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

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08 SUBJECT: AMENDMENT OF CITY OF LOS ANGELES' WATER RIGHT
09 LICENSES FOR DIVERSION OF WATER FROM STREAMS
10 THAT ARE TRIBUTARY TO MONO LAKE

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14 Held in
15 State Water Resources Building
16 901 P Street
17 Sacramento, California
18 Thursday, February 17, 1994

19

20 VOLUME XXXX

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24 Reported by: Kimberley R. Mueller
25 CSR No. 10060

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01 SACRAMENTO, CALIFORNIA
02 THURSDAY, FEBRUARY 17, 1994, 1:30 P.M.
03 ---o0o---
04 HEARING OFFICER DEL PIERO: Ladies and gentlemen,
05 this hearing will come to order.
06 This is a continuation of the hearing regarding
07 the amendment of the City of Los Angeles' water rights
08 licenses for diversion of water from streams that are
09 tributary to Mono Lake.
10 My name is Marc Del Piero. I'm Vice-Chairman of
11 the State Water Resources Control Board. I'm acting in
12 the capacity of Hearing Officer.
13 With us today is my good friend and colleague,
14 Mr. John Brown, who is also on the State Water
15 Resources Control Board.
16 Mr. Canaday, we have -- is it Dr. Stine and
17 Mr. Vorster?
18 MR. CANADAY: Dr. Stine and -- I'm not sure how
19 Mono Lake wants to bring their witnesses on.
20 MR. DODGE: Dr. Stine, towards the end of his
21 presentation, will be joined by Stacy Li, and then we
22 plan to call Tim Messick. I think that will probably
23 be a pretty full day.
24 HEARING OFFICER DEL PIERO: Do we have any
25 procedural issues to take care of before we begin,

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01 Mr. Dodge?
02 MR. DODGE: I just have one. I saw something in
03 writing that we were going to set the briefing
04 schedule. I thought we'd already done that.
05 HEARING OFFICER DEL PIERO: I thought we had,
06 also, but Mr. Frink, perhaps, was reiterating in
07 writing what we had indicated orally already.

08 MR. FRINK: Yes. All that letter was intended to
09 state was that we would announce the dates. As it
10 happens, 30 days after the close of hearing, assuming
11 the hearing ends tomorrow, would be on a Saturday or
12 Sunday. I think we would go forward to the Monday, and
13 the same thing occurs with the 20 days for submittal of
14 reply briefs. So we were going to set dates certain
15 assuming that we end tomorrow.

16 HEARING OFFICER DEL PIERO: Mr. Birmingham?
17 MR. BIRMINGHAM: I was just going to announce that
18 Department of Water and Power was not going to call
19 Mr. Roos, Department of Water Resources, as a witness.

20 HEARING OFFICER DEL PIERO: Thank you very much,
21 sir.

22 Any other procedural issues?
23 Ms. Cahill? Mr. Roos-Collins?
24 MR. ROOS-COLLINS: No issues.

25 HEARING OFFICER DEL PIERO: Mr. Dodge, why don't
0009 you proceed, sir?

01 MR. DODGE: We'll call Dr. Stine as our next
02 witness.

03 HEARING OFFICER DEL PIERO: Dr. Stine, you've
04 already been sworn in these procedures.
05 DR. STINE: I have this year.

06 HEARING OFFICER DEL PIERO: Nice to see you, sir.
07 DR. STINE: Good to see you.

08 DIRECT EXAMINATION BY MR. DODGE
09 Q. Dr. Stine, I have in front of me, and I hope you
10 do, too, National Audubon Society rebuttal testimony of
11 Scott Stine, and then there are various subject matters
12 listed.
13 Can you identify that as a accurate copy of your
14 rebuttal testimony?
15 A. BY DR. STINE: I can, though I would like to point
16 out or remind you, as well as inform everyone else,
17 that there was an initial copy of this that was
18 apparently faxed that was the wrong one. There's one
19 change that went in in a slightly later rendition, two
20 hours later. I don't know which one people have.
21 If they look at the very last page of this
22 exhibit, what they will see is that it is page 11, and
23 if the last entry on page 11 is D, rather than 5, then
24 we all have the same thing in our hands.

0010 HEARING OFFICER DEL PIERO: Everyone have the one
01 that has A, B, C, and D on the page 11? Mr. Birmingham?
02 MR. BIRMINGHAM: Yes, I have.

03 Q. BY MR. DODGE: Dr. Stine, are there any --
04 HEARING OFFICER DEL PIERO: Wait. Wait,
05 Mr. Dodge.
06 Mr. Roos-Collins, do you have a copy?
07 MR. ROOS-COLLINS: Yes.

08 HEARING OFFICER DEL PIERO: Ms. Cahill?
09 MS. CAHILL: Yes.

10 HEARING OFFICER DEL PIERO: Ms. Scoonover?
11 MS. SCOONOVER: Yes.

12 Q. BY MR. DODGE: Are there any changes you wish to
13 make in Exhibit 1-A?
14 A. BY DR. STINE: Yes, very briefly. On page 6, I

16 used the word "measured." That should be changed to
17 "measures," and perhaps that's already changed. I
18 guess it is already changed on here.

19 And there is a reference in here to a "natural"
20 channel. This is in the second paragraph, second line
21 from the bottom. That, rather than reading "natural,"
22 should read "previously existing." We're using natural
23 in a different sense in this hearing when related to
24 Rush Creek, so that should be "previously existing
25 channel."

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01 And that's the one change, I guess, that I would
02 want to make.

03 Q. With that, sir, can you summarize your rebuttal
04 testimony? And let me say you've also been designated
05 as our witness in surrebuttal and to the extent you
06 could weave the two of them together, that would be
07 fine.

08 HEARING OFFICER DEL PIERO: Mr. Birmingham?

09 MR. BIRMINGHAM: Before Dr. Stine begins his oral
10 summary of his written rebuttal testimony, we'd like to
11 interpose an objection to page 5 of the written
12 testimony, Mono Lake Committee and National Audubon
13 Society Exhibit 1-A-F.

14 Quoting a great legal mind, F. Bruce Dodge,
15 rebuttal testimony should be --

16 HEARING OFFICER DEL PIERO: I just want to check
17 the Court Reporter to make sure she's got that on the
18 record.

19 MR. ROOS-COLLINS: Did you get the quotation marks
20 around "great legal mind"?

21 HEARING OFFICER DEL PIERO: Proceed,
22 Mr. Birmingham.

23 MR. BIRMINGHAM: Quoting Mr. Dodge, "Rebuttal
24 testimony should be limited to rebutting something that
25 was entered in some other party's case in chief." We

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01 are unaware of any evidence in any party's case in
02 chief which page 5 would rebut.

03 The Hearing Officer has previously ruled on this
04 issue when Dr. Stine tried to introduce similar
05 evidence during his some of his earlier testimony and
06 it was excluded.

07 HEARING OFFICER DEL PIERO: Mr. Dodge?

08 MR. DODGE: I have, I guess, two points. One, of
09 course, I have made that argument several times, and
10 I've lost it consistently. So I would hate to lose the
11 other side of it now.

12 So I guess that's point one: I agree in
13 principle, but that argument has not been winning.

14 Secondly, I don't believe it was the Hearing
15 Officer that excluded the information. I believe
16 Mr. Del Piero was out of the room. If I'm recalling it
17 right, it was Mr. Brown who excluded the evidence.

18 HEARING OFFICER DEL PIERO: Actually, it was
19 Mr. Stubchaer who excluded that. I happen to know that
20 because I read the record.

21 MR. DODGE: I believe at the time it was
22 explicitly stated this would come up in rebuttal.

23 MR. BIRMINGHAM: Actually, it was the Hearing

24 Officer because Mr. Del Piero was out of the room and
25 Mr. Stubchaer was acting as the Hearing Officer.

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01 HEARING OFFICER DEL PIERO: Yes, that's correct.
02 MR. BIRMINGHAM: So I'll correct Mr. Dodge on that
03 point.
04 We'll submit -- I told Ms. Goldsmith that I would
05 raise this objection just as a point of order.
06 HEARING OFFICER DEL PIERO: Thank you.
07 Mr. Dodge, you're absolutely correct. Your
08 previous argument has not been previously successful.
09 Mr. Birmingham is not going to be particularly
10 successful in his objection, either.
11 MR. DODGE: Thank you.
12 HEARING OFFICER DEL PIERO: So it will be allowed
13 into the record.
14 Dr. Stine, proceed, sir.
15 DR. STINE: Thank you.
16 My first rebuttal point concerns the elevation of
17 the playa ring at Mono Lake. There was testimony early
18 on that at lake elevation of 6390 feet, the playa ring
19 would be under water and Mono Lake would appear as a
20 full-looking lake.
21 I would simply point out that the playa ends where
22 I'm pointing it out here on Exhibit NAS/MLC 142, and
23 approximately one inch to the south of the line that
24 I'm pointing out where we go from a light band to a
25 dark band.

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01 One inch south of there on this same exhibit, we
02 encounter a line that is exhibit -- pardon me, that is
03 lake level 6390 feet. And I have a slide of that as
04 well that shows at a lake level of 6390 feet, there
05 will still be a ring around Mono Lake that is
06 approximately 1500 feet in width.
07 And this is NAS/MLC Exhibit 184 previously shown.
08 The playa ring ends here at an elevation of
09 approximately 6400 feet where we go from the light
10 material to the dark material. 6390 feet is this line
11 right through here approximately 1500 feet, then, of
12 width, 1500 feet of width between 6390 and 6400 feet.
13 The second point that I would like to make
14 concerns the role of vegetation in instigating multiple
15 channels on Lee Vining and Rush Creeks.
16 Mr. Tillemans, in his discussion of the role of
17 vegetation in affecting the stream, noted that there
18 were multiple channels on Lee Vining Creek that had
19 been caused by vegetation.
20 I would simply like to point out again, by way of
21 slide here, that those multiple channels were already
22 in place on Lee Vining Creek and that the vegetation
23 grew up around the existing channels rather than having
24 caused those multiple channels.
25 Here we are on the Lee Vining Creek delta. This

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01 is in 1982, and we can see that there are lots of
02 braids on the Lee Vining Creek delta.
03 There's no vegetation to speak of out here at
04 all. These multiple channels are very shallow.
05 They're very wide and over the ensuing years up to

06 today, vegetation has colonized these channels, and it
07 did not cause the multiple channels, rather the
08 multiple channels dictated where the vegetation would
09 grow.

10 Q. BY MR. DODGE: Does the slide have an exhibit
11 number?

12 A. BY DR. STINE: Yes, it does. And it was Exhibit
13 NAS/MLC 245.

14 Now, these channels are the result of deltaic
15 processes on the delta there. They have nothing to do
16 with the processes that created these very narrow, deep
17 channels that we see on the bottomlands of Rush and
18 Lee Vining Creek.

19 If we want these channels back, if we want the
20 narrow, deep, and multiple channels back, we have to
21 start doing some work out there. We can't count on the
22 vegetation to make these multiple channels in any short
23 period of time at all.

24 The third rebuttal point concerns Rush Creek above
25 Grant Lake prior to 1941, and this is shown on

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01 Department of Fish and Game Exhibit 164, which I'm not
02 sure, perhaps Ms. Cahill can tell us whether this was
03 accepted and introduced before --

04 MS. CAHILL: It has been identified. To be sure
05 that it's admitted, we should admit it today.

06 DR. STINE: This is Department of Fish and Game
07 Exhibit 164. It's the upper half, as it were, of Grant
08 Lake, and we can see that Rush Creek flowing into Grant
09 Lake will follow a very sinuous path here that was
10 highly wooded, there were a lot of wooded wetlands down
11 here.

12 And in 1940 and '41 when the Department of Water
13 and Power enlarged Grant Reservoir, Grant Reservoir
14 made its way up into these lands taking out, inundating
15 approximately 10,000 feet of channel and some hundreds
16 of acres or about a hundred acres of wooded bottomlands
17 and marsh.

18 Now, I haven't --

19 HEARING OFFICER del PIERO: Excuse me, Dr. Stine.
20 What year was that photograph taken?

21 DR. STINE: This is 1929 or '30. December of '29
22 or January of '30. And sometimes these aren't marked,
23 but it's one or the other.

24 I'm not suggesting that this, in itself, is
25 recoverable. As long as the City of Los Angeles is

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01 going to be using Grant Lake as a storage facility,
02 it's going to be tough to get this back, but I have
03 suggested several times here that Mill Creek could
04 perhaps be rewatered. And in rewatering Mill Creek, we
05 could mitigate for the lost riparian vegetation that we
06 lost here and above Grant Lake.

07 I don't pretend to be an expert on the water
08 rights of Mill Creek, but I have walked the channel
09 that would be used to get water back into the stream,
10 and I consider it to be hydrographically feasible.

11 The persistence of sand tufa is the subject of the
12 fourth rebuttal. Sand tufa, I want to say, will break
13 down naturally independent of any lake rise. We have a

14 number of instances of deposits of sand tufa that have
15 been on the shore and exposed for anywhere from 50
16 years to 300 years.

17 My sense is that sand tufa, independent of any
18 lake rise, breaks down over a period of 50, 60 years,
19 something like that.

20 When I say "break down," I'm talking about
21 collapsing, rounding down to be similar to the forms
22 that today have been exposed for 50 or 60 years.

23 So I don't expect the sand tufa out there to
24 persist beyond, say, a half a century, or something
25 like that, plus or minus.

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01 My fifth rebuttal point concerns drought and its
02 effect on Mono Lake.

03 As I've previously explained, I found what I
04 consider to be compelling evidence for very severe and
05 persistent droughts in California. And with that in
06 mind, I have suggested that what Jones and Stokes used
07 as sort of a model drought as a basis for recommending
08 a buffer, is probably not a strident enough drought to
09 be safe to protect certain critical elevations at Mono
10 Lake.

11 I considered those critical elevations, the ones
12 that we should take into consideration at least, to be
13 6378 feet, which is the level at which Drs. Shufford
14 and Winkler say that Negit Island can be invaded by
15 coyotes; 6372 feet, which is the level below which Rush
16 Creek, Lee Vining Creek, and Mill Creek will undergo a
17 new wave of incision that will work its way upstream;
18 and 6368 feet, which is the elevation of the nickpoint
19 that surrounds Mono Lake.

20 And as I explained, if that nickpoint is exposed,
21 we can expect widespread incision of the Mono
22 shorelands, toppling of all the towers, all of the
23 major tufa groves and draining of the wetlands that
24 surround Mono Lake.

25 What we did was to not plug in hundreds of years

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01 to find out what the response to drought of hundreds of
02 years -- or the response of the lake to hundreds of
03 years of drought would be.

04 Rather, we plugged in 25 years of drought similar
05 to the drought of the period of 1986 to 1990. And when
06 we plug that into the Vorster model, we find the
07 following.

08 If we start the lake at an elevation of 6377 feet,
09 that elevation, because it's one of the lake level
10 alternatives, obviously, the lake is already below 6378
11 feet, so we've already allowed coyotes on to Negit
12 Island.

13 In the seventh year of drought, the lake would
14 drop below 6372 feet instigating incision of the major
15 influence streams, and in the 14th year of drought, the
16 lake will drop below 6368 feet causing the problems
17 associated with the exposure of the nickpoint.

18 If we start the lake at 6383.5 feet, again chosen
19 because it's one of the lake level alternatives, in the
20 sixth year of drought, Negit Island becomes susceptible
21 to coyote invasion.

22 In the 14th year of drought, a new wave of
23 incision is instigated in the streams, and in the 21st
24 year of drought, the lake drops below 6368 feet
25 exposing the nickpoint with the problems associated

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01 with it.

02 Starting at the lake level alternative 6390 feet,
03 in the 14th year of drought, Negit Island becomes
04 susceptible to coyote invasion.

05 In the 21st year of drought, the new wave of
06 incision is instigated on the major influence streams,
07 and given the drought conditions that we've assumed
08 here, 25 years of drought similar to our most recent
09 drought, given those conditions, 6390 would protect
10 Mono Lake against exposure of the nickpoint.

11 If we start at a level of 6405 feet, which has
12 been suggested as an elevation where we would get back,
13 among other things, a great deal of duck habitat, after
14 25 years of drought, Mono Lake remains above 6378 feet
15 and, therefore, that elevation, 6405 feet, is
16 sufficient to protect all these three critical lake
17 levels against 25 years of drought.

18 I'd simply point out that the 25 years is not even
19 close to the persistence of the drought that we have
20 seen in the prehistoric past nor is the present-day
21 drought, the last six years of drought, as severe as
22 the droughts of the prehistoric period. So we're being
23 very, very conservative here both in severity of
24 drought and in the duration of drought.

25 Now, the remainder of my rebuttal concerns Rush

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01 and Lee Vining Creeks. I've broken this down into
02 three subjects; first, the armored meander of the Rush
03 Creek, Rush Narrows. And I'm not going to say too much
04 about the armored meander bend.

05 Secondly, some misconceptions concerning the
06 historical and existing conditions along the stream.

07 And, thirdly, the Los Angeles Department of Water
08 and Power video on the Rush Creek bottomlands.

09 Let me confine my discussion of the armored
10 meander bend to the following. I guess it was last
11 week, I wasn't here, but I guess it was last week that
12 Dr. Kondolf introduced some cross-sections of that
13 meander bend site, and what those cross-sections showed
14 was that between 1989 and 1992 -- this is before any
15 treatment was done on that meander bend -- the stream
16 was both widening and shallowing as a result of the
17 collapse of the bank.

18 When we went in to do that armored meander bend
19 site, it was continuing. The stream was continuing to
20 plane to the westward, and the bank was collapsing. As
21 a result of the bank collapsing, we were not getting
22 any deepening there.

23 The RTC, not Trihey and Associates, but the RTC
24 deemed that as an immediate need site. We went in and
25 armored it with so-called soft armor tree boughs and

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01 whatnot, in a sense, stapled it to the bend there, and
02 we planted vegetation right along the stream margins
03 with the hopes that if we keep the stream from

04 collapsing anymore, that we could establish vegetation
05 along there, later on go back and take off the soft
06 armoring and have the stream start to work on the root
07 systems of newly established vegetation. And that
08 would stabilize the bank.

09 This is still -- our purpose, though, we're going
10 to go out within the next year, two years, three years,
11 as soon as we consider that bank to be stable, and
12 remove the soft armoring. And we will have a nice
13 protective root system in there, and the stream will
14 start doing what I think everybody in the room and all
15 the witnesses would like to see the stream do; that is,
16 undercut root systems, create overhangs, create deep
17 water, et cetera.

18 Now, on to the misconceptions about the historical
19 and modern conditions of Rush and Lee Vining Creek.

20 Here is Rush Creek on NAS and MLC Exhibit 213,
21 Rush Creek below The Narrows, the so-called
22 bottomlands. And there are a number of points that
23 were made by Mr. Tillemans and particularly by Dr.
24 Beschta about this. And I'd like to make sure the
25 record, at least my reasoning on this, is very, very
0023 clear.

01 Firstly, I have said that there was 35 cfs at the
02 time this photograph was taken, which was either
03 December '29 or January 1930, the 35 cfs flowing
04 through the bottomlands, and I said that was measured
05 here at The Ford. There was not 35 cfs flowing into
06 the entire bottomlands.

07 In fact, here at The Narrows, there was only from
08 7 to 10 cfs flowing through The Narrows, and spring
09 flow added to that 7 to 10 cfs giving a total of 35 cfs
10 by the time we got down to The Ford.

11 Secondly, Dr. Beschta stated that there was more
12 than a natural amount of water in the bottomlands at
13 the time this photograph was taken, which is not the
14 case. Mr. Vorster went back through the wintertime
15 records and found that at this time, or in the years
16 prior to DWP's operation, that there would have been
17 approximately 35 cfs flowing into Grant Lake, 35 cfs
18 flowing out of Grant Lake, and 35 cfs flowing down
19 through here the entire bottomlands, 35 at The Narrows,
20 35 at The Ford. There would have been 35 cfs
21 throughout the bottomlands.

22 Here, on this particular photograph, we have only
23 7 to 10 at The Narrows, 35 by the time we get down
24 here. The conditions here in the bottomlands,
25

0024 particularly in the middle part of the bottomlands, are
01 not abnormally wet for this time of year. They're
02 abnormally dry. There would normally be more water
03 than is shown here in this photograph at this
04 particular time.

05 A third point, despite these low flows here at the
06 bottomlands -- or pardon me, at The Narrows, only about
07 7 to 10 cfs coming through here. We have two channels.
08 And I would invite those who have not yet taken a close
09 look at this up here to see this second channel right
10 here that very definitely does have water in it. It's
11

12 a dark line. It's a black continuous line.

13 I would also ask that people compare these water
14 channels in here which show up as black lines, with a
15 dewatered stretch such as that right up here. And you
16 can see here on this photograph, in the very northern
17 part of photograph, a dry channel that has no water in
18 it. It appears to be very, very light.

19 These channels down here are, indeed, watered.
20 Now, I'm not sure that Dr. Beschta and I disagree on
21 this anymore. He originally said on his transparencies
22 that this channel did not have water in it, the second
23 channel immediately below The Narrows.

24 But then upon questioning, he said that, "Yes, it
25 does have water in it, but there's not a significant
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01 amount of water in it." I don't know what he means by
02 a "significant amount of water," but I think we now
03 both agree that there is water in the second channel
04 here despite the fact that there's only 7 to 10 cfs
05 down here.

06 The fourth point, Dr. Beschta said the stream is
07 abutting the channel's rolls in only one place. And he
08 pointed out one spot, right here, at this little ravine
09 where the little ravine, which, in fact, is a fault
10 running right through here, where the stream abuts the
11 small ravine right here.

12 So that's the one place that the stream is
13 abutting the canyon wall and quarrying gravels, the
14 natural supply of gravels. In fact, again, I would
15 invite people to look at this and see, for instance,
16 right here, that the stream is right up against the
17 canyon wall right there. That this meander bend that
18 I'm pointing out in the center of Exhibit 213 goes
19 right along the canyon wall there for a couple hundred
20 feet. It is abutting the canyon wall. It is
21 undercutting the canyon wall, and it is quarrying
22 gravels out of it. And you can go up to that site today
23 and see the layer of gravels in there that this stream
24 was indeed undercutting.

25 A fifth point with regard to the natural versus
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01 artificial nature of the eastern-most channel. This
02 channel that runs right over through here which shows
03 up very, very nicely on this photograph and shows up
04 very nicely today on the ground, there was some
05 suggestion early on that that was an irrigation
06 channel. And I think I'm not misrepresenting
07 Dr. Beschta by saying that he's backed off that
08 somewhat.

09 He's saying that it's not a dug channel; it's a
10 natural channel. But that it had somehow been affected
11 by artificial rewatering or something like that.

12 I've talked to a number of people, including
13 Mr. Banta and Auggie Hess. Now, Auggie Hess spent a
14 lot of his childhood down here in the Rush Creek
15 bottomlands, because his grandmother lived down here,
16 and they both say this was a very natural channel
17 through here, that it had not been modified in any way.
18 It has no spoils piled next to it.

19 It certainly is a natural channel. And there's no

20 indication anywhere along here that water was being
21 taken out of this channel, and the lands adjacent to
22 the channel watered.
23 And why would anybody take the time and the energy
24 to pull water out of a channel and water lands in
25 through here which are already absolutely saturated

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01 because of all the water coming in from the canyon
02 sides?

03 A sixth point regards the road cutoff. And
04 Dr. Beschta has maintained that the road cutoff here at
05 what I call "Biggest Bend" did not occur in 1967, that
06 it occurred some time after 1967. And he also contends
07 that the road across here was the factor that
08 instigated the meander cutoff, causing incision,
09 causing channel shrinking and, therefore steepening, et
10 cetera.

11 I have photographs, aerial photographs along for
12 those people who want to look at them, and to look at
13 them with a hand lens so you can really get in on it.
14 This meander is in place in 1964 on the 1964 photos.
15 On the 1968 photos, one year after 1967, the stream has
16 cut that off and it is flowing right across here. And
17 if you want to take a look at it, as I say, I brought
18 the photographs along.

19 Furthermore, the road here has nothing to do,
20 nothing whatsoever to do with that cutoff. The stream
21 did not enter the cutoff by the way the road. It did
22 not travel across the meander by way of the road. It
23 did not exit the meander by the way of the road. The
24 road is irrelevant.

25 The reason for this cutoff was very simple. We

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01 had Mono Lake drawn to a low elevation exposing that
02 nickpoint on the delta. And as a result of the high
03 flows that came down Rush Creek, we started to get
04 incision, head-warned incision here from the mouth of
05 stream.

06 Now, previously, when water had flowed across the
07 meander neck here. It had gone down a low gradient
08 surface from one overflowing stream to one overflowing
09 channel to the same overflowing channel. There was no
10 real hydraulic gradient right here for incision to
11 occur.

12 Now, what happens is that we've got this
13 unnaturally large amount of water moving down the
14 stream across the meander right here, and we have an
15 incision working its way headward. What happens is the
16 incision works its way headward as all of a sudden,
17 because of headward incision to the bottom point of
18 meander right here, the water that's crossing the
19 meander cascades down into the channel.

20 We've got a waterfall there all of a sudden, and
21 that is what instigates incision, and we cut this off
22 in a matter of minutes. Certainly, less than an hour
23 would be required to cut that thing off.

24 MR. HERRERA: Excuse me, Dr. Stine.

25 20 minutes has expired, Mr. Dodge.

0029

01 MR. DODGE: Mr. Chairman, we would apply for an

02 additional 20 minutes, and I hope Dr. Stine can finish
03 in that time. There is a variety of subject matters,
04 and we're dealing with both rebuttal and surrebuttal.
05 I've asked him to be as brief as he can, but I think 40
06 minutes is the best we can do.

07 HEARING OFFICER DEL PIERO: I'll grant the 20
08 minutes, Mr. Dodge.

09 MR. DODGE: Thank you.

10 DR. STINE: Thank you.

11 HEARING OFFICER DEL PIERO: However, I would
12 observe that asking Dr. Stine to be as brief as he can
13 be is an oxymoron.

14 DR. STINE: Only because Dr. Stine is always as
15 brief as he can be.

16 MR. DODGE: I don't think that was my upshot.
17 (Laughter.)

18 HEARING OFFICER DEL PIERO: Please note everyone
19 in the room is laughing.

20 DR. STINE: With me, not at me.

21 MR. DODGE: If you believe that, Dr. Stine, you
22 may wish to purchase this bridge I have for sale.

23 DR. STINE: In your pocket, no doubt.

24 Dr. Beschta has said that stream widths today in
25 the bottomlands are approaching those of 1941. And I
0030
01 would simply point out that he incorrectly quoted my
02 materials.

03 I mentioned that the channel itself was 25 to 30
04 feet wide in 1930 and 1940. What I was talking about
05 there, what I was actually measuring in the field, was
06 the top width of the channel.

07 The point that I was making there was that because
08 this was such a narrow channel, not stream width, not
09 water width now, because it was such a narrow channel,
10 the stream could readily overflow the channel and go up
11 and flood the bottomlands. And there was a lot of
12 flooding that went on in those bottomlands.

13 Today we have indeed many places where the water
14 surface is 25 to 30 feet wide, but the channel itself
15 has been greatly widened so as to now preclude the
16 ability of the stream to get up on that surface
17 anymore. We were dealing with sort of an
18 apples-and-oranges situation there. The 25 to 30 feet
19 is my channel width; it's his water surface width.

20 MR. HERRERA: Could you identify that?

21 DR. STINE: I sure could. I don't have a number
22 on this, actually. Next in order.

23 MR. DODGE: We'll make that National Audubon
24 Society and Mono Lake Committee Exhibit 265.

25 HEARING OFFICER DEL PIERO: Any objection?
0031

01 None? Fine. Continue, Dr. Stine.

02 (NAS/MLC Exhibit 265 was
03 marked for identification.)

04 DR. STINE: The eighth point here, then, regards
05 the vegetation of the bottomlands. I think
06 Mr. Beschta, Dr. Beschta is under the --

07 HEARING OFFICER DEL PIERO: Dr. Stine, would you
08 be good enough to write NAS/MLC on there?
09 DR. STINE: Yes.

10 HEARING OFFICER DEL PIERO: Thank you.

11 DR. STINE: Dr. Beschta seems to be of the
12 impression that during the 1940s and '50s, and
13 certainly by the 1960s, there had been a large
14 vegetation die off in the Rush Creek bottomlands, and
15 that was not the case. And I pointed that out in my
16 reports that were written several years ago without the
17 heat of battle being a factor here.

