figure out
 20 what the no restriction lake level referred to, and couldn't,
 21 so --

22 Q Let's leave this chart.

23 A I skipped it as well, and I paid no attention to what
 24 the point of reference is because I don't care what the point
 25 of reference is. I only care about the change between the two

00243

1 spreadsheets.

2 Q Let's leave this for a second and talk a little bit
3 about the real world. Do you understand that under the point
4 of reference assumptions, there was a certain amount of water
5 going out of Mono Basin going to Los Angeles?

6 DR. WADE: A I do not.

7 Q Let me ask you to assume that at the time of the point
8 of reference, there was a certain amount of water going out of
9 Mono Lake and down to Los Angeles.

10 A I assume that is probably a fact.

11 Q Let me ask you to assume that if the 6,372 lake level
12 regime were to be implemented, the amount of water on average
13 that would be needed to stay in Mono Lake in order to do that
14 is more than the amount of water -- that if L. A. were to keep
15 that lake at the 6,372 regime, it couldn't export as much
16 water as it was at the time of the point of reference. Do you
17 follow me so far?

18 A No, I am not following you.

19 Q I will try one more time. The point of reference time,
20 there is a certain quantity of water going to L. A., okay. Do
21 you follow me so far? That's the point of reference time.
22 Got me so far?

23 A Yes.

24 Q Now let's say that L. A. wanted to manage the lake at
25 the 6,372 lake level regime, you understand that means that

00244

1 some of the water has to go to the Lake, some of the water has
2 to go to Los Angeles. Follow me so far?

3 DR. CARSON: A Yes.

4 Q Okay. Now let's compare the water that's going to Los
5 Angeles under this 6,372 lake regime. That amount of water is
6 less than the amount of water that was going at the time of
7 the point of reference. Do you follow me so far?

8 DR. WADE: A I have lost you.

9 DR. CARSON: A I think part of this is the
10 difficulty in tying down this point of reference, because what
11 happens in any single year is, you know, what flows out in any
12 single year that was grabbed as a point of reference didn't
13 necessarily translate back very well. This is one of the
14 messiest parts of what happened here.

15 I have tried many times to figure out exactly what this
16 point of reference translated into in terms of some of these
17 water supplies.

18 DR. WADE: A I should also add here, Mr. Flinn, two
19 things. With your hypothetical, you are trying to complicate
20 and over simplify an overly simplistic supply planning model
21 in the first place, and you can't do that. This model is not
22 capable of that.

23 I have personally analyzed these numbers and these
24 spreadsheets, and I really don't know how they compare to the
25 real world. I would be delighted to conduct that analysis if

00245

1 you want to provide the numbers.

2 O Let me ask a much more simple, basic question since we
3 really aren't making any progress here at all. I appreciate
4 you gentlemen are trying to help, but I hope you will focus on
5 my questions and try to answer those.

6 When you were measuring the cost to Los Angeles of
7 protecting Mono Lake, you are measuring, are you not, the
8 value of the water that you get to keep in Mono Lake that you
9 otherwise can't export; right? Do you understand the
10 question?

11 A Yes. The cost of replacement water is what you are
12 measuring.

13 Q Okay. So water either stays in Mono Lake or it goes to
14 Los Angeles?

15 DR. CARSON: A Right.

16 Q Now you understand that the higher the lake level, the
17 less water can go to Los Angeles?

18 A Correct.

19 Q And you understand that this CV study that you were
20 testifying about, Dr. Carson, intended to measure the benefits
21 of a particular lake level; is that right?

22 A Correct.

23 Q And the costs that you folks have analyzed measure the
24 costs of what happens when you take the water instead of

25 maintaining it at the Lake, you take the water to L. A.;

00246

1 right?

2 A Correct.

3 Q So we are measuring on the one hand maintaining a level
4 at Mono Lake and on the other hand, we are --

5 A Measuring a set of alternative costs.

6 Q I really should try and finish my question. We are
7 trying to measure the value of keeping the lake at a
8 particular level versus the cost of the water that it takes to
9 do that. Am I right so far?

