0001

PUBLIC HEARING

STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

STATE OF CALIFORNIA

---o0o---

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

---o0o---

Held in

Resources Building

Sacramento, California

Wednesday, November 17, 1993

VOLUME XIV

---o0o---

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

0002

BOARD MEMBERS

MARC DEL PIERO, Vice Chairman
JOHN CAFFREY, Chairman
JAMES STUBCHAER
JOHN W. BROWN
MARY JANE FORSTER

STAFF MEMBERS

DAN FRINK, Counsel
JAMES CANADAY, Environmental Specialist
STEVE HERRERA, Environmental Specialist
RICHARD SATKOWSKI, Engineer
HUGH SMITH, Engineer

COUNSEL AND OTHERS

For the U.S. Fish and Wildlife Service:

ERIKA NIEBAUER
Assistant Regular Solicitor
Office of Solicitor
Pacific Southwest Region
2800 Cottage Way
Sacramento, California 95825

For the Sierra Club:

LARRY SILVER:

For California Department of Fish and Game:

HAL THOMAS
VIRGINIA CAHILL
McDonough, Holland & Allen
555 Capitol Mall, Suite 950
Sacramento, California 95814

For the U.S. Forest Service:

JACK GIPSMAN
Office of General Counsel
U.S. Department of Agriculture

For the National Audubon Society and Mono Lake Committee:

BRUCE DODGE
PATRICK FLINN
Attorneys at Law
755 Page Mill Road
Palo Alto, California 94304

For California Trout:

RICHARD ROOS-COLLINS
CYNTHIA KOEHLER
Attorneys at Law
114 Sansome Street, Suite 1200
San Francisco, California 94104

COUNSEL AND OTHERS

For the City of LA and LA DWP:

THOMAS W. BIRMINGHAM
JANET GOLDSMITH
Attorneys at Law
Kronick, Moskovitz, Tiedemann & Girard
400 Capitol Mall, 27th Floor
Sacramento, California 95814

For State Lands Commission, Department of Parks and Recreation:

JOHN STEVENS
Assistant Attorney General
1515 K Street
Sacramento, California 95814

For Meter Water District of Southern California and LA MWD:

VICTOR GLEASON
Attorney at Law
1111 Sunset Boulevard
Los Angeles, California 90050-0153

FRANK HASELTON
Haselton Associates

JOHN ARCULARIUS

MARY SCOONOVER

0005

I N D E X

E X H I B I T S

	MARKED
Cal-Trout Exhibit No. 25	29
L.A. DWP Exhibit No. 83	80
L.A. DWP Exhibit No. 84	108
L.A. DWP Exhibit No. 85	240

0006

SACRAMENTO, CALIFORNIA
WEDNESDAY, NOVEMBER 17, 1993, 8:30 A.M.
---o0o---

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

This is a continuation of the hearing of the State Water Resources Control Board regarding amendments to the City of Los Angeles' water rights licenses for the diversion of water from the streams tributary to Mono Lake.

My name's Marc Del Piero. I'm Vice-Chairman of the State Water Resources Control Board acting in the capacity of Hearing Officer for this matter. With me today is Mr. John Brown, who's also a member of the State Water Resources Control Board and my good friend. And also with us today is Chairman of the State Water Resources Control Board, Mr. John Caffrey.

When last we left, Mr. Flinn was cross-examining, I think. Is that true, Sir?

MR. FLINN: Yes. And I was going to ask for another 20 minutes.

HEARING OFFICER DEL PIERO: And you were granted another 20 minutes.

MR. FLINN: Yes. In fact, I was going to ask for this special favor. If whoever is keeping time, could

0007

actually keep time at ten minutes and five minutes, so when I'm told there's ten minutes left and five minutes left, so I can try and make sure I get through the important points. If that's not too much to ask.

MR. HERRERA: I can probably do that if our watch is working.

MR. FLINN: Thank you.

CROSS-EXAMINATION BY MR. FLINN (Continued)

Q A few more questions, probably, for Dr. Carson, but again, whoever wants to answer, about the CV study.

Dr. Carson, in your oral statement, you mentioned having looked at some of the follow-up questions that were asked of the respondents. Do you recall that testimony?

A BY DR. CARSON: Yes.

Q Did you read the follow-up questions about the -- the answers that were given by people who indicated a lack of willingness to pay for the protection of Mono Lake?

A If there's a problem in the survey, these so-called follow-up or debriefing questions are not as extensive as you might want in a large survey, and so the answer is yes, I've read what's there, but there's not very much really there.

0008

Q Okay. But -- because you brought it up in your testimony, I want to bring it up in mine. Let me ask you a question.

You recall, first of all, that the survey respondents were asked to assume that the money that they would pay to protect Mono Lake would actually be given to the government?

A Correct.

Q And you recall that some of the respondents, the textual responses, indicated their lack of willingness to pay, not so much because they didn't want to protect Mono Lake, but they doubted that the government would actually use the money for that purpose?

A That's correct.

DR. WADE: Excuse me, Mr. Flinn.

Q BY MR. FLINN: Now Dr. Wade. Again, this is probably more to you because I'm going to focus on your testimony, but I don't know if you want to answer it.

Your $95 million shortage costs that was the big difference between you and Jones and Stokes is derived from the assumption that all of the replacement water for Mono Lake would have to be acquired from the Metropolitan Water District; is that correct?

A BY DR. WADE: It's -- not precisely, but mostly because there is some added reclamation water in our

0009

model.

Q What reclamation assumptions did you make?

A We made -- backing up just a step to answer your question, the ERM was loaded and provided to us by the Department of Water Resources with the assumptions that

are currently embedded in forthcoming Bulletin 1693. And to that, we added 52,000 acre-feet of incremental reclamation to bring the number up in line with the Jones and Stokes assumptions.
Q Okay. And if more than that were, in fact, available in the year 2000, then there would be less need for Metropolitan water; is that right?
A Well, that would be hypothetical, but true.
Q Now, let's talk about MWD a little bit. You criticized the Draft EIR for its lack of analysis as to whether or not the Metropolitan Water District in fact had the water available. Do you recall that?
A I wouldn't label it as being critical. I displayed a table which indicated that the State Water Project did not have the deliverability to provide Metropolitan the incremental make-up water.
Q You mention the State Water Project. Is that the only place the Metropolitan Water District gets its water?
A No. That's the place Metropolitan gets its

0010

incremental water.
Q Does the Metropolitan Water District get water from the Colorado River?
A Yes.
Q And how much water did you assume on an annual basis they could get from the Colorado River?
A I assumed the firm yield plus the Imperial Irrigation District transfer for a total of 626,000 acre-feet.
Q And how much last year did they actually get from the Colorado River?
A To jump ahead, Sir, they've been running full pipe for much of the last ten years.
Q And that's approximately one point two million acre-feet; isn't that right?
A I think it's a little more than that.
Q So your assumptions assume that Metropolitan's Colorado River supplies would be halved by the year 2000; isn't that right?
A No. That is not my assumption explicitly as you stated. It is rather that, for a planning perspective, every planner in the state can only assume for the year 2000 what the contract specifies because no planner in the state has any certitude as to what the offtake above Metropolitan upstream in Arizona and Nevada will

0011

be. The safe assumption, the usual, the accepted planning assumption is the firm yield, 626,000 acre-feet in this particular case.
Q Assuming that this Water Board wanted to make as accurate a prediction as possible with regard to the availability of Metropolitan water supplies, do you believe that Metropolitan, itself, would be a reliable source of information on that subject?
A The answer would be yes, and I think this Board would have to review, with respect to the line of questions that you're pursuing, very hard evidence as to what these things are. But the hard evidence that's afoot in the planning community today is 626,000

acre-feet.
Q Do you know a man named Timothy Quinn?
A I certainly do.
Q And you understand that he, like yourself, is an economist?
A I certainly do.
Q And do you have an opinion as to whether or not Dr. Quinn's testimony about water supply is credible and reliable and believable?
A I would accept it as that.
Q Have you read his written testimony?
A I have.

0012

Q And you understand that he predicts in his written testimony continued availability of $1.2 million Colorado River water?
A You know, I think his testimony was written, like mine, some months ago, and I think that Metropolitan has had a -- a reversal of fortune since he wrote that testimony, if I may take a minute.
It's my understanding --
Q Before you do, I would ask you --
A The point would be that the bottom line is I think Mr. Quinn's testimony may be mistaken on this point by more current events.
MR. FLINN: Madam Reporter, would you read back the question, and this time, Dr. Wade, I'd like you to answer the question.
(Whereupon the record was read as reported.)
DR. WADE: If that's what he said, that would be his testimony.
Q BY MR. FLINN: I want to examine in a little more detail the concept of shortage costs themselves. And I'm not an economist, and it's been a struggle for me to learn this field in just a limited enough way to ask these questions. And so I wanted to ask you a hypothetical question based on my personal experience. So that what I'm going to give you is a hypothetical.

0013

I want you to assume it's true.
Let me tell you that I live, Sir, in Palo Alto and during the drought, we had a requirement that we cut back on our water use by 20 percent against 1987 levels. And as a consequence of that drought, I did a couple of things. I stopped washing my car, and I stopped watering my lawn every day and did it every other day. And as a consequence of that, I had a lower water bill than I normally did. I had a dirty car, and I didn't notice much difference in my landscaping.
Sir, under economic definitions of shortage costs, have I incurred some kind of shortage costs as a result of that?
A Yes. By your own description, you've enjoyed some lowering in your quality of life. I would suspect a fine lawyer like yourself would like to drive around in a clean, shiny car.
Q And if, in fact, driving around in a dirty car made me feel sort of noble and superior to my neighbors that I was doing something for the community, the shortage costs wouldn't recognize that benefit; is that

right?
A BY DR. CARSON: That's correct. However, again, if you look at this, what you're doing is you're looking at a distribution of people's willingness to pay to

0014

avoid the shortages. For some people, they clearly have a willingness to pay to avoid the shortages and that's taken into account. And some people, particularly those people who live in sort of very dry areas who will lose their landscape, they tend to have a very high value. So in other words, different individuals will have different values of avoiding the shortage.

HEARING OFFICER DEL PIERO: I'm crushed. I had really hoped we were going to find out the value of nobility here today.

Q BY MR. FLINN: I'm going to try and keep moving here. Focusing on that --

MR. BIRMINGHAM: I'm actually surprised that prior to the drought, Mr. Flinn was watering his lawn every day.

MR. FLINN: It's a small lawn.

Q BY MR. FLINN: Focusing on this distribution issue, I do have kind of a hypothetical question for either of you, and I'd like to see if you can understand it. And it's a little bit complicated, so I want to set it out for you in a little detail if I can.

Let me ask you to assume that there are two people. Person A has a shortage cost, or a willingness to pay to avoid a shortage, of a thousand dollars an

0015

acre-foot for the first four acre-feet they're willing to cut back, or the first four they would have to cut back, and another person has a 3,000 acre-foot shortage cost for that same first four acre-feet. And so these people are using at least eight acre-feet of water.

Do you follow me so far?

A BY DR. CARSON: In totals.

Q Yes.

A Okay.

A BY DR. WADEL I thought I added up to seven, four, and three.

MR. HERRERA: Ten minutes, Mr. Flinn.

MR. FLINN: Thank you.

Q BY MR. HERRERA: The Person A uses four acre-feet at a thousand. The second person uses four acre-feet, and his shortage cost is 3,000 an acre-foot. They each use four.

And let's say that this population is told that they have to cut back by 50 percent, four acre-feet. And if they were simply -- the hoses were switched off after the first four acre-feet --

A BY DR. CARSON: Two each.

Q Two each, yes. Am I not correct that Person A would suffer $2,000 worth of shortage cost and Person B would suffer $6,000 worth of shortage cost? Is that

0016

right?

A If this function is strictly linear, one would expect the shortage costs to increase as you increase

magnitude.
Q Let's make it simple. Don't fight with the hypothetical. It's linear. Am I right, it's total of 8,000?
A Right.
Q And the average for those four is $2,000 an acre-foot?
A Correct.
Q So if you're trying to measure the shortage cost under that regime, you'd measure it at $2,000 an acre-foot?
A Right.
Q Now, instead of simply telling both of them that the hoses get turned off when they each reach two acre-feet, you say that we're going to increase the price to $1500 an acre-foot.
A Okay.
Q So the first fellow, whose shortage costs are 1,000 acre-foot at each level, it would be in his economic interest simply not to buy any of the four acre-feet and rather incur the $1,000 shortage cost as opposed to pay 1500 in actual costs; is that right?

0017

A Correct. There's where you see the problem with the linear assumption.
Q Let me go on and finish. And this person whose costs are $3,000 an acre-foot would, in fact, use all of his entitlement because it's cheaper for him to buy it at 1500 than to incur 3,000 in costs, right?
A Right.
Q And in that case, if Person A gives up all four, the average shortage costs are 1,000, not 2,000. Is that right?
A Right.
Q Now, let me move on to the shortage costs that were assumed in the $95,000. Am I correct that this was based on the 1987 survey done by yourself, Dr. Carson, and Ella Mae Mitchell?
A Right.
Q And the average shortage costs in that study were somewhere around $4,000 an acre-feet?
A Correct.
A BY DR. WADE: That was a median number.
Q What was the average number?
A The average number was somewhat higher.
Q The median number, then, was 3,000?
A BY DR. CARSON: Yes.
Q This study was done in 1987; is that right?

0018

A Correct.
Q And as of 1987 for the MWD service area, wasn't it predicted that by the year 2000, there would be substantial potential shortages?
A What we looked at in that study was a range of shortages going from one at 10 to 15 percentage every five years at one end to two shortages every five years, one at 30 to 35 percent, the other at 10 to 15.
Q I didn't ask you what was in the survey, Sir. I asked you as of 1987, did planners in the Metropolitan Water District service area expect there to be, by the

year 2000, shortages?
A We looked at the range of shortages which were currently being projected.
Q Now, are you aware in the documents that, in fact, have been submitted with your testimony that there are estimates of the acre-foot cost for the development of, say, desalinization plants?
A BY DR. WADE: Yes.
Q And you understand, gentlemen, that the per-acre-foot cost of a desalinization plant is on the order of, depending upon size and volume benefits, between 1400 and $2,000 an acre-foot?
A BY DR. CARSON: Yes, I am.
Q Now, assuming that in 1987 you gentlemen

0019

demonstrated that shortage costs were up to $3,000 an acre-foot or more and assuming that shortages were predicted, between 1987 and the present, how many water agencies in the MWD service area have planned desalinization plants?
A BY DR. WADE: Is there not one in Santa Monica?
A BY DR. CARSON: Santa Barbara has actually built one. San Diego had a very large one on the drawing board and under planning which they just recently removed due to cost estimates with San Diego Gas and Electric to supply the power.
Q Is Santa Barbara part of -- an MWD member agency?
A Santa Barbara is not.
Q Now, my next question to you, Sir, is in the recent drought, were you aware that there was a water bank?
A BY DR. WADE: Yes.
Q And were you aware that, in the recent drought, not all of the water in the water bank was purchased?
A That's correct. It rained.
Q Do you understand that even during the drought, there was water available in the water bank, and it wasn't all purchased?
A That's not correct.
MR. HERRERA: Five minutes.

0020

DR. WADE: It was not all purchased, but it was not all purchased because it rained after the water was put in the bank. Remember the March miracle?
Q BY MR. FLINN: So it's your testimony that after the water was in the bank, there were no water shortages in Southern California?
A BY DR. WADE: That is not my testimony. As a matter of fact, Metropolitan remained in Stage Five throughout 1991.
Q And even though there were shortages in the Metropolitan Water District, not all the water in the water bank was purchased; is that right?
A The take of the water bank backed off for, perhaps, a variety of reasons. Not all are known to me, but a major one would have to be, Sir, that it rained.
Q Notwithstanding the fact that there were shortages and notwithstanding the fact that you gentlemen assumed there would be at least $3,000 in shortage costs --

strike that. I'll ask a foundational question.
The water in the water bank was cheaper than $3,000 an acre-foot, wasn't it?
A Yes.
Q And notwithstanding the fact that there were shortages and that there was water in the water bank

0021

that was cheaper than $3,000 an acre-foot, people didn't seem to be willing to pay for additional water; isn't that right?
A Again, it rained.
Q Notwithstanding the fact that there were shortages, people didn't pay for that water; isn't that right?
A Well, there are a variety of reasons, but the answer to your question simplistically is yes.
A BY DR. CARSON: Let me make one thing, I think, here which is the price of the water in the water bank is basically a wholesale cost before transportation. And so what you really have to do is look at what this would translate to at the retail price level far down in the system.
Q What's the difference between the wholesale and retail costs in Southern California?
A Actually, I might let Dr. Wade answer that.
A BY DR. WADE: Actually, I don't have the factual -- the facts on that, but it's substantial. The water comes in today on -- to Metropolitan at $300 odd or $400 odd, then it's treated and distributed, and it's priced at different prices by different retail agencies. I actually have a data set at the office, but I can't recall it.