18 In fact, because these lands adjacent to Rush
19 Creek continue to be irrigated up until 1970, at the
20 time the second barrel of the aqueduct was completed,
21 because those lands continued to be irrigated, the Rush
22 Creek bottomlands stayed wet.

23 And this is something that had been confirmed by
24 Mr. Wes Johnson of the Department of Fish and Game.
25 The vegetation die off in here came after 1967 and 1969

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01 when the irrigation water was cut off, and that has
02 some bearing here because there was, in '69, '70, and,
03 indeed, even today, vegetation persisting in the
04 bottomlands that had been there for many, many decades.

05 And with that in mind, I'd like to now, if it's
06 okay, examine the last Los Angeles Department of Water
07 and Power video. And I'd ask people to keep in mind
08 not only the fact that there's a lot of old vegetation
09 in mind there, but there are narrow places on the
10 stream, as Dr. Beschta and Mr. Tillemans pointed out.

11 But I think you'll agree as you look at this, that
12 every place the stream is narrow, it's because the
13 stream is abutting not three-year-old vegetation, not
14 ten-year-old vegetation, which is irrelevant and very,
15 very small, it's because it's abutting vegetation
16 that's been there for decades.

17 And every place, where we go through here, every
18 place you see a narrow channel, it's not something
19 that's narrowing today, something that would be clear
20 when Dr. Li, I'm sure, shows his revisited
21 cross-sections, it's places where the stream is
22 abutting very, very old vegetation.

23 MR. DODGE: I was going to indicate that Dr. Stine
24 is now going to show the video that Dr. Beschta and
25 Mr. Tillemans showed. It has a DWP exhibit number.

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01 I've forgotten it.

02 MR. SMITH: I'm looking for it.

03 DR. STINE: L.A. DWP Exhibit 139.

04 HEARING OFFICER DEL PIERO: Okay.

05 DR. STINE: Great video, I might add.

06 (The videotape was viewed at this time.)

07 DR. STINE: I believe we're playing. It says
08 play.

09 I know what happened, Mr. Roos-Collins -- oh, he
10 did rewind it. Bless you.

11 Here we're approaching The Narrows, and we can see
12 just off to the right, in the upper right corner, where
13 the stream used to go off to the right. Today, it
14 doesn't go off to the right as it did under natural
15 conditions. Rather, it goes down what I have for years
16 referred to as the Gun Barrel, a big relatively
17 straight reach with little complexity.

18 It's riffle and run. There's very little
19 vegetation along it, and we can see here the kind of
20 vegetation recruitment in this reach that we've gotten
21 over the past three and four and five years occasional
22 willows, but not doing an awful lot to the channel.
23 Just below here, we'll see where the stream abuts
24 vegetation that is very clearly on the 1964 photographs
25 and arguably on the 1940 photographs. Now, that's a
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01 little less clear.
02 And it's right here in this area here, top of the
03 screen, this vegetation is old vegetation. And you'll
04 notice how the camera nicely focuses in for us, because
05 it's narrow in through here. We have some deep water,
06 and there the stream is interacting with old
07 vegetation.
08 At this point now, the stream goes back into its
09 old channel, and all along the old channel here, there
10 is very old vegetation. Notice the size of this
11 cottonwood right here. Notice the size of this tree.
12 It's not three-year-old vegetation.
13 And in through here where we have a nice narrow
14 stream here, the vegetation is old. As soon as we lose
15 the old vegetation, it gets wide again. When we go
16 back into the old vegetation like this, not a
17 three-year-old tree by any means, we go back into the
18 old vegetation, it gets narrow again.
19 This is the story throughout the channel here.
20 Wherever we're against old vegetation, it's narrow.
21 Wherever we're against new vegetation or
22 non-vegetation, it's wide.
23 Likewise, right in from here, we get in abutting
24 the root systems of this old vegetation, and the stream
25 narrows way down. We get some nice bends in it. We
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01 get a lot of complexity in here as well.
02 I should say here, too, that what we don't see on
03 this is the rest of the bottomlands. The bottomlands
04 was a phenomenal area in that it had multiple channels,
05 again, narrowing here because of the big vegetation.
06 It had multiple channels, large amounts of wetland.
07 We're concentrating here simply on one stream.
08 This channel can no longer overflow into those other
09 channels because of the widening that has gone on in
10 places.
11 Old vegetation again in here; old vegetation here
12 along this bank. I believe Mr. Messick is going to say
13 something about this. He's a riparian expert, and he
14 may want to comment on this video as well.
15 We go in here to an area that has no old
16 vegetation, and it's a wide reach.
17 This is old vegetation in through here. Not only
18 that, but a lot of logs from old deadwood lying around
19 causing the stream to be turbulent right there, causing
20 some deep water associated with this.
21 But that's all old wood. And we do need old wood,
22 as Dr. Platts has pointed out, to get the stream
23 complex and to get the stream narrow and deep again.
24 We're into old wood again now, here, and the
25 stream slims way, way down. This is not three-year-old

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01 vegetation. And, again, as Dr. Li will point out, this
02 is not something that has narrowed during the last
03 three years or even ten years.

04 Wide channel, there, where we have no vegetation,
05 wide where we have no vegetation. And then it goes
06 back into some old vegetation again, vegetation that we
07 can find on the 1964 photos, and then it slims down.
08 We get a lot of complexity in here again.

09 And here, notice the age of these trees or at
10 least, the size of the trees; not three-year-old
11 vegetation, not ten-year-old vegetation, by any means.

12 Wide where we're lacking old vegetation, then into
13 old vegetation again. Notice how it slims down again
14 where it hits that old vegetation.

15 Very non-complex in through there where we don't
16 have the old stuff.

17 Couple ducks take off. Imagine how many more
18 there would be if this was all a wetlands.

19 This is all old wood down in here, and we do get
20 some complexity associated with all those old logs
21 right there.

22 Here's an area where the bank is actively being
23 cut back, where the stream impinges upon a bank with
24 very little vegetation.

25 Notice here that we have a collapsing bank right

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01 along in through here where the bank is actually being
02 undercut.

03 MR. BIRMINGHAM: Would you mark that spot in the
04 video, please, on the tape?

05 DR. STINE: I think it's tough for her to do on
06 the tape because there's no numbers.

07 And all of a sudden, we go down here in the old
08 vegetation here and things start to narrow down and
09 become more complex.

10 Very little old vegetation in through here, but
11 right there, all of a sudden, we go into the old stuff,
12 and it slims down and starts taking all kinds of bends,
13 becomes much more insinuous, much more irregular, holes
14 undercut banks because of the root systems that we can
15 see through here.

16 This is the kind of bend that we just do not get
17 here if there's no vegetation. The stream is
18 undercutting the banks causing them to collapse.

19 Very regular channel in through here. No
20 vegetation to speak of on the sides, no old vegetation,
21 that is.

22 Notice right here we go from a very regular
23 channel into a channel with some undercut banks and
24 whatnot, when we get into this old vegetation, not
25 three-year-old vegetation.

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01 Here's three-year-old, five-year-old vegetation
02 right through here.

03 This is the where the helicopter decided to
04 circle, so we're seeing some more of what we just saw.

05 A big log jam right here. But there's old wood
06 that's caused by trees having been there for a long
07 time, rather than by anything that's been going on

08 during the last three years.

09 The complexity here, the undercut banks, the old
10 vegetation.

11 Very little vegetation in through here, and then
12 down to The Ford.

13 And that's where we ended the video right there.

14 I would like to introduce, if I could, NAS/MLC
15 Exhibit 251, which was a photograph taken by Chestley
16 Wakeley, I believe, in the 1940s and, likewise,
17 Exhibit 252, NAS/MLC 252.

18 It shows a young guy climbing into the stream.
19 You can see how narrow the stream is there. We can see
20 the kind of stream that existed prior to the diversions
21 by the Los Angeles Department of Water and Power.

22 MR. BIRMINGHAM: Excuse me. May I see the
23 photographs, please?

24 DR. STINE: Certainly.

25 MR. BIRMINGHAM: Are we going to be provided

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01 copies of these?

02 MR. DODGE: I thought you already had.

03 MR. CAIN: They have.

04 MR. BIRMINGHAM: Thank you.

05 DR. STINE: And I'd like to also put in three
06 exhibits that are labeled NAS/MLC 248, 49, and 50,
07 which are photographs of some of these same channels as
08 they exist today that I believe can be rewatered. And
09 we would recoup very rapidly some of these same
10 conditions that existed out there in pre-1940 times,
11 rather than having to wait for the existing vegetation
12 to grow up all along the stream and create the
13 conditions that existed out there prior to 1940.

14 HEARING OFFICER DEL PIERO: Any objection,
15 Mr. Birmingham?

16 MR. BIRMINGHAM: No.

17 HEARING OFFICER DEL PIERO: All right.

18 DR. STINE: And I believe that that concludes my
19 rebuttal and surrebuttal testimony.

20 HEARING OFFICER DEL PIERO: Mr. Dodge, did you
21 want those exhibits introduced into the record now, or
22 do you want to wait until you introduce all the rest of
23 your exhibits?

24 MR. DODGE: I think we'll wait. Thank you.

25 HEARING OFFICER DEL PIERO: Thank you.

0040

01 Mr. Dodge, was Dr. Stine's presentation on behalf
02 of the National Audubon Society/Mono Lake Committee
03 singularly only?

04 MR. DODGE: Yes.

05 HEARING OFFICER DEL PIERO: Mr. Birmingham?

06 MR. BIRMINGHAM: Excuse me, one moment.

07 HEARING OFFICER DEL PIERO: I thought you might be
08 leaving, Mr. Birmingham. I wasn't quite sure.

09 MR. DODGE: Mr. Chairman, I had indicated that I
10 was going to put Stacy Li on with Dr. Stine. I think
11 it might be simpler if we went through the
12 cross-examination and then go to Dr. Li.

13 HEARING OFFICER DEL PIERO: I assumed that by
14 virtue of the fact that you had not called him and
15 moved back to your chair, that that was the case. But

16 thank you for clarifying that.

17 Mr. Birmingham?

18 MR. BIRMINGHAM: Thank you.

19 CROSS-EXAMINATION BY MR. BIRMINGHAM

20 Q. I'd like to go through NAS/MLC 1-A-F with you,
21 Dr. Stine. That's the rebuttal testimony that you
22 prepared?

23 A. BY DR. STINE: Yes, it is.

24 Q. And the first page of that rebuttal testimony has
25 a title on it, "Rebuttal Testimony of Scott Stine

0041

01 Regarding the Persistence of Sand Tufa in the Mono
02 Basin."

03 What evidence were you trying to rebut when you
04 drafted this? Was that the evidence presented by
05 Ranger Carl?

06 A. I'm not sure what "rebuttal" means, to tell you
07 the honest to goodness truth, because it's been used so
08 very, very loosely in the proceeding.

09 There was a question that was left hanging, in my
10 opinion, and what I'm trying to do is simply clarify
11 that question that was left hanging.

12 Q. That was the --

13 A. I'm not sure that there was anything ever resolved
14 on this question to actually rebut, so I may be
15 breaking the rules by bringing this up.

16 HEARING OFFICER DEL PIERO: Would the Court
17 Reporter please mark that section so I can refer to it
18 later on?

19 Q. BY MR. BIRMINGHAM: Well, in fact, it was a
20 question that was asked of Ranger Carl by
21 Mr. Del Piero; isn't that correct?

22 A. BY DR. STINE: I think it was directed to both
23 Ranger Carl and myself, and I explained some things and
24 then Ranger Carl came in and explained some other
25 things. And we went on to another topic, and it was

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01 left hanging.

02 Q. And the question that was asked of Ranger Carl
03 and you by Mr. Del Piero was how long you would expect
04 the sand tufa to persist; is that correct?

05 A. Something to that effect.

06 Q. And Ranger Carl -- first, Ranger Carl was called
07 by the State Parks Service and by the State Lands
08 Commission; is that right?

09 A. I believe that's correct, yes.

10 Q. And when you were asked the question by
11 Mr. Del Piero concerning the persistence of sand tufa,
12 you were appearing as a witness on behalf of the State
13 Lands Commission and State Parks Service; is that
14 right?

15 A. That's correct.

16 Q. So you're offering rebuttal testimony to what was
17 offered by State Lands Commission and State Parks
18 Service; is that right?

19 MR. VALENTINE: Objection. That's argumentative.

20 HEARING OFFICER DEL PIERO: It is argumentative.

21 You don't have to answer that, Dr. Stine.

22 Mr. Birmingham, why don't you go on?

23 Q. BY MR. BIRMINGHAM: Ranger Carl said they had a

24 photo. They were taking photos of sand tufa for some
25 time period of approximately ten years. And in his

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01 opinion, he thought that the concern over the delicacy
02 of sand tufa was a little bit overstated.

03 Was that his opinion?

04 A. BY DR. STINE: I don't think that he said that. I
05 think what he said was that he saw relatively little
06 change in the sand tufa, this is how I remember it,
07 saw relatively little change in the sand tufa over the
08 ten years that he had been photographically documenting
09 the sand tufa.

10 My feeling on that, Mr. Birmingham, if you're
11 still with us --

12 HEARING OFFICER DEL PIERO: Mr. Birmingham is
13 securing an exhibit.

14 DR. STINE: My feeling on that, if you extrapolate
15 his conclusion, is that sand tufa will be here 50,000
16 years from now. And I don't think that's going to be
17 the case.

18 I think that sand tufa is something like an old
19 barn. You build a barn, and for the first number of
20 years, it looks awfully good. And as weather takes a
21 toll, that barn starts to look a little shabby. And
22 the shabbiness progresses very, very slowly at first,
23 but pretty soon the termites have taken a toll on the
24 bottom. And the more the thing collapses, the more
25 it's going to collapse.

0044

01 And that's the way sand tufa is going to weather
02 as well. We're going to have a period out there where
03 it weathers very, very slowly. But there's going to be
04 some undermining due to weathering, salt crystal
05 growth, freeze-thaw, a number of other things that is
06 then going to start to take a toll. The bigger the
07 toll, the faster the toll will progress.

08 It's not, then, a linear degradation. It's a
09 curvilinear degradation, the degradation proceeding
10 faster as time goes on.

11 We see this in a lot of different rock types.
12 This isn't peculiar to sand tufa.

13 Q. BY MR. BIRMINGHAM: I'd like to refer to page 12
14 of State Lands Commission and Department of Parks and
15 Recreation, Exhibit 4, testimony of David Carl on
16 behalf of the State Department of Parks and Recreation.

17 Do you have a copy of that with you, Dr. Stine?

18 A. BY DR. STINE: I don't.

19 Q. What I'll do is read with you, and I'll ask to
20 read along while I read it aloud so you can confirm I
21 read it accurately.

22 Or better yet, why don't I ask you to read the
23 fourth full paragraph of Ranger Carl's testimony into
24 the record? That's the fourth full paragraph on page
25 12.

0045

01 A. Which states, "The DEIR overstated the impacts of
02 weather on the sand tufa. We have closely monitored
03 sand tufa sites for over ten years with a photo
04 inventory. We have documented very few obvious visual
05 changes in that decade. The density of the sand tufa

06 material and the shelter provided by the surrounding
07 hills appear to offer some protection from weather
08 forces."

09 Q. By surrounding sand hills.

10 A. Surrounding sand hills, excuse me, yes.

11 And I would respond to that only by saying that
12 what I said two minutes ago still stands.

13 Q. You disagree with the opinion expressed by Ranger
14 Carl on page 12 of his written testimony?

15 A. Well, I'm not sure. I don't remember exactly what
16 the DEIR said, so I don't know if it was overstated or
17 not.

18 But my point remains the same: That we can go to
19 50-year-old sand tufa that's out there that we know to
20 be 50 years old. We can go to 300-year-old sand tufa
21 that we know to be 300 years. And, to me, that
22 represents a much better way of assessing how sand tufa
23 stands up over time than this photographic record.
24 Then I get back to my barn analogy again.

25 Q. Now, as I recall Ranger Carl's oral testimony,
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01 during his oral testimony, he presented a bunch of
02 slides that depicted sand tufa in different states; is
03 that correct?

04 A. You may be right, but that's not how I remember
05 it. I believe that he was showing different sand tufa
06 localities all of which had been exposed by the modern
07 drop of the lake. So relatively young deposits or
08 young exposures of sand tufa.

09 Q. And he testified that some of the sand tufa that
10 had been exposed for longer periods that had fallen
11 down, or had become decayed were in that state because
12 of the impact of livestock that had been grazing in the
13 area of the sand tufa.

14 Do you recall him testifying to that?

15 A. I recall something to that effect, although, I
16 would state that the areas that I've looked at and the
17 sand tufa exposure that I've looked at, have not been
18 trampled by grazing.

19 When you trample something with grazing, it's a
20 big impact. It's an obvious impact. I'm talking about
21 sand tufa exposures that have been weathered
22 in cetu (phonetic), in place.

23 Q. So the condition of the sand tufa that Ranger Carl
24 showed us in the slides, in your opinion, that's not a
25 result of livestock grazing?

0047

01 A. That's not what I said at all. He may very well
02 have shown slides of sand tufa that may have been
03 impacted by grazing.

04 What I'm saying is that the models that I used to
05 determine how long or to estimate, because it is an
06 estimate, estimate how long sand tufa would persist,
07 irrespective of a lake level rise, had obviously not
08 been trampled. It was standing, somewhat dilapidated,
09 the very thin plates were all removed. The sharp edges
10 had all been subdued way down.

11 Q. Now, I may be mistaken, but as I recall, when
12 Mr. Del Piero asked the question of you and Ranger Carl
13 concerning how long the sand tufa would persist, Ranger

14 Carl responded and you leaned over and whispered
15 something to Ranger Carl.

16 Do you recall what you whispered to Ranger Carl?

17 MR. VALENTINE: Excuse me, Mr. Del Piero. If
18 there's going to be a long line of questioning on what
19 happened six weeks ago, maybe Dr. Stine should have the
20 benefit of the transcript.

21 HEARING OFFICER DEL PIERO: Do you have a copy of
22 the transcript, Mr. Birmingham?

23 MR. BIRMINGHAM: I probably could find it
24 somewhere, if necessary. Although, what he whispered
25 to Ranger Carl isn't going to infringe on --

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01 HEARING OFFICER DEL PIERO: Dr. Stine, do you
02 recall what you whispered into Ranger Carl's ear six
03 weeks ago?

04 DR. STINE: I better say something otherwise
05 imaginations in here will soar. I don't recall.

06 MR. BIRMINGHAM: You and I whisper things all the
07 time, Dr. Stine, and I would not want imaginations to
08 soar.

09 HEARING OFFICER DEL PIERO: That didn't get into
10 the transcript now, did it?

11 DR. STINE: I'm not sure how it got in. I didn't
12 mean S-O-R-E.

13 HEARING OFFICER DEL PIERO: Please proceed,
14 Mr. Birmingham.

15 MR. BIRMINGHAM: I will.

16 HEARING OFFICER DEL PIERO: Quickly.

17 Q. BY MR. BIRMINGHAM: Dr. Stine, let's go through
18 the video.

19 First, before we do, I take it from your
20 description of some of the video that, in your opinion,
21 some segments of Rush Creek are in pretty good shape;
22 is that right, Dr. Stine?

23 A. BY DR. STINE: I would hesitate to remark about --
24 I think you've got it on fast there.

25 I would hesitate to talk about stream reaches

0049

01 without indicating exactly which stream reaches it is
02 we're talking when. I feel much more comfortable
03 talking about the bottomlands in its entirety if we're
04 going to generalize.

05 If you want to go reach by reach, I'll be more
06 than happy to. This, I think, is in abysmal shape.
07 Here, the stream is not where it was prior to 1940.

08 HEARING OFFICER DEL PIERO: Dr. Stine, you need
09 identify where "here" is.

10 DR. STINE: I'm sorry. This is the first 1,800
11 feet, 1,700 feet or so below The Narrows.

12 HEARING OFFICER DEL PIERO: Thank you.

13 Q. BY MR. BIRMINGHAM: Now, we're looking at
14 vegetation. I've stopped this, Dr. Stine, at what is
15 indicated on the frame counter as frame 42, and we see
16 depicted in this frame some vegetation.

17 Is that vegetation old vegetation or is it young
18 vegetation?

19 A. BY DR. STINE: I think that that's probably young
20 vegetation right there. But this branch right here
21 that's clogging the channel is probably some old

22 vegetation and, once again, having old vegetation in
23 the system is really very, very important.

24 The old vegetation, branches like this, will do
25 things to the stream that three-year-old vegetation
0050

01 can't do; indeed, probably ten-year-old vegetation
02 can't do. So we do have a constriction right here, and
03 it has to do with vegetation.

04 I would guess that that is probably ten-year-old
05 vegetation, though, rather than three-year-old
06 vegetation, because remember, we did have flows down
07 here in 1980, '82, '83, and '86. It isn't just the
08 last three years that we've had flow in the Rush Creek
09 bottomlands.

10 Right here we're dealing, of course, with much
11 older vegetation.

12 Q. I'm stopping this at what's identified as frame 58
13 on the counter. And you indicated this is older
14 vegetation?

15 A. Yes, it is. I believe Mr. Messick will have
16 something to say about that as well.

17 Q. Now, we're looking at a portion of stream. Is
18 this old vegetation or young vegetation that we're
19 looking at, Dr. Stine?

20 A. Well, I think that what we see here, perhaps, on
21 the left bank, is young vegetation. What we're seeing
22 here on the right bank of the stream looks to me to be
23 old root systems sticking out into the stream. So I
24 would say the right bank is probably old vegetation.
25 The left bank is probably quite young vegetation.

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01 Q. That was frame 62 that we were looking at.

02 We're moving further down the stream.

03 A. Now, I would like to say, if possible, we're now
04 in a place on the stream where the stream is occupying
05 the same channel that it occupied in 1940. We're not
06 into a new channel anymore.

07 HEARING OFFICER DEL PIERO: Can we identify the
08 frame, please?

09 Q. BY MR. BIRMINGHAM: Yes. I stopped this at frame
10 72.

11 And I'm pointing, Dr. Stine, to some vegetation
12 that exists on the right bank of the channel. That
13 vegetation is young vegetation, isn't it?

14 A. BY DR. STINE: I would first like to clear up and
15 say that that's not on the right bank of the channel.
16 It's actually on a bar that is within the vegetation.

17 I would say it is young, though I would hesitate
18 to say it's three years old. I suspect that it is due
19 to the flows of the early and mid 1980s rather than
20 anything that was there prior to 1940. This is all
21 very old vegetation in here at frame 78, 79, and 80.

22 Q. I've stopped this at frame 82, and I'm pointing to
23 some vegetation which appears to the right bank of the
24 stream.

25 Is that vegetation young vegetation, Dr. Stine?

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01 A. I would say that is probably vegetation from the
02 early and mid 1980s, whereas to the left bank, we're
03 dealing with vegetation that's much older.

04 Q. Now, we're looking at some vegetation during the
05 winter; is that right, Dr. Stine?
06 A. That is correct.
07 Q. And is it correct that this vegetation would
08 appear green during the summer period?
09 A. Yes, it would. And I would point out that from
10 frame 88 through 98, now, we're in through some very
11 old vegetation, much older than we were looking at
12 before. It would appear green. Now, it's pretty
13 fluorescent orange.
14 Q. I'm going to fast forward this, if I may, to a
15 point where I asked the Reporter to mark the
16 transcript.
17 A. Nice old vegetation through there.
18 HEARING OFFICER DEL PIERO: Can I -- excuse me.
19 Mr. Herrera, how much time left?
20 MR. HERRERA: Five minutes and 30 seconds.
21 HEARING OFFICER DEL PIERO: Mr. Birmingham, I'm
22 assuming that you have some additional questions to ask
23 of Dr. Stine?
24 MR. BIRMINGHAM: I do.
25 HEARING OFFICER DEL PIERO: In order to facilitate
0053
01 this process and not cause Mr. Birmingham to ask
02 repeatedly for extensions of time, Dr. Stine, it may be
03 appropriate for you to limit your answers to the
04 questions he's asking.
05 DR. STINE: I will, sir.
06 Q. BY MR. BIRMINGHAM: Now, I think I've found the
07 place on this video that I wanted to ask you about,
08 Dr. Stine. Let me just stop it, if I may.
09 Now, Dr. Stine, this is a place where you
10 indicated that a bank was being sloughed off; is that
11 correct?
12 A. BY DR. STINE: Yes, it is. And we can see it
13 through here on the left.
14 HEARING OFFICER DEL PIERO: You need to back that
15 up, Mr. Birmingham. Either that or I'll move to the
16 other side. When Dr. Stine stands up to point
17 something out, I can't see.
18 DR. STINE: And here is the sloughing I was
19 talking about, and here is some more of the sloughing
20 that I was talking about here. The bank is being
21 actively undercut, and it is playing to the left.
22 Q. BY MR. BIRMINGHAM: Now, that undercutting, is
23 that what you attempted to stop through the project at
24 the meander bend further downstream?
25 A. BY DR. STINE: I think that we have successfully
0054
01 stopped it, yes. That was done at the request of the
02 RTC.
03 And here is the bank right here; and here is the
04 soft armory here. And you can see how, in the past,
05 this material was pulled away from the bank.
06 MR. HERRERA: Could you identify that frame,
07 please?
08 DR. STINE: 252.
09 MR. HERRERA: Thank you.
10 Q. BY MR. BIRMINGHAM: And you indicated that it was
11 the sloughing off and undercutting which you attempted

12 to stop through the project of the meander bend at RC
13 4.5?

14 A. BY DR. STINE: That's correct.

15 MR. ROOS-COLLINS: Excuse me. Let me interpose an
16 objection.

17 Mr. Birmingham said "you" referring to Dr. Stine.
18 Dr. Stine is not the restoration consultant and,
19 therefore, is not responsible for the choice of the
20 intervention which is being addressed here.

21 MR. BIRMINGHAM: The reason I selected the term
22 "you" is because repeatedly throughout Dr. Stine's
23 testimony, he used the term "we." He may have been
24 referring to "we, the planning team," "we, the
25 restoration technical committee." But the term he used
0055

01 was "we."

02 HEARING OFFICER DEL PIERO: I'm going to overrule
03 the objection. However, I'll point it out, although
04 it's not necessary. The RTC is well identified in the
05 record. Dr. Stine's functions and activities on that
06 stream are also well documented in the record. It's
07 not a problem.

08 Q. BY MR. BIRMINGHAM: Now, Dr. Stine, with respect
09 to your description of the old vegetation that has
10 caused the channel to narrow, are you telling us that
11 at those places where there is old vegetation,
12 narrowing is no longer a continuing process, but it is,
13 in fact, a completed process?

14 A. BY DR. STINE: You've set up an assumption there
15 that's incorrect. And if you could restate the
16 question, I think I would not be tripping over it. You
17 said something in there that implied that narrowing had
18 been caused by this vegetation. And what I'm saying is
19 that the stream has not narrowed at these sites, nor
20 has it widened at these sites. The stream is very
21 much, at many of these old vegetation sites, it is very
22 much the way it was prior to 1940.

23 I think that Dr. Beschta was incorrect in talking
24 about ongoing narrowing on the stream.

25 Q. So it's your opinion that there is no ongoing
0056

01 narrowing on the stream?

02 A. It's my opinion, having looked at Dr. Li's
03 cross-sections data, rather than speculation, that the
04 stream is narrowing ever so slightly in the top six
05 inches of the stream locally. It is actually doing
06 quite a bit of widening in places at that depth, and
07 that, overall, the stream has changed very little in
08 width and in depth not only in the last three years
09 but, in fact, since 1987. And that's based on actual
10 data rather than speculations.

11 Q. Is that data that you've collected?

12 A. That is data that Dr. Li collected both in 1987
13 and in January of this year. And it's data that I've
14 reviewed.

15 Q. I'd like to talk about your testimony concerning
16 the future drought and its effects on Mono Lake. You
17 indicate that this was -- the analysis that's contained
18 in the testimony was prepared using the Vorster water
19 balance model; is that correct?

20 A. That's correct.

21 Q. You didn't use the LAAMP model?

22 A. Didn't use the LAAMP model because I didn't have
23 access. And at the time we did this, there was still
24 questions about the LAAMP model. It was very simple
25 for me to use the Vorster model, because I have

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01 depended on things that I've published on the Vorster
02 model.

03 And Peter and I have worked together using his
04 model to create the hydrologic conditions of the past
05 couple thousand years at Mono Lake.

06 I should say, too, if I may, that either the LAAMP
07 model -- and I think Mr. Hasencamp pointed this out,
08 that both the LAAMP model and the Peter Vorster model
09 actually underestimate the effect of drought. So in
10 that respect, either model would be very conservative.