10 A Correct.

11 Q Let's take a look at the difference in terms of what
12 happens actually at Mono Lake if we compare what happens over
13 the hydraulic modeling sequence to the level of Mono Lake
14 under the point of reference flows as opposed to the no
15 restriction flows. Do you understand what the no restriction
16 alternative was?

17 A No. As I say, I sat on the Mono Lake Technical Review
18 Committee. We racked our brains over and over, on what the
19 point of reference was.

20 Q I only asked if you understood that. I didn't ask you
21 if you sat on the Committee or not.

22 Q I was trying to say I looked at this issue for quite a
23 while and relating the point of reference conditions to the
24 contingent valuation survey, is something that I was never
25 able to really successfully do. The Jones end Stokes people,

00247

1 in their EIR, have a difficult time relating it, too, because
2 what they used was 6,372, 6,375, 6,390, and 6,410. They never
3 asked about a point of reference condition. This was used for
4 most of the other modeling, but never entered into the
5 contingent valuation survey because it is not well defined
6 relative to what happens in the contingent valuation survey.
7 There's no way I can sort of answer this question.

8 DR. WADE: A I paid no attention to it either.

9 Q You paid no attention to, but let me circle this 63
10 here. Is that the same 63 million that appears on your Table
11 F?

12 A Yes, it is.

13 Q And the same 63 million allowed you to testify about
14 the negative number that you calculate on Table F?

15 DR. CARSON: A See --

16 MR. DEL PIERO: Wait, wait, Doctor. That question was
17 put to Dr. Wade. Dr. Wade has to be able to answer.

18 DR. WADE: A Yes, but I asserted a few minutes ago
19 I simply adopted the number with no comment, knowing that
20 Richard was going to deal with that number.

21 MR. FLINN: Q Follow along with me if you can. I am
22 going to ask you to make some assumptions about hydrology.
23 Let me ask you to assume that in this graph that I have
24 circled, which is from auxiliary report 18, shows what happens
25 to the level of Mono Lake assuming the flows which were

00248

1 occurring at the time of the point of reference. Is this a
2 kind of graph you can all understand and follow?

3 DR. WADE: A Yes.

4 DR. CARSON: A Yes, I think so, and this is an
5 historical graph; right?

6 Q No, it is a projection.

7 A Shows 1940 to 1942.

8 Q Let me ask you to assume what they did when they wanted.
9 to see what would happen in the future was that they ran the
10 historical rainfall and precipitation that occurred during
11 1940 through 1988 or 1990 to see what might happen in the
12 future under certain assumptions. So that what the '40
13 through '88 shows is that if you take that precipitation data
14 and you feed it through the lake level model, this is what
15 would happen to the lake level. Do you follow me so far?

16 A Yes.

17 Q Using this model, I ask you to assume that this shows
18 the level of Mono Lake, under the point of reference
19 condition, falls to approximately 6,362, thereabouts, 6,360.
20 Do you see that?

21 A I am going to take your word that it falls to that.

22 Q Please do, because --
 23 A I am not a hydrologist. I'm just going to take your
 24 word, but I am not going to say it falls to that.
 25 Q That's right. I'm asking you to assume that if L. A.

00249

1 kept taking water out of the lake at the rate they were at the
 2 time of the diversion, you would have the Mono Lake fall down
 3 to 6,362 or thereabouts.

4 Assuming that's the case, you look at Table 3-N-14 --
 5 am I reading this correctly that the benefits or that the
 6 preservation value of Mono Lake was assumed to be the
 7 equivalent to a 6,372 lake level or lake regime alternative?

8 A No, what you are effectively looking at, and this why
 9 this has always been sort of -- the no restriction nobody
 10 quite knew what that meant on this contingent valuation, but
 11 what you are looking at is trying to say: What is the
 12 marginal benefit of going from 6,372 forward. And that is
 13 what those numbers are, and then they have marginal benefits
 14 or marginal costs avoided from dropping substantially below
 15 that towards the lake level your are talking about, which is
 16 what that large number is.

17 MR. DEL PIERO: Mr. Flinn, part of this process is for
 18 the Board Members to understand. Ms. Book, will you be kind
 19 enough to read the question back. It was an interesting
 20 answer, but it was not responsive to the question.

21 (The Reporter read the question as follows.)