0022

Q Isn't the highest retail cost about $1200 an acre-foot?
A In some Northern California service areas, I'm aware of prices close to that.
Q And so even if we're assuming a markup of approximately 5, $600 an acre-foot, that wouldn't explain why water that was far cheaper than -- back up.
The water in the water bank was a lot less than $2500 this an acre-foot, wasn't it? Wholesale?
A Yes. You know, Mr. Quinn, the decision --
Q My name's Flinn, actually?
A Flinn. Mr. Flinn, the decisions to purchase or not that water were made by human beings, managers, not necessarily, as we economists assume and your line of questions assume, all-knowing managers. I know that some general managers -- I know that some water districts did not purchase that water, and I know that they were criticized by some of their consumers by not making more water available to them who were not enjoying the water shortage of their water service area.
Q I take it that you would agree that there is sometimes a gap between what the economists predict would happen and what water managers and planners and

0023

actual people tend to do?

A BY DR. CARSON: One thing that happens in these shortages, and I've given a couple of talks on this, is simply that a lot of water agencies don't have the sort of stand-by authority to raise the prices to pay for the much higher water, and that makes it difficult for them to react very quickly to these things, what you might expect.

MR. FLINN: I'd like the Reporter to read back the question, and I would like that question answered.

(Whereupon the record was read as requested.)

DR. CARSON: In order to answer to that question, I will put at the very beginning of it this gap is because the economists are looking at a longer-run situation vis-a-vis the short-run reaction where people have to adjust.

Q BY MR. FLINN: But the answer to my question is yes, isn't it?

A BY DR. CARSON: There's a gap between the long run and the short run.

Q No. My question is not whether there's a gap between the long run and the short run. There's a gap between what you economists predict would happen and what people actually do; isn't that right?

A There always has to be a gap, yes.

0024

MR. HERRERA: One minute, Mr. Flinn.

MR. FLINN: I won't need it. Thank you.

HEARING OFFICER DEL PIERO: Thank you very much, Mr. Flinn.

Mr. -- Ms. Koehler?

MS. KOEHLER: We're a tag team this week.

CROSS-EXAMINATION BY MS. KOEHLER

Q Good morning. My name's Cynthia Koehler. I'm one of the attorneys for California Trout.

Dr. Wade, I'd like to talk with you a little about the physical availability of water to the Metropolitan Water District, and I hope you'll be patient with me. I'd like to walk through some fairly simplistic questions. Like Mr. Flinn, I am not an economist, and I am struggling to understand everything.

Turning to Table C of your written testimony. Is it your testimony that assuming diversion at the 6383.5 foot lake level, the loss of Mono Basin water will result in a reduction of supply to Los Angeles on average, I understand over 52 years, of about 36 or 3400 acre-feet annually?

A BY DR. WADE: Yes. 36 on Table C.

Q Is that actually 34? There seems to be a mathematical error there. It's not a -- I mean, 433 less 399 I believe is 34.

0025

A No. 36 is the right number. The table is mistaken. I made a correction down the third column myself and did not make the corrections down the other two columns. But I don't think the difference is material.

Q No. It isn't material. I just wanted to make sure I was using the right number in my questions.

All right. Then, is it also your testimony, keeping to the same table, that the State Water Project

will be able to replace on average about 12,000 acre-feet of this 36,000 acre-foot loss every year?
A From the State Water Project, yes.
Q From the State Water Project?
A This is what the model results show.
Q All right. So is it correct that your shortage analysis is driven primarily by the effect of the remaining 24,000 acre-feet that's a reduction in supply for L.A. every year?
A Yes.
Q All right. Is it also correct --
A You know, these are average numbers, and I would hasten to point out -- and I would also hasten to point out, and it might help your thought process if I could, that we human beings deal with simple numbers, points that we can point to on a table, but behind a point

0026

like this and particularly in a case like this there's a whole range that we can't exactly visualize that computers deal with.
Q Sure, I understand. This is an average over 52 20-year sequence. That's how, I think, we're all moving forward?
A Yes.
Q Is it also correct that your shortage analysis is for the entire Southern California State Water Project service area and is not for the City of Los Angeles?
A It includes the City of Los Angeles within the entire Southern California service area.
Q But the 24,000 acre-feet loss every year is for the entire State Water Project service area for the Southern California area?
A Two points in there. It's for the entire Southern California service area. It's not so much related to a 24,000 foot loss every year. It's related to the losses as they occur on the hydrologic sequence.
Q Right. But that's the average annual loss?
A Yes.
Q All right. So any shortages predicted and any costs associated with these shortages would be spread over all of Southern California and are not limited to L.A. DWP's service area?

0027

A Yes.
Q All right. To put this -- to put this average number in context, isn't 24,000 acre-feet about 1 percent of MWD's total average annual deliveries?
A Yes.
Q And isn't that about one-half of 1 percent of Southern California's total annual water demand?
A Yes. And as our Tables D and E show, it's a change in the sufficiency ratio of about seven-tenths of 1 percent, yes.
Q You have anticipated my next question. That was exactly it.
And I think you testified earlier that in running the economic risk model, you did assume that the Draft D-1630 -- the Bay Delta standards would be in place?
A Yes.
Q So your calculation takes into account the amount

of State Water -- an approximate amount of State Water Project water that would be available to replace a reduction in supply from Mono Basin water -- that calculation took into account some cut back in delta supply due to such protection?
A Due to the 1630 decision protections. Unrelated, however, to those that were being talked about last week in Sacramento related to the EPA two parts per

0028

thousand standard and unrelated to the take provisions of endangered species and unrelated to unknown exact provisions to protect the winter run salmon release, unrelated to the delta smelt. All of these are not in the decision 1630 conditions.
Q Is it your testimony that you believe that the package of protections that are going to come out on December 15th are going to be substantially different than the Draft D 1630 standards? You seem to see a radical difference between those standards?
A That's what the newspapers reported. The newspapers reported radical differences. I myself have not examined those runs.
Q You need to be careful about reading those "Sacramento Bee" editorials.
A Actually, I'm referring to the news articles.
Q All right. At this point, Dr. Wade, I'd like to introduce an exhibit, but since I'm not entirely sure as to authorship, I'd like to first show it to you and your attorney, and I'd like to have you tell us whether, in fact, you and your associates are responsible for producing this document.
This document says at the top, "Wade 8-17-93." It's titled Economic Risk Model. It appears to be related to your work and your testimony.

0029

A BY DR. WADE: Yes. We provided it.
Q All right.
Then with your permission I'd like to introduce Cal-Trout Exhibit 25.
HEARING OFFICER DEL PIERO: Any objection?
MS. GOLDSMITH: No. Not at this point.
HEARING OFFICER DEL PIERO: What's the number on that?
MS. KOEHLER: 25.
HEARING OFFICER DEL PIERO: So ordered.
(Cal-Trout Exhibit No. 25 was marked for identification.)
Q BY MS. KOEHLER: Dr. Wade, turning to the assumptions that you've made in the economic risk model, you've already discussed somewhat with Mr. Flinn your assumption that only 626,000 acre-feet of water will be available annually from the Colorado River, and I believe -- I just want to make sure I understood you, that it is also your testimony that MWD has, in fact, taken about 1.2 million from that source for the last several years?
A Yes.
Q And to get a little more specific about Dr. Quinn's testimony, are you aware that he has stated that Metropolitan, and I'm quoting now from MWD Exhibit

0030
1, "Metropolitan intends to take all the appropriate steps to maintain Colorado River deliveries at 1.2 million acre-feet in the future. This could be accomplished through, One, the use of water apportioned to but unused by Arizona and Nevada; Two, access to surplus water when available; and, Three, implementation of water transfer programs in cooperation with California agricultural districts which use Colorado River water, and possibly with the other basin states."
Don't Dr. Quinn's statements in this regard tend to run counter to your assumption about the limited availability of Colorado River water?
MS. GOLDSMITH: Objection. Compound.
HEARING OFFICER DEL PIERO: I'm going to sustain the objection.
MS. KOEHLER: That's fine.
Q BY MS. KOEHLER: What is your view of the statement that I've just read you from Dr. Quinn's testimony?
MS. GOLDSMITH: Objection. It's still compound.
MS. KOEHLER: All right.
HEARING OFFICER DEL PIERO: One at a time.
MS. KOEHLER: I'm sorry?
HEARING OFFICER DEL PIERO: Take them one at a time.
0031
Q BY MS. KOEHLER: You have read these statements, you testified earlier?
A BY DR. WADE: Yes.
Q Do you agree with Dr. Quinn's overall statement that Metropolitan intends to take all steps to maintain Colorado deliveries at 1.2 million acre-feet annually?
A Absolutely.
Q And you appear to have some reason to believe they won't be able to do so; is that correct?
A It's a complicated answer. Number One, I'm going to come back to my testimony, which is that standard planning assumption run the model with firm yield.
Q I'm not asking about you're planning assumptions.
A Number Two. If you would run through your list of three of things, I would be delighted to discuss each one of them with you. He said three things. He's going to --
Q Well, all right. Dr. Quinn testified that they can accomplish maintaining these deliveries at the 1.2 level by first, the use of water apportioned to but unused by Arizona and Nevada.
A Yes. It's -- you've now, I think, asked the question that allows me to give the answer -- it's -- just as recently, I think the farmers and the downstream city folk in Arizona have accomplished an
0032
agreement to make the used water in Arizona available to the farmers at $15 an acre-foot. There's a testimony to poor public policy but, in any case, it is my understanding that this is going to allow or cause Arizona to use a great deal more of that water than what Tim might have assumed when he wrote his testimony. I think Metropolitan has had a reversal of

fortunes on that point, which you had better direct to him than to me.

Point 2, transfers. It is a fact that Metropolitan is out trying to make transfers up the pipe with growers who are taking Colorado River water. For instance, after many years, they have made a transfer with the Imperial Irrigation District which we put into the model. The firm yield is actually 520, but we add 106 to that to bring it up to 626,000. If they make another transfer, I would agree with you that it should be added into the model as firm 100 percent dependable water if that's what the conditions of the transfer dictate.

I would emphasize to this proceeding, however, that it is my testimony that frankly, the only incremental water in the state available to urbans and to the environmental needs of this great Golden State must come by transfers. But this proceeding --

0033

Q I will get to transfers in a moment.

A This decision in this proceeding can't be made on speculative transfers.

Q We're talking right now about the Colorado River --

A We're talking about transfers on the Colorado River.

Q And we're also talking about their yield in the past which is not at all speculative. You do agree with that?

A Absolutely.

Q The only point in Dr. Quinn's testimony that you have not addressed is access to surplus water. I guess that gets folded into --

A It's an unpredictable event which is not assumed in planning models.

Q We're not talking about planning models. We're trying to talk about what's realistic in a different sense. This is not a planning proceeding, Doctor, so I'd appreciate your answering my questions as I've asked them.

Are you aware that the Governor's Central Arizona Project Advisory Committee has, in fact, stated that the problem facing the CAP is significant under utilization of the resource?

0034

A I'm, in fact, unaware of that, but I think they just addressed it by making a deal with the farmers.

Q All right. Assume with me for a moment that Dr. Quinn is going to be somewhat successful in his quest for additional Colorado River water at the levels that he has been in the past. Would -- if you ran your model assuming an additional 300 to 400,000 acre-feet could be available to MWD from the Colorado River, wouldn't this tend to decrease the length and severity of shortages to MWD's customers predicted in your testimony?

A It would reduce the risk, the probability of shortages.

Q Thank you.

Is it also correct that in running the economic

risk model, you assumed that MWD would not be able to obtain more than 50,000 acre-feet annually from water transfers, and here I'm not talking about the Colorado River, I'm talking about transfers south of the delta?
A No. That's not true. The ERM model has an explicit function in it which allows for 50,000 acre-foot -- your 50,000 number -- transfer and it's on the Colorado River. It's an emergency transfer procedure that's a fact of water law and contract, and it's built into the model.

0035

Q Does the model assume that there is any water available from water tranfers from sources south of the delta in California?
A No it does not.
Q All right. Isn't it true that there is substantial water available in California for water transfers from south of the delta sources alone?
A It is true that there is substantial water being applied to low-valued agricultural crops in the Central Valley. It is unknown to me whether or not there is the plumbing, there's regulatory flexibility, there are a whole host of physical and legal impediments that are unknown to me as to whether or not they'll be worked out.
Q Isn't it correct that in 1991, MWD secured about 200,000 acre-feet in water transfers?
A I'm unaware of the figure, but I wouldn't dispute it. Actually, I think that's true.
It's also true that the San Francisco Water Department, and I think also Metropolitan Water District, was unable to move physically all of the water they acquired and agreed to buy because they could not physically move it through conveyance systems.
Q But they were able to secure those transfers?

0036

A They were able to secure the rights to the water. They were not able to physically move the water to where it was needed because of limitations in the plumbing.
Q But not limitations in the regulatory or legal structures?
A I am not aware as to what was the binding constraint; whether or not it was a regulatory constraint or physical conveyance constraint or the combined effect of the two. I would assume the latter, actually. But it is a fact they were unable to move --
Q I'm sorry. You would assume -- I lost you there someplace --
A I would assume that it was a result of physical conveyance and -- which are governed by regulatory limitations on how the pumps can be operated. I would assume it would be the combination of the two. There were limitations on the physical amount of water they could move.
Q I understand. If there were evidence introduced in this proceeding indicating that water transfers were, in fact, available or unimpeded legally for legal regulatory reasons and if we move -- take this

assumption and assume that there are at least 200,000 acre-feet of water available to MWD from water

0037

transfers, let's even say from south of the delta sources every year and you ran that through your economic-risk model, wouldn't this also tend to lessen your prediction of shortages in the MWD service area?
A Yes. And if we added 200,000 -- if we added 200,000 100 percent firm certain water to our model, it would reduce that $95 million shortage cost to 57,000 -- million.
Q A substantial reduction?
A Well, it's a $40 million number. It's a change from 96 to 57 million, a substantial change related to that 200,000 acre-feet of certain water.
Q Not everything in this field is certain, is it, Dr. Wade?
A Well, yes, but my model assumes or has to assume that it's certain or the number goes away.
Q I understand.
With regard to local supplies, isn't it correct that your analysis assumes about 1.3 to 1.4 million acre-feet will be available in the years 2000 and 2010 from local -- various local supplies?
A It is our assumption that we made -- it is a fact that we made the same assumption that Jones and Stokes did.
Q All right. Isn't it true that MWD expects local

0038

water supplies to yield much closer to 1.6 million by the year 2000?
A I don't know.
Q You don't know. Are you familiar with MWD's integrated water demand forecasting documents published in April of this year?
A I am. I don't recollect, and I don't have in front of me that table.
Q All right. If I represent to you that that number, that 1.6 number, is contained in that table and you ran your model assuming that local agencies would have 1.6 instead of the 1.3 million assumed in your runs, wouldn't this also tend to reduce this varying length of shortages predicted in your testimony?
A Well, yes, it would. But again, I would emphasize to you that this proceeding must be based on the best available factual evidence and the best available assumptions, and I would ask that I -- I would suggest that I'm not the right witness to ask those questions.
Q I'm asking you about your model. I'm not asking you to verify those factual assumptions. I'm asking you to verify what the model would do given other information.
A It would predict a lower economic damage cost.
Q Because the shortages would be of a shorter

0039

duration and less of the year. All right.
Turning back to Table C of your written testimony for a moment. Doesn't your analysis assume that MWD never buys any more, and I am quoting here from your fourth column, "Potentially exportable water than L.A.

requests in a given year"? And before you answer, let me give you an example. I'm looking here at your simulated year 1952. In that year, according to the simulation, L.A. DWP needed only 17,000 acre-feet of additional water from MWD, but there were 285,000 acre-feet of potentially exportable water. Nevertheless, your analysis assumes that MWD would buy only the 17,000 acre-feet requested by L.A.

So my question to you is isn't a more reasonable assumption that MWD would buy extra water when it is able to bank that water for future years?

MS. GOLDSMITH: Objection. There must have been a compound question in there somewhere. If there wasn't, it was so long that it was impossible to follow.

MR. HERRERA: Two minutes.

MS. KOEHLER: Thank you.

Q BY MS. KOEHLER: Have I correctly stated --

HEARING OFFICER DEL PIERO: Sustained.

Q BY MS. KOEHLER: Have I correctly stated the simulation for 1952?

0040

A BY DR. WADE: I can't answer your question. I decline to answer your question because your question requires more hydrologic knowledge than I have. These runs were made for us by DWR and provided to me and frankly, my knowledge of DWRSIM is about what's on this table.