11 HEARING OFFICER DEL PIERO: Dr. Stine, I ask you
12 to focus on the questions Mr. Birmingham is asking you.

13 DR. STINE: I'm sorry.

14 HEARING OFFICER DEL PIERO: That's twice.

15 Q. BY MR. BIRMINGHAM: Now, you make reference to
16 droughts from prehistoric periods that were in excess
17 of 25 years; is that right, Dr. Stine?

18 A. BY DR. STINE: Yes, that's correct.

19 Q. Is part of the basis of your opinion there were
20 droughts that lasted in excess of 25 years, tree-ring
21 analysis?

22 A. In part tree-ring analysis, but not tree-ring
23 analysis in a dendro-climatological sense, tree-ring
24 analysis in a dendro-chronological sense. I used the
25 tree-ring to help date the phenomenon rather than to

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01 actually put climatic boundaries on the phenomenon.

02 Q. So you did not use tree-ring analysis to determine
03 the duration of a drought, instead you used tree-ring
04 analysis to determine when the drought occurred?

05 A. No. I used tree-ring analysis for both things
06 that you've just stated. I simply didn't use tree-ring
07 analysis to judge the severity of the drought.

08 Q. Now, is it correct, Dr. Stine, that -- well, tell
09 me the analysis that you performed using tree-rings to
10 determine the duration of drought.

11 A. There are trees, very long-lived trees, rooted in
12 wetlands today, areas that are today very, very wet.
13 One of those areas is Mono Lake. Another is Tinemaha
14 Lake up by Tioga Pass. It's a lake that even during
15 the past six years of drought overflowed in every year,
16 yet that lake was over 60 feet below its overflow level
17 for a long time during this drought for which we have
18 evidence at a whole bunch of sites, Tinemaha Lake
19 simply being one of them.

20 Those trees have upwards of 140 rings in them.
21 That means that the lake has to have been below its lip
22 for over 140 years for those trees to persist there.

23 And it isn't just at Tinemaha Lake. I give that
24 as one example. Also, the West Walker River, the East
25 Carson River, those other sites that I have pointed out

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01 to you. So there we're using ring counts to determine

02 the duration of drought.

03 MR. HERRERA: Mr. Birmingham, that's 20 minutes.

04 MR. BIRMINGHAM: I make an application for an
05 additional 20 minutes.

06 HEARING OFFICER DEL PIERO: Granted.

07 Q. BY MR. BIRMINGHAM: The existence of a tree below
08 the existing lip of Tinemaha Lake for a period of 140
09 years would not indicate a drought of that duration;
10 isn't that right, Dr. Stine?

11 A. BY DR. STINE: In combination with all of the
12 other evidence that dates precisely the same as the
13 Tinemaha Lake work, and here it's Osgood Swamp,
14 Tinemaha Lake, Mono Lake, East Carson River, West
15 Walker River, Walker Lake, and a number of other sites,
16 Yuba River and Independence Lake, we're getting more
17 and more data, all of these lakes disappeared at this
18 time.

19 In and of itself, I would say that it strongly,
20 strongly suggests that there was drought. In
21 combination with all of these other sites, I would say
22 it's overwhelmingly compelling.

23 Q. Are you familiar with the work that's been done by
24 the Department of Water Resources in connection with
25 the duration of droughts in the San Joaquin and

0060

01 Sacramento Valleys?

02 A. You'll have to be a little more explicit, if you
03 would, on the actual studies. I'm familiar with
04 several of them, yes, but perhaps you could point out
05 which one you're talking about.

06 Q. Are you familiar with the study performed by the
07 Department of Water Resources at the conclusion of our
08 most recent drought that was performed by the
09 University of Arizona?

10 A. Yes, I am. I think that that was done by Fritz
11 and his co-workers, and it was actually some work that
12 followed up on work that was done within the last ten
13 years, which took the tree-ring record back to
14 approximately 1500 or 1550 A.D.

15 They looked then at the duration of droughts from
16 about 1500 or 1550 A.D. to the present time.

17 Q. And it's correct, Dr. Stine, that that analysis
18 concluded that a drought of six or seven years was the
19 maximum duration of a drought during that period in the
20 Sacramento and San Joaquin Valleys?

21 A. That is correct. Although, I would like to point
22 out that 1550 A.D. to 1850 A.D. was the coldest and
23 wettest period of the last 2,000 to 3,000 all over the
24 world, and I brought this book along called The Little
25 Ice Age that documents that cool, wet period all over

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01 the world, including in the Sierra Nevada of
02 California.

03 At that time, Mono Lake was 28 vertical feet
04 higher than at any time during the last 3800 years. It
05 was a very cool, very wet period, and I would suggest
06 that it would be prudent for the State of California to
07 not use the Little Ice Age as their criterion for
08 determining drought in California. They should look
09 beyond the Little Ice Age, which is this very, very

10 aberrant time.

11 Q. Dr. Stine, NAS/MLC 245, when was this photograph
12 taken?

13 A. That was taken in -- if I could check here, I can
14 give you a month and a year, like a toaster -- it was
15 taken in August of 1983.

16 Q. What was the flow in Lee Vining Creek in August of
17 1983?

18 A. The flow was probably on the order of 200 to 300
19 or so cfs, and I'm guessing here in July it maxed out,
20 I believe, on about July 4th in excess -- well, in
21 excess of 300 cfs. And it was still fairly high in
22 August of 1983.

23 Q. Dr. Stine, I'd like to hand you a slide, and I'd
24 ask if we can use your slide projector to show the
25 slide which I'd ask to be marked next in order

0062

01 L.A. DWP, and I'll provide copies to the Board and to
02 the other parties.

03 Now, Dr. Stine, do you recognize this slide which
04 will be L.A. DWP 165 as the mouth of Lee Vining Creek?

05 A. Yes, I do.

06 Q. And is that what the mouth of Lee Vining Creek
07 looked like in the fall of 1993?

08 A. I can't vouch for the actual year on here. This
09 slide may have been taken before that. This doesn't
10 depict terribly well the amount of vegetation that's
11 out there. I think maybe that there may be even a
12 little more vegetation out there in that month that you
13 mentioned than there is on the slide.

14 Q. I'll have to apologize for the quality of the
15 slide.

16 Dr. Stine, I will represent to you that it's a
17 slide that was taken from the video prepared by the
18 Department of Water and Power in the fall of 1993,
19 which is of very poor quality.

20 A. Okay.

21 Q. But generally speaking, is that the way the mouth
22 of Lee Vining Creek appears today?

23 A. Similar to that, certainly, yes.

24 Are you done with this?

25 MR. BIRMINGHAM: I move for the admission of

0063

01 L.A. DWP Exhibit 165.

02 HEARING OFFICER DEL PIERO: Any objection? So
03 ordered.

04 (L.A. DWP Exhibit 165 was
05 admitted into evidence.)

06 HEARING OFFICER DEL PIERO: Are we going see more
07 slides, Mr. Birmingham?

08 MR. BIRMINGHAM: No more slides, at least not that
09 I'm aware of. No more slides. And, in fact, I don't
10 think I have any further questions of Dr. Stine at this
11 moment.

12 HEARING OFFICER DEL PIERO: Thank you very much,
13 Mr. Birmingham.

14 Mr. Roos-Collins -- I'm sorry. Ms. Cahill?

15 MS. CAHILL: No.

16 HEARING OFFICER DEL PIERO: Mr. Roos-Collins?

17 MR. ROOS-COLLINS: Mr. Del Piero, could we take a

18 few-minute recess before my cross-examination?
19 HEARING OFFICER DEL PIERO: That's a good idea.
20 We'll take ten minutes.
21 (A recess was taken at this time.)
22 HEARING OFFICER DEL PIERO: Ladies and gentlemen,
23 this hearing will again come to order.
24 Mr. Roos-Collins?
25 ///

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01 CROSS-EXAMINATION BY MR. ROOS-COLLINS
02 Q. Dr. Stine, good afternoon.
03 A. BY MR. STINE: Good afternoon.
04 Q. You know, there's an old story about two blind men
05 touching an elephant. One blind man says, you know,
06 "This is a tail." The other blind man says, "No, it's
07 a trunk."
08 Are you familiar with that story?
09 A. Yes, I am.
10 Q. Now, Dr. Beschta and you look at the same 1929
11 photographs, and you don't appear to describe the same
12 reality.
13 Would you agree that you and Dr. Beschta see
14 different things in the 1929 photographs?
15 A. Yes, I believe so, though I'm getting the
16 impression, as time goes on, that our views are
17 becoming somewhat convergent.
18 And I would point out the fact that on his
19 transparencies, he points to a canal which he
20 identifies as an irrigation canal, and he apparently is
21 no longer calling that an irrigation channel.
22 He points to another place that says, "Relic
23 channel unused in 1929," but in his testimony now, he's
24 saying that, indeed, there was water in there.
25 So I think that as time goes on, our views are,
0065
01 perhaps, converging, and maybe the elephant is turning
02 out to be a more like a round ball.
03 HEARING OFFICER DEL PIERO: I don't know this
04 story of the round ball.
05 (Laughter.)
06 DR. STINE: Let me tell you.
07 MR. BIRMINGHAM: I don't know the story of the
08 elephant. Is somebody going to tell me?
09 HEARING OFFICER DEL PIERO: Not in this record.
10 Please proceed, Mr. Roos-Collins.
11 MR. ROOS-COLLINS: For Mr. Birmingham's benefit, I
12 will stipulate that it has something to do with seeing
13 the parts and not the whole.
14 Q. BY MR. ROOS-COLLINS: In any event, Dr. Stine,
15 having reviewed Dr. Beschta's written and oral
16 testimony in this proceeding, do you understand the
17 method that he used to interpret the 1929 photographs?
18 A. BY DR. STINE: The physical and logistical method,
19 yes. He looked at it with a magnifying stereoscope
20 just as I did, and I think he was probably looking for
21 certain things. I got the impression, and it's only an
22 impression, from Dr. Beschta's testimony that he went
23 out there and looked at particular controversial
24 questions.
25 For instance, I had mentioned several years ago in

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01 publication that the meander bend had been cut off, and
02 that was from having tried to understand the entire
03 bottomland system and the way it worked, top to bottom,
04 side to side, and through time, because I have a record
05 that goes back thousands of years of the bottomlands.

06 And I think what Dr. Beschta did, which might be
07 what I would do if I was in a similar position to
08 Dr. Beschta, coming in without a lot of time to try to
09 understand an entire system, I think what Dr. Beschta
10 did was say, "All right. Let's concentrate on the
11 meander. Okay. Let's concentrate on the one channel
12 over here. Dr. Stine says that's such and such a way.
13 It isn't that way."

14 I think he did it, by his own admission, without
15 the benefit of having talked to the early residents of
16 the time, and I'm sure he did it without the benefit of
17 having spent hundreds and hundreds of hours on the
18 ground in the bottomlands.

19 I get the impression from his testimony that only
20 after he had formulated his decisions that he voiced in
21 here in, I guess it was, November or December, only
22 after that, did he go out and actually check out on the
23 ground some of the things he had stated in here. And
24 it was after that visit, that he seems to have changed
25 his opinion on whether something was a irrigation

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01 channel or relic channel, et cetera.

02 To answer your question, yes, I think I understand
03 what he did.

04 Q. And your understanding you just stated?

05 A. Yes.

06 Q. Let's discuss your method. Specifically, as used
07 to develop Cal Trout Exhibit 13, which is your
08 September 1992 report entitled "Past and Present
09 Geomorphic, Hydrologic and Vegetative Conditions on
10 Rush Creek."

11 A. Yes. That has been introduced and, I think,
12 discussed not under that number but, rather, under
13 NAS/MLC 122.

14 Q. Dr. Stine, it's been discussed under both numbers,
15 and I used the Cal Trout number because I have it
16 marked on my cover.

17 A. Okay.

18 Q. That report refers to your review of 1929 and 1940
19 photographs?

20 A. It does.

21 Q. And it also refers to your review of old timers'
22 reports?

23 A. Anecdotal evidence having interviewed some of
24 these people. In a few cases, it's written. In other
25 cases, it's stuff I have gleaned through conversations

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01 with them.

02 Q. It also refers to your field inspection of the
03 relic channels?

04 A. It does, yes.

05 Q. It refers to your field measurement of the relic
06 channels?

07 A. Yes, it does.

08 Q. Would it be fair to say that your method for
09 interpreting pre-1941 conditions combines these
10 different analyses?

11 A. Yes.

12 Q. Anything else?

13 A. Lots else, but not in relation to that question.

14 Q. Let's discuss the key features of the Rush Creek
15 Reach Five to bottomlands prior to 1941.

16 A. Okay.

17 Q. In the course of discussing the pre-1941 features,
18 I will also ask you questions about how those features
19 have changed between 1941 and the present.

20 On page 23 of Cal Trout Exhibit 13, first
21 paragraph, you state that, "Even a moderate amount of
22 flow; i.e., approximately 30 cubic feet per second,
23 created relatively deep water, say, 2 to 4 feet deep
24 and more depending on channel bottom efficacies. At
25 these moderate flows, water reached depths exceeding 2
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01 feet along thousands of linear feet of channel through
02 the bottomlands."

03 That is your opinion today?

04 A. Yes, it is.

05 Q. Do you have an opinion how Rush Creek today in the
06 same reach compares?

07 A. Yes. Although, I should clarify that the same
08 reach of the stream today is not necessarily Rush Creek
09 in the same location.

10 Q. Understood.

11 A. And so that the stream is, in many places, in
12 actually a different location.

13 First of all, I'd like to point out that it's more
14 difficult to have thousands of feet of channel within
15 certain reaches of Rush Creek, because these multiple
16 channels no longer have water in them. So we've
17 immediately done away with about, I believe it's 15,000
18 linear feet of channel in the bottomlands, because we
19 not longer have multiple channels watered.

20 I would also point out that along much of the
21 stream course that still does have water in it, we
22 don't have as much deep water as existed previously.
23 And I would point to, for instance, the upper 1800
24 feet, or so, of channel through the bottomlands.

25 If we look at that on the ground today, we can go
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01 back and reoccupy the channel that used to have water
02 in it, and we can see how narrow and deep that channel
03 was. It is not at all like the present-day channel
04 which I refer to as the "Gun Barrel." It's much wider.
05 A Gun Barrel is much wider, and it's just a shallow run
06 the whole way down.

07 Q. Dr. Stine, on page 28 in paragraph 5 of Cal Trout
08 Exhibit 13, you state, "Narrow channels with steeply
09 sloping banks are rare. As a result of these changes
10 in channel width and bank steepness, the same flow
11 volume that previously created 2 to 4 feet of water
12 depths creates only approximately 6 inches to
13 approximately one foot of depth along most of the
14 modern waterway."

15 Is that your opinion today?

16 A. Yes, it is. Though, what I'm talking about there
17 is Rush Creek from The Narrows down to well below The
18 Ford, down to where we got to that lower, say, Clover
19 Ranch area.

20 So when I say "most of the stream," I'm taking
21 that entire reach into consideration. And we've become
22 focused and almost fixated here on certain parts of the
23 Rush Creek bottomlands largely because of what the
24 video covered.

25 The video stops at approximately, what we called
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01 The Ford today, which is a slightly different location
02 than the old Ford, but there's still all that other
03 area down below The Ford between The Ford and Clover
04 Ranch House. And that down there, too, is much, much
05 wider as is the area above the first 1800 feet of
06 channel below The Narrows.

07 Q. Do you have Dr. Beschta's written rebuttal
08 testimony in front of you?

09 A. Not handy.

10 Q. Are you familiar with Figure 2 in that written
11 rebuttal testimony, the Rush Creek thalweg profile
12 dated January of 1994?

13 A. Yes, I am.

14 Q. Are you familiar with the area covered by that
15 profile?

16 A. Yes, I am.

17 Q. Does that area roughly correspond with the area
18 described in paragraph 5, page 28, of Cal Trout Exhibit
19 13?

20 HEARING OFFICER DEL PIERO: Do you have
21 Dr. Beschta's testimony in front of you?

22 DR. STINE: I do. And I think I understand the
23 question regarding paragraph 5, page 28, did you say,
24 of 13?

25 No. Actually, it doesn't, because I was taking
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01 into consideration a considerably longer stream length
02 here than exists on the thalweg profile. The thalweg
03 profile starts approximately 1800 feet below The
04 Narrows and goes down to The Ford, I believe.

05 I'm talking about the area from The Narrows down
06 to considerably below The Ford where we have the
07 multiple channels, and the standing water, and the
08 narrow channels, and those kinds of things.

09 Q. BY MR. ROOS-COLLINS: Let's focus on the area
10 actually addressed in Figure 2 of Dr. Beschta's
11 rebuttal testimony.

12 A. BY DR. STINE: Yes.

13 Q. In your opinion, is that figure an accurate
14 reflection of the thalweg profile today?

15 A. I have no reason to doubt that it isn't. I trust
16 Mr. Tillemans went out there and accurately measured
17 and recorded the thalweg of Rush Creek insofar as he
18 did it here, 1800 feet below The Narrows down close to
19 The Ford.

20 Q. Is that figure in any way inconsistent with your
21 opinion that below The Narrows, the thalweg has grown
22 substantially more shallow since 1941?

23 A. It is not inconsistent whatsoever. And, in fact,

24 to assess that, perhaps unbeknownst to you, I asked
25 Mr. Vorster to run a histogram on the depths of the
0073
01 thalweg along Mr. Tillemans' profile there. And I
02 believe at some point, this was going to be introduced
03 as NAS and MLC Exhibit 258, which is labeled, "The
04 Frequency Distribution of Tillemans' Thalweg Depths in
05 the Rush Creek bottomlands at a Flow of 80 cfs."
06 Q. Dr. Stine, is it a good exhibit?
07 A. Darn good exhibit.
08 Q. Are there any typos in it?
09 A. Yes. And I don't think Mr. Vorster shows this.
10 It's actually not on 258. It's actually on 259 --
11 HEARING OFFICER DEL PIERO: Excuse me,
12 Mr. Roos-Collins. I know it's been a long time, and
13 I've been sitting here for all of it, but I thought you
14 represented Cal Trout.
15 MR. ROOS-COLLINS: I do. I'm prepared to have
16 these marked as Cal Trout exhibits. I'm less inclined
17 to do so if there are typos which have been attributed
18 to Morrison Foerster.
19 HEARING OFFICER DEL PIERO: I just wanted to make
20 sure I hadn't lost it entirely.
21 MR. ROOS-COLLINS: I would request that these be
22 marked as --
23 HEARING OFFICER DEL PIERO: Mr. Birmingham, I'm
24 anticipating that you're going to have something to say
25 about this, right?
0074
01 MR. ROOS-COLLINS: -- Cal Trout next in order.
02 MR. DODGE: They're already marked as National
03 Audubon Society 258. Why don't we just leave it?
04 MR. ROOS-COLLINS: I request that they be
05 distributed as National Audubon Society 258.
06 HEARING OFFICER DEL PIERO: Okay. Do you have any
07 objection to that?
08 MR. BIRMINGHAM: To them being distributed? No.
09 HEARING OFFICER DEL PIERO: Have you got copies of
10 them, Mr. Birmingham?
11 MR. BIRMINGHAM: I'm not sure that I do.
12 HEARING OFFICER DEL PIERO: Could we arrange to
13 have a representative of the Los Angeles Department of
14 Water and Power copy them?
15 Fish and Game have a copy?
16 MS. CAHILL: Yes, we do.
17 MR. ROOS-COLLINS: Mr. Del Piero, I'm having
18 National Audubon Society 258 and 259 distributed at
19 this time.
20 HEARING OFFICER DEL PIERO: Fine. Any objection?
21 None? Good.
22 Please proceed, Mr. Roos-Collins.
23 Q. BY MR. ROOS-COLLINS: Dr. Stine, what does
24 National Audubon Society Exhibit 258 purport to show?
25 A. BY DR. STINE: This is a histogram that is labeled
0075
01 "Frequency Distribution of the Tillemans' Thalweg
02 Depths in the Rush Creek bottomlands at a Flow of 80
03 cfs."
04 And what Mr. Vorster has done here, at my request,
05 is to create an X and Y axis histogram that shows the

06 percent of the thalweg measurements that lie between
07 zero and .5 feet, a half a foot and a foot, a foot and
08 a foot and a half, a foot and a half and two feet, et
09 cetera, in half-a-foot increments up to four and a half
10 to five feet.

11 And what this shows, for instance, is that 35
12 percent of the Tillemans' thalweg measurements are
13 less than a foot and a half deep. And 68 percent,
14 approximately, of his thalweg measurements are under
15 two feet deep. And 75, 76 percent of his thalweg
16 measurements are under two and a half feet. And 85
17 percent or so of the thalweg measurements -- make that
18 95 percent, excuse me, of the thalweg measurements are
19 under three feet in depth.

20 And I would point out here for clarification that
21 the thalweg is not some average depth of a channel
22 someplace. These are the deepest places on the
23 channel.

24 So if we're talking about percent of total channel
25 floor area that is less than three feet, it's going to
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01 be way, way up above 95 percent. It's going to be
02 99.99 percent of the channel floor that is under three
03 feet deep.

04 This, I would also stress, is at 80 cfs. And if
05 we took this down to the 25 to 30 cfs that I believe
06 DWP is recommending on the stream, it would have the
07 effect of taking every one of these bars and moving it
08 one category to the left, so that we would not only
09 have 95 percent of our thalweg depth less than three
10 feet, indeed, if we lowered the flow, 95 percent of our
11 thalweg depth would be less than two and a half feet
12 deep.

13 And this represents the present-day condition 1800
14 feet below The Ford and 1800 feet below The Narrows,
15 that is, and The Ford.

16 Q. Dr. Stine, what does National Audubon Society
17 Exhibit 259 purport to show?

18 A. The same thing with one important modification.
19 What we did was to take Stacy Li's data from the
20 present day for the upper 1800 feet of the channel,
21 and we looked at channel width -- pardon me. We looked
22 at thalweg depth in that upper 1800 feet, then added an
23 appropriate number of measurements that represented
24 that 1800 feet to the total thalweg number that
25 Mr. Tillemans had come up with.

0077
01 So that what we're doing here is simply creating a
02 histogram that shows, that approximates now, that
03 approximates the depth of channel from The Narrows down
04 to The Ford.

05 And what that does very strongly is up the number
06 of shallow water thalweg measurements and so tends to
07 throw the histogram bars to the left.

08 We can play that same game, as I talked about on
09 Exhibit 258 there, of knocking the flow from 80 cfs
10 down to 25 to 35 cfs. When we do that, we find that 95
11 percent of the thalweg depths are less than two and a
12 half feet, and 98 percent of the thalweg depths are
13 less than three feet deep.

14 Q. Dr. Stine, in your opinion, do National Audubon
15 Society Exhibits 258 and 259 show that Rush Creek, for
16 the area addressed in Figure 2 of Dr. Beschta's
17 rebuttal testimony, at any given flow, tends to be
18 substantially shallower today than it was in 1941?

19 A. As a whole, yes, certainly. There are a very few
20 places, there are a handful of places on Rush Creek
21 today where there are, for instance, stacks of old wood
22 that have built up in the channel. Flow going around
23 those stacks of old wood are, as Mr. Tillemans has
24 correctly pointed out, digging holes.

25 So in a handful of places on Rush Creek today, we
0078
01 have areas that are representative depth-wise of what
02 used to be out there at a particular flow, but they're
03 few and far between.

04 MR. ROOS-COLLINS: Before I proceed, I'd like to
05 thank Mr. Dodge for his courtesy in allowing me to use
06 these very helpful exhibits before he intended to have
07 them being used today.

08 MR. DODGE: I didn't know I had any choice.

09 MR. ROOS-COLLINS: You didn't, but you didn't
10 object, either.

11 HEARING OFFICER DEL PIERO: We all know Mr. Dodge
12 is a decent fellow.

13 Q. BY MR. ROOS-COLLINS: Dr. Stine, let's turn to a
14 related subject. The number of channels in the
15 bottomlands of Rush Creek before 1941. And for this
16 purpose, I need Dr. Beschta's testimony back.

17 Now, you missed that part of my cross-examination
18 of Dr. Beschta where I attempted to use my pencil, a
19 ruler, and other instruments of measurement to discuss
20 the reliability of 1929 photographs to describe pre-41
21 conditions?

22 A. BY DR. STINE: I missed it, but I got the story
23 from a number of different people including
24 Mr. Birmingham. And Mr. Birmingham and I were
25 whispering in one another's ear about that.

0079
01 Q. Suffice it to say, it confused everyone, including
02 the witness. But it did produce one clear
03 understanding between Dr. Beschta and myself.

04 Dr. Beschta testified that notwithstanding the
05 1-to-12,000 scale of the 1929 photographs, those
06 photographs can be used to detect a two-foot wide
07 channel or other object.

08 Would you agree with that testimony?

09 A. I do agree, and I would point out one
10 misconception that lingers. These photographs are
11 stamped 1-to-12,000. Every photograph there has a
12 slightly different scale to it and, indeed, if you
13 scale a whole bunch of it, what you find is that it's
14 much, much closer to 1-to-17,000.

15 So that the estimated scale is not the actual
16 scale on the photograph; nevertheless, even at
17 1-to-17,000, one can discern a two-foot-wide channel,
18 largely because it's not just the channel that you see,
19 but other features associated with the channel, shadows
20 and whatnot from the topography that allows you to see
21 that feature.

22 Q. Now, in Los Angeles Exhibit 125, Dr. Beschta
23 indicated that a side channel in Reach 5-A was relic
24 and unused in 1929.
25 Do you have LA Exhibit 125 in front of you?
0080
01 A. Yes.
02 Q. Now, reviewing National Audubon Society Exhibit
03 213, which is a poster of the 1929 photographs, can you
04 locate the relic side channel to which Dr. Beschta
05 referred in LA Exhibit 125?
06 A. Yes. Though, as I've stated before, I disagree
07 that it was unused at that time. One can see water in
08 that channel coming right through here very, very
09 clearly. It's a dark line, and as I say, if one wants
10 to look and see what an unwatered channel looks like,
11 one should look up here at this channel right through
12 here and see how very light in color it is. The black
13 line through here is a watered channel. We have two
14 watered channels through here.
15 And I don't think --
16 Q. Dr. Stine --
17 A. If I understood Dr. Beschta, I don't think he
18 thinks that it's an unwatered channel anymore.
19 Q. Understood. But you anticipated a line of
20 questions which I haven't asked yet.
21 A. I'm sorry.
22 MR. BIRMINGHAM: He's been doing that all
23 afternoon. I guess we shouldn't stop him now.
24 HEARING OFFICER DEL PIERO: He treats all of you
25 guys equally.
0081
01 DR. STINE: Deservedly.
02 Q. BY MR. ROOS-COLLINS: In your interpretation of
03 National Audubon Society Exhibit 213, you call a dark
04 area, a dark linear area, a channel. Dr. Beschta calls
05 it a relic channel.
06 Now, what, in your opinion, distinguishes that
07 area in that photograph such that you were confident it
08 is a channel?
09 A. BY DR. STINE: It is linear, and it is dark, and
10 it coincides or comports very nicely with those lines
11 on here which I think even Dr. Beschta says is the main
12 channel of Rush Creek.
13 Q. Couldn't the darkness be shading?
14 A. Shading is along the stream here. And once again,
15 I would invite people to come up and look at this. We
16 have a very low sun angle on these photographs, which
17 is one of the things which makes them stand out and be
18 wonderful, because they're wintertime shots when the
19 sun is low.
20 What we end up with in shadows, even shadows cast
21 by trees that themselves are in a line, is a very, very
22 ragged edge. This is not a ragged edge. It is a very
23 straight consistent width very much like the channels
24 that Dr. Beschta maintains are channels.
25 Q. Are you testifying that the dark area, which
0082
01 Dr. Beschta calls the relic side channel, is filled
02 with water?
03 A. Yes.

04 Q. The darkness in that photograph is water itself?

05 A. Yes, it is.

06 MR. HERRERA: Excuse me, Mr. Roos-Collins. 20
07 minutes has expired.

08 MR. ROOS-COLLINS: I request an additional 20
09 minutes.

10 HEARING OFFICER DEL PIERO: Granted.

11 Q. BY MR. ROOS-COLLINS: Now, with that
12 understanding, let me compare two statements. The
13 first comes from Cal Trout Exhibit 13, page 24, first
14 paragraph, where you discuss the bottomlands. You
15 state, "This, and the many spring-fed tributary rurals
16 that fed the stream, created a situation in which water
17 flowed across the bottomlands in as many as five
18 channels abreast."