22 Q That's right. I'm asking you to assume
 23 that if L. A. kept taking water out of the lake
 24 at the rate they were at the time of the
 25 diversion, you would have the Mono Lake fall

00250

1 down to 6,362 or thereabouts.

2 Assuming that's the case, you look at Table 3-
 3 N-14 -- am I reading this correctly that the
 4 benefits or that the preservation value of Mono
 5 Lake was assumed to be the equivalent to a
 6 6,372 lake level or lake regime alternative?

7 MR. DEL PIERO: Dr. Carson, what was the assumption?

8 DR. CARSON: A The assumption is that if you ran the
 9 50-year hydrologic model the lake level would fall down very
 10 substantially below 6,372. I believe it was --

11 MR. DEL PIERO: Was the preservation value assumption
 12 zero?

13 A No. What I was trying to point out, and this is where
 14 a lot of the confusion of this table has come from. What
 15 happened here was that a normalization was made because this
 16 point of reference was not well defined for the contingent
 17 valuation survey.

18 It was decided that you would normalize the
 19 preservation values at zero at 6,372, and you would estimate
 20 from that point the cost associated with the water level
 21 falling below that, and the benefits associated with that of
 22 raising the water level above that. You could have just as
 23 well picked almost any point here and normalized the numbers.
 24 In other words, if you wanted to make this one zero, then all
 25 of these numbers would be very big numbers, but would increase

00251

1 by these amounts.

2 MR. BROWN: The 6,372 would actually be the point of
 3 reference then?

4 A Right. That's effectively, for the contingent
 5 valuation study, what was used in the survey as a point of
 6 reference. That's the source of a lot of confusion that we
 7 keep sort of going back to. What this no restriction level
 8 was was something that was not really very well defined in the
 9 survey because there was no clear consensus of what it would
 10 eventually lead to.

11 MR. FLINN: If you'll notice, Mr. Brown, footnote F
 12 says precisely that, that the equivalent for this table that
 13 they are equivalent. For this table, the 72 is assumed to be
 14 the point of reference conditions.

15 MR. BROWN: I understand and that makes sense. It
 16 would probably make more sense if you took that top column off
 17 that says "point of reference", if you didn't have it on the
 18 chart.

19 A Right.

20 MR. FLINN: Q Why don't we take this off. Would you
 21 cross that out and pretend that is not there. Am I correct
 22 that if we go from, let's forget these cost and benefit
 23 figures, these first three columns, and let's focus here, am
 24 I right that as they go from the no restriction alternative,
 25 at least the way this table works, we get an improvement in

00252

1 terms of value of maintaining Mono Lake from the no restriction
 2 alternative to 6,872?

3 A Right. Effectively because that's a negative number,
 4 you get an increase. You get benefits of 759.7 million.

5 Q So that's 760 million, right?

6 A Yes, 759.7.

7 Q So we start here, we go up to 759.7 as we go from the
 8 no restriction alternative to preserving a 6,372 lake level?

9 A Right.

10 Q Now let me ask you to assume that, coming back to this
 11 chart for a second, that the environmental values of a lake
 12 level down to 6,362 or thereabouts -- I have to preface this.

13 Let me ask you to assume that this top chart is what happens
 14 to Mono Lake if there are no restrictions and L. A. is allowed
 15 to take out as much water as it wants. Follow me?

16 A Yes.

17 Q And let me ask you to assume that it means the lake
 18 gets down to 6,350. Okay, follow me so far?

19 A Yes.

20 Q Let's assume, in terms of environmental values, that
 21 6,360 and 6,350, or 6,362 and 6,350 are not different. Follow
 22 me so far?

23 A Right.

24 Q Would you agree with me that the benefit then -- one
 25 more assumption. This plus 5.1, is that an absolute

00253

1 measurement or a relative measurement?

2 A All of these numbers are basically relative to
 3 something.

4 Q So, if we normalize, we can make this zero; right?

5 A Correct. And then as we go in terms of costs from no
 6 restriction to 6,372 feet, we have gone approximately a
 7 negative 15 million direction?