Q I'm not asking you to talk about DWRSYM assumptions. I'm just asking you to tell us what's on this table.

And as I read this table, since I don't know any more about DWRSIM than you do, that's how it appears to me.

A That's how it appears to me. I decline to interpret it as you do. I just decline to interpret it. I don't know what a reasonable planning assumption is on that point.

Q I'm not asking you what a reasonable planning assumption is. I'm asking you about the assumption that's evident in this table.

If you look at the third column, additional requested water from L.A. is 17,000 acre-feet. If you look to the fourth column, 285 are available. And if you look at the fifth column, it is assumed that only 17,000 acre-feet are purchased. Is that correct?

A Yes.

0041

Q Does that appear to you to be a reasonable assumption about the way MWD would operate?

A I don't know how their water operators operate. I can't answer the question.

Q Perhaps I'm not being clear. I'm not asking you how they do operate. I'm asking you if this appears to be, these three columns, if that appears to be reasonable.

MS. GOLDSMITH: Objection. Asked and answered.

HEARING OFFICER DEL PIERO: Overruled. It hasn't been answered.

DR. WADE: The answer, Sir, is I don't know. It would depend on whether or not there was storage

available in the south to put the water into. It would depend upon a host of questions that are beyond my expertise.

HEARING OFFICER DEL PIERO: Now it's been answered.

Q BY MS. KOEHLER: Let me ask you another question, Dr. Wade. Would you agree with me that it is reasonable to expect water agencies such as MWD to bank water in wet years for use in dry years?

A BY DR. WADE: Yes.

Q Is it possible that MWD would react to new water supply requests from Los Angeles by banking water from

0042

wet years for use in dry years rather than by causing shortages to its customers? Its other customers?

A Yes.

Q If you ran -- and let me go back. You did assume that the numbers that resulted from this chart -- we established this earlier, I believe, that the 24,000 -- the 24,000 annual average reduction in supply to L.A., this did drive, in certain respects, your economic risk model results, right?

A Yes.

Q If your economic risk model were wrong, assuming, contrary to what appears to be on Table C, that MWD would bank water in wet years for use in dry years, would that -- wouldn't that tend to decrease the shortages predicted by your testimony?

A The economic risk model, by the way, has the Southern California reservoirs system modeled in it, and it assumes withdrawals from the reservoirs.

Q But we're -- this was a basic input to your model, wasn't it? This 24,000 average annual shortfall?

A Yes.

MR. HERRERA: It's been 20 minutes.

MS. KOEHLER: I request an additional ten minutes, Mr. Del Piero. I'm almost through, and I think this is extremely important testimony.

0043

HEARING OFFICER DEL PIERO: Granted.

MS. KOEHLER: Thank you.

Q BY MS. KOEHLER: To the extent that the 24,000 average annual reduction in supply can be replaced or mostly replaced by the sources we've been discussing, potentially available additional Colorado River water, increased MWD conjunctive use of groundwater storage, additional local supplies, Central Valley water transfers, isn't it correct the possibility of shortages to MWD's customers due to the loss of Mono Basin water could be substantially less than predicted in your testimony?

A BY DR. WADE: No. The -- they could be less. Substantially is a value judgment on your part, if I may suggest, and the reason being is this. Two points. First of all, the quantities of water that you've discussed with respect to the Colorado River, local available changes, are -- add up to -- they're not additive in fact -- but they would add up to several hundreds of thousands of potential water that Metropolitan, of course, is hurrying to, you know, to

try to get their hands around.
     But the other thing is that the natural hydrologic sequence on the -- on the mountains, the water supply that falls on the mountains, is much larger than that.

0044

In other words, the natural variation in water supply is in the millions of acre-feet.
Q   Of course.
A   So that Metropolitan cannot hope to replace or eliminate all risk of shortage by these hundreds of thousands of acre-foot changes.
     And the second point --
Q   Excuse me. You're not answering my question, so why don't I clarify it for you.
     We're not talking about eliminating all risk of shortage. We're talking about the incremental shortage caused by the average annual 24,000 acre-feet caused by the Mono Basin -- the potential Mono Basin diversions. That's all we're talking about here. That's what these proceedings are about, so let's confine ourselves to that.
     Your analysis -- 24,000 average annual acre-feet is what we're talking about in your analysis. This is your number, if I'm correct. This is assuming that the State Water Project can only supply one-third of the shortfall that's, you know, that may be attributable to Mono Basin. So we can't hope here to eliminate shortages for the entire Metropolitan water service area. That's not what we're doing here.
     We're talking about additional, the increment, 0.7

0045

increment in the sufficiency ratio that's -- that you have said is attributable to a potential reduction in Mono Basin supply.
     So when you add up all of the other sources of water that we've been discussing, my question to you is that given the natural hydrograph, because after all, the 24,000 acre-feet figure is an average annual over 50, 20-year sequences. Isn't it possible that if there were another 300,000 acre-feet of Colorado River water, and another 200,000, you know, of local supplies, and another 200,000 at a minimum from water transfers, not to say how many other acre-feet available from Metropolitan's own conjunctive use programs. Isn't it possible that on an average annual basis, that would deal with the 24,000 acre-feet shortfall from -- resulting from the Mono Basin change in supply?
A   The logic of your question would be that all of these hundreds of thousands of incremental acre-feet of water that you enumerated would be superfluous, all they would need to find is the 24,000. But, in fact, that is not the fact --
Q   The average annual.
A   -- that is not the fact. It would, as I've testified in response to your questions, lower the economic damages associated with the incremental 24,000

0046

but, in fact, as I stated, if you found 300,000 acre-feet of water, it would lower the number from $96 million, 300,000, it would lower it to 28 million

dollars, but it doesn't disappear, the number. The 24 or the 40,000 acre-feet is the increment at the end which remains there under all circumstances.

Metropolitan is an unreliable water system, an incremental 24,000 acre-feet of lost diversions from Mono Lake has some measure of economic cost. In our assumptions in the model, we estimated 96 or $97 million as the midpoint. If I want to adopt some of your numbers, I'll lower those in my oral testimony here by several tens of millions of dollars. The point being is that they don't disappear, which is the logical direction of your questioning.

Q They don't disappear. They do lower. I understand that.

There are about 20 million people in that service area in Southern California. Is that about right?

A Yes.

Q So if -- I'm sorry. What was the last figure you gave? Assuming that your costs lowered -- did you say 58 or less million dollars?

A Somewhere in there would be responsive to the tenor of your questions.

0047

Q So my math isn't what it should be, Dr. Wade, but if you take that 58 million and divided by the 20 million people in that service area, we're talking about 50, 25 cents a month, aren't we? On an annual basis?

A No. As a matter of fact, the Jones and Stokes numbers which were put into the record were $1.8 million, and that works out to 16 cents a household a year as their estimate of economic damages. And, in fact, my $97 million number, which I've -- was in my direct testimony, works out to $16 a household a year, so if I reduced that, say, by 40 percent, then reduce it to $10 a household a year.

Q Which is a few cents a month? Maybe a dollar a month? Something like that?

A Yes. It's a very plausible-sounding number.

Q Okay.

A It relates to -- I won't take your time.

Q Thanks.

I have just a few more questions. Isn't it correct that L.A. DWP is using its rate structure as a way of conserving water?

A Yes. No. Conserving is not the right word. It's using its rate structure in shortages to reduce consumption of water.

0048

Q Isn't your testimony that L.A. DWP is not attempting to encourage its customers to conserve water through its rate structure?

A I would rather just simply say they're encouraging their customers to reduce water in times of shortage.

Q All right. Would you agree that -- and this goes to some of the questions Mr. Flinn asked you earlier. Is it correct that water has different costs for different types of people, that one user may be willing to pay a greater cost for water than others?

A Yes.

Q Is it also true that pricing programs, such as the one adopted by the City of Los Angeles, are sensitive to and account for these -- the selectivity differences between consumers?
A Yes. Implicitly.
Q Isn't it also correct that the contingent valuation estimates for the shortage costs tend to ignore those selectivity differences and assume that one cost is applicable to all water users?
A Let me answer first. I think Richard will probably have a better answer, but -- the -- two answers. The contingent evaluation numbers represent the median willingness to pay. So half of the people would pay less and half of the people would pay more.

I think that's consistent with your -- I think that doctrine is probably consistent with your argument. Some will pay more. Some will pay less. We represent the median.
Q I'm not sure you understood my question. Is it your testimony, then, that the contingent valuation service such as the one conducted by Dr. Carson a number of years ago, that those numbers account for selectivity differences, the different cost values of water to different customers? Is that accounted for in the contingent valuation study the way it is accounted for with the precision its accounted for in the pricing?
A BY DR. CARSON: I should say both studies take into account the differences in the value of water in somewhat different ways. It's not actually that the L.A. -- the Griffon report numbers actually take account of it in a somewhat inconsistent manner, and those numbers are incorrectly estimated --
Q I'm sorry. I have not asked you about the Griffon panel --
A Those are the pricing numbers. And to answer your question of how it takes account of those things, one has to get into how those numbers were actually calculated.

Q I'm sorry. I'm not asking you about how those numbers were calculated. I'm asking you conceptually about the contingent valuation approach versus a pricing approach. Those are different approaches in calculating costs. I'm not asking you about any person's particular calculations. That's really not relevant.
A There's not a so-called contingent valuation approach versus the so-called pricing approach. The scenario in the contingent valuation survey envisioned a percentage cut back from a base along the lines of what Mr. Flinn said happened in Palo Alto.
Another way to reduce water demand is to put an increasing block price structure.
Q Exactly. My question is --
HEARING OFFICER DEL PIERO: Ms. Koehler, if you need an additional ten minutes beyond the ten minutes you've already requested, it's granted.
MS. KOEHLER: I appreciate that, Mr. Del Piero. I

am hoping to be finished very shortly.
Q BY MS. KOEHLER: My question to you is about those two approaches. Do they account for customer selectivity in precisely the same manner?
A BY DR. CARSON: No, they don't.
Q Are you -- you are familiar with Dr. Hennimen's

0051

testimony regarding the use of contingent valuation in situations whereas here we have a pricing structure in place. Are you familiar with that testimony?
A I've read Dr. Hennimen's testimony, yes. If you want to -- you're going to make a specific statement before I can react to it.
Q I'm just trying to make sure --
A Yes. I've read his testimony.
Q Are you aware of Dr. Hennimen's view that where pricing mechanisms are in effect, and I want to emphasize that, we're not talking about the abstract, but a situation where a pricing mechanism is in effect, that in that situation, contingent valuation estimates are less accurate. I'm not saying they're useless. I'm saying they're not as precise --
MR. BIRMINGHAM: Excuse me. Mr. Del Piero, I wonder if I could ask for an instruction that the witnesses wait until Ms. Koehler has finished her question before they respond to her.
HEARING OFFICER DEL PIERO: The witnesses are so instructed.
MS. KOEHLER: Thank you, Mr. Birmingham. How chivalrous of you.
MR. BIRMINGHAM: It has nothing to do with chivalry. It has to do with trying to have a good,

0052

complete record and responsive answers to questions.
HEARING OFFICER DEL PIERO: Mrs. Anglin is a very capable Reporter and as far as I know, she's not capable of taking the testimony of two people at the same time.
Q BY MS. KOEHLER: Yes. Let me go back.
Are you aware of Dr. Hennimen's view that where a pricing mechanism is in effect, the contingent valuation estimates are less precise an indicator of the selectivity notion that we've been discussing than those estimates?
A BY DR. CARSON: You've now actually finished your -- I thought you had finished your statement, I have to -- question. I have to apologize.
You'd almost have to read Michael Hennimen's statement on this question because that would have to be either an incomplete or an inaccurate statement of his belief on this matter, and that is because there, as I said to your previous question, there is not a so-called contingent valuation approach to this and a so-called pricing approach to this.
This is a distinction between what was stated in the contingent valuation scenario and the work that Robert Mitchell and I did. You could have just as easily in that contingent valuation scenario posed to

0053

people a block pricing structure in which case there

would be no reason to expect one approach to be inherently more accurate than the other. And given that the prices estimated in the Griffon report are compounded with a massive advertising campaign, one would expect that the contingent valuation scenario implementing a pricing structure to produce the more accurate results.
Q Again, I haven't asked you about the Griffon numbers. I'm not focused on a particular set of numbers.
I do believe from your own testimony there are two different approaches.
A There are two different approaches, but the approaches had to do with how the shortage is implemented, not to contingent valuation.
A BY DR. WADE: I should emphasize --
HEARING OFFICER DEL PIERO: Thank you, Mr. Birmingham.
Please proceed, Ms. Koehler.
Q BY MS. KOEHLER: Is it your testimony, then, Dr. Carson, that to the contrary of what I have asked you, that the contingent value approach that you used is going to be the same as or more accurate in a prediction of what people -- what different types of

0054

consumers are willing to pay for water in a shortage, that your approach is going to be more accurate than a pricing structure?
A BY DR. CARSON: I guess I -- I guess I'm not -- sort of -- if you're saying are -- you mean, the contingent valuation estimates are solely the estimates of what -- that were done in the specific study, the Carson-Mitchell 1980 study.
Q And that study was done in a situation where there was no pricing mechanism in place; isn't that correct? And that study was done with regard to all water users --
A Correct. But --
Q Dr. Carson, that's a straightforward question. Either there was or was not a rate structure in place --
A Most cities had an increasing block price structure in effect. What that study did was pose a situation where water would not be available at the -- 10 percent of the water or 30 percent of the water would not be available at a price.
MR. FLINN: Madam Reporter, would you mark that answer, please?
THE REPORTER: Sure.
Q BY MS. KOEHLER: While we're talking about that

0055

study, Dr. Carson, that was conducted for California -- that was conducted throughout the entire state; is that correct?
A BY DR. CARSON: Yes. There were 1500 interviews done in Southern California and 500 done in Northern California.
Q All right. So the numbers that resulted from that study do not necessarily reflect the choices of consumers in the L.A. DWP service area; is that

correct? What they would pay for water in shortages?
A There was a very large number of people interviewed in the L.A. service area and those -- that data has actually been made publicly available in an earlier Board hearing and a separate estimate from that data could be obtained from the Board, specifically the L.A. service area.
A BY DR. WADE: Excuse me. I want to add an answer to that, as is my prerogative.
I was the project manager of the survey, and the survey was designed to sample 1500 people in Los Angeles and 500 people in Northern California to compare the differences between north and the south to see what they were, that -- those differences were inconsequential.
Q I didn't ask you if they were inconsequential. I

0056

asked about the numbers, and my question to you now is the numbers that have been used in the ERM I assume are the numbers not just for the L.A. service area, but for the entire state?
A Correct.
Q Thank you.
MR. BIRMINGHAM: Can we recess, Mr. Del Piero?
HEARING OFFICER DEL PIERO: We're in recess for ten minutes.
(Whereupon a recess was taken.)
HEARING OFFICER DEL PIERO: Ladies and Gentlemen, this hearing will again come to order.
MS. KOEHLER: How much time do I have left?
HEARING OFFICER DEL PIERO: You have seven minutes.
Q BY MS. KOEHLER: Let's talk just a little bit more about contingent valuation versus pricing. Am I accurate in stating that contingent valuation as an approach to determining what people will pay for water deals primarily within the hypothetical realm?
A BY DR. CARSON: Yes. It asks people what they would be willing to pay to a projected future situation.
Q So by contrast, a pricing regime is --
A Estimates how people responded to a past actual situation.