19 Let me compare paragraph number 1 on page 1 of
20 Dr. Beschta's rebuttal testimony. "On the 1929 aerial
21 photographs, Rush Creek is a relatively visible stream
22 that throughout most of its length, occupies a sinuous,
23 single-thread channel."

24 Now, let's assume that that paragraph applies to
25 the bottomlands as well as the remainder of Rush

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01 Creek.

02 When you look at National Audubon Society Exhibit
03 213, what gives you confidence that there are, in fact,
04 or were, in fact, as many as five channels abreast
05 through the bottomlands?

06 A. BY DR. STINE: I have a hard time accepting your
07 assumption. I don't think Dr. Beschta meant to focus
08 in just on the bottomlands. I think his statement was
09 throughout most of its length. Rush Creek occupied a
10 single channel. And I wouldn't disagree with him on
11 that if we're talking about Rush Creek to Mono Lake.

12 But in the bottomlands it, indeed, did have
13 multiple channels.

14 Q. Let's leave the comparison and my assumption out
15 of it, and let's focus only on your opinion.

16 What gives you confidence that there were as many
17 as five channels abreast through the bottomlands in
18 Rush Creek prior to 1941?

19 A. Two things. First of all, the 1929-40 photographs
20 and the 1940 photographs on the one hand.

21 And secondly, the fact that we can go back there
22 today and find those very channels that are still
23 intact. In some cases, sometimes full of cobbles and
24 gravels from the quarry upstream. But we can go back
25 and confirm on the ground today that there were

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01 channels there.

02 Q. Let's break that answer into two parts. You said
03 that "we can go back and confirm those channels were
04 there."

05 You yourself have gone back and have confirmed
06 that those channels were there; is that correct?

07 A. Yes. And it was before any of this hearing
08 business came up, because I was interested in how the
09 bottomlands worked.

10 So I went back there actually in 1990 and in 1991,
11 and we looked at all those channels. I walked every

12 single one of those channels then, and I've done so
13 since.

14 Q. Now, in 1990 and, for that matter, today, many of
15 the channels which you believe were occupied before
16 1941 with water are dry.

17 Today, what gives you confidence, when you walk
18 those channels, that they were wet before 1941?

19 A. Well, we can see on the 1940 photographs, as well
20 as on the 1929-40 photographs that there is water in
21 these channels.

22 Q. Let's look at the 1929 photographs, National
23 Audubon Society Exhibit 213. Can you point out an area
24 of the bottomlands where there are as many as five
25 channels abreast?

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01 A. Yes, I can. Two channels abreast here. Right in
02 this area, there are five channels, I would say, right
03 here where we have a channel --

04 Q. Dr. Stine, could you approximately describe where
05 you are in the photograph?

06 A. Yeah. We're roughly a third of the way, maybe a
07 little bit more than a third of the way between The
08 Narrows and the Big Meander.

09 And perhaps we can refer again to the photographs
10 which are, indeed, the 1929 photographs in NAS and MLC
11 122, which is Cal Trout 13.

12 Q. Yes.

13 A. Yes. There is a copy of the photograph there
14 that's referred to as Reach B Upper. And Reach B
15 Upper, indeed, shows one area there where there are
16 five channels abreast. And it would be -- this is not
17 now counting Indian Ditch.

18 Q. For the Board's benefit, can you locate that site
19 on National Audubon Exhibit 213?

20 A. Yes. It's this area right in through here. There
21 are many other places where there were four and three
22 and two channels abreast.

23 Q. Thank you.

24 Let's move on now to the changes in the Rush Creek
25 channel that have occurred since 1985. Let me show you

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01 now a frame, in Los Angeles Exhibit 139, the December
02 16th, 1993, videotape of Lower Rush Creek.

03 (The videotape was viewed at this time.)

04 Q. BY MR. ROOS-COLLINS: This is counter 309 on
05 this tape. I will note for the record that the tape
06 actually used by Dr. Beschta during his rebuttal
07 testimony appears to have a longer leader on it, and
08 therefore, this same frame was a different counter
09 number on his tape. But it is the same frame that I
10 previously discussed with Dr. Beschta on his rebuttal
11 testimony.

12 Dr. Stine, let me summarize for you what I
13 understood Dr. Beschta's testimony to be and ask you if
14 you agree with that testimony as I understand it.

15 Dr. Beschta first said that the line of orange
16 vegetation appearing to the right of the channel was
17 or, rather, is the result of a deposit of seeds during
18 a prior high-flow event.

19 He then testified that the channel between that

20 line of vegetation and the current channel -- excuse
21 me.

22 He then testified that the channel had narrowed
23 from that line of vegetation to its current location
24 following that high-flow event.

25 Now, let's assume that my understanding of

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01 Dr. Beschta's testimony is correct.

02 Do you agree with that opinion with respect to
03 that site?

04 A. BY DR. STINE: No, I don't agree with the
05 opinion. And it was something that Dr. Kondolf and, I
06 believe, Dr. Li, as well as Mr. Smith and I, discussed
07 immediately after the video was first shown.

08 I agree that this line right here may very well
09 represent a deposit of seeds from when the river flow
10 through here was higher. But --

11 Q. So you agree with Dr. Beschta's first opinion, as
12 I recounted it, regarding the --

13 A. Yes, I agree with that. I would not, however,
14 agree with the sediment that lies to, as we're facing
15 it here, the left of that vegetation line having
16 accreted since the vegetation itself was seeded.

17 Q. Why not?

18 A. Not at all.

19 Well, first of all, we have data. We don't have
20 to go out there and guess. We have Dr. Li's
21 cross-sections that don't show anywhere near this much
22 accretion of sediment in this short amount of time.

23 I would say probably the width of stream through
24 here has changed relatively little based upon having
25 looked at the data collected by Stacy Li. I see no

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01 reason why this has to have accreted here. After all,
02 if we had more water in the channel, as we did in 1983,
03 which is apparently one of the sets of aerial
04 photographs that Dr. Beschta used in concluding that
05 the stream had narrowed down, there was over 400 cfs in
06 the stream at that time. And that probably would put
07 the stream up to about that point.

08 We don't have -- the sediment could very well have
09 been there at that time. There's no reason to believe
10 that it has accreted and good data to indicate that it
11 has not accreted over time.

12 Q. Are you saying that Dr. Li has transect data for
13 the site depicted on counter frame 309?

14 A. I do not know if he has transect data from exactly
15 this site. He has transect data from a great deal of
16 the bottomlands, a number of different, maybe a couple
17 of dozen or more spots through the bottomlands. And we
18 see accretion like this occurring nowhere since 1987,
19 when he first established those cross-sections.

20 Q. Now, in my questioning of Dr. Beschta regarding
21 this video -- excuse me, not during my questioning.
22 During his direct testimony regarding this videotape,
23 he stated that in many locations, Rush Creek has
24 narrowed by as much as 50 percent since 1985.

25 Do you agree with that opinion?

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01 A. I don't remember him saying 1985. All I

02 remember -- with all due respect to you, maybe you're
03 remembering better than I -- for a while he was saying
04 the last three years, and then he went back to 1983,
05 which is basically the last ten years. And I was left
06 confused as to exactly what time period he was talking
07 about.

08 Now, you're mentioning 1985. I don't recall
09 1985. But certainly, since 1987, we have good data
10 from 1987. Since 1987, there has been very, very
11 little narrowing of the stream.

12 Q. And what's the basis for that opinion?

13 A. Data that was established first in 1987,
14 cross-sections established first in 1987 for the
15 express purpose of monitoring widening and narrowing of
16 Rush Creek.

17 Dr. Li has now gone back and revisited those
18 sites, and we can see there has been relatively little
19 change in the stream, some widening, some narrowing.
20 In most cases, a minor amount of widening or a minor
21 amount of narrowing since 1987.

22 MR. BIRMINGHAM: May I ask the reporter to mark
23 that, please?

24 Q. BY MR. ROOS-COLLINS: In your examination by
25 Mr. Dodge this afternoon and also by Mr. Birmingham,

0090

01 you repeatedly used the phrase "old vegetation."

02 What is old vegetation in terms of decades?

03 A. BY DR. STINE: In terms of decades?

04 Q. More than ten years?

05 A. Oh, yes. Much more than ten years. Many of the
06 sites we were looking at there, I believe I actually
07 pointed out as we were going down the stream in our
08 vicarious helicopter trip here, I said we can find this
09 very patch of vegetation on the 1964 photographs.

10 And I believe Mr. Messick will be able to testify
11 to the age of some of this material as well, at least
12 in an approximate sense. It certainly is stuff that
13 has been there longer than three years and longer than
14 ten years by several times, at least.

15 Q. So ten years plus, depending on the site?

16 A. Yes. I would say much more than ten years plus.

17 Q. I just want to clarify the term as you use it.

18 A. I'm talking about vegetation that is at least
19 several decades and perhaps many decades old.

20 Q. Now, Cal Trout Exhibit 13 describes the
21 destruction of much riparian vegetation below The
22 Narrows as a result of the City of Los Angeles'
23 diversions and other events.

24 How did this old vegetation survive the diversions
25 and those other events?

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01 A. The vegetation that survived exists in sort of a
02 spotty way through the bottomlands. There are
03 widespread areas where the vegetation died due to the
04 incision of channels, widespread areas where the
05 vegetation died due to the dewatering of channels.

06 And I would, by the way, point to NAS/MLC Exhibit
07 248 as an example of one of those channels that has
08 been dewatered and that today has a huge amount of old,
09 very large, dead wood associated with it.

10 There are, even today, persistent springs in the
11 Rush Creek bottomlands. And very often, it is in these
12 areas of the spring flow where we find vegetation
13 persisting.

14 We have also, on and off, since the early 1970s,
15 had flow going down through the Rush Creek bottomlands.
16 And I asked Mr. Messick about this. He would be the
17 one to address it better than I. But his opinion
18 seemed to be, I don't want to put words in his mouth,
19 but his opinion seemed to be that a lot of this
20 vegetation had root systems that could have held on for
21 a long period of time. Maybe the vegetation didn't do
22 well, but it has sprung back to life with the recent
23 watering basically since 1980.

24 Since 1980, most of the years, the Rush Creek
25 bottomlands has had water in it.

0092

01 Q. Let's look at National Audubon Society 250, the
02 photograph that was just distributed by Mr. Dodge.
03 That photograph in the foreground shows what appear to
04 be dead willows; is that correct?

05 A. That's correct. In the central part of the photo
06 as well.

07 Q. And in this background, that photograph shows what
08 appeared to be old trees; is that correct?

09 A. Yes. Willows as well as cottonwoods as well as
10 some pines. And I would point out that that is a
11 spring area right there and, in fact, it's at that
12 point where you encounter the big, old wood there where
13 you first encounter water in this channel, standing
14 water, not flowing water, but just stagnant water
15 there.

16 So this is one of the areas where spring flows
17 persist and therefore the vegetation has persisted.

18 Q. Let's assume this Board orders that this
19 particular channel be rewatered. Would you expect a
20 narrow channel comparable to the pre-1941 channel at
21 that location in the background where the old trees
22 still stand?

23 A. Yes, I would. Absolutely, because the channel is
24 still there. It's still narrow, and it's armored
25 enough by vegetation today at least in that reach where

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01 there's no reason to think that it would widen. It
02 exists today in its pre-41 condition, and if it were
03 watered, it would continue to persist in its pre-41
04 condition.

05 Q. And what would you expect in the foreground?

06 A. Depending upon how it was rewatered, I would not
07 recommend in any way, shape, or form, that 300 cfs be
08 put down this channel, because without the protection
09 of the riparian vegetation, we'd create quite a mess
10 there by doing it.

11 But if we watered it with a few cfs, and then
12 upped that cfs, that flow over time, I think what we
13 would find there is riparian vegetation coming back
14 along the margin. And as the riparian vegetation came
15 back, as the bank sediments became better and better
16 bound by root systems, we would find stable banks, and
17 we could put an increasing amount of flow down that

18 channel.

19 Q. Thank you.

20 Let me turn to a different subject; namely, Mill
21 Creek.

22 During your rebuttal testimony, you discussed the
23 possibility of rewatering Mill Creek. You didn't refer
24 to an exhibit which I believe the National Audubon
25 Society has previously introduced showing water rights
0094 held on Mill Creek.

02 Are you familiar with that exhibit?

03 A. I am, though I'm not certain that it is, at this
04 point, an exhibit with a number that has been
05 introduced. I know that I have provided the Staff with
06 a copy of that, but I'm not sure that it was ever put
07 in. Correct me if I'm wrong.

08 MR. ROOS-COLLINS: Mr. Del Piero, may I have a
09 moment?

10 MR. DODGE: National Audubon Society 254 has been
11 passed out to all parties.

12 HEARING OFFICER DEL PIERO: Thank you.

13 MR. DODGE: Either last week or the week before
14 last.

15 Q. BY MR. ROOS-COLLINS: And does National Audubon
16 Society Exhibit 254 comport with your understanding of
17 the water rights held in Mill Creek?

18 A. BY DR. STINE: Yes, it does. And I don't have a
19 copy of that in front of me. Perhaps I could -- thank
20 you.

21 Q. It does comport with your understanding of the
22 water rights in Mill Creek?

23 A. Yes, it does. This is something that was actually
24 prepared by the Department of Water and Power in 1977,
25 and I would point out that there is one disparity
0095

01 between this and what exists today out there, the
02 disparity being the priority nine water right there
03 which is marked as claimant LW DeChambeau. Now, my
04 understanding is that that is now held by the Forest
05 Service.

06 And with that exception, I'll put it this way: I
07 know of no other difference between what is stated here
08 and what actually exists today. I would point out, if
09 I could on here, that Los Angeles Department of Water
10 and Power holds the greatest number of Mill Creek water
11 rights, and there it's under this heading Present
12 Claimant.

13 The greatest number of Mill Creek water rights,
14 the largest total water right, and the largest single
15 water right are held by the Department of Water and
16 Power.

17 Q. Dr. Stine, do you have an opinion whether Mill
18 Creek, in geomorphic terms today, corresponds to any
19 reach of Rush Creek prior to 1941?

20 MR. BIRMINGHAM: I'm going to object on the
21 grounds of relevance. The Department of Water and
22 Power's rights for water in Mill Creek are not an issue
23 in this proceeding.

24 We don't hold any license to divert water to Mill
25 Creek and the basin. The rights that the Department of

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01 Water and Power holds to water for Mill Creek are
02 pertinent to lands owned by the Department of Water and
03 Power within the Mono Basin and simply not an issue in
04 this proceeding.

05 HEARING OFFICER DEL PIERO: Mr. Dodge?

06 MR. DODGE: Mr. Chairman, mitigation is at issue
07 in this proceeding. One suggested mitigation has been
08 rewatering of Mill Creek, and in terms of remedies
09 relative to Los Angeles who has certain waters rights
10 on Mill Creek.

11 MR. ROOS-COLLINS: Mr. Del Piero, I would --

12 HEARING OFFICER DEL PIERO: I'm going to overrule
13 the objection, because the nature of the question you
14 asked was the comparison between the two water bodies
15 in geomorphic terms.

16 However, I'm inclined to -- well. Go ahead and
17 proceed, Mr. Roos-Collins. I'm inclined to have some
18 degree of sympathy in terms of Mr. Birmingham's
19 objection even though I'm overruling it.

20 And I want to make sure this does not get too far
21 afield.

22 MR. ROOS-COLLINS: This is my only question on
23 Mill Creek, and then I have one last question of
24 Dr. Stine.

25 Q. BY MR. ROOS-COLLINS: Dr. Stine, do you have an

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01 opinion whether Mill Creek today compares in geomorphic
02 terms with any reach of Rush Creek before 1941?

03 A. BY DR. STINE: Yes. Before and after 1941, and I
04 think that's important given that Mill Creek, while
05 water hasn't been diverted from Mill Creek, Mill Creek
06 has been severely degraded by the City of Los Angeles
07 having lowered Mono Lake. And as a result, Mill Creek
08 has incised, and there is degradation on Mill Creek as
09 a result of DWP's diversions.

10 I would also point out that DWP -- pardon me, that
11 Mill Creek had a sinuous course, not unlike portions of
12 the Rush Creek channel. And it had a very wide, in
13 places, wide riparian vegetation, riparian forest,
14 associated with it like Rush Creek did.

15 Q. Thank you.

16 Dr. Stine, my time is almost up. Let me take care
17 of one housekeeping matter.

18 Cal Trout submitted as rebuttal Exhibit Cal Trout
19 No. 42, which is a report by Northwest Biological
20 Consulting entitled "Lee Vining Creek Subsegments 3-A,
21 3-B, and 3-C, 1993 Habitat Improvement Work."

22 Were you involved in the preparation of this
23 report?

24 A. I was not, though I was consulted when that work
25 was being completed. I'm familiar with the report, but

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01 I did not prepare the report itself.

02 Q. In your opinion, does the report accurately
03 describe the work undertaken by the restoration
04 consultant for those stretches of Lee Vining Creek in
05 1993?

06 A. Yes, it does.

07 MR. ROOS-COLLINS: Thank you. I have no further

08 questions.

09 HEARING OFFICER DEL PIERO: Thank you very much,
10 Mr. Roos-Collins.

11 Mr. Valentine?

12 MR. VALENTINE: My name is Michael Valentine, for
13 the record.

14 CROSS-EXAMINATION BY MR. VALENTINE

15 Q. I would like to first ask you a couple, what I
16 think are clean-up questions, Dr. Stine.

17 You mentioned, in regard to NAS/MLC Exhibit 254,
18 that it was prepared on behalf of the Department of
19 Water and Power.

20 Do you recall that? 254 is the water rights on
21 Mill Creek.

22 A. BY DR. STINE: Yes. I believe I said -- I tried
23 to say that it was prepared by the Los Angeles
24 Department of Water and Power, yes.

25 Q. Be that as it may, it is my understanding, for the
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01 record, that it was, in fact, prepared for Southern
02 California Edison. I believe that's a mistake,
03 probably not a material one, but --

04 Secondly, in regard to priority one water rights
05 to Gladys Crosby, Pearl Silva, and R.D. Conway, those
06 rights have been, in fact, transferred to the Conway
07 Ranch Development Corporation, have they not?

08 A. You could be right there, yes.

09 Q. Thank you.

10 I now have a couple questions about sand tufa.

11 Dr. Stine, were you surprised that the photos that
12 Ranger Carl previously alluded to, were you surprised
13 those photos over a ten-year period showed little
14 change in exposed sand tufa?

15 A. I wasn't surprised because I, too, have noted in
16 the last ten to twelve years in the basin that there
17 has been relatively little visible overt change in the
18 sand tufa.

19 Q. As the DWP management plan was originally
20 proposed, would it not, at its upper levels, have
21 exposed -- would it not have destroyed sand tufa?

22 A. Yes, it would have destroyed sand tufa. It would
23 have undercut sand tufa. And I believe it still will
24 undercut a great deal of sand tufa, no matter whether
25 the lake goes to 6383 feet or to 6386 feet.

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01 Q. Thank you.

02 You also mentioned prehistoric periods of
03 drought. Periods of drought longer than that used by
04 Jones and Stokes in the EIR. By "prehistoric," you're
05 not talking about millions of years ago, are you?

06 A. Not at all. I'm talking about periods just before
07 the Little Ice Age. I'm talking about a number of
08 times during the last 900 to 1000 years when this
09 occurred. In other words, between about 900 years ago
10 and roughly 500 years ago are when these droughts
11 occurred.

12 Q. You also mentioned that water is not flowing out
13 of Rush Creek onto the flood plains due in part to the
14 widening streams.

15 It's also due in part, is it not, to incision in

16 addition to the widening of the stream?

17 A. Yes. And thank you for correcting me on that.
18 Particularly in the lower half or so of the
19 bottomlands. Particularly the lower third of the
20 bottomlands, and then all the way down to Mono Lake
21 there has been severe incision of Mono Lake and that
22 has been -- pardon me, the lower third of bottomlands,
23 and then all the way down to Mono Lake, Rush Creek has
24 undergone severe incision, and that is the main reason
25 down there why it can't reach its old flood plain.

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01 Q. There is also a reference to die off of vegetation
02 in the '60s and '70s. You indicated that this was
03 partly due to a stoppage of irrigation.

04 This was also due, in part, to incision. Which
05 caused the water table to drop, was it not?

06 A. Yes, it was. And that particularly occurs after
07 1967 and 1969 when there was a great deal of incision.

08 Q. I'd now like to ask you a few questions about
09 restoration, if I might.

10 You have proposed some active intervention on both
11 Lee Vining and Rush Creek. Are you proposing active
12 intervention to restore pre-41 conditions benefiting
13 the fisheries throughout the whole length of Rush and
14 Lee Vining Creeks?

15 A. No. I've stated that we should do it only where
16 it's prudent and plausible. And we should, in those
17 areas that can't do that in a reasonable way and in a
18 reasonable amount of time and for a reasonable amount
19 of money be brought back to the pre-41 condition, we
20 should look elsewhere. And I have mentioned Mill Creek
21 as a possible mitigation site there.

22 Q. I'm going to ask you to assume that the Board
23 will conclude that it is desirable for whatever reason
24 to restore the abandoned channels of Rush Creek and
25 Lee Vining Creek, restore flow in those channels.

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01 Will Rush Creek -- let's do it one creek at a
02 time. Will Rush Creek reoccupy the abandoned channels,
03 the currently abandoned channels, absent active
04 intervention to restore them?

05 A. It will not occupy, reoccupy those abandoned
06 channels absent active intervention. And, in fact, if
07 the lake were brought way up, there would be -- "way
08 up" meaning 6400 feet onto the existing delta plain,
09 there would be a tendency over a long period of time
10 for Rush Creek to once again build multiple channels.
11 But the existing multiple channels would be the least
12 likely place that the stream would build its new
13 multiple channels, because they're currently filled
14 with cobbles that would be very difficult for the
15 stream to move.

16 And the idea that we have been pursuing, because
17 it seems like the most reasonable idea to me, is to
18 remove those cobbles from the existing now abandoned
19 multiple channels and put water back into those
20 channels again. We could very rapidly, then, have back
21 the multi-channeled system that existed previously.

22 Q. At 6405, lake elevation of 6405 and above, how
23 long would it take Rush Creek, by natural processes, to

24 develop a multi-channeled system?

25 A. My guess would be hundreds of years in addition to
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01 the amount of time that it takes to get Mono Lake up to
02 6405 feet. There would have to be an awful lot of
03 sediment in Rush Creek to get it to start building
04 forward. Only when it start to build forward, only
05 when Rush Creek starts to prograde will it start to
06 agrade and make multiple channels.

07 Q. And would a multiple channel system ever develop
08 on Rush Creek on lake elevations below 6405, absent
09 human intervention?

10 A. Ever? Not in the millenial scale. I'm not
11 talking here about braids. I'm talking about deltaic
12 processes making multiple channels.

13 Q. And are your answers to the questions you just
14 answered on Rush Creek essentially the same for
15 Lee Vining Creek?

16 A. Lee Vining Creek is somewhat different in that the
17 multiple channels there are not clogged by quarry
18 cobbles, by quarry debris from the Marzano Quarry, so
19 they're much easier to occupy. We don't have to take a
20 bunch of debris out of those channels to reoccupy them.
21 From that standpoint, it's somewhat different and
22 somewhat easier on Lee Vining Creek.

23 Q. You've testified that you don't believe that, at
24 least in recent years, there's been any significant
25 narrowing on Rush Creek.

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01 Absent intervention by humans, how long do you
02 think it will take Rush Creek to narrow to its pre-1941
03 widths?

04 A. I think that there will be a tendency for that
05 stream -- for Rush Creek in the bottomlands to narrow
06 down as we get more and more big and old vegetation
07 with well-established root systems there. And I think
08 that's evident from the video.

09 We have a narrow stream where we have old
10 vegetation. I think it takes vegetation decades to
11 build up, to grow up, to thicken, to die, to fall into
12 the stream.

13 It's going to take many decades, half a century to
14 century scale before we start to see an interaction
15 between the stream and newly grown old wood.

16 Q. And would that process be appreciably sped up by
17 planning, as opposed to waiting, for colonization?

18 A. On Rush Creek, yes, there are places there which I
19 think it could be sped up appreciably. There are also
20 places where vegetation is indeed coming in rapidly.
21 Not everywhere, and I would point out as one example,
22 that 1800 feet immediately below The Narrows where
23 vegetation could be planted there, I think things could
24 be speeded up appreciably there.

25 If we go over to Lee Vining Creek. I think there
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01 are large areas of Lee Vining Creek where planting
02 could go on and be very effective, because there are
03 vast areas of Lee Vining Creek that used to be more or
04 less continuous riparian woodland that are today not
05 being colonized.

06 And if one were to go back through the L.A. DWP
07 video on Lee Vining Creek, one would see that, indeed,
08 right along the stream margin vegetation is it coming
09 in many areas. But on the old flood plain where there
10 used to be a gallery forest of riparian vegetation,
11 vegetation is very, very slow to come back there except
12 where it has been planted.

13 Q. Thank you.

14 You additionally referred to restoration of the
15 west wall springs on Rush Creek. Could you explain how
16 this could be done?

17 A. Yes. Prior to 1941, there were springs emanating
18 from the west wall of Rush Creek from approximately
19 Parker Creek, which is above The Narrows, on down
20 through the upper third or so of the bottomlands. It
21 was certainly tied to some extent to the irrigation
22 that was going on on the Cain Ranch lands.

23 I believe it was also tied to the fact that all
24 the natural distributaries of Parker and Walker Creeks
25 were wetted during those early years. Particularly,
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01 high on the fans where those multiple channels were,
02 where those distributary channels of Parker and Walker
03 Creek were, the material there is very, very coarse and
04 it provides a conduit down underneath the lake silts
05 that exist at lower elevations on the Parker and Walker
06 Creek fans.

07 So my sense is that an awful lot of water that was
08 creating the west, what we call the west wall springs,
09 was indeed due to natural processes. And I would
10 suggest that those distributary -- if we're interested
11 in rewatering those west wall springs, that those
12 distributary channels be rewatered again. And I think
13 we would see an increase in the flow of the west wall
14 springs if we did that.

15 Q. Is there any evidence that suggests absent
16 intervention that those springs will be restored under
17 natural processes?

18 A. I'm not sure what you mean by "natural processes."
19 The natural processes would be to, indeed, rewater
20 those distributary channels. Left the way it is today,
21 I see no reason why the springs should become any
22 different than they are today. Today, of course, those
23 distributary channels are not watered.

24 Q. And could you briefly state what your
25 understanding of the benefit of those springs are?

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01 A. Yes. I've testified to this before --

02 MR. BIRMINGHAM: I'm going to object to the
03 question on the grounds that it's vague.

04 HEARING OFFICER DEL PIERO: I'm going to sustain
05 the objection.

06 Be more specific, Mr. Valentine.

07 Q. BY MR. VALENTINE: Can you testify as to what the
08 ecological benefits of those springs were to the stream
09 system of Rush Creek?

10 MR. BIRMINGHAM: I'll object to the question that
11 it goes beyond the scope of Dr. Stine's expertise.

12 HEARING OFFICER DEL PIERO: I'm going to sustain
13 that objection, too.

14 Be more focused. Dr. Stine didn't testify to the
15 entire ecology of Rush Creek.

16 Q. BY MR. VALENTINE: Would, in your opinion, the
17 restoration of the streams increase the channel length
18 available to brown trout?

19 A. BY DR. STINE: I believe you're talking about the
20 restoration of springs now.

21 Q. Yes, I'm sorry.

22 A. And, indeed, it would. And this is based upon
23 observations documented and written by Mr. Vestal in
24 the 1940s and early 1950s where he talked about trout
25 actually being in the thousands of lineal feet of

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01 spring-fed rills associated with those springs.

02 And from that standpoint, one has to think that if
03 those spring-fed channels, spring-fed rills were
04 restored and a connection was made between that water
05 coming out of the springs and present-day Rush Creek,
06 that trout would then have access as they once had to
07 those springs rills, thousands of feet of springs
08 rills.

09 Q. Would restoration of the springs also provide
10 additional cover for juvenile fish?

11 A. Again, these are things that I've written about in
12 the auxiliary report to the DEIR, auxiliary report
13 number one, as well as this NAS/MLC 122, Cal Trout 13.

14 There was a great deal of cover in there
15 according to Mr. Vestal, cover for young fish, food for
16 young fish as well, scuds as he calls the
17 invertebrates.