8 A Yes, you get a negative 15.9.

9 Q And then we go about another 6 million, we've got 21,
 10 22 million to get to 6,377?

11 A That is right. I will pull my calculator out if you
 12 want.

13 Q Let's go down one more. Can you give me the next
 14 figure, it's about minus 32 million?

15 MR. BROWN: 31.5.

16 MR. FLINN: Q Can I get one for 6,410?

17 MR. BROWN: 44 million.

18 MR. FLINN: Q Let's go back over to this table, we
 19 add 22.6 million to 760 million?

20 A Yes.

21 Q These numbers are going to get so high that I don't
 22 think --

23 A 22.6 and 759 -- 782.3.

24 Q Now we add -- what's the next one here?

25 A 822.7.

00254

1 Q 822.7, so you would agree with me that if we just
 2 forgot about all this point of reference stuff and started
 3 from no restriction and marched up and oriented all of our
 4 things, the net economic benefit on this figure would be 700
 5 to 800 million dollars.

6 A Correct.

7 DR. WADE: A I would like to interpose at this point
 8 a substantive point, which is in Richard's written testimony,
 9 which hasn't come out in this oral testimony. It is that
 10 759.7 million dollar number represents the addition of 20
 11 annual payments. Those annual payments are not discounted for
 12 time value, number one, and number two, Hanneman testified
 13 here, I think, and Carson wrote, and these are two of the
 14 premier experts in this, that people are unable to give an
 15 answer, a response, with any certitude beyond a year or two as

16 to what would you be willing to pay to protect or save Mono
17 Lake, and the answer is 760 divided by 20 must have been what
18 they said, and \$38 million is the answer for a year. And the
19 Jones and Stokes exercise multiplied that by 20 to get to 760,
20 so that answer is wrong in bedding two concepts, time value of
21 that money and the uncertainty associated with people's
22 willingness to commit to a \$38 million payment year after
23 year. The number is off by a factor of 3 to 10, or I've heard
24 even higher estimates that it's off by, so this number that we
25 are adding up here, I just want to correct the record on that.

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1 MR. DEL PIERO: It's seven minutes after eight. You
2 can have one more question if I thought there was any truth in
3 your assurance it was only one.

4 MR. FLINN: What I meant was one more question to close
5 up this really because I'm having difficulty in getting
6 through what should have been foundational material.

7 MR. DEL PIERO: My esteemed colleague tutors me
8 regularly in terms of this and has suggested that because of
9 the nature of the difficulty of the questioning that you be
10 granted an additional 20 minutes tomorrow morning. I am happy
11 to go with him entirely. If you have one final question to
12 close this up, you go ahead and do that, and then we are going
13 to adjourn.

14 MR. FLINN: Q If we discounted \$822.7 million by any
15 reasonable discount rate, we wouldn't get down even close to
16 \$100 million; would we?

17 DR. CARSON: A No, but you're actually making sort
18 of a fundamental economic error here. What you really do is
19 at each stage is look at the incremental benefits and costs
20 that are associated with each level. And so, if what you
21 wanted to say was: Where is the difference between the sum of
22 the public trust benefits minus the costs, you can best see
23 that by doing it incremental.

24 Now what happens here with the way you want to do this
25 is you get the impression of carrying a very big number up,

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1 but it obscures the fact that if you take one number and
2 subtract it from the other, you actually get a lower total,
3 and whatever is down at the base drops out.

4 In other words, you can actually normalize this at any
5 point, and so that is sort of the fundamental principle
6 involved in economics here, is the normalization doesn't
7 really matter. And it is much more accurate to look at it
8 from moving from one level to another. What you increase in
9 public trust benefits versus what you increase in costs,
10 because that's actually the only thing that matters, what the
11 base here is, and the fact that there are very, very large
12 public trust benefits associated with not draining Mono Lake,
13 I don't think that that's basically open to argument. I mean,
14 my testimony very clearly states that that's the case.

15 DR. WADE: A I would add to that, that in fact you
16 have normalized at zero those cost numbers, and you have not
17 normalized those benefit numbers, so you have a profound
18 apples and oranges problem.

19 MR. DEL PIERO: Ladies and gentlemen, we are going to
20 stand in adjournment until 8:30 tomorrow morning.

21 Thank you.

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