0057

Q Precisely.
A BY DR. WADE: I might add to that that a contingent valuation survey is carefully structured and designed to ask people how they would behave as if there were a price. In other words, the intent is not simply a consumer survey. The intent is a very structured analytic device trying to mimic the effect of a price.
Q Thank you. I appreciate that clarification.
The point I'm interested in is clearly contingent valuation as an approach is very valuable in the absence of a real world pricing structure. It's used to predict how people would act given a hypothetical scenario?
A Correct.
Q All right. Is it correct, then, that where you do have a real world pricing structure, the way people respond to that structure is going to be a more

accurate indicator of what they are willing to pay than a than contingent valuation survey?
A BY DR. CARSON: No.
Q Okay. I may regret this, but why don't I ask you to expand on that answer?
MR. BIRMINGHAM: There's the invitation.
HEARING OFFICER DEL PIERO: I, too, Mr. Flinn.
Q BY MS. KOEHLER: If I could add the qualification

0058

that you do so briefly.
A BY DR. CARSON: Yes. The distinction -- and this is why both approaches can be useful, the pricing approach assumes basically that people have largely perfect information about what the situation is, and the contingent valuation survey lays out exactly what that information is. And so to the extent that there are adjustments, you can often get a difference between the two answers to the extent that people's behavior's changing and other economic factors are changing. The pricing approach is always looking at past behavior. The contingent valuation survey is trying to predict future behavior, and a priority you can't say which is going to be the more accurate.
Q All right. Thank you.
Dr. Wade, going back to our earlier discussion about the economic risk model, I just want to make sure that we all have the numbers you suggested. If -- I believe you said that if we assumed an additional 200,000 acre-feet were available to MWD, that that would reduce your cost of shortage estimate down to 58 million annually.
A BY DR. WADE: 57 million.
Q 57 million. And can you tell us how that would be reduced if you added 300,000 acre-feet? I believe you

0059

said 28 million, but I'm not sure.
A I did.
Q 28 million. All right.
Then, let me ask you, Dr. Wade, finally, about your Table B. My understanding is that, and please let me know if I'm characterizing your testimony accurately that one of your concerns with the Jones and Stokes approach was the statistical rigor of their supply analysis.
A BY DR. WADE: Yes.
Q And is it correct that you remedied what you perceived to be an error in their approach by running 50 or 52 20-year sequences to come up with a more accurate supply scenario?
A Yes. And we remedied one or two other things as well.
Q All right.
A We have variability on the demand side as well as variability on the supply side.
Q So, then, is it correct, then, that you believe that -- I'm looking at Table B now, the simulation of Jones and Stokes water supply planning model, the second column, that is a more accurate representation than the Jones and Stokes estimate of -- and here I'm talking about the average annual delivery of L.A.

0060
aqueduct water?
A I would rather state it as that's our estimate, which is shown on Table A, which also shows the range and the standard deviation. In other words, there are some statistical measures that describe our number there. I know the statistical measures attached to the Jones and Stokes numbers. Your question was which is more accurate?
Q Let me revise my question, Dr. Wade. Which set of numbers do you believe this Board should use in making its decision?
A Oh. There, I believe there is no doubt. I believe this Board can only rely on numbers that come from a reasonable simulation.
Q All right.
A And that the sampling procedures used by Jones and Stokes is an inadequately scientific based approach.
Q Isn't it correct that your revised analysis indicates that the incremental impact in terms of water supply is actually less than that suggested by Jones and Stokes' analysis? Here I mean the impact of going from the point of reference scenario to the 83.5 foot alternative.
A Is actually the last part -- which you mean, I believe, their number is 40,000 acre-feet?
0061
Q 42.
A And our number --
Q And yours is 34?
A Yes. I would, in fact -- I, in fact, looked at that and inferred that the difference must be in the statistical noise and paid no further attention to it.
MS. KOEHLER: Thank you. I'm finished.
HEARING OFFICER DEL PIERO: Thank you very much.
Ms. Scoonover or Mr. -- Ms. Scoonover.
MS. SCOONOVER: I have a few questions.
CROSS-EXAMINATION BY MS. SCOONOVER
Q Good morning. My name is Mary Scoonover, and I'm an attorney representing the State Lands Commission and the California Department of Parks and Recreation.
I have a few questions for you first, Dr. Carson, and then a few for you later on, Dr. Wade.
Dr. Carson, you testified you have extensive experience in valuing non-market groups. Is that correct?
A BY DR. CARSON: Correct.
Q And that you've worked on such issues as the Clean Water Act, drinking water safety concerns, groundwater aquifers, and a variety of other issues?
A Correct.
Q Would you say that you are an expert in these
0062
fields?
A Yes.
Q You are an expert in the field of groundwater assessment, clean water, clean air?
A In the environmental aspects.
Q So you're an expert in evaluating in the non-market value of each of these elements?

A I'm an environmental economist within that field. My sub field is the valuation -- the non-market valuation of those issues.
Q Okay. So as I understand it, then, you rely on others to determine the scientific underpinnings for your economic assessment?
A Correct. We take those as given from the scientists.
Q Okay. I believe you testified that the raw household willingness to pay numbers suggest that public trust benefits increased substantially as one moves from a seriously degraded Mono Lake ecosystem to a viable Mono Lake's ecosystem?
A Correct.
Q So the viability of Mono Lake is not something that is -- let me rephrase that.
So your economic assessment, then, depends on at what level Mono Lake is viable. Is that --

0063

A Right. This is defined -- yes. I should say --
Q I appreciate your restraint. I have a couple of more questions and that may give you an opportunity to fill in the answers which you wish to give.
If, for instance, the information presented in the survey that you've discussed with Mr. Flinn actually contained some misstatements of the impacts to lake level on particular elements, would that, then, change your analysis of the market value of these elements?
A Yes.
Q Thank you.
Dr. Carson, who do you believe is in the best position to determine the costs to Metropolitan Water District of supplying additional water to its service area?
A My perception here that probably Metropolitan has a staff of people who do this.
Q Thank you.
I noted that there were -- that the Draft Environmental Impact -- in your written testimony, you noted that the Environmental Impact Report underestimates the demand of water during hot years. Is that correct?
A Yes.
Q Are you also aware that the Draft Environmental

0064

Impact Report is based on the Los Angeles Urban Water Management Plan and actually underestimates the amount of conserved water because it does not include the potential water savings from the implementation of best management practices?
A I'm not actually that familiar with the L.A. water plan so -- I just --
Q That's fine. I won't ask you any more questions.
You also testified that the Draft Environmental Impact Report contains an optimistic estimate for the yield of water reclamation. Is that accurate?
A Yes.
Q I assume you're -- would you like to expand a little?
A That's from some specific projects which are

effectively rated as always yielding 100 percent of project yield. And what happens is that operationally, that tends to be an impossibility.
Q Are you aware that there are measures underway to expand the success of water reclamation?
A I presume that there are, yes.
Q Are you aware of the Department of Health Services and the Department of Water Resources' investigation into the potential for potable reuse of fully treated reclaimed water of which the State Water Resources

0065

Control Board is also participating?
A I am familiar with some aspects of this program and do understand that there are investigations underway for this purpose.
Q Thank you. That's all I have for you, Dr. Carson.
Brace yourself, Dr. Wade. I don't have that many questions, Dr. Wade.
You mentioned you were using -- you mentioned several times the use of Department of Water Resources economic risk model?
A BY DR. WADE: Yes.
Q I believe you also mentioned that the assumptions concerning local water supply and average demands had been updated by DWR Bulletin 16093?
A Yes.
Q Are you aware that DWP Bulletin 16093 is not yet available to the public?
A Yes.
Q This was the best information you had to use at the time, I presume?
A Yes.
Q Are you aware that these numbers may change and that they -- are you aware that these numbers may change, that this is a non-published draft on which you rely?

0066

A Yes. The numbers were provided to us in March, as I recollect. As a matter of fact, they have changed. The demand numbers have changed, they have gone up slightly from the version that we used.
Q And as I understand it, the draft for publishing this report will be public next month, public hearings in January and February, and then a final version to be published sometime in the spring. Is that also your understanding?
A I'm unaware of the calendar.
Q But are you aware that there will be a number of opportunities for modifications or at least public comment and potential modifications before the draft is finalized sometime within the next calendar year?
A Yes.
Q I'm almost afraid to utter the words "DWRSIM," but I'll assure you that my knowledge of DWRSIM is fairly limited as well. And so I have one fairly basic question, and that is would you agree with me that DWRSIM is the subject of some considerable controversy?
A No. I wouldn't agree with you on that. Do you want me to elaborate?
Q Let me try one follow-up question, and if that

doesn't get it, you can help me out.
DWRSIM is a widely accepted method with which to
0067
project State Water Project supplies. Is that your
contention?
A Yes.
Q Are you aware of organized or individual
opposition to DWRSIM as it currently exists?
A Do you -- I'm unaware of that. Do you literally
refer to the model or to the assumptions running the
model?
Q Both or either.
A I think you actually refer to the latter, the
assumptions. And it was reported in the press last
week wide disagreement about the assumptions being used
in the model leading to estimates of between a million
and three million acre-feet of reduced diversions
through the delta based on those assumptions. Not,
however, based on the modeling algorithms.
Q So you would agree with me, then, that the
assumptions on which the model was based or upon which
the model is run are, at times, controversial?
A I would only agree with you that they were
controversial last week.
Q That's fine. Thank you.
You spoke with both Mr. Flinn and Ms. Koehler --
A I would also add to that that that controversy
reveals a very fundamental problem in the water
0068
bureaucracy right now. The modelers can't agree what
the effects of the EPA standards are, the Endangered
Species Act, and other limitations. In short, the
water bureaucracy is flying blind into these policy
decisions with respect to what the effect of these
policy decisions might be on the water supplies for the
future. In short, uncertainty is rampant. Reliability
is down from where it was.
Q I think we'll move on. Thank you.
You spoke with Mr. Flinn and Ms. Koehler about
Metropolitan Water District's alternate supplies of
water. And by "alternate," I mean apart from the State
Water Project. I'd like to continue with that line of
inquiry and specifically ask you a few questions about
the California, Arizona -- the Central Arizona
Project.
Are you aware that the Central Arizona Project was
determined to be substantially complete as of October 1
this year?
A Yes.
Q And that after 25 years of construction, the
project was completed at a cost of some $4.0 billion?
A I'm unaware of the cost.
Q Are you aware that the governor of the state of
Arizona assembled a 34-member task force and charged it
0069
with developing recommendations to assure the long-term
viability of the Central Arizona Project?
A I'm specifically unaware of that, but I'm willing
to assume it.
Q And are you aware that this task force has come

out with its recommendations as of October of this year?
A No.
Q You referred earlier to an agreement between the farmers and the Central Arizona Project where the farmers would purchase water for approximately $15 an acre-foot from the Central Arizona Project.
A Yes.
Q Is this an agreement that you know about in detail?
A It's not -- I think I finally recounted most of the facts I know about it.
Q Do you believe that a cost of $15 an acre-foot for water would be enough to even cover the annual operation and maintenance costs on a $4.0 billion facility like the Central Arizona Project?
A I do not know, but I would be willing to stipulate to that.
Q Do you know or are you aware that the governor has recommended that the Arizona Department of Water

0070

Resources study arrangements at California and Nevada that unused entitlement and canal capacity to store water in Arizona in exchange for the right to increase Colorado River diversions?
A I'm somewhat vaguely aware of that, yes.
Q Do you believe that this, along with some of the other projects that you've discussed with Ms. Koehler and Mr. Flinn, I believe, the IID Conservation Project, Coachella and All American Canals, Palo Verde test fall on program, that in combination, those programs an adequate to assume a 1.2 million acre-foot supply for the Metropolitan Water District through its Colorado River aquifer?
A No. You can't assume that.
Q So your figures, your study, are based on approximately 600,000 acre-feet annual average supply?
A 626, and I gave you numbers to suggest how additional firm yield on the Colorado River aqueduct would reduce our estimated damages or benefits of added liability.
Q And these figures are without including -- or without considering the governor's Central Arizona Project Advisory Committee report?
A These figures have nothing to do with that.
Q Thank you.

0071

Within the State of California, the Metropolitan Water District has been active, I believe, in trying to secure water sources outside of the State Water Project and outside of its Colorado River aqueduct. Is that accurate?
A Yes. As have other urban water agencies.
Q And is it accurate that in 1991 Metropolitan purchased 215,000 acre-feet at $175 dollars per acre-foot from the governor's drought water bank?
A As I said before, I believe that's true.
Q And in 1992, Metropolitan purchased 10,000 acre-feet at $72 per acre-foot from the governor's drought water bank?

A I'm unaware of what they did in 1992.
Q I believe you testified you had concerns about continued water transfers that would occur through the delta. Is that accurate? Have I stated that accurately?
A Yes. My concerns from my direct testimony and from my responses this morning are two. A, Number One, there is not the demonstration that there will be the regulatory and physical flexibility to assure such transfers, and there is a lot of work, as everyone in this room knows, that needs to get done before one can be certain that transfers will deliver us from the

0072

problems of Southern California water demand.
And Point Two, the important point, is that the Draft EIR, the record upon which this decision must be made, is absolutely moot on the incremental impacts to the delta of any transfers. So, therefore, if you want to assume more transfers which, as an economist, I would support as good public policy, the document has got to deal with that.
Q I'm interested in water transfers from the Central Valley using groundwater storage facilities south of the delta. Are you familiar with Metropolitan Water District's agreement with Semi-Tropic Water Storage District?
A No.
Q With -- are you familiar with Metropolitan Water District's agreement with the Dudley Ridge Water District?
A No.
Q Are you familiar with Metropolitan Water District's agreement with Areias Dairy Farms?
A Yes.
Q Have you analyzed the amount of potential conjunctive use programs; that is, using groundwater storage facilities south of the delta areas, in areas south of the delta, to potentially meet some of

0073

Metropolitan Water District's future water needs?
A No. And your question, if I may, begs an answer.
In a certain very real sense, I would not be the right person to ask that question to. There is -- there are studies ongoing across the state by a handful of very well-informed people. It would be those people, when they complete these studies, that decisions such as this Board makes must rely on. Those studies aren't done. Those numbers aren't out there in the record, or they would have been in our data base.
And my testimony -- or any other witness that comes up here, about these things, except for someone specifically informed who can provide factual evidence as to whether the facts are, when the timing is, and the certitude of these numbers are, these acre-feet numbers, those are the only things that I would assert this Board can rely on. My testimony, and yes-and-no answers to your questions are moot, I would assert.
Q Let me get a little more specific, then, as far as what is certainty and what is still just conjecture in south of the delta storage, your Metropolitan Water

District.
Are you aware that Metropolitan Water District has entered contracts to conjunctively use water storage facilities of water districts within the Central

0074

Valley?
A I am unaware of the status of Metropolitan's contracts. I am aware that there is an abundance of studies going on trying to evaluate and estimate the significance in terms of water of conjunctive use.
MS. SCOONOVER: Thank you. I have no more questions, Mr. Del Piero.
HEARING OFFICER DEL PIERO: Thank you very much, Ms. Scoonover.
Mr. Frink?
MR. FRINK: Yes.
HEARING OFFICER DEL PIERO: Wait a second. We don't have any other parties?
MR. FRINK: I don't believe so.
HEARING OFFICER DEL PIERO: Go ahead, Mr. Frink.

CROSS-EXAMINATION BY THE STAFF

Q BY MR. FRINK: Good morning, Dr. Wade and Dr. Carson.
A BY DR. CARSON: Good morning.
Q My first questions and most of my questions actually are for Dr. Wade.
Dr. Wade, on Table B of Page 66 out of your written testimony that is displayed up front there, it compares the water deliveries and costs that were calculated by Jones and Stokes with the water

0075

deliveries and costs that you believe are a more accurate estimate after making some revisions in the approach utilized by Jones and Stokes. Is that correct?
A BY DR. WADE: Yes.
Q Looking at the bottom portion of the table, that's the portion that you prepared, correct?
A Yes.
Q If we were to subtract the 399,000 acre-feet that is shown as being the average annual delivery of water from the Los Angeles aqueduct under the 6383.5 alternative as you've evaluated it, from the 433,000 acre-feet of water delivered through the Los Angeles aqueduct, that would give us a decrease of 34,000 acre-feet a year per water deliveries from the Mono Basin to meet the 6383.5 alternative. Is that correct?
A Yes.
Q And looking over, then, under the column Average Annual Resource Cost, if we were to subtract $184 million from $207 million, then that would give us a cost of approximately $23 million in order to -- that would be incurred if we were to adopt the 6383.5 lake level alternative under your analysis. Is that correct?
A That's the number shown on Table B, yes.

0076

Q And you prepared Table B?
A I did.
Q Okay. Are you familiar with the Mono Lake

Management Plan prepared by the Department of Water and Power?
A No.
Q Are you -- are you aware that that plan is reported to result in a reduction -- excuse me. Are you aware that that plan has been reported in this hearing to result in average annual exports from the Mono Basin of 45,700 acre-feet?
A I'm unaware of what it reports. I've never seen it.
Q Do you know if anyone has calculated the average annual resource cost to the City of Los Angeles of implementing the Mono Lake management plan that they've proposed in this hearing?
A The only calculations I'm aware of are the ones in the Draft EIR and my own.
Q And those did not evaluate the average annual resource cost to the City of Los Angeles of implementing the Mono Lake management plan. Is that correct?
A My assignment, Sir, was to evaluate the Draft EIR. I did not deal with this other document that you

0077

are referring to.
Q Would you agree that reducing water exports from the Mono Basin to the 45,700 acre-foot per year level that is estimated under the Department of Water and Power's Mono Lake Management Plan would have a resource cost to the City of Los Angeles?
A Yes.
Q And would you agree that there would also be indirect cost to other water users in the MWD service area from implementing the Department of Water and Power's Mono Lake Management Plan?
A Yes.
Q Dr. Carson, I believe you testified yesterday in response to a question on cross-examination that the really relevant thing to examining in assessing the economic cost of various alternatives is not the absolute covers that may be assigned to a particular alternative, but rather the relative costs one alternative as compared to another. Is that accurate?
A BY DR. CARSON: Correct. You look at the incremental changes.
Q Okay. Have you evaluated the incremental changes that -- or the incremental costs that would be incurred in implementing the 6383.5 alternative under the Draft Environmental Impact Report as compared to the Mono

0078

Lake Management Plan that the Department of Water and Power's proposed?
A No, I've not. Until just very recently, I had not seen the City of L.A.'s management plan.
Q Okay. Dr. Wade, in order to make the cost figures in Table B of your report more understandable, I'd like to determine the average annual resource cost per acre-foot of water. Now, using the numbers in your simulation of Table B at the bottom portion of the table, you assumed a decrease in average annual water exports from the Mono Basin equal to 34,000 acre-feet.