18 Q. Would the restoration of these streams also tend
19 to moderate the temperatures in Rush Creek?

20 A. Yeah, the spring water, as Mr. Vestal described
21 it, the spring water was a fairly consistent
22 temperature through the year, warmer than the stream in
23 the wintertime, cooler than the stream in the
24 summertime. So it did tend to create thermal stability
25 that is lacking in the absence of the springs.

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01 Q. And finally, would spring restoration tend to
02 increase conductivity to the benefit of brown trout in
03 Rush Creek?

04 MR. BIRMINGHAM: I'm going to object on the
05 grounds it goes beyond the scope of Dr. Stine's
06 expertise. Dr. Stine is not a fisheries biologist and
07 has testified to as much.

08 (Whereupon the record was read as requested.)

09 MR. VALENTINE: I'll be happy to withdraw the
10 question or rephrase.

11 HEARING OFFICER DEL PIERO: It's not a fisheries
12 question. I think it deals with the chemical
13 constituents of the water.

14 MR. BIRMINGHAM: I think at the end of it,
15 Mr. Valentine did include the words "to the benefit of
16 the fishery." If he withdraws or strikes that portion
17 of question, then I think you're correct. But I
18 believe he does include the words "to the benefit of
19 fishery."

20 HEARING OFFICER DEL PIERO: Perhaps you are
21 correct. That's why I wanted it read back.

22 Do you wish to have that last portion deleted from
23 your question?

24 MR. VALENTINE: That was the purpose of my
25 request.

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01 HEARING OFFICER DEL PIERO: Dr. Stine, do you
02 understand the question?

03 DR. STINE: I do. And the answer is yes. I don't
04 pretend that it would help the fish, but it would
05 increase the conductivity based on conductivity
06 measurements that were made by Dr. David Herbst of the
07 Sierra Nevada Aquatic Research Lab. He measured
08 conductivities of very close to 90 micromhos. I
09 believe were the units he used, 90 micromhos in the
10 existing spring water that's coming out of those west
11 side springs. This is approximately twice, maybe a
12 little less than twice the conductivity of the Rush
13 Creek water immediately below The Narrows.

14 Q. BY MR. VALENTINE: Thank you.

15 A. BY DR. STINE: That's not to say the conductivity
16 of Rush Creek would double, but it would add
17 conductivity to Rush Creek.

18 Q. You have mentioned in the past, I believe, that
19 gravels, at least, certainly on Lee Vining Creek and
20 possibly on Rush Creek are in low supply.

21 Would you agree with that characterization?

22 A. I think that gravels along much of Lee Vining
23 Creek and much of Rush Creek are in shorter supply than
24 they were prior to 1941, yes.

25 Q. And the causes of this low supply?

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01 A. Well, for instance, on Lee Vining Creek, there has
02 been a huge amount of sediment that was washed from the
03 system and out into Mono Lake during 1967 particularly
04 1969 on Lee Vining Creek. That occurred after the
05 riparian vegetation had been destroyed through
06 desiccation.

07 It later burned, but the destruction of the
08 riparian vegetation occurred on desiccation, the
09 dewatering of the stream. When these large flows came
10 down Lee Vining Creek in 1969, a huge amount of
11 material was washed out into Mono Lake.

12 If we look at the material that constitutes the
13 Lee Vining Creek bed today, what we find are lots of
14 cobbles and lots of boulders, relatively little
15 gravels. I've talked to Mr. Vestal about this, and his
16 opinion of what things used to be like comports to what
17 we see in the abandoned channels today.

18 The abandoned channels on Lee Vining Creek today,
19 gravels of the sort of thumbnail-to-thumb size are far
20 more abundant than in the existing Lee Vining Creek
21 channel.

22 Q. Among the solutions which have been mentioned for
23 the gravel recruitment problem are that the streams
24 should be pressed against the canyon walls.

25 First, could you explain what you mean by that?

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01 MR. BIRMINGHAM: Excuse me. I'm going to object
02 to this whole line of questions, not on any rules of
03 evidence, but on the Board's own regulations. The

04 Board's regulations permit the introduction of any
05 relevant evidence which, quoting from the regulations,
06 is not repetitive.

07 And Dr. Stine has testified on this subject and
08 the subject of the last few questions on at least three
09 occasions during the course of the hearing.

10 And the testimony is simply repetitive, and I
11 would object to it on that ground.

12 MR. VALENTINE: And the response I would say is
13 that I don't believe Dr. Stine has repetitively
14 testified about this topic. I'd also say that the last
15 time Dr. Beschta was here, he was scathing in his
16 criticism of proposals to press the stream against
17 canyon walls.

18 And third, I find this ironic that Mr. Birmingham
19 seems to think that any question worth asking is worth
20 asking three or four times, which makes an objection at
21 this point --

22 HEARING OFFICER DEL PIERO: Enough. Enough.
23 Enough, please.

24 Thank you.

25 Is there a question that has been asked? Would

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01 you be kind enough to read it back?

02 (Whereupon the record was read as requested.)

03 HEARING OFFICER del PIERO: I'm going to overrule
04 your objection.

05 I'm going to admonish you not to be argumentative.

06 And I'm going to ask you, Dr. Stine, to answer the
07 question just as simply as possible.

08 DR. STINE: I will. This is listed as point C on
09 page 11 of my rebuttal testimony. It's the first time
10 I've used the word "pressed," and I haven't used it in
11 any of my testimony.

12 What I was talking about there -- in fact, let me
13 read it, if I could. "Where prudent, the streams
14 should be," quote, "pressed," unquote, "by stream
15 narrowing against gravel rich walls of channels and
16 canyons. This occurred naturally prior to 1941, but is
17 rare today due to channel widening."

18 What I'm suggesting there is that we simply, in
19 places where it's prudent, and certainly not
20 everywhere, put the channel, make the channel, again,
21 narrow and make it abut the gravel sources that were
22 supplying the gravel naturally to the channel under the
23 relatively undisturbed condition of 1941.

24 HEARING OFFICER DEL PIERO: Proceed,
25 Mr. Valentine.

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01 Q. BY MR. VALENTINE: And on short-term, at least,
02 can gravels be added to the streams?

03 A. BY DR. STINE: Yes. And my basis for saying that
04 is that I've been told by the fisheries people that
05 this would be beneficial to the fish. I have no
06 expertise there, but I can say that it would no way
07 hurt the streams to add gravel.

08 So to the extent that it is beneficial to the
09 fish, I would say that it would not hurt the streams,
10 and that perhaps we should proceed with that.

11 Q. Finally, on the video, which has been labeled as

12 DWP 139, let's talk for a moment about what the video
13 does not show.

14 The video doesn't show the abandoned channels
15 adjacent to the existing channel of Rush Creek, does
16 it?

17 A. That's correct. It only shows the existing main
18 stream which has braids but not multiple channels
19 today.

20 Q. It doesn't show the former flood plain?

21 A. Incidentally, it does, but it certainly doesn't
22 show large areas of what was once a very, very large
23 extensive wetland wooded marshland that was the flood
24 plain, no.

25 Q. It doesn't show extensive former wetlands?
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01 A. That's correct.

02 Q. If these were shown, the abandoned channels, the
03 former flood plain, the former wetlands, would they be
04 seen to be recovering at the present time?

05 A. They would be changing at the present time, but
06 they would not be returning to the previous state, to
07 their pre-41 condition, simply because the channels are
08 not watered and the marshlands are not marshlands. But
09 the vegetation is changing there somewhat.

10 MR. VALENTINE: Thank you.

11 HEARING OFFICER DEL PIERO: Thank you very much.
12 Mr. Dodge?

13 MR. FRINK: Mr. Del Piero.

14 HEARING OFFICER DEL PIERO: Excuse me, Mr. Frink.
15 Tomorrow I will have remedied that problem.

16 MR. FRINK: Good.

17 CROSS-EXAMINATION BY THE STAFF

18 Q. Dr. Stine, what is the date of the photo of the
19 Rush Creek bottomlands that is labeled as National
20 Academy of Science/Mono Lake Committee Exhibit 213?

21 A. BY DR. STINE: It's actually National Audubon
22 Society/Mono Lake Committee, and it is either December
23 1929 or January 1930.

24 Q. Okay. I believe you mentioned the flows that you
25 believed were occurring at the time the photo was

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01 shot. How did you determine those flows?

02 A. I asked Dr. Vorster to look through the record of
03 the flows at The Narrows, which was this point right
04 here on what I called Biggest Bend -- pardon me, not
05 The Narrows, The Ford, excuse me.

06 And beginning in 1930, we have a record of flows
07 at that site. I believe I'm stating this correctly.
08 In any case, Mr. Vorster looked at the record that
09 existed there and determined that over this period of
10 time, there was fairly consistently 35 or so cfs
11 flowing by The Ford.

12 Q. And you mentioned a flow upstream that I believe
13 you referred to as being 7 cfs. Did Dr. Vorster also
14 determine that from looking at the hydrologic records?

15 A. It's actually 7 to 10 cfs, and that was determined
16 through conversations with Mr. Vestal and, more
17 importantly -- here's The Narrows right here -- through
18 descriptions by a Los Angeles Department of Water and
19 Power consultant in the early 1930s, Charles Lee, who

20 described the springs and gave us a very good and
21 accurate description of where the springs were coming
22 from immediately above The Narrows, where the streams
23 were coming from immediately below The Narrows, and he
24 estimated the stream flow through The Narrows there.
25 And he also made very clear that that was all

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01 spring water at the time, that there wasn't water
02 coming down Parker Creek or Walker Creek, stream flow
03 coming down Parker Creek or Walker Creek, but that was
04 the spring flow contribution coming down The Narrows.
05 7 to 10 cfs was his estimation.

06 Q. And there wasn't any flow from the main channel of
07 Rush Creek at that time?

08 A. Not only at the -- yes, you're correct. There was
09 no flow at the time that Charles Lee made his
10 observations, which I believe was 1932 and, in fact,
11 there's no flow on the 1929-30 aerial photographs
12 coming down the main stem of Rush Creek nor water
13 coming down Parker and Walker Creek.

14 Q. What would be the reason for that absence of flow
15 in the upper reaches of the mainstream of Rush Creek?

16 A. That is due to, as I've pointed out in NAS/MLC
17 122, water was being taken out for irrigation and put
18 on adjacent lands so that -- at least during the
19 irrigation season, it was.

20 So DWP -- pardon me, Cain Ranch was exercising
21 control over the flow, and they had a series of gates
22 at A ditch and B ditch, and they could control the
23 amount of water that was moving down the main part of
24 Rush Creek.

25 Q. Was that water being diverted in December and

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01 January?

02 A. It appears actually on the aerial photographs as
03 if there is some water that's being put out onto those
04 lands. It doesn't look like it's a lot of water that's
05 being put out onto the lands.

06 In other words, being put down the ditches towards
07 the lands on both A and B ditch, but no water is
08 getting by the B ditch diversion, which is the lowest
09 of the irrigation diversions on Rush Creek at the time
10 these photographs were taken.

11 MR. FRINK: Okay. Thank you. That's all the
12 questions.

13 HEARING OFFICER DEL PIERO: Mr. Satkowski?

14 MR. SATKOWSKI: No questions.

15 HEARING OFFICER DEL PIERO: Mr. Smith?

16 MR. SMITH: I have a couple of questions for
17 Dr. Stine.

18 Q. BY MR. SMITH: Did you say there were some stumps
19 as the evidence of the prolonged drought in Mono Lake
20 today?

21 A. BY DR. STINE: Yes. Not only in Mono Lake today,
22 but they were still in the water when the lake was
23 three feet lower than it is today.

24 Q. Could you tell us about what period of time that
25 was, approximately what years?

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01 A. Yes. It's approximately 850 years prior to 1950

02 A.D. that the stumps were killed by a rise in Mono
03 Lake. So the drought had gone on prior to that date,
04 850 years prior to 1950 A.D., and the reasons for that
05 is that's how we calibrated radio carbon dates.

06 Q. And you say the drought for that period was
07 approximately how long?

08 A. The lower most stumps have 12 rings in them. But,
09 of course, as you go higher and higher out of Mono
10 Lake, you encounter larger and larger stumps, the outer
11 wood of which, the depth year all date at virtually the
12 same as the small stumps in the lake.

13 So we know that Mono Lake has to have been very
14 low for somewhat more than 12 years, but it has to have
15 been moderately low and maybe very low for 60 years
16 because those larger stumps have 50 or 60 rings in
17 them.

18 And then if we go to these other sites, we find
19 that we get the same depth year date on all of the
20 stumps, some of these stumps have 140 and in the case
21 of the West Walker River, over 200 rings in them.

22 Q. Could you give us an approximation of how low you
23 think the lake got?

24 A. I think there's very strong evidence that the lake
25 go to 6368 feet at the time of that drought. And in
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01 rising from 6368 feet, it planed a big surface. And
02 that's why the nickpoint today exists at 6368 feet.
03 From 6368 feet on up, the lake has planed over the
04 surface giving us a relatively gently sloping surface.

05 At 6368 feet, it drops off into deep water.
06 That's why the nickpoint is there. Had the lake
07 dropped to 6360 -- say, 6360 feet and then risen, the
08 nickpoint today would be at 6360 feet.

09 Q. Thank you.

10 One other question. In terms of measuring
11 groundwater, would you think it would be useful to have
12 some groundwater testing holes, and if you think that
13 would be useful, why?

14 A. I'm all for measurements. Sure. The more
15 measurements we could make out there, the better. I
16 think it would be fabulous, from a scientific point of
17 view, to be able to monitor climatic vicissitudes on
18 water levels, on lake levels fluctuations, on water
19 levels, withdrawal of the water from the streams on
20 groundwater levels. It would provide some invaluable
21 insights into the way that whole system works.

22 I think as time goes on, we'll be modifying LAAMP,
23 modifying the Vorster model to better approximate
24 exactly what we see the lake doing out there, and
25 understanding the groundwater level would go a long

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01 distance in helping us explain why these changes are
02 going on, why the lake is acting the way it is in
03 response to certain diversions scenarios and in
04 response to certain climatic scenarios.

05 MR. SMITH: That's all I have.

06 HEARING OFFICER DEL PIERO: Mr. Herrera?

07 MR. HERRERA: Yes.

08 Q. BY MR. HERRERA: Dr. Stine, I'd like to discuss a
09 little bit your presentation regarding rewatering the

10 various channels in Rush Creek.

11 To start with, is there somewhere in your
12 testimony that you've presented, over the course of
13 these proceedings, that delineate out those particular
14 channels that you feel are prudent to be rewatered?

15 A. BY DR. STINE: No, there isn't. We had hoped to
16 have a report ready on the feasibility of rewatering
17 channels. But my understanding now, I've been issued a
18 stop-work order by Trihey and Associates in response to
19 their having been told by the Los Angeles Department of
20 Water and Power that no money is available to do those
21 feasibility reports.

22 So we're well along with that. And I think I have
23 a pretty good understanding of which ones can very
24 easily be rewatered by removing gravels, et cetera.

25 Q. So, again, your answer here is no, that you have
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01 not delineated that out; is that correct?

02 A. I have not delineated it in a report that is today
03 available. But yes, I have delineated it.

04 Q. Let me ask you --

05 HEARING OFFICER DEL PIERO: Mr. Dodge?

06 MR. DODGE: Yeah. When we started, I thought our
07 last day was going to be tomorrow.

08 HEARING OFFICER DEL PIERO: It is going to be
09 tomorrow, Mr. Dodge. I'm giving up sleep for lent.

10 MR. DODGE: But that brings me back to a point
11 that Mr. Roos-Collins was raising before. I think we
12 somehow have to deal with how the State Board wants to
13 address the point that there are planning team reports
14 that are nearly done, but are not done, and won't be
15 done by tomorrow.

16 HEARING OFFICER DEL PIERO: Mr. Herrera, you want
17 to finish your question, please?

18 Q. BY MR. HERRERA: Again, what I was looking for is
19 in these proceedings, have you presented that material,
20 and my understanding is no?

21 A. BY DR. STINE: I'm sorry. I forgot the gist of
22 your question, and you're correct. The answer is no.

23 Q. I'm going to ask the same question regarding
24 Lee Vining Creek?

25 A. And once again my answer is no.

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01 Q. And to further that answer along, you are in the
02 preparation of that particular endeavor on Lee Vining
03 as well?

04 A. No. Because Lee Vining is a much simpler
05 situation, and we've already demonstrated that on
06 Lee Vining Creek, we can rewater channels. So we're
07 not doing the same thing for Lee Vining Creek, only on
08 Rush Creek.

09 Q. And again, on rewatering these channels, the same
10 sort of information we're discussing regarding
11 narrowing of streams, that sort of thing, is all
12 contained in this particular element that you're
13 proceeding with, or are you just talking about
14 rewatering?

15 A. Simply talking about the feasibility of rewatering
16 the abandoned channels.

17 Q. One other question. Again, in all of the

18 materials you presented, is there a delineation of the
19 historic channels that are either presently watered or
20 rewatered?

21 A. Yes, there is. And that is in NAS and MLC 122,
22 Cal Trout Exhibit 13, and I have there the 19 blowups
23 at approximately the same scale as NAS/MLC 213.

24 Q. The 1-in-17,000?

25 A. Pardon me?

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01 Q. The 1-to-17,000?

02 A. The 1-to-17,000, but they are blown up to a much
03 smaller denominator. And I don't know, the
04 denominator's in here. I don't remember what it is.

05 In any case, I have laid out in here those
06 channels that used to exist versus those channels that
07 exist today for the entire Rush Creek, Grant Lake, all
08 the way to Mono Lake.

09 Q. I have one further question. Again, in these
10 channels, just as a rough percentage, would you suggest
11 it's prudent to rewater, say, 50 percent of those
12 channels or a greater number or a smaller number?

13 A. Rather than talking about numbers of channels,
14 perhaps I can talk about lineal feet of channel. And
15 it's probably -- can I look one second here?

16 Q. Certainly.

17 A. I would say that keeping in mind that the upper
18 third of the bottomlands is where some multiple
19 channels are, the middle third did not have multiple
20 channels, and the lower, roughly quarter or something
21 like that, or that doesn't add up to one, but the
22 bottom quarter had multiple channels. I would say that
23 probably 60 to 70 percent of the multiple channels
24 could be rewatered. That is, those in, roughly, the
25 upper third of the bottomlands.

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01 Those in this lower quarter to a third of the
02 bottomlands, I think would be very difficult to
03 rewater, because there's such an elevation difference
04 between the existing channel and the now elevationally
05 stranded abandoned channels.

06 Q. Rewatering these channels assumes what kinds of
07 stream flow?

08 A. Well, I think that that's yet to be determined.
09 But I don't see any reason why we would have to put
10 large amounts of water into those channels.

11 I think the channels are such that we can probably
12 put anywhere from 5 to 10 to 15 cfs in some of these
13 channels, and we would get huge benefits, riparian
14 benefits, deep water benefits, lots of shade benefits,
15 still water benefits, cover. All of these things, by
16 putting relatively small amounts of water in these
17 abandoned channels. And it would vary from channel to
18 channel.

19 Q. You mentioned large flow. Would you tell me what
20 a large flow is, and where would that be measured at?

21 A. I would say that there is no need to put the 80 to
22 a hundred to a hundred and 20 cfs, that we say the
23 80 cfs that we see in the mainstream today, the main
24 channel today, there's no reason to have to put that
25 anywhere in any of these abandoned channels. And I

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01 guess that's what I was thinking of in terms of a large
02 flow.

03 In relatively small flows, we could go ahead and
04 rewater some of these abandoned channels.

05 MR. HERRERA: That concludes my questions. Thank
06 you, Dr. Stine.

07 HEARING OFFICER DEL PIERO: Mr. Canaday?

08 DR. STINE: May I ask that we take a very brief
09 break?

10 HEARING OFFICER DEL PIERO: And after that very
11 brief break, Mr. Canaday, you will question, and then
12 we'll take an hour break.

13 (A recess was taken at this time.)

14 HEARING OFFICER DEL PIERO: Ladies and gentlemen,
15 this hearing will again come to order.

16 When last we left, Mr. Canaday, questions of
17 Dr. Stine.

18 MR. CANADAY: In the spirit of the Olympics, I
19 thought I could provide Dr. Stine with these cards that
20 he could hold high above him, and we could get through
21 his answers more quickly.

22 HEARING OFFICER DEL PIERO: 40 years from now, no
23 one is going to know what you're talking about.

24 MR. CANADAY: They don't now.

25 HEARING OFFICER DEL PIERO: We didn't want to say

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01 anything, Jim.

02 MR. ROOS-COLLINS: Mr. Vorster is suggesting that
03 Mr. Canaday hold the cards up to judge the attorneys'
04 questions.

05 MS. CAHILL: You weren't here the day we were
06 threatening if we weren't interesting, we'd lose our
07 audience.

08 Q. BY MR. CANADAY: Dr. Stine, you've read the Draft
09 EIR prepared by Jones and Stokes?

10 A. BY DR. STINE: Yes, I have.

11 Q. And you've, in particular, read the chapter on
12 riparian vegetation?

13 Do you recall in that chapter Jones and Stokes
14 prepared a fairly detailed map of the historical
15 channels for Lee Vining Creek?

16 A. I believe I recall it, but I'm having a hard time
17 remembering whether I'm remembering my map or their
18 map. But I remember that they did do that, and
19 Mr. Messick and I conferred on that.

20 Q. Are you aware of a similar type map for the Rush
21 Creek bottomlands?

22 A. I believe that they also prepared a similar map
23 for the Rush Creek bottomlands, yes.

24 Q. So there is evidence in the record, then, that
25 identifies various channels, historic channels of

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01 Lee Vining Creek and Rush Creek?

02 A. Yes, there is, there, and in my riparian report
03 and in the NAS/MLC 122, as well.

04 And I'm sorry if I misunderstood your question. I
05 was thinking feasibility study, Mr. Herrera.

06 MR. HERRERA: Thank you. You got it.

07 Q. BY MR. CANADAY: You discussed in your testimony

08 or identified in your rebuttal testimony, various
09 different potential restoration treatments.

10 Now, there's two that have already occurred, and
11 that's been the rewatering or water put into the main
12 channels of Lee Vining and Rush Creek, and there's been
13 the removal of livestock; is that correct?

14 A. BY DR. STINE: That is correct.

15 Q. You identified in your the various different
16 opportunities, rewatering historic channels, riparian
17 vegetation, planting, and localized instream treatments
18 for Rush Creek.

19 How would you prioritize those?

20 A. I think that rewatering the channels should be
21 highest priority. I think that the sooner we get water
22 back into those abandoned channels, the sooner we're
23 going to get the benefits of all that water, which is
24 riparian vegetation, shade, and all the bugs and all
25 the nutrients and everything that comes with it. I

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01 think we've got to rewater those channels as soon as
02 possible.

03 Q. And the next in priority?

04 A. I guess the way we've been going about this, we've
05 been always viewing this in the context of fish
06 habitat. So I think I would probably leave the next
07 priority up to the fish people. If, indeed, we could
08 only do one thing at a time, I would want to confer
09 with the fish people on that. I'm not trying to weasel
10 out. Fish are driving this to some extent.

11 Q. Is there any reason why these could not be
12 simultaneous treatments?

13 A. In a broad sense, no. There are certain places
14 where you would want to do one thing before something
15 else, but there's no reason to think many months or
16 many years have to separate these individual
17 treatments.

18 Q. In your testimony, you talk about the development
19 of a multi-channel system with a rise in lake level.

20 Can you point or describe on NAS/MLC 213 where
21 you're referring that would occur with a rise in lake
22 level?

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23 A. Yes. I think it would occur ultimately throughout
24 the whole bottomlands if you got Rush Creek -- pardon
25 me, Mono Lake up to a level -- it wouldn't have to be

01 as high as this exhibit, the exhibit you just
02 mentioned. If it was on the surface of the delta
03 plain, what would happen is that the stream would start
04 to prograde, and as it prograded, it would start to
05 aggrade. It would start to fill its channel.

06 And as it filled its channel, the stream would
07 tend to sweep out of its existing channel and create
08 new channels along the side. And that's what deltas
09 do, whether it be the Walker River into Walker Lake,
10 Mississippi River into the Gulf of Mexico, or any other
11 stream. That's how they create these bottomland
12 environments that are so often multi-channeled by
13 aggrading due to progradation.

14 In answer to your question, it would occur
15 throughout here, but it would start at the mouth, and

16 it would proceed then upstream for a long period of
17 time.
18 Q. And that long period of time is multi-centuries?
19 A. Multi-centuries, yes, once the lake is up.
20 Q. I feel that I understand your suggestion is that
21 the active intervention in some of the existing
22 channels in the bottomlands is at least an interim
23 intervention that could take place to shorten the time
24 period for that type of activity to occur naturally?
25 A. It would very definitely shorten the time period

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01 that would be required to get multiple channels out
02 there. Basically, it would not be in a sense
03 foretelling the future. It would be putting us back to
04 the past 50 years. And it would be a way of getting
05 multiple channels in a very short period of time.

06 MR. CANADAY: That's all I have. Thanks.

07 THE COURT: Thank you very much.

08 Mr. Dodge?

09 MR. DODGE: In the hopes of setting a precedent
10 here, I'm going to be brief.

11 REDIRECT EXAMINATION BY MR. DODGE

12 Q. Dr. Stine --

13 HEARING OFFICER DEL PIERO: Hope springs eternal,
14 Mr. Dodge.

15 Q. BY MR. DODGE: Couple questions about Mill Creek.

16 As I under your testimony, you're proposing that
17 below the SCE powerhouse that water be returned to the
18 natural channel of Mill Creek and then flow into Mono
19 Lake, correct?

20 A. BY DR. STINE: That is correct.

21 MR. BIRMINGHAM: Excuse me. I'm going to
22 interpose the same objection that I interposed as far
23 as relevance.

24 HEARING OFFICER DEL PIERO: Your objecting to --

25 MR. DODGE: Relevance.

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01 HEARING OFFICER DEL PIERO: Relevance? From a
02 legal standpoint? From a standpoint of water rights?
03 From the standpoint of his expertise as a --

04 MR. BIRMINGHAM: From a legal relevance point of
05 view. Again, we're not here debating the water rights
06 of the City of Los Angeles to water on Mill Creek. The
07 licenses that are the subject of this hearing are
08 licenses that divert water from Rush, Lee Vining,
09 Walker, and Parker Creeks.

10 MR. DODGE: Well, this particular cow is long out
11 of the barn. We've heard for four months testimony on
12 the possibility of one mitigation measure being the
13 rewatering of Mill Creek, and I'm just trying to
14 follow-up and ask a couple of follow-up questions on
15 that possibility.

16 If it's irrelevant, I'm sure Mr. Birmingham will
17 point that out in his closing briefs, but we've had
18 evidence on this subject.

19 HEARING OFFICER DEL PIERO: Dr. Stine, you've been
20 asked questions about Mill Creek before.

21 Mr. Dodge, in terms of your questions, I want you
22 to make sure that they don't go into the realm of the
23 water rights that are held by the Los Angeles

24 Department of Water and Power or, for that matter,
25 anybody.

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01 MR. DODGE: Fine.

02 HEARING OFFICER DEL PIERO: Okay.

03 MR. DODGE: Actually, I just have a couple
04 questions.

05 Q. BY MR. DODGE: The proposal is to take the water
06 from below Southern California Edison, return it to the
07 Mill Creek waterway, and thence the water would go down
08 to Mono Lake, correct, down the historical Mill Creek
09 channel?

10 A. BY DR. STINE: Correct.

11 Q. I want you to simply -- you've indicated you
12 walked these stretches -- take the two stretches, going
13 from Southern California -- below Southern California
14 Edison over to the historical Mill Creek channel, and
15 then take the Mill Creek channel down to Mono Lake.

16 Would you tell the Hearing Board how much work
17 would be necessary on those two channels in order to
18 accomplish that little bit of water?

19 A. I think very little work would be required to do
20 that simply because the diversion ditch that would be
21 required to put water from the Southern California
22 Edison tail race of the power plant back into Mill
23 Creek is already in place. And it's already capable of
24 holding perhaps 20, 25 cfs. And I think it could
25 carry that without further modification.

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01 Then the water goes down that ditch and into Mill
02 Creek, to a reach of Mill Creek that has already
03 carried seepage water for a long period of time. So it
04 has already been watered with a small amount of water
05 for a long period of time. So vegetation is already in
06 place.

07 So it would be a matter of allowing water to flow
08 in to Mono Lake. We would probably want to redo the
09 road crossing to allow permanent flows to go under the
10 Mill Creek Road.

11 Other than that, I don't know of a single site
12 that would need modification to get water from the
13 Southern California Edison tail race to Mono Lake.