Is that correct?
A BY DR. WADE: Table B shows that.
Q Okay. And the average annual resource costs of that change would be $23 million. So am I correct in assuming that if we wanted to get a per-acre-foot average annual resource cost of making that change, that we would divide $23 million by 34,000 acre-feet?
A Yes.
Q And what number did you come up with?
A $676.
Q Per acre-foot?
A Yes. Which I believe is the model's marginal cost for Metropolitan.
Q All right. The Draft EIR estimated that under the

0079

6390 foot lake level alternative there would be 37,000 acre-feet of water available for export to Los Angeles. And I'd ask you to assume that the Department of Water and Power's Mono Lake management plan estimates that --
MR. BIRMINGHAM: Excuse me, Mr. Del Piero.
Pardon me, Mr. Frink, for interrupting you, but the L.A. DWP management plan has never been introduced as evidence in this proceeding. It's not an exhibit. It was actually provided to the Board in connection with a policy statement made by a representative of the Department of Water and Power during one of the public policy hearings.
There have been many questions about it, and I wonder if, with the stipulation of opposing counsel, we could actually identify the document as an exhibit and -- so that we can have a better record.
MR. FLINN: We certainly want it identified.
MR. FRINK: That's very agreeable.
MR. SMITH: 83.
HEARING OFFICER DEL PIERO: Ms. Koehler? Mr. Thomas? Ms. Scoonover?
MR. BIRMINGHAM: Then it will be identified as L.A. DWP Exhibit 83?
HEARING OFFICER DEL PIERO: So ordered.

0080

(L.A. DWP Exhibit No. 83 was marked for identification.)
MS. CAHILL: And copies will be provided to the parties?
MR. BIRMINGHAM: It's my understanding that copies had been provided to the parties.
MS. CAHILL: I thought you were indicating it was something new --
HEARING OFFICER DEL PIERO: This is the management plan. I think everyone's got a copy of it. If they don't -- Mr. Canaday --
MR. BIRMINGHAM: We have copies at our office that we'll have brought over.
MR. FRINK: Mr. Birmingham, just so we're clear. The document that we've just identified as L.A. DWP Exhibit 83 is this blue brochure; is that correct?
MR. BIRMINGHAM: That's correct. And it was the document that was supplied to the Board by Mr. Wickser during his policy statement.

MR. FRINK: Okay. Thank you.
DR. WADE: And I have seen that, to correct the record, but I certainly haven't studied it. So my answer is I really don't know what's in it.
Q BY MR. FRINK: Okay. Okay. I would ask you to assume that the Mono Basin water exports that are

0081

predicted to occur under that plan are 45,700 acre-feet per year. And as you recall from your review of the Draft EIR, the Mono Basin exports that Jones and Stokes estimated to occur under the 6390 lake level alternative are 37,000 acre-feet per year.
Now, for purposes of this question, let's assume that both of those numbers are reasonably accurate. The difference, then, in water business in exports if both estimates are reasonably accurate would be 8,700 acre-feet per year; is that correct?
A BY DR. WADE: I'll agree to that. I wasn't making calculations as you went along.
Q At an average annual resource cost to Los Angeles of $676 per acre-foot, then an additional reduction of 8700 acre-feet per year in water exports from the Mono Basin could be calculated by multiplying the 8700 acre-foot by $676 per acre-foot. Is that correct?
A No. That would not be correct for two reasons. As my testimony has shown, that incremental water would not be available from Metropolitan on the State Water Project to sell to Los Angeles at $676.
Q Maybe we'll have to back up. Not looking at the costs to Metropolitan, but just looking at the costs to Los Angeles, didn't we establish before that the average -- the average annual resource cost for each

0082

acre-foot of water exported from the Mono Basin is $676 per acre-foot?
A No. We established that the marginal cost for water from Metropolitan is $676. We didn't establish whether or not the water was there for Metropolitan to sell to Los Angeles.
Q Your heading Average Annual Resource Cost, whose cost does that refer to?
A That's the cost to the Los Angeles Department of Water and Power, but if I may, Sir, direct you to my direct testimony. On the page following Table B, the first sub head at the top of -- well, actually, I'm sorry. These are oral notes.
The major point made there is that this Table B revealed to me the fatal flaw of my, at that particular time, and Jones and Stokes' thinking process. The water is not shown by Jones and Stokes to be there to sell. My testimony then went through my analysis in time through the last six months, went through a large analytic loop and demonstrated that the water was not there for Metropolitan to sell.
Q Now, as an economist, wouldn't you agree that virtually any resource is available at some cost?
A Yes.
Q Have you determined what the replacement cost to

0083

the City of Los Angeles will be for an acre-foot of

water exports lost from the Mono Basin?
A That's a very good question. The exact answer is that what our analysis shows is that on the margin, the available resource is not there, the available marginal cost is the shortage inflicted on the people of Southern California.
It's also true that on the margin does not exist to the incremental reclamation project. The margin is shortage --
Q Okay.
A -- because of the unreliable system that is the baseline in Southern California today which any shortfall from that exacerbates.
Q So it's your testimony that you cannot make up for the water loss from the Mono Basin?
A It is my testimony that it would increase the shortages.
Q Okay. And your shortage costs refers to costs incurred by other water users within the Metropolitan Water District, correct?
A My shortage cost is that incurred by all water users within the Metropolitan service area.
Q Did you attempt to break out the costs incurred by the City of Los Angeles from the costs incurred by

0084

other water users?
A No.
Q Was there a reason you didn't do that?
A You can't do it.
Q Would you agree --
A You could do it, I mean, artificially after the fact, since shortage cost arises from an estimate of household willingness to pay, one could discriminate the households within the City of Los Angeles from those within the broader Metropolitan service area, but it would be a meaningless exercise.
Q In any event, it's an exercise you didn't undertake?
A I didn't undertake it.
Q Dr. Carson, would you agree that if one could determine the cost for replacing an acre-foot of water lost from the Mono Basin to the City of Los Angeles, that the way of determining the incremental cost of moving from the Department of Water and Power's Mono Lake management plan to some other alternative which would decrease exports from the Mono Basin by a greater amount would be to subtract -- would be to determine the additional reduction in exports from the Mono Basin and multiply that by the per acre-foot resource cost to the City of Los Angeles?

0085

A BY DR. CARSON: I think I lost something here. Can you repeat that question in parts?
Q Sure. Let's assume that at some cost that can be determined, you -- you have determined the replacement cost for an acre-foot of water lost from the Mono Basin.
A Okay. So we're assuming that water's available at some number of dollars, say, X.
Q Okay. To begin with, let's assume $676 an

acre-foot.
A Okay.
Q And assume that an alternative identified in the EIR or elsewhere would result in reductions of water diversions from the Mono Basin by 8700 acre-feet above what the Department of Water and Power has proposed in its Mono Lake management plan.
A Correct. Okay.
Q What would be the annual costs using those numbers to the city, the annual incremental cost of moving from what the department has proposed in the Mono Lake management plan to the other hypothetical alternative?
A You'd simply multiply -- if water was available at $676 an acre-foot, you would simply multiply the shortfall by -- in acre-feet by $676.
Q Does 8700 acre-feet times $676 an acre-foot equal

0086

approximately $5,881,200? Does that sound about right?
A If you multiplied those together, I'm going to assume that that's correct.
Q Dr. Wade, you brought up the transfer of 106,000 acre-feet of water from Imperial Irrigation District to Metropolitan Water District. Do you know what the approximate cost per acre-foot was for the water involved in the IID-MWD transfer?
A BY DR. WADE: No. I would assume it's in the low three figures.
Q I believe you were questioned earlier about a transfer between MWD and Areias Dairy Farms, and I probably have the pronunciation on that wrong. It's A-R-E-I-A-S. Are you familiar with that transfer?
A Well, I read a short paragraph news item. Isn't it a fact that he agreed to sell 25,000 acre-feet or something like that?
Q The report I saw said he agreed to sell up to 35,000 acre-feet over a 15-year period at a cost of $175 an acre-foot plus $25 an acre-foot to go toward environmental restoration. Does that sound approximately correct?
A Sounds approximately.
Q Assume that water is available to the City of Los Angeles from water transfers or some other source that

0087

would not otherwise occur in the absence of a change in diversion from the Mono Lake Basin. Assume that you could get that water for $300 an acre-foot.
Dr. Carson, wouldn't the way of determining the incremental cost between some hypothetical alternative and the Mono Lake management plan be to determine the difference in water exports from the Mono Basin under the two alternatives and multiply that by $300 an acre-foot?
A Yes.
Q The other aspect of your Table B, Dr. Wade, was to identify the shortage costs, and I assume that these are the kind of indirect costs that occur as a result of water shortages. Is that correct?
A Yes.
Q Now, if you were -- if you were able to undertake water conservation as part of a program that was

developed to compensate for reductions in Mono Basin exports, and if that water conservation would not otherwise occur except for this reduction in Mono Basin exports, would you still have this shortage cost?
A Yes. By the explicit direction of your question. You know, when people decide to be good public-minded human beings and use less water to wash their cars, to flush their toilets, to take longer showers, to

0088

maintain their landscape, they suffer some erosion in their quality of life from what they have otherwise known it to be. And what Dr. Carson's numbers measured was the reduction in quality of life associated with the reduced use of water, a reduced quantity of water. So that's explicitly the value associated with that public-minded conservation that you stipulated here.
A BY DR. CARSON: I can amplify this slightly. If, indeed, there were not any costs associated with these activities, then people would be voluntarily engaging in these activities at the present over the long run.
Q Assume that you can cover the direct costs of implementing the water conservation measures. Assume there's millions of dollars available to put into lower water-using appliances within the house and measures such as that so that you can still get the same bank for the buck or use per acre-foot of water. Do you believe you have that shortage cost, Dr. Carson?
A Yes. Even if you were to, say, provide low-flow shower heads, which is a good example of providing the actual technology. The public clearly prefers not to have low-flow shower heads. They like to sort of, you know, get lots of water on them in the shower. They will, indeed, at some cost of water, voluntarily adopt low-flow shower heads.

0089

Q So is that the sort of difference we're talking about in terms of identifying these shortage costs?
A BY DR. WADE: Yes. But to make it more real and to harken how quickly we forget the discomfort of living through the drought, having to transport your laundry water out to keep your valuable bushes alive, the having to live with an unflushed toilet. It's this erosion in our quality of life that Dr. Carson has measured that I've applied in these consumer surplus or willingness to pay values. Your willingness to pay to have a certain reliable water system.
Q Okay. Wouldn't this erosion in our quality of life be a function of the specific water conservation measures that are adopted?
A Yes.
Q In terms of water reclamation, if you had the funds available to engage in water reclamation, do you still see a shortage cost associated with doing that? Does that erode one's quality of life?
A Let me answer, Richard.
You know, on the margin of a shortage reclamation doesn't replace the water. Reclamation is a good water policy for the normal years. In a short year, we need fresh water because it is fresh water that human beings consume. Reclamation is a super public policy for the

0090
normal water years. In the water short years, it's shortage that's on the margin, not reclamation.
Q But if you could implement additional water reclamation projects as a result of additional money that's made available, wouldn't those water reclamation projects also have some effect in water short years?
A Yes. And again, to emphasize a point I made earlier this morning, you're dealing here with the concept of hundreds of thousands of potential reclamation versus seven-figure shortfalls associated with the hydrologic cycle. So in other words, reclamation doesn't substitute for fresh water, again, to make the point.
Q I would agree. Reclamation would not offset all the problems that may occur in Southern California in a dry year but, again, what we're focusing on here or at least what I was trying to focus on with Dr. Carson, is the incremental difference between implementing the Mono Lake management plan and some other alternative.
If you could reclaim an additional amount of water equal to that incremental difference, couldn't you offset the shortage costs, Dr. Carson?
A BY DR. CARSON: There you need to look at basically what the cost of the reclamation project is, but certainly, potentially, you could, yes.
0091
Q The cost of the reclamation project are your direct costs; isn't that correct?
A Yes.
Q And if you could do that, if you had money available to cover the direct costs and to save a given amount of water, you would eliminate the indirect shortage costs; is that correct?
A BY DR. WADE: You could also eliminate the indirect shortage costs with desalinization if you're willing to assume that you can site along our coasts a sufficient number of desal plants to obviate any water shortages, but you can't assume that. It's not a plausible engineering or environmentally permittable assumption. It's also not a plausible engineering assumption to assume that reclamation will replace the demand for water which is rising in southern and coastal California against a static water infrastructure, which has been static since the State Water Project was completed in the mid sixties, during which time the population has doubled and the gross national product has tripled.
Q I would ask Dr. Wade --
HEARING OFFICER DEL PIERO: Excuse me, Mr. Frink.
MR. FLINN: I wanted the Reporter simply to mark Dr. Wade's answer there.
0092
Q BY MR. FRINK: Do you contend to be an expert on the feasibility of various water reclamation projects and desalinization?
A BY DR. CARSON: I do not.
MR. FRINK: Thank you. That's all my questions.
Q BY MR. SATKOWSKI: Good morning, Gentlemen. I have quite a few questions just to clarify your testimony

and some others in some other areas.
First, for Dr. Carson, On page 56 of your testimony at the bottom of the page --
A BY DR. CARSON: Give me just a moment.
Q At the bottom of the page, you discuss, under the heading 12 Percent Average Annual Cost Increased Threshold, you talk about -- anyway. Well, this threshold, which is based on the average L.A. DWP increase in operating costs between 1981 and 1990, in your testimony you say that the 12 percent figure, however, includes inflation while the water supply project costs do not include any escalation or inflation. And you go on to say that, "This comparison of a nominal rate of cost increase to a real rate of cost increase isn't appropriate," and finally you mention that, "Correcting this problem would result in triggering significant water supply impacts at lower lake levels."

0093

A Yes.
Q How do you propose that this problem be corrected if there is a problem?
A The straightforward way to do this is to use real numbers for L.A.'s costs from 1981 to 1990. That is, take the inflation out of those numbers so that both the past and the future are in real terms. And what happens if you subtract the inflation which, I believe, over the period was probably running about 4 to 5 percent, you'll then, you know, cut that cost increase from 12 percent down to 8, maybe a little lower.
Q Thank you.
Going on, on Page 58 of your testimony, you mention that the confidence intervals were omitted in the Draft EIR analysis. What should the confidence intervals be? Do you have any estimation of that?
A No. Dr. Wade has actually explicitly addressed this. The confidence intervals on the supply side are driven by variations in the hydrologic cycle and by forecasting the likelihood of various water supplies as well as variation in the estimates of things like demographic changes and the location of people in the future and economic growth.
In other words, if you look at this, there are actually a large number of factors each of which is a

0094

forecast in the future, and this is the point I was trying to make when Mr. Flinn asked me, you know, are economists basically wrong because you're forecasting the future. There's always basically some uncertainty around those estimates, and with the water supply, there's uncertainty from a very large number of sources. And to get a confidence interval on the water supply forecasts, you need to take account of the various sources of uncertainty.
And what I suspect that you would see there is a very -- you would get a point estimate, sort of the best estimate, but then would you get very broad confidence intervals. A lot of the discussion that's gone back and forth here is simply that a lot of things are uncertain and typically, you want to see that

uncertainty summarized in not just a single point estimate, but a range.
Q But you did not do any sort of analysis, you're just pointing out the fact that the confidence intervals were omitted from the analysis?
A Right. Which makes it very hard to sort of judge, you know, is this really going to happen with great certainty? Is it a narrow range, or a big range? And they're just not there, and you need those.
Q Thank you.

Down on -- under Section E, you mentioned that the reclamation estimates are optimistic. Do you know where in the testimony there might be some better estimates for reclamation?
A Yeah. I think that the Department of Water and Power is actually -- has a list which I've seen which is sort of a better estimate, I believe, in this case.
MR. SATKOWSKI: Does counsel for L.A. know where these estimates are? What exhibit that is?
DR. WADE: I know.
MR. BIRMINGHAM: There are estimates in the testimony of Jerry Gewe who is one of the witnesses that we hope to hear from today.
DR. CARSON: My comment here reflects the simple fact that some of these projects were basically put in at a hundred percent, assumed to be operating at a hundred percent of rated and just operationally, that doesn't happen.
Q BY MR. SATKOWSKI: Dr. Wade?
A BY DR. WADE: L.A. DWP's filed comments Table 3-LC, Page 15, Chapter 3-L. Source to Jerry Gewe.
Q You said that was Page 15?
MS. GOLDSMITH: Spelled G-E-W-E.
DR. WADE: Yes. Page 3-L-15 in the comments.
Q BY MR. SATKOWSKI: But that table wasn't presented

in -- as an exhibit directly from L.A. Is that correct?
MR. FRINK: Actually, I believe the comments that the Department of Water and Power filed on the Draft EIR are included in one of the staff exhibits, I believe it's Staff Exhibit No. 2, but we can clarify that later. So it would be part of the record in any event.
Q BY MR. SATKOWSKI: Dr. Wade, I wanted to ask you a couple of questions about your Table B which is on Page 66 of your testimony.
A BY DR. WADE: Yes.
Q Up at the top of the table, there are two headings, one is Average Annual Delivery of Los Angeles Aqueduct Water 1980 to 1990, and then the column next to it is Average Annual Delivery of MWD Water to L.A. DWP 1970 to 1990. Maybe I'm missing something, but why are those two time periods different?
A I don't know. There was no reason. Probably because of some availability of numbers that I had.
Q Do you know whether or not the results would change substantially if you were to use the same time period?

A I probably don't know because I probably would have used the same time periods if I had had the

0097

numbers. I can't tell you why the periods are different. There was nothing strategic in the choice, if that's what you're wondering about.

Q I was just wondering why they were different.

Under the column Average Annual Delivery of Los Angeles Aqueduct Water, Jones and Stokes estimate, the point of reference scenario, shows 442,000 acre-feet. For the 6383.5 foot alternative, it shows 400,000 acre-feet, and the difference is 42,000 acre-feet. Is that correct?

A Yes.

Q For your simulation for the point of reference scenario you show 433 thousand acre-feet. For the 6383.5 foot alternative, you show 399,000 acre-feet, and the difference in that would be 34,000 acre-feet. Is that correct?

A As shown in Table B.

Q All right. Could you conclude from looking at these values that the incremental difference between the point of reference in the 6385.5 alternative for your analysis is less than for the Jones and Stokes estimates? In other words, the impact is less for your analysis than for the Jones and Stokes analysis?

A I, myself, did not conclude that. As I stated before, I assumed that the difference was within the

0098

standard deviation and that there was no statistical difference. To me, the most important numbers on Table B are the changes on the Metropolitan column.

Q Okay. Let's go on. On Page 69 of your testimony, at the bottom of the last full paragraph, you mentioned that Jones and Stokes assumed that MWD could generally replace or reduce aqueduct deliveries, quote unquote, 95 percent of the replacement supplies would be from MWD. I'm not sure if I remember exactly what was in the EIR. Is that 95 percent of after conservation reclamation is factored into the analysis, or is that 95 percent overall?

A I think that the remaining 5 percent was assumed to be reclamation. The exact answer to your question, I don't recollect. The point of the paragraph is that they simply assumed it was 95 percent available, whereas if they had run the DWRSIM model, they would have seen that it's not there.

Q Down at the bottom of the page, the same page, you discuss the entitlement from the State Water Project, and it's listed as 2.01 million acre-feet. Is that the full entitlement value?

A That's Metropolitan's full entitlement value.

Q Turning the page to Table C, which is labeled Annual Los Angeles Aqueduct Deliveries and Allocation

0099

of Potentially Exportable Water in the Year 2000 -- let me back up.

Before we go to that, on Page 71 at the top, you mentioned that some of your analysis was extended to 1991 by regression analysis. What did you do there

exactly?
A Jones and Stokes provided a time series to me to 1989, two time series, the point of reference time series and the 6385.5 time series. As you know, that 1941-to-1989 period doesn't really include much drought on the eastern Sierra. That's reflected in the longer 70-odd-year trace.
We extended the time series to '90 and '91 by regression of those simulated results provided to us on one of two series of actual deliveries that L.A. aqueduct provided to me by correlating the numbers over 15 years or something like that and just predicting '90 and '91. That's what we did.
Q Is the regression analysis somewhere in your testimony or exhibits?
A It's not.
Q Can we get that regression?
A You can. It really only exists right now on a hard drive of a computer in my office.
MR. SATKOWSKI: Is that okay with counsel?

MR. BIRMINGHAM: Absolutely.
DR. WADE: We tested two variables, by the way, and chose the more conservative that gave the higher deliveries to Los Angeles.
Q BY MR. SATKOWSKI: Thank you.
Now, going back to the table, I believe in your testimony that you mentioned that for the fourth column, which is labeled Potentially Exportable Water March through February from -- and that was some results from a run that was done for D 1630?
A Yes.
Q Do you know the date of that run or the run number?
A I do not. However, it could be obtained. There were some runs done by some people in George Barnes' shop for us.
Q Yes. And we'd like to get that if possible.
Now, in the heading of this table, it mentions the year 2000. Do you know what the level of export and demand was for this particular run?
A I think 3.7.
Q Now, that -- do you know what that would translate in terms of export demand? 3.7, I assume, is the State Water Project demand?
A I think, yes.

Q Do you know what the conversion is?
A The conversion to what?
Q Do you know what the export demand is from the delta? The amount of water needed south of the delta versus the entire State Water Project system?
A No.
Q Now, you said that this DWRSIM run was from D 1630. Do you know if the State Board used the 2,000 level of development analysis in preparation of Decision 1630?
A No. I don't know what the state did.
Q Would you be surprised to know that the State Board did not?

A They were using the Decision 1485. Is that your contention?
Q No. Well, what the State Board did is use a 1990 level of development not a future level of development in its analysis, so just to make the record clear on that.
Isn't it true that using a higher level of demand in the DWRSIM analysis would decrease the amount of surplus water available for export?
A Yes. But we're dealing with the year 2000 here.
Q I understand that. And if you were to decrease the amount of surplus water available, then your

0102

table -- your Column Four of your Table C would change. Is that correct?
A If you want to lower the demand, then the potentially exportable surplus would rise. Is that the point? I would agree with that. But it hinges on what's the demand assumption.
Q Okay. Down on Page 71, which is the third full paragraph of that page, you mention that aqueduct deficiencies can be made up by water delivered any time between March and February. In this analysis of DWRSIM, did you or did DWR, look to see if there was actually a capacity in the system to transfer this water?
A It's my understanding that the capacity was limiting. But I have to say for the record that that's hearsay. On my own authority, I do not know the answer to your question. But yes, that's an explicit part of what DWRSIM does as I understand it. Admittedly, only vaguely do I understand it.
Q In the middle of the second full paragraph, you state that, "If we assume that the annual replacement water can be requested any time during the 17-month period from October through February, the State Water Project could still provide approximately 14,000 acre-feet.

0103

Why did you add in this analysis for the 17-month period?
A To show that it only goes up a little bit.
Q And why did you pick the 17-month period?
A I didn't pick it. I wrote it. It was provided to me. So I can't answer the question analytically.
Q Who was it provided from?
A My testimony lists Roger Mann as my partner on working with DWR on working out these simulation runs. Both Roger, my staff person, knows how these hydrologic models work, and the DWR people that ran the modules, they know how they work.
Q Earlier, Ms. Scoonover asked you about some of the controversies of DWRSIM. Are you aware of the carriage water component in DWRSIM?
A As I've stated twice here this morning, I'm aware of very little about DWRSIM in fact. I'm not a good person to ask hard questions about DWRSIM.
Q Are you aware that certain parties, at least in the Bay Delta hearings, have advocated that the carriage water component or -- carriage water is

roughly defined as the volume of water needed to meet the water quality criteria at the Contra Costa canal intake, that some parties to the hearings had recommended that carriage water be zero as opposed to

0104

the values used by DWR?
A My prior answer still stands. I don't know.
Q Let me just ask one last question dealing with that. If the carriage water component was zero as opposed to what DWR had assumed, would that decrease or increase the amount of surplus water available?
A I don't know.
Q Going on to Page 72. At the bottom of the page, in the third full paragraph, you mention that, "Important economic risk model assumptions for these runs include DWR Bulletin 160-93 assumptions concerning local water supplies and average demands." I believe -- was it Ms. Scoonover that pointed out that this was still -- DWR Bulletin 160-93 was still a draft; is that correct?
A That's correct.
Q If these assumptions are important, could it be possible that we could get L.A. to introduce at least the draft version of Bulletin 160-93 and any important appendices that go along with that?
A I was not -- I do not have a Bulletin 160-93. We received the data file that is loaded by the planning department with Bulletin 160-93, and we would be delighted to make that available to you. In fact, I think we have.

0105

MS. GOLDSMITH: Is that the planning department of the Department of Water Resources?
DR. WADE: Yes.
MR. SATKOWSKI: Thank you. That's all I have
HEARING OFFICER DEL PIERO: Mr. Smith?
MR. SMITH: Mr. Canaday and I discussed my concerns yesterday evening, so I defer to Captain Habitat.
HEARING OFFICER DEL PIERO: Captain Habitat.
MR. SMITH: Mr. Chairman, I'll clarify that for you later.
MR. DODGE: I have a feeling that I'm never going to live down that error.
HEARING OFFICER DEL PIERO: Mr. Canaday.
MR. CANADAY: "Live" is the pivotal word.
HEARING OFFICER DEL PIERO: We've been here a long time.
Q BY MR. HERRERA: Before we get to Mr. Canaday, I guess I'll -- listening to all this testimony, I've got some real basic questions that linger in my mind is that we're talking about modifying L.A.'s exports of water under various lake level alternatives out of the Mono Basin, and earlier we were kind of looking for the bottom line of all of this.
Maybe I'll start off by asking a question. Do you

0106

know what the average annual rate of export by L.A. DWP has been historically?
A BY DR. WADE: Well, as shown in the Table B that we

just looked at.
Q And that is?
A Well, for the ten-year period shown, 438,556 acre-feet.
Q Okay. And what is that ten-year period?
A '80 to '90.
Q '80 to '90. Do you know what the export was prior to any court order restrictions on export? That period does include some restrictions.
A I think it was closer to -- I think the design capacity of the pipe is 550,000 acre-feet. And what the actual deliveries were are not -- I don't recollect.
Q Let's assume that it was approximately 85,000 acre-feet annually. I believe that's --
A Was your question from Mono Lake or from --
Q That's correct, yes.
A I misheard your question.
Q Okay. Then, again, what was -- what was your understanding of what the historic annual export from the Mono Basin prior to the court order restrictions?
A It would be in line with that number that you just

0107

said.
Q 85,000? Okay. And in your comparison of the 6385.5 alternative, how much export did you anticipate there?
A I didn't anticipate an absolute amount. I dealt with a change.
Q And that was a change from the point of reference and not from the historic use?
A Yes.
Q Still, what I'm getting at here is could you tell me, if you had a known amount of 85,000 acre-feet of export and roughly at 6385.5 would allow, let's say, 55,000 acre-feet of water, as a hypothetical there, that's roughly 30,000 acre-foot reduction in export. How much is that going to cost an acre-foot? That reduction?
A Well --
Q In actual costs and in your incremental costs?
A Well, I appreciate the straightforwardness of your question, and the straightforward answer is the $95 million estimate. Now, the explanation for why that's the answer is a little more complicated and, essentially, what we have done is this is the baseline of the problem in Southern California.
Q Would you identify that for the record, please?

0108

A It's a poorly labeled table that we just quickly jinned up that basically shows what the baseline damages would be without regard to the Mono Lake decision in Southern California.
HEARING OFFICER DEL PIERO: Can we have that identified?
MS. GOLDSMITH: Perhaps we could I have this as exhibit --
MR. SMITH: Next in line would be 84.
HEARING OFFICER DEL PIERO: Is that okay with you, Counsel?

MS. GOLDSMITH: That's fine for present purposes.
HEARING OFFICER DEL PIERO: It's shorter than --
MR. FLINN: Did the Reporter get jinned up?
HEARING OFFICER DEL PIERO: It's a jinned version.
MR. DODGE: It was a quickly jinned up version.
DR. WADE: This goes with the unnamed model.
HEARING OFFICER DEL PIERO: That will be marked for the record.
DR. WADE: And it's three pages.
(L.A. DWP Exhibit No. 84 was marked for identification.)
DR. WADE: The point being is that living in Southern California, I guess you could describe, is a

0109

little bit like flying an airplane. Most of the time I guess it's not so hard, as pilots like to say, but landing is a real bear. So in Southern California you basically have -- I have here a table of 52 years of damages estimates or economic losses per year associated with Metropolitan's baseline and the 6385.5 foot case, point of reference case, compared to the 6385.5. This picture is simply a plot of the baseline. That there are some hydrologic years that would cause damages to Metropolitan associated with a 42 percent shortage of near $10 billion.
And this is the worst case hydrologic shortage that exists in the history of California when you run these models for the year 2000.
And -- so what you get to when you compare the small, stated to be seven-tenths of a percent change, to these shortage costs over each of these 52 years, is a number that ranges from their eight zeros, their six years, when it's less than a million dollars a year, their five years, when it's less than ten million, and so that's 19 or 20 years when the numbers are virtually, you know, small. And there are a lot of years --
Q BY MR. HERRERA: Small being less than a million?
A BY DR. WADE: Yes. Less than ten million, less than

0110

a million zero. In other words, for this 20 out of the 50-year period, Metropolitan has pretty good supply reliability. But for 30 odd years out of the 52-year period, Metropolitan is looking at some shortage which is incrementally worsened by the 24 or 40,000 acre-feet associated with the Mono Lake decision.
And the economic damages or the economic cost of that ranged from, you know, the large numbers ranged from a hundred and ten million to, I see a number of 554 million for one year. And the average of that over the 52, averaging in the zeros and the very high numbers, is the $97 million.
So what you're looking at is that on the margin, the last 24,000 or 40,000 acre-feet of water governed by this decision exacerbates Metropolitan's underlying unreliable system.
The corollary to that is that obviously you can't simply say, "Well, Rusty Areias' 25,000 acre-feet makes up for that and makes the problem go away. It

doesn't. It's not that simple.
Q I understand that. I think part of our problem here is that, at least from my perspective, is I'm looking at a change in the amount of water that's being exported. And I've gotten a $95 million number, and I'm not sure how I can relate that to anything other

0111

than your comparison of the point of reference in the 6385.5.
A I can relate it in contrast to the Jones and Stokes' numbers. Jones and Stokes, you may remember, for this case estimated a $1.8 million incremental cost of shortage. Well, our estimates show that the incremental cost of simply the advertising campaign is roughly $700,000 based on the very detailed algorithms in the economic risk model and so, therefore, the shortage cost element itself is in the range of a million dollars. I think that's a trivial number because it just doesn't match with anything that's been in the record of the Bay Delta hearings.
Again, to emphasize the point, that translates to a 31-cent-a-year household cost of that number. That doesn't compute. Our number translates to a $16-a-year household cost number, which compares to the Carson and Mitchell numbers of 100 to $300 for much larger water shortages that people evidenced they would be willing to pay to avoid a reduction in water supplies. So our numbers work out to on, an acre-foot basis, something in the range of 3 or $4,000 an acre-foot at the high end of other known measures of what people are paying on the margin for high end replacement costs of water.
Our numbers have some common sensibility about

0112

them. 31 cents a household a year doesn't have a common sensibility to it.
Q Again, you know, I guess in some respects it's an attempt to oversimplify things but, again, when I'm looking at various alternatives and I thought well, just as an indicator I'm saying, if I go from 6377 to 6385.5 what's the cost, and what you're saying is there's no simple answer to that or from a point of reference of 6385.5.
A More importantly, Sir, what my direct testimony actually said was there are two important models which are accepted in the planning community, the DWRSIM and the economic risk model that should have been consulted in the DEIR process to ask and answer that question. They were not consulted, and they were not used. And my direct testimony corrects the record on that. That's exactly what my testimony is directed to. Less to the absolute epistomological question that you're trying to answer and more to the deficiencies of the record.
MR. HERRERA: That concludes my questions. Thank you.
HEARING OFFICER DEL PIERO: Mr. Canaday, before you -- before you begin, Mr. Brown has to leave at 11:30. He has three questions. I'd like to afford him

0113

the opportunity to ask those.

MR. BROWN: Thank you, Mr. Chairman.