14 Q. New subject matter. In response to questions by
15 Mr. Herrera, you talked about historical channels in
16 the bottomlands, and you said it would be difficult to
17 rewater historical channels in the lower one-third
18 because of quote, elevation differences, end quote.

19 Do you recall that testimony?

20 A. I do.

21 Q. Now, does the degree of difficulty, sir, depend on
22 the level of Mono Lake?

23 A. In the short-term, no. It's very difficult no
24 matter where Mono Lake is.

25 In the longer term, once we do get Mono Lake up

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01 and over some period of time where the stream channel
02 now incised is capable of filling itself with sediment,
03 then this elevation difference basically disappears
04 because Mono Lake has come up. But that's many, many
05 decades in the future, not only to get Mono Lake up,

06 but to then get the channel filled with sediment.
07 Q. So to what elevation does Mono Lake have to rise
08 in order to take care of this problem of elevation
09 differences?
10 A. To at least 6400 feet. But if the lake was taken
11 to higher elevations, there would be less and less time
12 involved because it would be a narrower and smaller
13 trench that we would need to fill with sediment. So
14 there would be less time involved.
15 Q. Were the lake at 6400 feet or higher, this problem
16 of elevation differences could potentially disappear?
17 A. Over some number of decades, yes, that's right.
18 Q. Well, and also in terms of simply going in and
19 physically rewatering the historical channels, if Mono
20 Lake were at 6400 feet, that could be done, couldn't
21 it?
22 A. Not until the channel is filled up with sediment.
23 Not until Rush Creek -- pardon me, not until Rush Creek
24 aggrades up to the level of those abandoned channel
25 mouths, then they could be rewatered, yes.

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01 Q. You mentioned, in response to a question by
02 Mr. Canaday, that if Mono Lake were on the delta plain,
03 that channels would start to propagate.
04 And I just want you to refresh the Board's
05 recollection at what level does Mono Lake start to be
06 on the delta plain?
07 A. Mono Lake reaches the delta plain of Rush Creek at
08 very close to 6400 feet. And then as the channel
09 aggrades -- as it progrades, it aggrades, and it will
10 eventually centuries scale, multi-centuries scale,
11 start moving into a multi-channeled system.
12 Q. Now, you talked about the amount of water you
13 would suggest in the presently dry channels, and you
14 said it would not need a large amount of water, 5 to
15 15 cfs in each.
16 Do you recall that testimony?
17 A. Yes, I do. And 5 to 15 in each, I think that
18 there are probably some channels out there that
19 would -- no, I'll stick with 5 to 15. I think 5 to 15
20 would do a great deal of good in all of those channels.
21 Q. That would mean less water in the main channel,
22 correct? Potentially could mean less water in the main
23 channel?
24 A. Yes, it could.
25 Q. Hypothetically, if it did mean less water in the

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01 main channel, to what extent would rewatering
02 historical channels interfere with the work the water
03 is doing in the main channel in terms of affecting the
04 stream channel?
05 A. I think it would have a minor impact given that
06 during the snow melt period, there still would be a
07 large flow in the main stream, and that's when the work
08 would actually be done.
09 The amount of work that could be done in the
10 low-flow months would probably be less, but that amount
11 of work is minor. And it has so far had a very, very
12 minor impact on the channel, as Dr. Li will be pointing
13 out through his cross-section.

14 The work will continue to be done during those
15 heavy snow-melt months. The amount of water that we
16 put into the channels would not cut back those
17 snow-melt month flows very much at all.
18 Q. In response to questions from Mr. Birmingham, you
19 talked about the "Little Ice Age."
20 Did I write that down correctly?
21 A. Yes.
22 Q. And that was from what period of time -- this is
23 in California, sir, or generally?
24 A. It is both generally and in California. We have
25 some dates on glacial advances in the Sierra Nevada

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01 that happen to coincide with the Little Ice Age as it
02 has been studied in New Zealand and in the Alps and in
03 the Pyrenees, and over large areas of the earth.
04 And that starts at approximately 1550 A.D., and it goes
05 through approximately 1850 A.D.
06 Q. And I believe you testified that based on analysis
07 relating to the Little Ice Age, that it is the
08 Department of Water Resources that had suggested a six-
09 to seven-year drought was appropriate?
10 A. Not so much appropriate, but this is the drought
11 they continued to find not only in the period of
12 instrumental record, but going back to 1500 to 1550,
13 something like that. They found periods in there that
14 suggested six- to seven-year droughts occasionally.
15 Q. And I wrote this down fairly carefully. You said
16 that in your opinion, "We should not use the Little Ice
17 Age as a criterion for a drought analysis."
18 Can you tell us why?
19 A. During that period of time, water was remarkably
20 abundant in California. And we shouldn't be looking to
21 that period of time as a criterion for what California
22 can expect in the future in terms of its droughts.
23 We should look at past dry times, not at past wet
24 times, and that period, the Little Ice Age, was an
25 abnormally wet time. And as I say, Mono Lake was high,

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01 glaciers were advancing in the Sierra Nevada.
02 Q. And pre-1550, I take it there were dryer periods
03 of time; is that right?
04 A. Yes. Pre-1550, we were into a period referred to
05 as the little optimum or medieval warm epic. And
06 during those times, we had these severe droughts in
07 California; likewise, severe droughts in other places
08 in the world.
09 Q. Last question, sir. You talked about in Rush
10 Creek the historical channels now dry being full of
11 cobbles.
12 What is the source of those cobbles?
13 A. The source of the cobbles is the Marzano Quarry
14 that exists even today along the west side of Rush
15 Creek very close to Parker Creek. It is not to be
16 confused with the Parker Plug.
17 But there's a gravel operation there. And between
18 1960 or so and 1967, the Marzano operation had pushed
19 huge amounts of quarry gravel out into Rush Creek, 60
20 to 70,000 cubic yards of material, if I calculated
21 correctly, and I think that's a gross estimate, but not

22 an unreasonable estimate. That material was carried
23 down during the big flood of '67. And it clogged
24 channels as it went causing Rush Creek to cut new
25 channels and to abandon channels, et cetera.

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01 In a sense, it's a pain to get these things out.
02 But on the other hand, it's exactly those cobbles that
03 preserved the abandoned channels and prevented those
04 abandoned channels from being blown out, so in many
05 ways, it's a blessing.

06 Q. You talked about the Gun Barrel earlier today.
07 Was the Gun Barrel section of the channel created in
08 1967?

09 A. Yes, it was. The Gun Barrel was cut as a result
10 of Rush Creek clogging its own existing channels with
11 cobble, and with the Marzano Quarry cobble. And it
12 lost access to its channels by clogging these channel
13 with quarry cobble, and so it cut a new channel
14 straight down out of The Narrows.

15 Q. And generally speaking, it's a wide and narrow
16 channel?

17 A. Consistently wide and consistently shallow with
18 very little complexity, to use the wildlife biologists'
19 term.

20 MR. DODGE: No further questions.

21 HEARING OFFICER DEL PIERO: Thank you very much,
22 Mr. Dodge.

23 Mr. Birmingham?

24 RE-CROSS EXAMINATION BY MR. BIRMINGHAM

25 Q. Dr. Stine, during questions put to you by

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01 Mr. Herrera, you made reference to a series of
02 feasibility reports that you've been working on; is
03 that correct?

04 A. BY DR. STINE: That's correct.

05 Q. And you said you'd been given a stop-work order by
06 Mr. Trihey?

07 A. That's correct.

08 Q. Because the Department of Water and Power had
09 informed him that the funding had terminated; is that
10 right?

11 A. That's correct.

12 Q. That's your understanding.

13 When were you given the assignment to work on
14 those feasibility reports?

15 A. I believe it was about the same time we started
16 working on this hearing.

17 Q. Isn't it right that the Court, El Dorado County
18 Superior Court, ordered that those feasibility studies
19 be done in December of 1992?

20 A. I don't know. That's possible.

21 Q. And isn't it correct, Dr. Stine, that funding to
22 finish those feasibility reports existed through
23 December 31, 1993?

24 A. That could be. I don't know when this was cut
25 off.

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01 Q. But in any event, Dr. Stine, there was funding
02 available in 1993 for the completion of these
03 feasibility reports that you were referring to to

04 Mr. Herrera?
05 A. That's correct.
06 MR. ROOS-COLLINS: Objection. Asked and answered.
07 HEARING OFFICER DEL PIERO: Please proceed.
08 Q. BY MR. BIRMINGHAM: Now, throughout a lot of your
09 testimony, you talked about -- in response to questions
10 by Mr. Roos-Collins, you talked about the effect of old
11 and new vegetation and the fact that, in your opinion,
12 the vegetation is not causing Rush Creek to narrow.
13 Do you recall that testimony?
14 A. BY DR. STINE: Yes, I do.
15 Q. I've put on the easel a photograph that's labeled
16 Figure 3 from the direct testimony of Robert L.
17 Beschta. It purports to depict the Rush Creek fish
18 hatchery study site July 1976.
19 You're familiar with this site, aren't you,
20 Dr. Stine?
21 A. I am, and I would point out it's below the area
22 that we were talking about. It's below the Rush Creek
23 bottomlands. It's in the area where there has been
24 rather extreme stream incision and huge amount of
25 volcanic material highly erodible, much, much more
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01 erodible than what we can see upstream.
02 Q. In this particular segment of Rush Creek in July
03 1976, would you agree with me that this is a wide
04 stream channel?
05 A. I would agree that it's a wide braided stream
06 channel at a time when there was lots and lots of water
07 in the channel, yes.
08 Q. I'm going to put up another photograph, and this
09 is Figure 4 from the direct testimony of Robert
10 Beschta.
11 And it's correct, isn't it, Dr. Stine, that Figure
12 4 depicts the same area as Figure 3?
13 A. That's correct.
14 Q. In fact, if you examine the two photographs very
15 carefully, you can see the same pieces of dead wood in
16 Figure 3 and in Figure 4; is that correct?
17 A. Yes, it's the same spot, definitely.
18 Q. Now, you would agree, wouldn't you, Dr. Stine,
19 that there's significantly more vegetation that appears
20 in Figure 4 than in Figure 3?
21 A. Absolutely.
22 Q. And, Dr. Stine, isn't it correct that as fine
23 sediments are deposited into the vegetation which is
24 emerging, as depicted in Figure 4, that this stream
25 channel will narrow?
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01 A. Yes. But let's be very clear on the amount of
02 water that we have on the one photo versus the other
03 photo.
04 What we've done here between July of 1986 and
05 August of 1993 is diminish the flow probably by a
06 factor of, I'm guessing here, 3 to 5. And if that's
07 what's required to narrow the stream, then you could
08 probably argue that if we drop the stream down to
09 1 cfs, we've narrowed it tremendously.
10 Q. Dr. Stine, isn't it correct that as the stream
11 evolves, that the channels that are cut through the

12 area depicted in Figure 4, ultimately will be able to
13 carry a flow which is comparable to the flow depicted
14 in Figure 3, without doing any damage to those stream
15 channels?

16 A. I don't want to get into damage. You would
17 certainly do less damage on your Figure 4 right here if
18 damage is stream erosion. But if you put, today, if
19 you put the same amount of water as is shown on Figure
20 3 here into the conditions that exist here on channel
21 4, you're going to have the stream in exactly the same
22 position on Figure 4 that you have in Figure 3. You'll
23 be drowning vegetation, but the stream itself will be
24 occupying the same area here that it did on one photo
25 and on the other.

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01 Q. Let's talk about 20 years from now, or 20 years
02 from August 1993. Isn't it correct that if the
03 vegetation depicted in Figure 4 continues to develop as
04 Dr. Beschta has described it, that channels, narrow
05 channels, will evolve that will be capable of handling
06 the high flows that occurred in July of 1986 without
07 the erosion that you just described?

08 A. Without the erosion? There will definitely be
09 less erosion going on on these vegetated surfaces.
10 That is not to say, however, that the stream won't be
11 on those surfaces, and it doesn't speak at all to
12 changes in stream width or numbers of channels.

13 Q. Isn't it correct, Dr. Stine, that you agree with
14 Dr. Beschta that after a stream has evolved and is a
15 functioning stream system that is connected to a
16 healthy riparian corridor, that the high flows that are
17 depicted in the photo in July of 1986 will actually be
18 very beneficial to the stream?

19 A. I agree. And that's why I advocate high flows in
20 the Mono Basin streams. After vegetation has become
21 established, I think that the streams will be able to
22 carry quite high flows, and it would be very
23 beneficial. And I further add that the more channels
24 we have with healthy vegetation on them, the more the
25 system will approximate the 1940 system.

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01 Q. I'd like to talk about NAS/MLC Exhibit 258 and
02 NAS/MLC 259. Do you have copies of those in front of
03 you, Dr. Stine?

04 A. I do.

05 Q. Now, you indicated that these histograms were
06 prepared by Mr. Vorster?

07 A. I did.

08 Q. And you said that, These histograms indicate that
09 for the segments of Rush Creek that are depicted in the
10 exhibits, pools with depths in excess of two feet are
11 few and far between."

12 And I wrote down those words pretty carefully.

13 Those were your words, weren't they, Dr. Stine?

14 A. Yes. And are you referring now to Exhibit 258 or
15 259 when I said that? I said that in relation to which
16 one?

17 Q. You said that in relation to Exhibit 258, I
18 believe. Is that your opinion?

19 A. Yes. I guess that's correct. I would say that

20 they are fewer and farther between on Exhibit 259,
21 which takes the entire stream length from Narrows to
22 Ford into consideration.
23 Q. Now, you would agree with me, Dr. Stine, that a
24 synonym for the words "few and far between" is the
25 single word "scarce"?

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01 A. It's close, yes.

02 Q. Generally, "few and far between" connotes
03 scarcity?

04 A. Sure, sure.

05 Q. Now, you've read Mr. Vestal's 1954 paper on Rush
06 Creek?

07 A. I have.

08 Q. I believe it's in evidence as Cal Trout Exhibit
09 5-T, I believe, but don't hold me to that, but it is in
10 evidence as a Cal Trout Exhibit. I believe it's also
11 in evidence as a DWP exhibit.

12 Now, the portion of Rush Creek that was the
13 subject of Mr. Vestal's study was the same portion of
14 Rush Creek or included that portion of Rush Creek that
15 is depicted in Exhibits NAS and MLC 258 and NAS and MLC
16 Exhibit 259; isn't that right, Dr. Stine?

17 A. Yeah. With the one proviso here that the stream
18 isn't necessarily in the same place, and we're dealing
19 with fewer stream channels. But in the sense that it
20 is from The Narrows to The Ford, yes.

21 Q. Now, if Mr. Vestal's report describes different
22 types of stream segments as follows, "Riffles
23 containing excellent spawning gravels make up the bulk
24 of the test stream, pools are comparatively
25 scarce," you would agree that Mr. Vestal is saying that

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01 pools are comparatively few and far between; isn't that
02 what Mr. Vestal is saying?

03 A. I think he saying that they're comparatively
04 scarce, and you've asked me this exact question before.
05 What I said is yes, in comparison to the riffles and
06 runs, that is indeed the case. I think they are fewer
07 and farther between today than they were before, and
08 that's based upon my re-occupying the channels that
09 used to exist out there.

10 And you can go into those channels, and you can
11 see the kinds of conditions that existed. And they are
12 very much different from those conditions that exist
13 today. And I should say I've walked those channels
14 with Mr. Vestal and he agrees.

15 MR. BIRMINGHAM: I would ask for an instruction
16 that Dr. Stine answer my question. I won't move to
17 strike the last response, but I would appreciate if
18 he'd respond.

19 MR. DODGE: I think in that particular case --

20 HEARING OFFICER DEL PIERO: Wait a second,
21 Mr. Dodge.

22 Dr. Stine, I want you to answer the questions that
23 are asked. I want you to answer the questions that are
24 asked.

25 DR. STINE: I will try.

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01 HEARING OFFICER DEL PIERO: However, I need to

02 point something out. You're the one that raised the
03 issue of Mr. Vestal.

04 MR. BIRMINGHAM: I did. But my last question --

05 HEARING OFFICER DEL PIERO: That's enough.
06 Proceed.

07 MR. BIRMINGHAM: I'll have to go back and look at
08 my question and see if it asked Mr. Vestal's opinion as
09 opposed to --

10 HEARING OFFICER DEL PIERO: Please do.

11 Q. BY MR. BIRMINGHAM: Dr. Stine, you said Exhibits
12 NAS and MLC 258 and 259, if we reduced the flows from
13 the 80 cfs that was in the stream at the time of
14 Mr. Tillemans' study was conducted to 35 cfs --

15 A. BY DR. STINE: I believe I said 25 to 30 cfs.

16 Q. Excuse me, 25 to 30.

17 -- that the percentages would just shift one
18 column to -- the histograms would shift one column to
19 the left?

20 A. Yes. The bars would shift one to the left in an
21 approximate sense. Certainly.

22 Q. What's the basis for that?

23 A. The basis for that is my talking to Dr. Li about
24 the IFIM data and what would happen to stream depths,
25 all other things being equal, if flows were taken from
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01 80 down to 25 or 30 cfs.

02 And I believe Dr. Li is in fairly close agreement
03 with what Dr. Beschta said that it would be
04 approximately a half a foot. And that's why I'm
05 approximating this with one half a foot interval to the
06 left here.

07 Q. So that half a foot is what Dr. Li indicated to
08 you?

09 A. As well as Mr. Beschta, yeah, or Dr. Beschta,
10 excuse me.

11 Q. One question. Hypothetically, let's say a pool
12 was exactly two feet deep. In which histogram or what
13 bar would that appear? The bar from 1.5 to 2.0 or from
14 2.0 to 2.5?

15 A. You'd have to ask Mr. Vorster that. I don't
16 know. I don't remember. It's going to the rare hole
17 that's exactly that, and so I hope that that isn't a
18 problem in too many places here.

19 Q. Mr. Roos-Collins asked you some questions about
20 this report. This is the December 16, 1993, Lee Vining
21 Creek Segments 3-A, 3-B, 3-C, 1993 Habitat Improvements
22 submitted by Northwest Biologic Consulting prepared for
23 the Restoration Technical Committee. I believe that if
24 you'll find an exhibit number, Cal Trout 42?

25 MR. ROOS-COLLINS: Yes.

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01 MR. BIRMINGHAM: Cal Trout Exhibit 42.

02 Q. BY MR. BIRMINGHAM: Now, you indicated that you
03 were not involved in the preparation of Cal Trout
04 Exhibit 42?

05 A. BY DR. STINE: That's right. That was prepared by
06 Mr. Scott English and Ms. Charlotte English.

07 HEARING OFFICER DEL PIERO: Dr. Stine, you want
08 some water?

09 DR. STINE: I'm fine, thanks. It's too much

10 water.

11 Q. BY MR. BIRMINGHAM: Now, have you reviewed the
12 report, Dr. Stine?

13 A. BY DR. STINE: I've briefly -- I've gone through
14 it. I have not read it, but I've thumbed through it to
15 see what was covered in it.

16 Q. There's a memorandum that is attached that is part
17 of an appendix to the report. It's a memorandum from
18 Woody Trihey to the RTC members. Have you reviewed
19 that memorandum?

20 A. I have not reviewed it.

21 Q. Would you take a moment and review it, please?

22 MR. DODGE: Objection. Beyond the scope of any
23 questions that's been asked to date. I think we need
24 to confine ourselves to rules here.

25 HEARING OFFICER DEL PIERO: How much longer do you
0152 have?

02 MR. BIRMINGHAM: I can cut to the chase on this
03 one.

04 Q. BY MR. BIRMINGHAM: Dr. Stine, it's correct, isn't
05 it, that the work that was proposed by Mr. Trihey in
06 1993, not all of the work was carried out. Isn't that
07 right?

08 A. BY DR. STINE: That's correct. I don't have a
09 copy, but that's correct.

10 Q. So just because Mr. Trihey's report suggests that
11 he was recommending work in 1993, it doesn't mean that
12 that work was done?

13 A. The work recommended for 1993 was not necessarily
14 done in 1993. That's absolutely correct.

15 Q. The RTC rejected some of Mr. Trihey's suggestions
16 that he wanted done?

17 A. That may be. I don't attend the RTC meetings
18 anymore.

19 Q. Now, let's talk about Mill Creek for a minute. I
20 hesitate to do this, since I objected to it, but there
21 were some questions, and I'd like to follow-up on them.

22 Mill Creek, the water that is diverted from Mill
23 Creek ultimately makes its way to Mono Lake; is that
24 right, Dr. Stine?

25 A. I would say most of it makes its way to Mono Lake.

0153 There's probably -- there's undoubtedly some water
02 that's lost to evapo-transpiration and root because
03 it's spread out on lands for irrigation. The rest of
04 it, though, goes down into the ground and presumably
05 gets into the Mono Lake.

06 Q. What's the name of the channel that takes water
07 from the diversion of Mill Creek and ultimately conveys
08 that water to Mono Lake? Is it DeChambeau Creek?

09 A. By surface flow?

10 Q. Yes.

11 A. Well, there's DeChambeau Creek, and there's also
12 Wilson Creek.

13 Q. Wilson Creek. Wilson Creek. Wilson Creek is a
14 man-made channel, isn't it, Dr. Stine?

15 A. No, it's not. It was a natural, though ephemeral,
16 channel under natural conditions that has been widened
17 and deepened at the expense of Mill Creek.

18 Q. The current condition of Wilson Creek is an
19 artifact of the diversions out of Mill Creek?

20 A. That's correct, yes.

21 MR. BIRMINGHAM: Excuse me, one moment.

22 Q. BY MR. BIRMINGHAM: Dr. Stine, I'm showing you a
23 memorandum that's dated February 21, 1993, and I'd ask
24 you to just review that memo for a moment.

25 After you've had a chance to review it, would you
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01 please tell me if your recollection as to when you were
02 asked to start working on the feasibility reports is
03 refreshed?

04 A. BY DR. STINE: Okay. I wrote this, indeed, on
05 February 21, 1993, and I guess at this point, we were
06 starting to discuss the feasibility report. This was
07 in winter, and I think it was generally agreed that it
08 would be non-winter conditions before we got out there
09 and were able to reoccupy the channels and what not.
10 But we were talking about it at the beginning of 1993.

11 MR. BIRMINGHAM: Thank you. I have no further
12 questions.

13 HEARING OFFICER DEL PIERO: Thank you very much.
14 Miss Cahill?

15 CROSS-EXAMINATION BY MS. CAHILL

16 Q. Dr. Stine, with regard to the question of the
17 pools in The Narrows back in Mr. Vestal's time, were
18 there pools at that time in the side channels that were
19 deeper than three feet?

20 A. BY DR. STINE: Yes. The pools below The Narrows,
21 I think you're talking about.

22 Q. Yes.

23 A. And, yes, in those sides channels, there were,
24 indeed, pools that were deep, three feet -- two and a
25 half to three and a half feet deep.

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01 Q. Were there, at that time, pools below what is now
02 The Ford?

03 A. Yes, certainly there were. And, in fact, we have
04 shown photographs as exhibits of some of those pools in
05 standing water areas.

06 Q. And they're beyond the thalweg profile that was
07 submitted by L.A. DWP?

08 A. That's correct. The thalweg profile only goes to
09 The Ford, and there were deep areas down below The
10 Ford, between The Ford and the Clover Ranch.

11 Q. And you indicated that pools were comparatively
12 scarce. I've lost the exhibit number. On the NAS/MLC
13 Exhibit -- was it 258?

14 This would show that in that area, pools of three
15 feet deep or greater constituted approximately 5
16 percent of the measurements; is that right?

17 A. Yes. Thalweg measurements of greater than three
18 feet you're asking?

19 Q. Yes.

20 A. Yes. Perhaps 5 to perhaps 6 percent of the
21 thalweg measurements.

22 Q. And you would consider that to be relatively
23 scarce?

24 A. I would, yes.

25 Q. Compared to the other depths?

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01 A. Compared to the pre-41 depth, yes, definitely.
02 MS. CAHILL: Thank you.
03 HEARING OFFICER DEL PIERO: Thank you very much.
04 Mr. Roos-Collins?

05 RE-CROSS EXAMINATION BY MR. ROOS-COLLINS

06 Q. Good evening, Dr. Stine.

07 A. BY DR. STINE: Good evening.

08 Q. Let's return briefly to Cal Trout Exhibit 42, the
09 December 1993 report by Northwest Biologic Consulting
10 regarding the 1993 habitat improvement work in
11 Lee Vining Creek.

12 A. Yes.

13 Q. Do you recall Mr. Birmingham's questions to you on
14 his recross examination?

15 A. Yes.

16 Q. His questions concerned a memorandum by Mr. Trihey
17 regarding recommended follow-up work after 1993 high
18 flows.

19 A. They may have. I think the question that he asked
20 me was whether or not all the work recommended for 1993
21 had been done in 1993, and I agreed with him that it
22 hadn't.

23 Q. Let me ask you to look at the table of contents in
24 this exhibit focusing on pages 6 through 32, beginning
25 with, quote, summary of work, and then proceeding

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01 through descriptions of individual treatments 1 through
02 36-B, and ask you if that portion of this report
03 describes work actually done in Lee Vining Creek in
04 1993?

05 A. My recollection is that that's, indeed, what's
06 described there, and if I could look for just a second.

07 Q. Please take your time.

08 A. Yes. I remember looking at this and, indeed, this
09 was the work that was done, pages 6 through 32.

10 Q. And then following the pages we just discussed
11 appears an appendix which is Mr. Trihey's recommended
12 follow-up to the work actually done; is that correct?

13 A. That's correct.

14 Q. Thank you.

15 Let's return now to Mr. Vestal's 1954 article.

16 You don't have that article in front of you, do you?

17 A. I don't, no.

18 Q. This is Cal Trout Exhibit 5-T, as Mr. Birmingham
19 suggested.

20 He read you part of a paragraph from page 92 of
21 the article. Let me read you a preceding paragraph on
22 the same page.

23 Quote, Lower Rush Creek formally averaged 20 feet
24 in the width during the trout season with the depth of
25 some seven inches on the riffles and four or five feet

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01 in the long delta pools. By 1951, however, these
02 dimensions had been reduced by more than two-thirds,
03 unquote.

04 Is that description of Lee Vining Creek -- excuse
05 me, Rush Creek, prior to the commencement of L.A.'s
06 diversions consistent with your understanding of Rush
07 Creek?

08 A. Yes, it is. Of course, my understanding of Rush
09 Creek comes, in part, from long conversations,
10 including field trips, with Mr. Vestal, too.
11 Q. And do you agree with Mr. Vestal's opinion
12 regarding the impact of L.A.'s diversions from 1951 on
13 the depths of riffles and on the depths of the pools?
14 A. Yes, I do agree. And I should say this is not due
15 to some channel change. It's simply due to a drop in
16 the quantity of water moving down the channel.
17 Q. Thank you.
18 Now, in answer to a question by Mr. Dodge on his
19 redirect, you referred to the biologist term, "habitat
20 complexity."
21 Let's assume this Board determines that habitat
22 complexity comparable to what existed before 1941 is a
23 desirable goal for its order. Let's discuss two
24 scenarios.
25 Under scenario one, the existing channel is
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01 watered with whatever flow regime the Board
02 establishes.
03 Under scenario two, same flow regime, historical
04 channels are reopened. Under which scenario would the
05 resulting habitat complexity be most comparable with
06 what existed before 1941 on Rush Creek?
07 A. By a large factor, scenario two.
08 Q. Please explain why.
09 A. There's already a great deal of habitat complexity
10 waiting in these abandoned channels. Once they're
11 reopened, immediately that habitat complexity in lots
12 of places returns.
13 Over the period of time that it takes vegetation
14 to recolonize those portions of the abandoned channels
15 where the vegetation has been destroyed by dewatering,
16 that amount of habitat complexity will increase.
17 MR. ROOS-COLLINS: Thank you.
18 Mr. Herrera, how many minutes did I take?
19 MR. HERRERA: Five minutes and 25 seconds.
20 MR. ROOS-COLLINS: And how many minutes did
21 Mr. Dodge take?
22 MR. HERRERA: 15.
23 MR. ROOS-COLLINS: Thank you. No further
24 questions.
25 MR. BIRMINGHAM: Mr. Herrera, how many minutes did
0160
01 I take?
02 MR. HERRERA: I don't know.
03 HEARING OFFICER DEL PIERO: Mr. Valentine?
04 MR. DODGE: You know what President Eisenhower
05 said about that.
06 HEARING OFFICER DEL PIERO: No, I don't.
07 MR. DODGE: One swallow doesn't make a summer.
08 RE-CROSS EXAMINATION BY MR. VALENTINE
09 Q. Dr. Stine, I have just a couple questions on one
10 relatively minor point.
11 You were asked a little while ago about lake
12 depths to which -- let me start over.
13 You were asked a little while ago about elevations
14 to which Mono Lake descended in droughts in the
15 prehistoric period, and your answer, I believe, was

16 6368, was the low stand?
17 A. BY DR. STINE: That's correct and, in fact, that's
18 the lowest stand that I can document in the last 35,000
19 years.
20 Q. The 6368 stand was how long ago?
21 A. It ended approximately 850 years prior to 1950
22 A.D.
23 Q. That would have been there previous to the
24 appearance of Paoha Island in the lake?
25 A. Yes. Paoha Island, I believe it would date Paoha

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01 Island based on a number of different lines of
02 evidence. Paoha Island emerged somewhere between 1650
03 A.D. and about 1695 A.D.
04 Q. Therefore, a drought brings the lake to a
05 prehistoric level to 6368. The volume of water would
06 have been much, much greater than with the same lake
07 elevation today?
08 A. Yeah. I don't know what you mean by "much, much
09 greater," but the lake held more water per given lake
10 level and was therefore less saline prior to Paoha
11 being in the lake than after Paoha emerged in the lake.
12 In other words, while we've seen lower lakes
13 prehistorically than we've seen in historic times, we
14 have not seen as low a volume of water in Mono Lake in
15 prehistoric times as we have seen in historic times.
16 This is as low a volume of lake -- water in Mono Lake
17 as we've seen, I think, any time in the last 35,000
18 years.