CROSS-EXAMINATION BY THE BOARD

Q BY MR. BROWN: This will be directed to the panel.
The Central Arizona Project, I believe, the water rights to 662,000 acre-feet; is that correct? Thereabouts?
A BY DR. WADE: What is their water right on the Colorado River?
Q Is that the figure?
A I don't know the figure. I know that the system is designed for an ultimate capacity of 2.2 million acre-feet.
Q The follow-up question was of the 662, and I think that's the figure, would you have any idea of what they're going to take on that?
A I do not have an idea.
Q Do you know how many kilowatt hours it takes to bring an acre-foot of Colorado River water into Southern California?
A It's my understanding -- would you repeat the question, please?
Q Do you know how many kilowatt hours per acre-foot it takes to bring water in Southern California from the Colorado River?

0114

A I do not.
Q Do you know how many KWH's it takes to bring one in from the State Water Project to Southern California?
A I do not in terms of kilowatt hours.
Q Do you have an idea of how many kilowatt hours are generated by the Owens Lake Project in Southern California?
A I would have in years past in my career, but I do not sitting here today.
MR. BROWN: Okay. Thank you, Mr. Chairman.
HEARING OFFICER DEL PIERO: Thank you very much, Mr. Brown.
Mr. Canaday? Or should I refer to you as Captain?
MR. CANADAY: Whatever you choose, Mr. Del Piero.
DR. CARSON: May I request a two-minute rest room break?
HEARING OFFICER DEL PIERO: Absolutely. We'll take a five-minute break.
(Whereupon a recess was taken.)
HEARING OFFICER DEL PIERO: Ladies and Gentlemen, this hearing will again come to order. Mr. Canaday?

CROSS-EXAMINATION BY THE STAFF (Continued)

Q BY MR. CANADAY: We've been talking a lot about L.A. DWP customers. Yesterday we heard testimony that

0115

the -- from the power panel that there were a little over three million customers.
How many customers of water does L.A. DWP have?
A BY DR. WADE: I turns out I don't have that number, and I don't think Richard has that number. I do have the number of people in households in the counties, but not the city service area.
Q Can you give me a magnitude number? Are we talking --

A BY DR. CARSON: It's roughly the same.
Q About the same?
A Customers here roughly translates --
CHAIRMAN CAFFREY: I didn't catch that number. Could you clarify what that number was?
DR. CARSON: I believe we're looking at about three million households served, roughly the same, electricity and water. Somebody from L.A. DWP could probably come up with the actual number.
MR. BIRMINGHAM: We do have another witness that we hope to get to today who will be able to give you the specific amount.
HEARING OFFICER DEL PIERO: Thank you.
Q BY MR. CANADAY: Dr. Carson, you did a CV study in 1987. Could you explain as simply as you can for simple people like myself what a contingent valuation

0116

study is?
A BY DR. CARSON: Effectively in this study what we asked people about, we said, you know, essentially, "This is a study being done on behalf of water utilities, your favorite water utility, and what they're doing is they're looking at, under the current situation. They're looking at shortages in the future," and we described the magnitude of the shortage and what that would likely entail. And then we asked, "Would you be willing to pay X dollars," and that X was expressed both in terms of a monthly change in their water bill and an annual payment, "To have your water utility take actions to prevent having that water shortage occur? That is, they would basically be able to deliver the water."
And there were four different shortage scenarios that were valued.
Q Thank you.
A Basically, you randomly assign these X's and so you trace out the percent of the population that's willing to pay different prices to avoid the water shortage. Sort of like a dose response curve in drug experiments where you try to see how much of the toxin will kill the organisms, and here you're looking at increases in water bill and the people going from being

0117

willing to pay that price and not willing to pay that price.
Q Do you recall what the highest amount was per household?
A The highest amount was for -- was around 200 -- $240 in 1987 dollars. It's somewhat more than that now.
Q Per --
A And this was per year.
Q Per year.
A And this was to avoid two water shortages in a five-year period; one of 30 to 35 percent in magnitude and one of 10 to 15 percent in magnitude.
A BY DR. WADE: Was the question and answer about the highest median value or about the highest observation among those 2,000 respondents --
Q Median.

A BY DR. CARSON: It was the median response.
A BY DR. WADE: By the way, I today referred to those numbers as ranging from a hundred to $325, which was simply moving them up to '92 dollars.
Q Thank you.
That was in 1987, correct?
A BY DR. CARSON: Correct.
Q Do you think those responses would have changed

0118

given the history of the water supply picture in California since 1987 to today?
A They're certainly likely to be some movement in those numbers. At the time we did them, we wanted to actually look at Northern California compared to Southern California. And what you see -- there wasn't a whole lot of difference in the overall median, but there was clearly a difference sort of in the distribution. What you find is some people see the water shortage as less impinging on them than they had originally thought, and some people see it as more. So certainly there would be changes. I couldn't say whether they would actually go up or down based on what we observed in the 1987 study, comparing it to an area where they had experienced more substantial water shortages, I wouldn't expect dramatic increases or decreases.
Q Are you aware of what the City of Los Angeles during that period tried to implement as a -- I'm trying to think of a proper word -- as a water conservation that would be implemented freely by the water users? Do you recall what that number was? That target?
A Maybe --
MS. GOLDSMITH: Objection. Ambiguous. Are you

0119

talking about target in terms of price --
MR. CANADAY: Target and percent savings of water use.
Do you recall what -- there was instituted a water conservation program in the L.A. DWP service area, and they had a particular target for savings, the amount of water, percent?
DR. CARSON: I think Bill has it.
Q BY MR. CANADAY: Fine.
A BY DR. CARSON: I think it actually varied at different stages of this.
A BY DR. WADE: I've got the February 1, 1991, Emergency Water Conservation Ordinance Implementation, Phase Two, in which they went to Phase Two on March 1, 1991, and Phase Three on May 1, '91, and Phase Three will further limit customer use to 85 percent of the amount used during the 1986 base year.
Is that the answer you were looking for?
Q Approximately 15 percent. Are you aware that the actual savings that has been -- I've heard numbers, what numbers have you heard of the actual savings?
A BY DR. CARSON: In some months the actual savings exceeded that, and in some months the actual savings were less than that.
Q I've heard numbers thrown around about 30 percent.

0120
Is that unreasonable?
A BY DR. WADE: I think the question is better directed to Jerry Gewe sitting back there who will follow us.
Q Let's assume that it was greater than 15 percent, and let's assume that it was closer to 30 percent.
A BY DR. CARSON: Okay.
Q That would -- you could break that savings down into two reasons possibly. One that there was an increased willingness to conserve. Okay? And suffer incremental costs, increased incremental costs. Or the amount of water that the individuals were using was greatly exaggerated, and they had more water than they really need owed in the first place.
A I follow the first one, but -- you're taking basically their previous use compared to their subsequent use.
Q Right.
A So they were using the water.
Q My question is, or the question that I pondered, if you could save 30 percent, it seems to me that you were using a lot more water than was necessary to begin with, and that the actual impact to your lifestyle wouldn't be as great as if you conserved as best you could and conserved 15 percent.
Q I don't know that it's -- that you're using a lot
0121
more water than you had to or wanted to. In other words, what was happening before was people were basically using the amount of water they wanted. Once you basically announced these targets and put forth a large advertising campaign trying to admonish people to cut back, part of that's driven by the fear of not cutting back now resulting in much more severe shortages in the future.
You can also show that these campaigns to cut back on water tend to have diminishing effects. In other words, in an emergency situation, people will basically cut back very severely in water, putting off lots of things, and engaging in lots of practices that they basically would prefer to avoid, prefer to -- are willing to pay to avoid, both in a, you know, sense of, "We're all in this together, and if we aren't -- don't all do this together, things will be basically much worse."
Q But isn't that the way you present your scenario to the person in a CV study as well?
A Yes. Certainly, it's what they're -- you're saying, "This is what will basically happen. In other words, you will have to cut back depending on the scenario, 15 percent or 35 percent, and what are you willing to pay to avoid that?"
0122
Q Dr. Wade, you said that the incremental costs based on your projections are what this $95 million projects to is about a $16 per annum household cost?
A BY DR. WADE: Yes. Over Southern California.
Q Over Southern California? And Dr. Carson, again, what was the median willingness to pay of your study?
A BY DR. CARSON: There were four different scenarios

and for the 10 to 15 percent shortage, it was $83 a household, and that was once per five years. and the high end was up to 40, I believe. And --
Q 240.
A And that was for two shortages in a five-year period; one of those shortages being much more severe.
Q Dr. Wade, you went through some numbers earlier that suggested the kinds of shortage, the years in your 52-year record that you generated, if we had shortages of one -- 15 percent and up to 35 percent every five years, one of those occurring, would that be equal to or greater than the shortages you estimated in your 52-year run?
A BY DR. WADE: I'm sorry. I lost track of your question.
Q You cited shortages that would occur in the ability of MWD to deliver water to the City of Los Angeles over that 52-year trace. What I'm asking is if

0123

the willingness to pay this $240 based on the assumption that there would be, out of a five-year period, one year of a 15 percent -- 10 to 15 percent shortage and one of those other years would be a 35 percent shortage, would that kind of rate of shortages be equal to or greater than what you estimate would -- on your trace?
A Your question is a good question, and it's an answerable question with the data that I have. But I have not taken the data and analyzed the data in that way to have the answer to your question. However, to emphasize what I'm -- the point I made just before the break, we do find that 60 percent of years have some shortage, some reasonably large shortage, and 40 percent of the years have no or a very tiny shortage. So six out of ten years there is some shortage down there. Is it -- are these shortages in the 10 to 15 percent range or one 10 to 15 and one 30? It could simply be determined.
Q Earlier, you testified or used the words, Dr. Wade, that "there's some tremendous uncertainty in the water future."
A Yes.
Q And the word -- the word "speculative" for transfers. You used that word. Is that correct? Of

0124

the ability to transfer water at the present time?
A It, to pin down exactly how much water will be transferred, is speculation. When it will be transferred. Will it be transferred when needed? Will the system facilitate the transfers? Will the laws change, are speculative. All of these things are speculations. It's not that I say transfers per se are speculative.
Q You also said that the EIR failed to fully consider incremental and environmental impacts in the delta or various other places where water might be transferred from. If the water future is so speculative and uncertain, how can one expect Jones and Stokes to, very specifically, analyze incremental and environmental impacts of these various water sources?

A By postulating some very reasonable scenarios and doing a sensitivity analysis and sitting in a room with informed water people like yourself for half a day, a competent analyst would be able to postulate and form scenarios.
Q My recollection of the EIR is that Jones and Stokes presented a list of potential sources or activities that the City of Los Angeles could undertake for water supply alternatives. Are you suggesting that the Board -- and under CEQA, it's generally the agency

0125

with the discretionary approval or who's going to carry out the specific project, that analyzes the environmental consequences. So are you suggesting that Jones and Stokes somehow should determine what the water supply projects for the future of the City of Los Angeles or as well this Board decide what those projects should be?
A No. Rather -- I think I read in the draft EIR -- and, as you know, I was a member of the technical advisory committee -- that Jones and Stokes set out to find that reclamation would be on the margin and discovered that it was not. And that Metropolitan is on the margin, and they didn't address where Metropolitan is going to get the water or at what environmental or, as I've testified, economic cost.
Q Well, wouldn't that be a decision for Metropolitan Water to make of how and where to get that water and, therefore, under CEQA statutes, would very likely be their responsibility to evaluate that environmental cost of that additional supply?
A It's a good question. I think probably the question is better addressed to an environmental attorney.
Q Well, you were suggesting that Jones and Stokes had failed, in a sense, under CEQA, in their

0126

environmental document. I'm just referring back to that to try to understand how you based your opinion.
For clarification of the record, both of you, Dr. Carson and Dr. Wade, participated in the TRT, which is the Technical Review Team. Could you, either one of you, choose to explain what that was?
A Over the last several years of this study, Richard and I or a member of my staff, Ms. Wendy Ellingworth, attended several meetings and reviewed several documents or concepts in development and the study finding.
Do you want to add to that?
A BY DR. CARSON: Right. These committees basically discussed the socio-economic things. In particular, focusing on the design of the contingent valuation survey.
Q And that would be --
A Right.
Q And that would be this particular instrument here?
A Yes.
Q And so you had --
A Some input. But not -- it was not the -- Michael Hennimen and Thomas Wegge had --

Q Ultimate decision authority?
A Ultimate decision, I simply made comment, some of
0127
which were provided and some of which weren't. We also discussed --
MR. BIRMINGHAM: Excuse me, Mr. Chairman. I don't believe there's a question pending.
CHAIRMAN CAFFREY: Can you put this in the form of a question, Mr. Canaday?
MR. BIRMINGHAM: Actually, that was more addressed to the comments being made by the witness.
DR. CARSON: I thought the question was what did the technical review committee do?
MR. BIRMINGHAM: It was my understanding that question had been answered.
CHAIRMAN CAFFREY: All right. We will rule that it has been satisfactorily answered.
Do you have any other questions, Mr. Canaday?
MR. CANADAY: Let me see, please.
Q BY MR. CANADAY: I'd like to talk about conservation and reclamation. I'll ask a few questions about that. What we're looking at, and you stated, Dr. Wade, that supply futures are rather tenuous of what is on the horizon on availability; is that correct?
A BY DR. WADE: Yes.
Q Would reclamation of water -- in other words, it's a source that a district already has in hand and is used, wouldn't you consider that probably a very firm
0128
supply for second use? A dependable supply?
A Yes.
Q And that it would be cost effective because you've already incurred the cost of developing that initial water or paying for that water, and transporting that water, whether it's costs for pumping, kilowatt hours, or whether it's actual, the physical structures to deliver the -- that water, that it would make economic sense to capture as much of that water and reuse it again?
A As strictly as you posed the question, the answer is no. And the reason the answer to that specific question is no is that the cost of reclaiming water exceeds the value that you can sell the water for, which means, therefore, that you have to subsidize reclaimed water with payments captured from the fresh water concerns. So it is not cost effective in that specific sense.
It is cost effective in the sense of a capacity avoided, if you will, of creating more fresh water, but I don't think that's the exact question you asked. So I want to say no and yes.
Q I have a follow-up one. What if public monies were provided, and those monies were not necessarily monies of the L.A. DWP ratepayers and, therefore, a
0129
significant amount of the costs to develop reclaimed water projects were monies funded by the public at large? Wouldn't that be cost effective?
A You know, I think the answer would be yes, but I want to add a comment here. You and I sitting and

speculating about the amount of and cost of reclamation, I think is not appropriate for this Board. There are people in this state who know a great deal about how much reclamation is going to be forthcoming and when, and I am not that witness.

CHAIRMAN CAFFREY: Yes, Sir?

MR. FLINN: Mr. Chairman, life is short and the witness began his statement by saying, "I've answered the question, and now I want to make a statement." I would ask that the witness be admonished to answer the question --

CHAIRMAN CAFFREY: I'm going to ask the witnesses to stay closely to the question and -- in the interests of time, and also in the interests of an accurate record.

Yes, Ma'am.

MS. GOLDSMITH: Mr. Caffrey, I don't want to cut off Mr. Canaday's line of questions, but Mr. Gewe of the L.A. DWP is going to be here this afternoon testifying, and I think he may provide more accurate

0130

information and better answers for the Board than perhaps Dr. Wade does.

MR. CANADAY: That may be true, but Dr. Wade, in his testimony, has provided numbers in analyzing the Jones and Stokes document and presenting numbers here relative to annual resource costs, and I was eliciting his opinion.

CHAIRMAN CAFFREY: I think he certainly testified that he's an expert in that area if he wishes.

Mr. Canaday, do you have much more?

MR. CANADAY: Just a few more questions.

CHAIRMAN CAFFREY: I'm not trying to stifle you, I'm just --

MR. CANADAY: Do I need to ask for 20 minutes more?

CHAIRMAN CAFFREY: That's up to Mr. Herrera.

Q BY MR. CANADAY: I'd like to discuss the logic in the economic risk model, if I might. From reading your testimony, your written testimony, it's -- it suggests to me that when demand cannot meet supply, whether that's local or imported supply, that there's a contingency conservation element of 7 percent?

A BY DR. WADE: That kicks in at 7 percent.

Q What limits that to 7 percent? Is that just an assumption?

0131

A Yes. It's not that the conservation is limited to 7 percent, it's rather that it kicks in. What exactly --

Q I'm just reading from your testimony where it describes the 7 percent assumption.

A Pages 74 and 75?

Q 72 and 73, Sir.

And in this economic risk model that you ran, did you also include the BMPs that the City of Los Angeles has signed on to, the full application of the BMPs?