19 MR. BIRMINGHAM: Mr. Valentine, this is how
20 Mr. Dodge responds to Mr. Vorster's questions.

21 MR. VALENTINE: It wasn't Mr. Vorster's question.
22 He's off the hook, whatever faults there may have been.

23 MR. ROOS-COLLINS: Mr. Del Piero, Mr. Birmingham
24 has previously indulged in that joke. I wish that my
25 response to his prior indulgence is repeated in the

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01 record; namely, that Mr. Vorster's records are pearls.

02 HEARING OFFICER DEL PIERO: The shape of a pearl.
03 Okay. Mr. Frink?

04 MR. FRINK: I have no questions.

05 HEARING OFFICER DEL PIERO: Mr. Satkowski?

06 MR. SATKOWSKI: No questions.

07 HEARING OFFICER DEL PIERO: Mr. Smith?

08 MR. SMITH: One brief question. I think I can
09 make it loud enough.

10 RE-CROSS EXAMINATION BY THE STAFF

11 Q. BY MR. SMITH: If we put 20 cfs in this Mill
12 Creek, as has been suggested, what does that do
13 generally to the flows in Wilson and DeChambeau?

14 A. BY DR. STINE: I don't think it would do too much
15 to DeChambeau Creek because DeChambeau water is taken
16 out above the Southern California Edison power plant,
17 so it would have very little effect on there.

18 What it would do on Wilson Creek is lessen the
19 flow in Wilson Creek, which I don't think would have
20 much of an ecological impact at all, because there's so
21 little riparian vegetation associated with Mill Creek.

22 Mill Creek is an on-again-off-again stream at the
23 whims of irrigators. And there hasn't been a chance

24 there for Wilson Creek to really develop any riparian
25 system or any geomorphic integrity in the sense that

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01 the stream is interacting with riparian vegetation.

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

03 Thank you.

04 HEARING OFFICER DEL PIERO: Mr. Herrera?

05 Q. BY MR. HERRERA: Dr. Stine, I have just a few
06 brief questions. One of them relates to the high-flow
07 discussions we had earlier, and we were discussing
08 80 cfs as being a high flow in regards to rewatering
09 various channels.

10 And then further on in various cross-examinations,
11 there was a discussion about high flows being
12 detrimental in some cases to channel maintenance, or in
13 some cases, necessary to deposit fines for vegetation
14 to re-establish itself.

15 The question I'm getting at is: These high flows,
16 if we were allowed to put these high flows in there,
17 will they be detrimental in some cases to prudent
18 rewatering of these channels?

19 A. BY DR. STINE: I would not suggest that we put a
20 large amount of water down presently abandoned
21 channels. I would like to see it kept at, say, 10 to
22 15 cfs, something like that, down these channels at
23 least initially, during the first 5 years to 10 years,
24 something like that.

25 As these channels toughen up with riparian

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01 vegetation, as their banks become better bound with
02 riparian root systems, I think we can walk away from
03 the system and just let it be itself, and I don't think
04 we're going to get any erosion at all. But initially,
05 I think that we should limit the flow down these
06 streams until they're allowed to get back to some
07 semblance of strength and integrity.

08 Q. In essence, then, you're saying that the high
09 flows initially are not appropriate to be released into
10 Rush Creek for whatever reason, because they would be
11 detrimental to certain rewatering characteristics. On
12 the other hand, they may not be necessary for
13 deposition of sediments or fines?

14 I'm trying to get -- the point here is whether or
15 not you need high flows. You need high flows to do
16 certainly things, but you don't know high flows to do
17 others.

18 And initially, are you suggesting that we limit
19 these flows irregardless?

20 MR. DODGE: Objection. Vague as to, quote, "high
21 flows."

22 HEARING OFFICER DEL PIERO: Mr. Herrera, I counted
23 three questions, so I'm going to sustain Mr. Dodge's
24 objection. You need to be specific as to which
25 question you want to ask him first.

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01 Q. BY MR. HERRERA: First of all, I'll ask you again,
02 high flows being, as you suggested earlier, is 80 cfs
03 and above; is that correct?

04 A. BY DR. STINE: Yes. Insofar as it relates to the
05 now abandoned channels. That's not a high amount for

06 the existing channel of Rush Creek, but I wouldn't want
07 to see 80 cfs put down the abandoned channels.

08 Q. And you suggested 5 to 15 for the abandoned
09 channels?

10 A. Yes.

11 Q. And no more than that?

12 A. I would say no more than that until the riparian
13 vegetation in those channels, all the way along those
14 channels become re-established.

15 Q. Do you have a suggestion as to how to limit flows
16 to 5 to 15 cfs on these channels if, indeed, the flows
17 in the main stem of Rush Creek exceed the 80 cfs we've
18 discussed or maybe it's higher?

19 A. Yes. And I don't pretend to be an expert here,
20 but limiter logs, as they're called, are often used for
21 this purpose, to allow only a certain amount of water
22 into a particular channel. And there are people who do
23 this for a living and are quite good at it.

24 Q. So subsequently, it's your suggestion, then, that
25 the high flows are necessary for the main channel but
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01 are to be limited for the rewatering of these adjacent
02 channels?

03 A. I would say that they should be limited in the
04 abandoned channels.

05 Then you had another part of the question which
06 related to the flows in the main channel. What was
07 that, I'm sorry?

08 Q. Let me maybe get to the quick, as they were
09 saying.

10 What I'm looking at is if we had a high flow,
11 hypothetical, in Rush Creek of, say, 300 cfs --

12 A. Okay.

13 Q. -- and that has some characteristics that are
14 appropriate for the re-establishment of various things
15 in the main stem, but they could be, if allowed to
16 flow, as you said, naturally, into the side channels,
17 detrimental to those channels.

18 A. I would agree for the first some number of years
19 until those banks become bound.

20 And I hope I've made myself clear that in lots of
21 those reaches, vegetation is already in place, but
22 there are other reaches of the abandoned channels which
23 will require some time to get the vegetation back.

24 Q. So essentially, for the first -- until the
25 vegetation does get established, then the high flows

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01 should be limited to those channels?

02 A. I would agree with that, yes.

03 MR. HERRERA: That concludes my questions. Thank
04 you.

05 HEARING OFFICER DEL PIERO: Mr. Canaday?

06 Q. BY MR. CANADAY: Dr. Stine, you discussed some of
07 these prehistoric drought occurrences. Is that the
08 word you used, "prehistoric"?

09 A. BY DR. STINE: Yes. With "historic" being defined
10 as the first written record, European written record
11 from a particular area. Historic in Mono Basin is
12 pre-1854.

13 Q. Have you analyzed the statistical probability of

14 the occurrence of that drought period?
15 A. No, I haven't. Because to do something
16 statistical, I would need more droughts. And we only
17 really have three droughts, so it's difficult to deal
18 with statistics on these droughts.
19 Where we have a tree-ring record or an
20 instrumental record, then we've got lots of data. But
21 for these droughts, we really don't have -- we've got
22 lots of data that the droughts occurred, but there were
23 only three droughts in this period of time that we're
24 dealing with. So it's difficult to deal with it
25 statistically.

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01 Q. So it would be difficult for us to determine the
02 likelihood of occurrence of a drought of 20 years plus,
03 then?

04 A. Yes, it would be very difficult, yes.

05 MR. CANADAY: Thank you.

06 HEARING OFFICER DEL PIERO: Mr. Brown, do you have
07 any questions?

08 MR. BROWN: No, sir.

09 HEARING OFFICER DEL PIERO: I'm going to bite,
10 Mr. Valentine.

11 CROSS-EXAMINATION BY THE BOARD

12 Q. BY HEARING OFFICER DEL PIERO: Dr. Stine, with the
13 appearance of Paoha Islands, what year approximately?

14 A. BY DR. STINE: Somewhere between 1650 and about
15 1690.

16 Q. Black Point?

17 A. 13,500.

18 Q. Is Black Point a lava flow?

19 A. Black Point is a big cinder cone called a Guyot,
20 G-U-Y-O-T. And it's a cinder cone that formed under
21 Mono Lake when Mono Lake was about 700 feet above where
22 it is today during the last ice age.

23 Q. Any magma come out of there?

24 A. Not so much magma, cinder. Cinder that's today
25 quarried and spread on roads in Mono County.

0169

01 Q. Paoha Island, any magma appear at the time?

02 A. Paoha Island, a little bit of a lava flow on the
03 northeast corner, a plugged dome on the southeast
04 corner where there are today femorals.

05 Q. Was the magnitude of the lava flow on the
06 northeast corner significant?

07 A. If you were standing there, it sure would have
08 been. It's about a couple thousand feet long.

09 Q. Significant from the standpoint of impacting the
10 lake?

11 A. Oh, it probably created some steam. I think it
12 probably did impact the lake in that there was probably
13 a lot of sulfur injected in the lake, maybe some
14 chlorides as well at the time of that subla cluster
15 interruption, sure.

16 Q. Increase the salinity of the lake?

17 A. Probably did.

18 Q. Okay. What year was that?

19 A. Somewhere between 1650 and 1690. It doesn't have
20 the 300-year-old shoreline on it, but it does have a
21 tree on it that was established in 1690.

22 HEARING OFFICER DEL PIERO: Thank you. You're
23 excused, sir.
24 MR. DODGE: Dr. Stine, if you would just stay
25 there.

0170
01 DR. STINE: Higher authority?
02 HEARING OFFICER DEL PIERO: I tried to let you go,
03 Scott.
04 DR. STINE: Thank you, I appreciate it.
05 MR. DODGE: Dr. Li, if you would join Dr. Stine.
06 DR. LI: Marc, do I look the same as these guys?
07 If I am, they're in trouble.
08 HEARING OFFICER DEL PIERO: Do you know how many
09 days I've been here? You're starting to look like
10 F. Bruce Dodge.
11 MR. DODGE: I want to make it clear to everyone
12 that I'm calling Dr. Li on one subject in surrebuttal
13 and that is the recent changes, if any, in the width
14 and depth of Rush Creek.
15 DIRECT EXAMINATION BY MR. DODGE
16 Q. Now, Dr. Li, let's try to get through this fairly
17 quickly.
18 Did Dr. Stine ask you to take certain
19 measurements?
20 A. BY DR. LI: Yes, he did.
21 Q. And what measurements did he ask to you take?
22 A. He asked me -- Dr. Stine asked me to resurvey the
23 transects that were first established in 1987 in
24 relation to the Rush Creek instream flow studies.
25 Q. And the transects were set up in 1987; is that
0171
01 right?
02 A. Yes, they were.
03 Q. And they still exist?
04 A. Yes, they do.
05 Q. And did you do this resurveying?
06 A. Yes, I did.
07 Q. Tell us what you did, exactly.
08 A. Using standard surveying techniques, I measured
09 relative elevations at 20 of the 22 transects that are
10 located in Rush Creek between The Narrows and The
11 Ford. These 22 -- these 20 transects represent 13 of
12 the 14 sites that were established in 1987, and they
13 represent 4 different habitat types, 4 pools, 3 runs, 3
14 rock gardens, and 3 riffles.
15 Q. Now, you say 20 of 22. So I assume that you did
16 not remeasure 2. Can you tell the Board which ones you
17 did not remeasure and why?
18 A. There was one transect in a pool that was not
19 remeasured because I could not relocate one of the pins
20 and ascertain the alignment of that transect.
21 The other transect was located in the armored
22 bend, the infamous armored bend, and the reason I did
23 not measure that one is that that thing looked like a
24 porcupine with rebar quills in it. I could not figure
25 out which pins were mine. So after a period of an hour
0172
01 and a half, I gave up.
02 Q. When did you do this work?
03 A. I measured three transects on Columbus Day 1993,

04 and the remainder between January 25th and January
05 27th.

06 Q. Of what year?

07 A. 1994.

08 Q. Did you get hardship pay for that?

09 A. I like going out there.

10 HEARING OFFICER DEL PIERO: Nope, you don't look
11 anything like F. Bruce Dodge.

12 Q. BY MR. DODGE: Can you explain to the Board,
13 physically, how you went about getting depth and water
14 elevations?

15 A. BY DR. LI: The relative elevations, we
16 established the known elevation of the scope that you
17 use to survey, and that's done by measuring a known
18 location. In the case of these transects, it is
19 either the benchmark that was established or one of the
20 four rebar pins that were used to establish a
21 transect.

22 We measured all the tops of those pins and the
23 bases of those pins to -- and compared those elevations
24 with the historical data.

25 Q. Now --

0173

01 A. Then --

02 Q. Do you go across the stream and measure depth; is
03 that what you do?

04 A. Yes. You connect a measuring tape to the pins
05 first confirming that the pin distances are identical
06 to the original survey. And then you simply, using the
07 stadia rod and the auto level, measure the relative
08 elevation.

09 Q. At what intervals?

10 A. In these surveys, they were generally one-foot
11 intervals.

12 Q. Okay. How about wetted width? How did you go
13 about measuring that?

14 A. Wetted width is simply the widest extent of the
15 stream channel that is wet, and you simply look down
16 perpendicular from the tape that you've strung across
17 the transect and mark those locations.

18 MR. DODGE: Before we go on, Mr. Del Piero, I have
19 this tendency to forget. I would offer Dr. Stine's
20 rebuttal testimony, National Audubon Society and Mono
21 Lake Committee Exhibit 1-A-F and the exhibits related
22 thereto, National Audubon Society Exhibit 246 to 254,
23 258, 259, and 265.

24 MR. BIRMINGHAM: Subject only to my prior
25 objection that rebuttal testimony ought to be rebuttal

0174

01 testimony, I have no objection.

02 MS. CAHILL: Since we're on the subject --

03 HEARING OFFICER DEL PIERO: Ms. Cahill, you want
04 to object, too?

05 MS. CAHILL: No. But since Mr. Dodge did it, I
06 would, at this time, move admission of DFG 164.

07 HEARING OFFICER DEL PIERO: Those that have been
08 offered by Mr. Dodge will be entered into the record.
09 That which was offered by Ms. Cahill will be entered
10 into the record.

11 Do you have any?

12 MS. SCOONOVER: No.
13 HEARING OFFICER DEL PIERO: Mr. Roos-Collins?
14 MR. ROOS-COLLINS: No objections.
15 (NAS/MLC Exhibits Nos. 1-A-F,
16 246 to 254, 258, 259, 265 were
17 admitted into evidence.
18 DFG Exhibit No. 164 was
19 admitted into evidence.)
20 Q. BY MR. DODGE: Now, Dr. Li, is National Audubon
21 Society and Mono Lake Committee Exhibit 264 a summary
22 of the result of your measurements that you've
23 testified to?
24 A. BY DR. LI: Yes, they are.
25 Q. Briefly, can you take us through Exhibit 254?
0175
01 A. First, I would like to establish a couple things.
02 These sites were initially randomly selected based on
03 the initial habitat map that was made. The locations
04 within these randomly selected sites were also randomly
05 selected in this way. This was the only way that we
06 could make samples of the stream and not inject
07 personal bias so that these sites would be
08 representative of the Rush Creek bottomlands.
09 Before you are a set of 20 pictures. They reflect
10 the relative water -- relative elevations of -- that
11 were made in 1987, which is the dotted line, and the
12 survey that was made in 1993, slash '94, which is the
13 solid line.
14 I've also put on these figures the measured water
15 surface elevation for the 1994 survey, and I put on the
16 water surface elevation estimated from the IFG4
17 hydraulic model so that you can see the relationship of
18 80 cfs in relation to the 1987 profile and the 1994
19 profile.
20 HEARING OFFICER DEL PIERO: The water surface
21 elevation in 1987 corresponds with the 1987 level; is
22 that correct?
23 DR. LI: Yes. So, for instance, if we take the
24 first one, which is labeled Transect 49 Riffle --
25 HEARING OFFICER DEL PIERO: Okay.
0176
01 DR. LI: -- the water surface elevation that is
02 higher is the water surface elevation for 1987. The
03 dotted line below that one is the measured water
04 surface elevation of 1994.
05 HEARING OFFICER DEL PIERO: Okay.
06 DR. LI: This transect, we are going from upstream
07 to downstream. I will be brief on some of these in
08 that the pools generally had three transects placed in
09 them, and the other habitats had one transect placed in
10 them. And since the transects for the pools were
11 placed in close proximity, it would be unfair to
12 characterize them equally with the other transects.
13 HEARING OFFICER DEL PIERO: Okay.
14 DR. LI: Transect 49 is in what Dr. Stine calls
15 the Gun Barrel, approximately a hundred meters
16 downstream of The Narrows. The 1994 survey reveals a
17 stream channel that's slightly wider than the 1987
18 survey.
19 Transect 50 is about 300 meters downstream of

20 transect 49. It is a rock garden, and I see no
21 discernible differences in terms of channel width in
22 between the two surveys. However, the 1994 channel is
23 slightly deeper. It's slightly deeper by about an
24 inch.

25 Dr. Stine is pointing out to me something that you
0177

01 should be aware of. There is a vertical exaggeration
02 in these figures in that, for instance, in transect 51,
03 the abscissa, or the X axis, is a hundred feet wide,
04 whereas you're only talking about the five feet of
05 difference on the ordinate, or Y axis.

06 Transect 51 is about 800 feet downstream of
07 transect 50. It is narrower by about three inches at
08 the water surface elevation, but it is about the same
09 below that point.

10 The narrowing in width I attribute to the dry
11 banks being sloughed off into the channel as the high
12 flows came up.

13 Riffle 52 is about 500 feet downstream, and there
14 is this -- the differences between the surveys are
15 negligible, and I call it a wash.

16 Transect 53 is a run. We are looking upstream at
17 these transects, so the right-hand bank is actually on
18 the left-hand side. There is a narrowing of this
19 channel of about five feet in the top six inches in the
20 channel. There is no differences in the remainder of
21 this channel.

22 The cause for this narrowing is material that came
23 out of Parker plug, and that can be discerned in that
24 the rock material from the plug was crushed rock, and
25 no riparian vegetation was involved in this narrowing.

0178

01 Transect 54 was a rock garden and the stream
02 channel is slightly wider.

03 Q. BY MR. DODGE: Today, you mean?

04 A. BY DR. LI: Slightly wider in 1994.

05 Transect 55 is a run. There has been significant
06 scour on the left-hand side of about two feet
07 throughout the profile. On the right-hand side, as you
08 can see, the channel profile is approximately the same.

09 Dr. Stine points out that it's two to four feet
10 wider.

11 Q. When?

12 A. With the present -- with the recent survey.

13 Transect 56 is a riffle. It is narrower by about
14 a foot in the top three to four inches, otherwise, it
15 is approximately the same. It may be slightly deeper,
16 but the differences that are seen in this depth may be
17 due to being on or off a rock. So I'm calling it a
18 wash.

19 There is a series for the first pool, transect 57,
20 58, and 59. And for illustrative purposes, I'm simply
21 going to be discussing transect 57.

22 There is four channels that are watered in this
23 figure, and the only thing that's significant is the
24 left-hand facing channel has migrated approximately
25 four feet and has widened by about approximately a

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01 foot.

02 If we go to the next series of transects,
03 transects 60, 61, and 62, these represent a series in
04 the pool, the first one being the head of the pool. It
05 is slightly narrower in transect 62. It is about two
06 feet narrower within the top six inches and not much
07 difference thereafter. And in 62, it's slightly
08 narrower.

09 Q. Today?

10 A. Today.

11 All the narrowing, with the exceptions of that
12 transect that I mentioned, the Parker plug materials,
13 the narrowing is not due to riparian vegetation, but it
14 is due to dry-bank material that has sloughed down
15 causing the slight narrowing in the upper six inches or
16 so of the transects.

17 Transect 64 has that phenomenon, and otherwise the
18 surveys are identical.

19 Transects 65 and 67 represent the same pool. I
20 could not get the 66. That's the one where I lost the
21 monument markers, so I could not align the tape across
22 the transect. But these show a widening of the channel
23 below the first six inches or so, and it is significant
24 in the tail end of the pool, which is transect 67,
25 where the channel is both deeper and wider.

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01 And the last set, transects 68 through 70,
02 represent a single pool. The head of the pool,
03 transect 68, there's really not significant changes
04 here. It may be slightly wider in the present survey
05 rather than the 87.

06 HEARING OFFICER DEL PIERO: What happened to 69?

07 DR. LI: In 69 and in 70, there is a slug of
08 sediment that is passing through the pool. It happens
09 to be a long, wide bench.

10 It also -- there has been scour that has moved the
11 pool more to the right.

12 HEARING OFFICER DEL PIERO: Is that why 70's got
13 that deep spot?

14 DR. LI: Yes. And transect 69 is significantly
15 wider than the earliest survey.

16 Q. BY MR. DODGE: You've taken us through them all,
17 Dr. Li, and you've talked about some widening and some
18 narrowing.

19 I take it, again, the time frame we're talking
20 about is 1987 to early 1994; is that right?

21 A. BY DR. LI: That's correct.

22 Q. In terms of widening and narrowing, did you notice
23 any trend as you went through this material?

24 A. No. I should add that I was assisted in this
25 surveying project by Mr. Doug Parkinson who assisted me

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01 also in 1987, and upon getting out of the field, we
02 asked each other on the way home whether -- what our
03 impressions were. And we both agreed that for all
04 intents and purposes, the cross-sections that were
05 there in 1987 are essentially the same in 1994.

06 There are some changes, but those changes are more
07 reflective that the stream channel is active and some
08 change is to be expected.

09 And if anything else, the remarkable appearance of

10 the stream in the video should be attributed that there
11 it's approximately four times the flow in that video
12 than was there in 1987.

13 MR. DODGE: No further questions. Thank you.

14 HEARING OFFICER DEL PIERO: Mr. Birmingham, how
15 long are you going to be?

16 MR. BIRMINGHAM: Oh, I'm going to be at least 20
17 minutes.

18 HEARING OFFICER DEL PIERO: Let's take a
19 ten-minute break, then.

20 (A recess was taken at this time.)

21 HEARING OFFICER DEL PIERO: The hearing will again
22 come to order.

23 Mr. Birmingham?

24 CROSS-EXAMINATION BY MR. BIRMINGHAM

25 Q. Dr. Li, are you a fluvial geomorphologist?
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01 A. BY DR. LI: No, but I am Chinese.

02 Q. The answer to the question is no, you're not an
03 fluvial geomorphologist?

04 A. That's correct.

05 Q. Now, you said that from your review of the data
06 collected in 1977 and compared to the data you
07 collected in 1993 and 1994, that there has been no
08 change in terms of channel width and channel depth at
09 the transects measured; is that correct?

10 A. That's correct.

11 MR. DODGE: I believe counsel meant to say 1987
12 instead of 1977.

13 HEARING OFFICER DEL PIERO: Yes.

14 MR. BIRMINGHAM: Yes. I did mean to say it.
15 Thank you, Mr. Dodge.

16 Q. BY MR. BIRMINGHAM: And you said that any change
17 could be attributed to the fact that a stream channel
18 changes over time?

19 A. BY DR. LI: Yes.

20 Q. It's a dynamic system?

21 A. That's correct.

22 Q. Now, you do have a lot of experience with respect
23 to fisheries biology; is that correct, Dr. Li?

24 A. Yes, sir.

25 Q. I'd like to go back to the pool that is
0183

01 represented by transects 65 and 67.

02 A. Yes.

03 Q. Now, I believe it was your testimony that at an
04 elevation below approximately two feet, this pool has
05 gotten deeper and wider; is that correct?

06 A. In 65, it is clearly wider but not deeper. But in
07 67, it is clearly deeper and wider.

08 Q. Now, as I understand your testimony, transect 65
09 and transect 67 are transects of the same pool?

10 A. They represent the head and the tail of the pool.

11 Q. Now, in terms of fishery biology, fish habitat,
12 this deepening and widening of this pool at a depth
13 below approximately two feet, that's a good thing for
14 fish?

15 A. Depending -- you know, it depends on other
16 attributes such as cover and other things, yes. But in
17 general, it's better.

18 Q. Now, we have 22 transects; is that right?
19 A. You have 20 of 22.
20 Q. Excuse me. Now, these 20 transects, 20 of the 22,
21 they only represent what has occurred at these specific
22 locations between 1987 and 1994; isn't that correct?
23 A. They only represent those locations.
24 Q. And the stream at other locations may have
25 changed?

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01 A. May have.
02 Q. And that change wouldn't be represented by this
03 data?
04 A. That's correct.
05 Q. Excuse me, these data.
06 Now, just thumbing through the individual pages
07 that make up Exhibit 264, there are a number where the
08 transect appears to have gotten deeper, for instance,
09 transect 56?
10 A. I believe I said this one may have been deeper.
11 Q. Well, from the survey data, it appears that it's
12 about a foot deeper; is that correct, the thalweg?
13 A. No. The main difference is about almost 2/10ths,
14 2.4 inches, something like that.
15 Q. Now, the thalweg, as I understand, the thalweg is
16 the deepest part of the stream; is that correct?
17 A. That's correct.
18 Q. And the thalweg in 1987 was in the area slightly
19 to the right of the 30-foot mark; is that correct?
20 A. That's correct.
21 Q. And the thalweg in 1994 is about that same spot;
22 is that correct?
23 A. That's correct.

24 HEARING OFFICER DEL PIERO: Excuse me. Am I
25 looking at the right one? Are we looking at

0185

01 cross-section 56?
02 MR. BIRMINGHAM: Yes.
03 HEARING OFFICER DEL PIERO: The thalweg is on the
04 left-hand side of 30, not on the right? For 1987? Am
05 I reading this wrong?
06 DR. LI: Tom, I would also point out that --
07 MR. BIRMINGHAM: Excuse me, Dr. Li. I think
08 Mr. Del Piero is confused.
09 HEARING OFFICER DEL PIERO: Is that not correct?
10 DR. LI: I'm sorry. I didn't hear you.
11 HEARING OFFICER DEL PIERO: The deepest portion of
12 the stream in 1987 is to the left of the 30 on the
13 horizontal axis.
14 DR. LI: It's about 28 foot.
15 HEARING OFFICER DEL PIERO: Yes.
16 DR. LI: And it's about at 31 feet in 1994.
17 HEARING OFFICER DEL PIERO: Mr. Birmingham, I
18 think you misspoke.
19 MR. BIRMINGHAM: I did misspeak. I beg your
20 pardon. Thank you.
21 Q. BY MR. BIRMINGHAM: Now, the difference in depth
22 between those two points is how much, Dr. Li?
23 A. BY DR. LI: The trick to this is if you want to
24 talk about depth, we also have to take into
25 consideration the differences between the two different

0186

01 origins.

02 Q. All right. Just one of the few non-leading
03 questions I've asked.

04 A. It appears to be slightly deeper at the thalweg in
05 1994.

06 Q. Can you tell us approximately how much deeper?

07 A. Four inches or so.

08 Q. Now, the water surface elevation represented for
09 1987 is an estimated surface elevation; is that
10 correct?

11 A. That's correct.

12 Q. In 1987 when you measured the transects, what was
13 the flow in the stream?

14 A. 1987 was between 13 and 100 cfs.

15 Q. Did you take three measurements at three different
16 flows?

17 A. There were four different flows, two different
18 measurements. In terms of the measurements that you're
19 interested in, we took four different measurements.

20 Q. And what were the flows during those four
21 different measurements?

22 A. 13, 19, 60 and 100.

23 The reason why I feel relatively comfortable with
24 the estimated water surface elevation is it's between
25 the 60 cfs measurement and the 100 cfs measurement.

0187

01 Q. Now, Dr. Li, were you involved -- Mr. Smith was
02 here last week, Mr. Smith of the Department of Fish and
03 Game, and he presented testimony in response to
04 testimony submitted by Dr. Hardy.

05 HEARING OFFICER DEL PIERO: It's starting to look
06 like a forest with all the people standing up behind
07 you Mr. Birmingham, I feel it.

08 MR. DODGE: Mr. Del Piero, we have called Dr. Li
09 in surrebuttal to Dr. Beschta to talk specifically
10 about depths and widths of Rush Creek between 1987 and
11 1993.

12 What Mr. Birmingham wants to do now is to talk to
13 Dr. Li about whether or not segment three should have
14 been included in the Lee Vining Creek IFIM. And I
15 think that is beyond the bounds of surrebuttal. He's
16 had his opportunity to talk to Dr. Li on that subject.
17 He has done so, and we ought to stop.

18 HEARING OFFICER DEL PIERO: Ms. Cahill?

19 MS. CAHILL: Mr. Del Piero, yes. I would point
20 out that Dr. Li is here as a surrebuttal witness on
21 surrebuttal, the agreement of the parties, as
22 memorialized in my letter to you in December, was
23 written testimony need not be filed for such witnesses,
24 but their testimony will be limited to the subject
25 matters covered by the testimony to which they are

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01 called to respond.

02 Dr. Li was on our Rush Creek panel. He was here
03 parts of three days. Mr. Birmingham, in fact, has
04 already quizzed Dr. Li on the Lee Vining Creek report
05 including Rush Creek. I can cite the transcript, if
06 necessary, and I believe it would be improper to allow
07 that line of questioning when Dr. Li is called by

08 another party on another subject in surrebuttal.
09 HEARING OFFICER DEL PIERO: Mr. Birmingham?
10 MR. BIRMINGHAM: We had testimony -- the sole
11 subject of Mr. Smith's testimony here last week was why
12 Dr. Li changed his mind between the draft IFIM report
13 on Lee Vining Creek, and the final IFIM report. That
14 was the sum and substance of Mr. Smith's testimony.
15 I asked Mr. Smith questions that established that
16 the reason that information was contained in the final
17 report that wasn't contained in the draft report, why
18 the Reach Three data were included, was because Dr. Li
19 changed his mind.
20 Now, the Hearing Officer has many times correctly
21 pointed out that hearsay is certainly admissible in
22 this proceeding, and Dr. Smith's testimony amounted
23 principally of hearsay testimony: Why Dr. Li changed
24 his mind.
25 Dr. Li is here today, and I think it would be most
0189
01 enlightening if we could ask Dr. Li questions about why
02 he changed his mind.
03 HEARING OFFICER DEL PIERO: Ms. Cahill?
04 MS. CAHILL: Mr. Del Piero, I would point out that
05 in the transcript of this hearing, Volume 19, December
06 7th, 1993, Dr. Li testified, "Reach three is the
07 steepest reach on Lee Vining Creek. And at the time I
08 wrote that, I was putting greater credence in the
09 amount of entrained air in the creek at different
10 flows. And based on that, and knowing that very steep
11 reaches are difficult to simulate; i.e., for a lack of
12 discipline, I removed that data. Upon rethinking that,
13 I felt it was more responsive by those data and final
14 report."
15 Mr. Birmingham has already quizzed Dr. Li on this.
16 We already had his direct testimony on this. It would
17 corroborate any hearsay of Mr. Smith, but most
18 basically, this is not a proper subject when he was
19 provided as a surrebuttal witness by Mr. Dodge to
20 respond to Dr. Beschta. We will never have an end of
21 it.
22 HEARING OFFICER DEL PIERO: Mr. Dodge?
23 MR. DODGE: I just want to point out that
24 Mr. Birmingham, in all of his justification for this
25 line of questioning, never once suggested as to why
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01 this was proper cross-examination on surrebuttal. All
02 he did was say, "I'd like to ask these questions."
03 HEARING OFFICER DEL PIERO: Mr. Birmingham, last
04 comment.
05 MR. BIRMINGHAM: To date, no party has been
06 restricted on the areas of examination on
07 cross-examination of a witness.
08 HEARING OFFICER del PIERO: Actually, that's not
09 true, Mr. Birmingham, but I can cite you at least two
10 occasions that's happened.
11 MR. BIRMINGHAM: With only two exceptions of which
12 I'm now aware, no party has been limited.
13 Again, if Dr. Li adequately explained why he
14 changed his mind when I examined him, there was
15 absolutely no reason for the Department of Fish and

16 Game to waste all of our time in bringing Dr. Smith
17 here -- or Mr. Smith here to explain why Dr. Li changed
18 his mind.

19 Dr. Li is here today, and I've got some specific
20 questions of Dr. Li about why he changed his mind and
21 whether or not his original opinion was, as a matter of
22 fact, the appropriate opinion. And I think that is
23 entirely proper.

24 HEARING OFFICER DEL PIERO: Mr. Frink? Mr. Frink,
25 there was a reason for you to be here for the last

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01 40-odd days.

02 MR. FRINK: I appreciate that.

03 HEARING OFFICER DEL PIERO: I have an opinion, but
04 I'd like to know yours.

05 MR. FRINK: In theory, I agree with Mr. Dodge's
06 objection, and I would hope that the cross-examination
07 on all the witnesses at this point in the hearing would
08 be restricted.

09 But the problem that I have is that it has been
10 very, very broad up until now and in most instances.

11 If you do allow questions of Dr. Li in this area,
12 I would hope that they could be relatively few and
13 quick and that everybody in the future could try to
14 restrict their cross-examination to the subject of the
15 rebuttal or surrebuttal.

16 HEARING OFFICER DEL PIERO: How many questions do
17 you have of this nature?

18 MR. BIRMINGHAM: I can do it in ten minutes.

19 MS. CAHILL: Mr. Del Piero, can I make one last
20 comment?

21 Although, on the original direct, to examine on
22 any topic, although Dr. Stine was here today on regular
23 rebuttal as well as surrebuttal, the parties, by their
24 own agreement, have indicated that on surrebuttal, the
25 witness would be strictly limited to the subject on

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01 which he was called. That's why this case is
02 different.

03 Dr. Li is the first purely surrebuttal witness, to
04 my knowledge, that this has come up on, and that's the
05 difference. The difference is this was a surrebuttal
06 person. We had limited what we were going to ask
07 surrebuttal people.

08 HEARING OFFICER DEL PIERO: Mr. Birmingham, you
09 want to respond to that issue specifically to the
10 letter?

11 MR. BIRMINGHAM: I don't have a copy of the letter
12 here. May I?

13 HEARING OFFICER del PIERO: As some of you will
14 recall, I had hoped to not have to deal with this
15 issue.

16 MS. CAHILL: I would point out --

17 MR. BIRMINGHAM: I think, actually, Mr. Del Piero,
18 what this agreement relates to is that the party
19 calling the witness will be limited to asking questions
20 on the subject designated in the notice to the Board
21 that that party will be calling the witness.

22 The letter says that, "Written testimony -- that
23 by 5:00 p.m. on Monday, January 10, the names of

24 witnesses who will testify on subjects listed by any
25 other party. Written testimony need not be filed for
0193
01 such witnesses, but their testimony will be limited to
02 the subject matters covered by the testimony to which
03 they are called to respond."
04 And I believe that was intended to limit the
05 ability of the party calling that witness as a
06 surrebuttal witness, not the ability of other parties
07 to examine that witness.
08 HEARING OFFICER del PIERO: Mr. Frink, was that
09 your understanding?
10 MR. FRINK: I didn't write the letter. Ms. Cahill
11 wrote the letter.
12 HEARING OFFICER DEL PIERO: I didn't ask you if
13 you wrote the letter, Mr. Frink. The letter is a
14 summary of a consensus among the individual --
15 MR. FRINK: I don't believe that the question of
16 what would be the scope of cross-examination of a
17 surrebuttal witness was ever addressed.
18 I think what the letter went to is what would be
19 the scope of the direct examination of a surrebuttal
20 witness.
21 So the question is open. I'm not sure that
22 there's a big difference between what the Board should
23 rule regarding the scope of cross-examination of
24 rebuttal witnesses, and scope of cross-examination of
25 surrebuttal witnesses.
0194
01 HEARING OFFICER DEL PIERO: You have ten minutes,
02 Mr. Birmingham.
03 Mr. Herrera, Mr. Birmingham has ten minutes.
04 Proceed.
05 MR. BIRMINGHAM: Thank you very much.
06 Q. BY MR. BIRMINGHAM: Do you have a copy of the
07 draft report which is in evidence as State Board
08 Exhibit 2?
09 A. BY DR. LI: I believe you placed it before me.
10 Q. Dr. Li, I'd ask you to look at page 24 of the
11 draft report, and for the record, we're referring to
12 the draft report on Lee Vining Creek.
13 Now, is there a reference to Reach Three on page
14 27 -- I'm sorry, page 24 of the draft report?
15 A. Yes.
16 Q. It states, doesn't it, that in Reach Three, four
17 habitat types were sampled: pool, riffle, run, and
18 cascade; is that correct?
19 A. I don't see that on page 24, counsel.
20 Q. I'm sorry, you have a different draft report.
21 Excuse me, Mr. Del Piero, may I ask for a time
22 out?
23 MS. CAHILL: No. Really, no time out.
24 HEARING OFFICER DEL PIERO: We established at the
25 beginning of this process that Mr. Herrera keeps time,
0195
01 Mr. Birmingham.
02 MR. BIRMINGHAM: Thank you very much.
03 Q. BY MR. BIRMINGHAM: I'm showing you my copy of
04 the draft report that is dated August -- I'm sorry,
05 July 1992; is that correct?

06 A. BY DR. LI: Yes.
07 Q. And there's a reference, Dr. Li, to Reach Three,
08 and it states, "In Reach Three, four habitat types were
09 sampled." Is that correct?
10 A. That's correct.
11 Q. Pool, riffles, runs, and cascades; is that
12 correct?
13 A. That's correct.
14 Q. You state further that sampling the cascades was
15 limited to portions with the lowest gradient?
16 A. That's correct.
17 Q. Does that mean you put the transect in which you
18 were sampling the cascades actually in the tail pool?
19 A. Tom, do you know what a cascade is?
20 Q. Yes, I do.
21 A. Tell me what it is.
22 HEARING OFFICER DEL PIERO: Wait a second,
23 Dr. Li. Dr. Li, if you believe by the nature of the
24 question Mr. Birmingham has a misunderstanding of what
25 a cascade is, you need to define it so we can move this
0196
01 along.
02 DR. LI: The reason why they were placed there is
03 in terms of IFG4, you're wasting money by putting it
04 anyplace else.
05 Q. BY MR. BIRMINGHAM: So the answer to my question
06 is yes, in the cascade --
07 A. BY DR. LI: Cascade has significant vertical
08 components to it.
09 Q. And when you placed the transects in the cascade
10 reaches, you actually placed them in the tail out pool
11 of the cascade reach; isn't that correct?
12 A. No.
13 Q. I'd like you to look at page 32 of the draft
14 report, my copy of the draft report.
15 HEARING OFFICER DEL PIERO: Mr. Birmingham, in
16 order to facilitate this, pull a chair up, grab the
17 microphone, and then we don't have to loose time with
18 you moving back and forth. Okay?
19 Q. BY MR. BIRMINGHAM: Now, Dr. Li, looking at this,
20 it states that -- I'm looking at page 32 of the draft
21 report. It states, "We believe the overestimation of
22 habitat is due to the inability of IFG4 habitat model
23 to recognize the turbulent super critical flow and air
24 entrainment as not suitable for trout habitat."
25 "Another factor which may have affected habitat
0197
01 estimation was the location of transects within
02 cascades. They were placed in the plunge pools, the
03 only place where the IFG4 hydraulic programming could
04 perform."
05 Is that what you did?
06 A. BY DR. LI: Then you misspoke earlier.
07 Q. Did you place the transect in the plunge pools?
08 A. I placed the transect in the plunge pool portion
09 of cascade.
10 Q. So, in reality, rather than sampling pools,
11 riffles, runs, and cascades, as reported on page 24,
12 you sampled pools, riffles, runs and plunge pools; is
13 that correct?

14 A. Plunge pool is a portion of cascade. So I'm still
15 sampling a cascade.

16 Q. Isn't it correct, Dr. Li, that generally in the
17 top of a cascade, there will be water which trout will
18 avoid because of entrained air?

19 A. I can't speak to that directly. I've dove in many
20 plunge pools, but I have not observed fish there.

21 Q. Now, on page 28 of the report you say, "However,"
22 and again, we're referring to Reach Three; is that
23 correct, Dr. Li?

24 A. Yes.

25 Q. Let me start at the second to the last paragraph
0198
01 on page 28. It says, "For Reach Three, weighted usable
02 area stream discharge relationships were similar to
03 Reach Two except the estimated amount of habitat
04 exceeds Reach Two, Figure 12."
05 That surprised you, didn't it, Dr. Li?

06 A. And that's the reason why I went off on this wild
07 tangent.

08 Q. You say, "However," further in the next paragraph
09 you say, "This habitat model of Reach Three is
10 unrealistic based upon our experience delineating
11 habitat on the creek and collecting physical data for
12 PHABSIN?

13 A. But upon reflection, I felt that was incorrect.

14 Q. Isn't it correct, Dr. Li, that the IFG4 model
15 cannot accurately determine weighted usable area in the
16 head of a cascade?

17 A. I don't know what you mean by a "head of a
18 cascade."

19 Q. Excuse me.

20 Now, would you agree, Dr. Li, that the plunge pool
21 where you placed the transects is not the main feature
22 of a cascade?

23 A. It depends. Plunge pool cascades are a
24 combination of high-gradient riffle and plunge pools.
25 And so it depends on the proportion of plunge pool to
0199
01 high-gradient riffle.

02 Q. I'm going to draw a stream channel which is
03 exaggerated, and I'll represent this is the bottom of a
04 stream, Dr. Li, the bed of a stream channel, and water
05 is flowing this direction.

06 Now, as water flows down here, if there is a lot
07 of turbulent water where I'm indicating, this would
08 represent a cascade; is that correct?

09 A. It would be in a location such as that.

10 Q. Now, when you measured the weighted usable area of
11 these cascades, you measured it in the area that you
12 referred to as a plunge pool, which would be in this
13 location, approximately, or further down stream; is
14 that correct?

15 A. No. It depends on the configuration of any
16 particular cascade. It could be located on the
17 upstream, and it could be in the middle. It could be
18 at the bottom, depending on where the hydraulic
19 control's on.

20 Q. But it's at that point where the water calms down
21 out of the cascade; isn't that right?

22 A. It's where there is less vertical component than
23 the other portion.

24 Q. Now, is it right, Dr. Li, that if all of the
25 measurements of weighted usable area that you have for
0200 cascades are in this plunge pool area, the estimated
01 weighted usable area for the entire cascade is going to
02 be overestimated?
03

04 A. Depends on what the depth and velocities are in
05 the other portions. All we can say is those areas are
06 unaddressed.

07 Q. Are -- excuse me?

08 A. Are unaddressed.

09 Q. And, in fact, the IFG4 model is inaccurate in
10 these areas; isn't that right?

11 A. It's very difficult to get those calibrated.

12 Q. So the answer to my question is yes, as you report
13 in the draft report, the IFG4 model will not accurately
14 predict weighted usable area in that portion of cascade
15 with a large vertical element?

16 A. Yes.

17 Are you really interested in why I put it back in
18 rather than keeping it out, rather than prolonging this
19 thing?

20 Q. Well, Dr. Li, I will ask you, despite my rule:
21 Why did you decide to put this back in?

22 A. It happens to be the basic rule that when you have
23 data, you don't throw it out, because when you throw it
24 out, you're subject to the criticism that you're being
25 arbitrary and capricious.

0201

01 Now, in reviewing the data that I had, I took a
02 look at the hydraulic calibrations, every detail, and
03 everything else other than my own personal bias, led me
04 to believe that it was unrealistic. I could not
05 technically throw it out for reasons of model
06 performance.

07 Therefore, rather than throw away all the
08 information, I preferred to include that information,
09 however flawed I might have thought it was.

10 MR. HERRERA: Your ten minutes has expired.

11 MR. BIRMINGHAM: Thank you.

12 Q. BY MR. BIRMINGHAM: Dr. Li, what was your
13 experience -- and this will be the last question I
14 have.

15 When you wrote "this habitat model of Reach Three
16 is unrealistic based upon our experience in delineating
17 habitat on the creek," what experience were you
18 referring to?

19 A. BY DR. LI: In my mind's eye, simply looking at
20 the difference in weighted usable area between Reach
21 Two and Reach Three is largely due to the fact that
22 Reach Three is longer than Reach Two. I did not take
23 that into consideration.

24 It simply surprised me that the weighted usable
25 area peaked at a higher flow in Reach Two than in Reach
0202

01 Three.

02 MR. BIRMINGHAM: Thank you.

03 HEARING OFFICER DEL PIERO: Ms. Cahill?

04 MR. BIRMINGHAM: I didn't realize all my time was
05 up.
06 HEARING OFFICER DEL PIERO: Oh?
07 MR. BIRMINGHAM: Actually, I have no more
08 questions.
09 CROSS-EXAMINATION BY MS. CAHILL
10 Q. Good afternoon, Dr. Li.
11 A. BY DR. LI: Good evening, Ginny.
12 MR. FRINK: Mr. Birmingham --
13 HEARING OFFICER DEL PIERO: Actually,
14 Mr. Birmingham, did you want that marked?
15 MR. BIRMINGHAM: We'll mark that next in order.
16 HEARING OFFICER DEL PIERO: Next in order.
17 MR. SMITH: Okay. It's 166.
18 HEARING OFFICER DEL PIERO: You need to have
19 Mr. Birmingham sign that and appropriate copies made
20 for all parties.
21 (L.A. DWP 166 was marked for
22 identification.)
23 MR. DODGE: Mr. Del Piero, can we put on the rest
24 of our witnesses tomorrow?
25 MR. BIRMINGHAM: I'll have very few questions for
0203
01 Mr. Messick.
02 HEARING OFFICER DEL PIERO: Yes, sir. 8:30
03 tomorrow morning.
04 Q. BY MS. CAHILL: Dr. Li, can you tell us again what
05 the habitat types were in Reach Three?
06 A. BY DR. LI: Pool, riffle, run, and cascade.
07 Q. And there's no doubt that there is habitat in pool
08 areas?
09 A. That's correct.
10 Q. And there is habitat in riffle areas?
11 A. Yes, there is.
12 Q. There is habitat in run areas?
13 A. Yes, there are.
14 Q. And there is habitat, at least in plunge pool
15 areas of the cascade habitat type?
16 A. Yes, there is.
17 Q. It's fair to say there is habitat on Reach Three
18 in Lee Vining Creek?
19 A. Yes, there is.
20 Q. When you did your electrofishing, did you, in
21 fact, find some fish in Reach Three on Lee Vining
22 Creek?
23 A. Yes, I did.
24 Q. With regard to the --
25 MR. DODGE: Mr. Del Piero, do we have a running
0204
01 understanding that these questions beyond surrebuttal
02 are limited to ten minutes for all parties?
03 MS. CAHILL: It will be.
04 HEARING OFFICER DEL PIERO: Fine. We now have
05 that understanding.
06 MR. DODGE: And could I send the bill to these
07 people who are going beyond the rules for Dr. Li's
08 time? They're wasting my client's money.
09 MR. BIRMINGHAM: I suspect that they will be sent
10 to the Department of Water and Power, in any event.
11 Q. BY MS. CAHILL: With regard to the fact that WUA

12 seemed to be increasing with discharge, was it true
13 that it was increasing with discharge more in Reach
14 Three than in Reach Two? This was something that was
15 in the draft.

16 Let me -- don't bother to look, Dr. Li.

17 Whether the weighted usable area was increasing
18 faster in Reach Two or in Reach Three, it wouldn't mean
19 that either one was necessarily inaccurate, would it?

20 A. BY DR. LI: That's correct.

21 Q. And at the time you wrote your draft report, you
22 had -- well, let me withdraw that.

23 It was your decision by the time you issued the
24 final report in the Lee Vining Creek study, that it was
25 preferable scientifically to include the Reach Three
0205

01 data than to exclude it?

02 A. After detailed discussions with some of my subs
03 and with my client, I came to realize that what I was
04 doing was indefensible in removing Reach Three.

05 In reviewing that data, all the data appeared to
06 be reasonable, and I was not considering that the
07 state's discharge relationships that I based the
08 hydraulic model on were under conditions where air
09 entrainment, which was one of my greater concerns, was
10 not a factor.

11 Therefore, the estimate of flow above the highest
12 flow would not have been affected by those sorts of
13 considerations.

14 Q. Okay. So in the end, it was your decision, as
15 Mr. Smith stated the other day, that it was better to
16 include that data?

17 A. Yes.

18 Q. Have you, in fact, reviewed the transcript of
19 Mr. Smith's testimony?

20 A. Yes, I have.

21 Q. And do you disagree with anything that he said
22 about the Rush -- about the Lee Vining Creek study?

23 A. No, I don't.

24 MS. CAHILL: Thank you.

25 HEARING OFFICER DEL PIERO: Mr. Roos-Collins?
0206

01 CROSS-EXAMINATION BY MR. ROOS-COLLINS

02 Q. Good evening, Dr. Li.

03 A. BY DR. LI: Good evening, sir.

04 Q. I have no questions about the IFIM on Lee Vining
05 Creek.

06 A. Thank you.

07 Q. Instead, let's turn to your transect, specifically
08 transect 56, in National Audubon Society Exhibit 264.

09 Do you have that transect in front of you?

10 A. Yes, I do.

11 Q. Now, during his cross-examination, Mr. Birmingham
12 asked you several questions about this transect. One
13 of the questions went to whether changes elsewhere
14 would be reflected in the transect data, and you said
15 no.

16 Was that your answer to that question?

17 A. Yes, it was.

18 Q. Let's explore that a little bit. Let's assume
19 that the channel immediately upstream of transect 56

20 had substantially narrowed and deepened between 1987
21 and 1994. Are you with me so far?
22 A. Yes.
23 Q. Would that narrowing and deepening of the channel
24 immediately upstream of transect 56 change the
25 hydraulic force entering transect 56?

0207

01 A. Yes.
02 Q. Would you expect the change in hydraulic force
03 entering the transect to work a change on the transect
04 itself?
05 A. Yes.
06 Q. So if this transect in 1994 is comparable to the
07 transect in 1987, wouldn't that suggest that the
08 hydraulic force entering the transect does
09 substantially change during that period?
10 A. It would.

11 MR. ROOS-COLLINS: Thank you, no further
12 questions.

13 HEARING OFFICER DEL PIERO: Mr. Valentine?

14 MR. VALENTINE: No questions.

15 HEARING OFFICER DEL PIERO: Mr. Dodge?

16 MR. DODGE: No questions. I offer Exhibit 264.

17 HEARING OFFICER DEL PIERO: Mr. Frink?

18 MR. FRINK: I have no questions, but I believe
19 some of the other Staff does.

20 HEARING OFFICER DEL PIERO: Mr. Satkowski?

21 MR. SATKOWSKI: No questions.

22 HEARING OFFICER DEL PIERO: Mr. Smith?

23 MR. SMITH: No questions.

24 HEARING OFFICER DEL PIERO: Mr. Herrera?

25 MR. HERRERA: I have one question.

0208

01 CROSS-EXAMINATION BY THE STAFF

02 Q. BY MR. HERRERA: In Mr. Birmingham's
03 cross-examination, he indicated that the version of the
04 draft Lee Vining report was different than the one he
05 had. Was there more than one draft?

06 A. BY DR. LI: Yes, there was.

07 Q. So, apparently, I've got a different draft because
08 Mr. Birmingham was utilizing my draft report, so
09 essentially there was one more than one Lee Vining
10 draft report?

11 A. Yes, there was.

12 Q. Was there different dates or different notations?

13 A. There were different dates on the front, and I
14 would have to go back to my help to determine which
15 ones you had.

16 Q. Do you know if both of these drafts were submitted
17 to the Water Board?

18 A. I --

19 Q. Or do you need to discuss that with Fish and Game?

20 A. I don't know, Steve. What started this stuff was
21 the draft that you apparently received was intended for
22 internal review and not meant to be released as a
23 review at that time.

24 Q. What was the date on your draft that you were
25 referring to this evening?

0209

01 A. July 1992 -- yeah, July 1992.

02 Q. And the version I have is dated December 1992?
03 MR. BIRMINGHAM: Excuse me, Mr. Del Piero. The
04 version you gave me last week, Mr. Herrera, is the same
05 version that I have here. So apparently you have both
06 versions.
07 MR. FRINK: And both of those versions would be
08 included in the Staff files on this matter, which if
09 they weren't otherwise identified, were included as
10 SWRCB Exhibit 2.
11 MR. BIRMINGHAM: Let me state the basis for my
12 saying that. Last week when I was asking questions
13 about this report, I referred to the statements that
14 are contained on page 28 of the draft report that I
15 currently have, and those statements do not appear on
16 page 28 of the report that Mr. Herrera has today. So
17 apparently he has both reports.
18 HEARING OFFICER DEL PIERO: Further questions,
19 Mr. Herrera?
20 MR. HERRERA: I have no further questions.
21 HEARING OFFICER DEL PIERO: Mr. Canaday?
22 MR. CANADAY: None.
23 HEARING OFFICER DEL PIERO: I have one question,
24 Mr. Dodge.
25 ///

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01 CROSS-EXAMINATION BY THE BOARD
02 Q. BY HEARING OFFICER DEL PIERO: Dr. Li, is it
03 common when preparing a report for drafts to be
04 circulated for comment by one's peers and colleagues?
05 A. BY DR. LI: Yes, it is.
06 Q. It is common for comments to be made based on
07 those comments?
08 A. Yes, it is.
09 Q. Have you ever written a draft report or changed
10 one based on comments?
11 A. I don't think I've written anything that I haven't
12 changed.
13 HEARING OFFICER DEL PIERO: Mr. Dodge?
14 MR. DODGE: I want to know whether Exhibit 264 has
15 been received.
16 HEARING OFFICER DEL PIERO: If it has not, it is
17 now.
18 (NAS/MLC Exhibit No. 264 was
19 admitted into evidence.)
20 HEARING OFFICER DEL PIERO: Ladies and gentlemen,
21 we will see you at 8:30 tomorrow morning.
22 Mr. Canaday, do you have any comment, sir?
23 MR. CANADAY: Just to make sure we understand who
24 the witnesses tomorrow will be.
25 Mr. Dodge, you will call in the morning --

0211

01 MR. DODGE: We'll start with Tim Messick. We'll
02 go to Peter Vorster, and Patrick Flinn has a person
03 he's going to call. His name I've forgotten Bahman, or
04 something like that, and I think in terms of our
05 witnesses, that will wrap it up.
06 HEARING OFFICER DEL PIERO: Okay. Mr. Birmingham,
07 Dr. Beschta and Mr. Hasencamp?
08 MR. BIRMINGHAM: Mr. Hasencamp will instruct me in
09 the morning.

10 HEARING OFFICER DEL PIERO: Okay. We are
11 scheduled into the evening tomorrow evening in the
12 event it takes longer than I hope.

13 (Whereupon the proceedings were
14 adjourned at 7:55 p.m.)

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01 REPORTER'S CERTIFICATE

01

02

---o0o---

02

03 STATE OF CALIFORNIA)

03) ss.

04 COUNTY OF SACRAMENTO)

04

05 I, KIMBERLEY R. MUELLER, certify that I was the
06 official court reporter for the proceedings named
07 herein; and that as such reporter, I reported, in
08 verbatim shorthand writing, those proceedings, that I
09 thereafter caused my shorthand writing to be reduced to
10 typewriting, and the pages numbered 1 through 209
11 herein constitute a complete, true and correct record
12 of the proceedings:

13

14 PRESIDING OFFICER: Marc Del Piero

15 JURISDICTION: State Water Resources Control Board

16 CAUSE: Mono Lake Diversions

17 DATE OF PROCEEDINGS: February 17, 1994

18

19 IN WITNESS WHEREOF, I have subscribed this
20 certificate at Sacramento, California, on this 1st day
21 of March, 1994.

22

23

23

Kimberley R. Mueller

24

CSR No. 10060

24

25

25