A The BMPs are assumed in the demand forecast which is loaded into the model. By the way, this is an improvement, therefore, over the demand forecast in the

Jones and Stokes documents.
Q Does this include projected reclamation use as well?
A Reclamation is added into the model to bring our numbers almost up to what Jones and Stokes assumes.
Q And that reclamation numbers was -- do you recall what that number was?
A Well, we added 52,000 -- I have some specific notes. We added 52,000 on top of DWR's assumption to represent a number close to, but not exactly Jones and Stokes' number.
Q And that number did not include potential

0132

near-term increases in reclamation use? The near term, I'm saying between now and the year 2001?
A It was the year 2001.
Q And that number was -- you got from the City of Los Angeles? Was that number provided to you?
A Roger Mann and I made up that number.
Q So that was an assumption that you made.
A Yes.
MR. CANADAY: Thank you. That's all I have.
CHAIRMAN CAFFREY: Thank you, Mr. Canaday.
I believe Board Member Forster has some questions?
MS. FORSTER: Yeah. But I don't think my questions are for the panel. I'm going leave it up to Ms. Goldsmith to help me with this.
I appreciate and understand the programs and the project that you folks developed in this response to what you were asked to do from L.A. Department of Water and Power, and after listening this morning and yesterday, you probably will not be able to streamline and simplify some of the numbers that I think I hear the Staff asking and some of the basic numbers that I think that I, as a Board member, would like to know.
So this afternoon -- I've been trying to write down simple -- simple questions, but none of the

0133

questions come out too simply when we get going on them. But for instance, yesterday when the power panel was here, they were able to say that the cost of power would be 9.2 million. Right? They were saying you take a certain level, you take the level up there that you used as a sample, and the cost of power is 9.2 million. I think that in trying to get the EIR to be as accurate as possible and trying to see where to go in a simpler mode, it would be nice to have, without taking in all the variables, at a certain lake level, what would be the export? What would you have to rely on MWD for? What would be the cost taking the acre-foot today of cost of water?
And that's just -- that's what Mr. -- Steve was trying to get to, and Dr. Wade said, "I appreciate your directness," but he can't answer that directly because that's not the kind of study he had to do.
So I guess what I want to do is, for the record, just get -- extrapolate some basic crossovers because the public -- you know, I represent the public. I think one of the things that the public wants to know

in a simple version is, you know, what -- they won't ask -- they'll say, "Well, what will we lose from Mono Lake if we -- in our -- in our goal to preserve it?" We have to all agree that our goal is to preserve the

0134

Mono Lake, so we have different alternatives or goals.

What does that alternative mean in water loss, water to be made up, and cost and per household. And that's kind of what I'm looking for, and I don't think this panel can answer it, but somebody from Department of Water and Power -- I bet the guy that's going to speak this afternoon is in the back of the room because I've seen him before, so he's probably -- that's why I'm saying all this. He's probably the person that can simplify and just try to show what -- how it all falls out.

And one of the things that I think will be helpful is any recommendations that he could bring this afternoon from all the work done by these people on how to try to have our EIR -- there is a big discrepancy. What could Jones and Stokes do to bring this discrepancy closer together? So that when it's all said and done, people don't say, "My God. They were off millions and millions of dollars." My goal is that the EIR is as accurate as possible. So there must be simple suggestions.

MS. GOLDSMITH: Ms. Forster, I think you're right at the outset. I don't think that's a question that can be directed to this panel at this time. What I would like to do is consult with them over the noon

0135

hour, see whether, at this time, we can come as close as possible to what you asked and if we cannot, to see whether or not by the time we put on rebuttal testimony, we can provide you with the answers that you're looking for.

If I understand your point, it's that you'd like to have some apples and apples kinds of things to compare.

MS. FORSTER: Right.

MS. GOLDSMITH: And what you have now are different methodologies coming up with different ways of looking at what costs are. I don't know if it's possible, but if it's possible, we will try and provide that to you.

MR. BIRMINGHAM: I think it will be possible to provide that information this afternoon based on Mr. Gewe's testimony presuming that Mr. Gewe testifies this afternoon. As we go along, it appears less and less likely, but we can provide that information to you.

MS. FORSTER: And I'm not discrediting anything that you've done, Gentlemen. I'm just saying that if you were going to do a simple rule of thumb, you would say, "You're going to have that much less water. You have to buy it from Met." You assume that Met has it.

0136

We all know that Bulletin 160 and things like that, but you assume Met has it. And it just kind of clarifies and simplifies. Thumbnail sketch, what does it mean

without all of this extra study and plugging in. I mean, it's wonderful, but, you know what I'm -- you know where I'm going? I want to get it simpler.

MS. GOLDSMITH: I think the critical assumption and difference between the testimony that this panel has provided and Jones and Stokes is the assumption that Met does have it, or that you can predict how much it's going to cost to get it. I think there's a great deal of speculation in that, and that's why there's been a different approach.

CHAIRMAN CAFFREY: Mr. Frink, before you comment, I want to hear from the gentlemen.

MR. FLINN: Mr. Chairman and Ms. Forster, I do believe -- I'm hoping I did hear, Ms. Forster, you say that you would want to know at least assuming Met had the water available, because we are going to here from Met and they'll tell us, I guess. I'm hoping -- I know that's a goal that I have on recross. And I'm hoping that in the course of today somehow we can get that -- at least that one question answered, although, I know that there's not totality of agreement with regard to whether Met will have the water or not.

0137

CHAIRMAN CAFFREY: All right. Thank you, Sir.

I assume that's all from the counselors?

Mr. Frink?

MR. FRINK: Yes. Chairman Caffrey and Board Member Forster, I just wanted to clarify for the record that Staff's understanding, certainly of CEQA and of the role of this water right hearing, is that the EIR is not intended in any way to present all the evidence that the Board would be interested in considering in reaching a water right decision. If it were, we wouldn't be at the hearing.

The contents of the EIR are in response to the statutory requirements as to the information to be provided in an Environmental Impact Report or, in this case, a Draft Environmental Impact Report, and CEQA is fairly clear that -- and the implementing regulations under CEQA are fairly clear that a Draft Environmental Impact Report is not required to contain highly speculative analysis of economic impacts that others might endure as a result of a project but, rather, the focus of the Environmental Impact Report is on the environmental impacts.

Staff, I think, is fully in agreement and, in fact, some of the issues listed in the hearing notice attempt to define the economic impacts of the various

0138

alternatives and, certainly, information on that is very relevant in this hearing. It remains speculative and there's a lot of disagreement, but hopefully, we can clarify it as you asked. The parties before you can help clarify it.

CHAIRMAN CAFFREY: Thank you, Mr. Frink.

Anything else before we break for lunch? We'll look forward to the testimony of the experts that you're going to bring up and what they might say regarding this matter.

We will resume again at 1:30, and Mr. Del Piero

will be back at that time to regain the Chair.
Thank you.
(Whereupon the lunch recess was taken.)
MR. FLINN: It falls to me to give the daily Bruce Dodge afternoon procedural point, and it is this. The reason I'm doing it it's my personal issue. My wife is on an airplane landing in Washington D.C. now where she is apparently going to help the government spend some new tax dollars, but she has left our son with the babysitter who has to leave at five o'clock, which means I have to be back in Palo Alto at five o'clock to take over parental roles, which means I have to leave here 2:30-ish.
HEARING OFFICER DEL PIERO: I'd say you ought to

0139

start packing.
MR. FLINN: I'm packed. I'm ready to go. The only problems are these because the next two witnesses were both mine, Mr. Kuebler and Mr. Gewe. I was told Mr. Kuebler would go first, and so I asked Mr. Dodge to be prepared for Mr. Kuebler, which he was. And so we're sort of ready to, as long as I get my recross before 2:30, and as long as Mr. Kuebler is next we're fine. But if that's deviated from in some way, then we've got a problem, and I understand Mr. Birmingham would maybe want to deviate from that.
HEARING OFFICER DEL PIERO: Mr. Birmingham?
MR. BIRMINGHAM: Yes, thank you. And thank you for raising the issue, Mr. Flinn, I appreciate it.
In fact, I was going to propose a deviating from what I had indicated to Mr. Flinn yesterday. When I told him that we would be calling both Mr. Kuebler and Mr. Gewe this afternoon with the expectation that this panel would not take as long as it's taken. I thought that we would complete both of these witnesses, Mr. Kuebler and Mr. Gewe this afternoon.
HEARING OFFICER DEL PIERO: Mr. Birmingham, I don't mean to interrupt you, Sir, and I don't know if counsel for various parties have discussed this during the lunch hour in my absence. Do we have any certainty

0140

or even potentiality of completing redirect and recross on the panel by 3:30 or four o'clock?
MR. BIRMINGHAM: I would say that we have got virtually no chance of accomplishing that, and that's why I was going to propose --
HEARING OFFICER DEL PIERO: My suggestion then, Sir, inasmuch as I've got time limitations, I know you've got this panel sitting here, but it's my sense that we probably aren't going to call them today, then, unless I'm really wrong and unless recross takes a lot shorter period of time than cross-examination has taken, and I don't think that's going to happen.
MR. BIRMINGHAM: I don't, either, Mr. Del Piero, and, in fact, we had not intended on calling Mr. Kuebler and Mr. Gewe as a panel. But immediately before the lunch recess, Member Forster asked some very specific questions.
HEARING OFFICER DEL PIERO: You see, now -- now you know why I never leave this room.

(Laughter.)
MS. FORSTER: I just waited. All these days I waited for you to go.
(Laughter.)
MR. BIRMINGHAM: Member Forster --
HEARING OFFICER DEL PIERO: Compose yourself, Mr. Birmingham.
(Laughter.)
MR. BIRMINGHAM: Member Forster asked some very specific questions about water supply issues, and that's the subject of Mr. Gewe's testimony. What I was going to propose doing in light of Mr. Flinn's need to leave early and in light of the fact that it's unlikely that we would complete the cross-examination of this panel today in any event, I was going to propose that we postpone the redirect of these witnesses and recross of these witnesses, this panel, and put on Mr. Gewe who probably can complete his entire presentation this afternoon, including direct and recross, and he can answer the very specific questions that Member Forster asked.
MS. GOLDSMITH: Mr. Del Piero?
HEARING OFFICER DEL PIERO: Yes.
MS. GOLDSMITH: In addition, I anticipate having redirect of about half an hour, and I anticipate asking for additional ten minutes in light of the very, very extensive cross-examination that these witnesses have undergone. So I'm not sure that we could, in any event, assure Mr. Flinn of his full cross-examination by the time he needs to leave.
MR. BIRMINGHAM: But --
HEARING OFFICER DEL PIERO: Gosh, you know? I'm not going to lunch anymore.
(Laughter.)
MR. BIRMINGHAM: I understand the point that Mr. Flinn has made about their preparation to cross-examine Mr. Kuebler as opposed to Mr. Gewe. However, I'd like to point out that the Mono -- the attorneys, legal representative for Mono Lake Committee, National Audubon Society, as well as other counsel, were advised that we intended on calling both of these witnesses today, Mr. Kuebler and Mr. Gewe.
Further, we have bent over backwards trying to accommodate the schedules of our opposing counsel, including delaying witnesses yesterday because Dr. Stein couldn't be here. We delayed the redirect and cross-examination of Dr. Beschta. There have been a couple of other instances where we have really tried to accommodate the schedule of our opposing counsel, as the Board has.
And I don't see any prejudice to any party if we postpone the cross-examination and redirect of this panel and put Mr. Gewe on to answer the very specific questions that were asked by Member Forster.
MS. KOEHLER: Mr. Del Piero, I am prepared to address Mr. Gewe's testimony, so my objection is not a scheduling one. I object on substantive grounds. This

panel is in the middle of its testimony. I think there are a number of questions that are before the Board that have not been resolved. I have a lot of confidence that the questions asked by board member Forster can be addressed in large measure in the redirect and in the recross of this panel, and while I'm certain that Mr. Gewe can shed more light on this, I think it's inappropriate, and I think it would be disruptive to bring in a whole new set of issues because Mr. Gewe is not testifying simply on those issues brought up by Board Member Forster.

And so I would object on behalf of Cal-Trout to changing the order of witnesses at this point.

HEARING OFFICER DEL PIERO: I think we're going to continue with redirect and recross on this panel.

MR. BIRMINGHAM: Then may I ask a question, a procedural question of the kind that Mr. Flinn and Mr. Dodge frequently ask?

In the event that Mr. Flinn is unable to complete his cross-examination of these witnesses today and we are able to complete them, are they going to be excused, or are we going to be expected to bring this panel back so that Mr. Flinn can ask further recross after he's had two weeks to prepare?

0144

MR. FLINN: I got a solution to that, although it's somewhat at my disadvantage. I'll do my recross before the redirect.

MR. BIRMINGHAM: But we would object to that.

MR. FLINN: The point is that the other cross-examinations and the witnesses are very good at making sure that points get made in the cross. There are issues -- I can take my time up now, and I'll waive the opportunity to respond to anything that's elicited.

HEARING OFFICER DEL PIERO: Let me resolve this. Okay? I spend six hours a week and have done that for the better part of over 100 weeks now on the road between Sacramento and the coast. It will take you approximately two hours and 15 minutes to get to Palo Alto. Okay? If Ms. Goldsmith begins her redirect now, she will be completed, if she -- her representation is truthful, in 30 minutes which will put us at 2:25. If you leave here at three o'clock, you can get home by five, I'm assuming. If you drive through Tracy and 580.

If you can't complete your recross in 30 minutes and if we can't complete this panel by four o'clock, my remarkable patience is going to be tested. Okay?

So, with that, Ms. Goldsmith, if you'll begin your redirect, we won't lose any more time.

0145

MS. GOLDSMITH: Ms. Forster, inasmuch as Mr. Birmingham is diligently trying to get the answer to your questions from others, I did not ask this panel over the lunch hour to respond. I was busy doing the redirect preparation.

HEARING OFFICER DEL PIERO: Lest there be any question about it, I'm making sure I get all the questions Ms. Forster wants answered during the course of this hearing.

MS. GOLDSMITH: I think that's a good goal.

REDIRECT EXAMINATION BY MS. GOLDSMITH

Q Do you have, Dr. Carson, NAS Exhibit 215 and 215-A?

A BY DR. CARSON: Yes, I do.

Q These are the -- the materials that were involved in the CV or contingent valuation survey that was done concerning the lake. Do you remember Mr. Flinn asking you about your opinion about the prominence with which Tufa was featured in these materials?

A Yes, I do.

Q And I believe you testified that you didn't think that they were over emphasized; is that right?

A Yes, I did.

Q What is the basis for your belief that they were not over emphasized?

0146

A The Tufa at Mono Lake are the basic distinguishing features which tends to make the lake unique standing out among of the other lakes which support a large amount of wildlife.

Q Do you know what the most visited sites are at Mono Lake?

A South Tufa and the visitors' center?

Q And the visitors' center is right on Highway 395?

A 395.

Q Is South Tufa right on 395?

A South Tufa's off of 395, and it's basically about eight to ten miles on a paved road and then a little over a mile on a gravel road to get to the actual site.

Q But it still supports large numbers of visitors?

A Yes. That's the case.

Q Now, concerning the accuracy of the descriptions on the cheat sheet, which is NAS Exhibit 215, you were asked by Mr. Flinn on direct about the accuracy of the snowy plovers, and I believe you may or may not have been asked about its accuracy concerning Tufa towers. And I'm going to ask you about its accuracy concerning the phalaropes, and I'm going to ask you to tell us what Exhibit 215 says about phalaropes at different lake levels.

A Going from the no-action level to Program A, there

0147

would be no change in the phalaropes. Going from Program A to Program B, the phalaropes are said to become more visible to visitors, and going from Program B to Program C, there is no change, but they're more visible to visitors relative to Program A.

Q If that statement were incorrect and there were no difference in the visibility of the phalaropes between any of these lake level alternatives, would you expect the valuation of Program B and Program C to be somewhat lower?

A Relative to Program A, yes, that's correct.

Q Going back to the design of the materials that went into the CV analysis, given your current understanding of the Mono Basin, if you were redesigning the cheat sheet today, would you make any changes?

MR. FLINN: Objection. Relevance.

HEARING OFFICER DEL PIERO: Response, Ms. Goldsmith?
MS. GOLDSMITH: The relevance has to do with the statement of the different alternatives.
HEARING OFFICER DEL PIERO: I'll overrule the objection.
Go ahead and answer the question.
DR. CARSON: The one thing I would change on the

0148

sheet here which is 215-A?
Q BY MS. GOLDSMITH: It's 215.
A BY DR. CARSON: 215. Is the depiction of the dust storms. The impression that a person gets from these dust storms is that the local residents and the visitors would be affected by the dust storms. In the big pamphlet on one page --
Q Which is Exhibit NAS 215-A.
A There's a statement which makes the correct point that the dust storms are on the east side of the lake away from major visitor sites, but if you look at the description on the individual programs that were valued, what you see is actually a depiction which would have given people the impression the dust storms were much more widespread.
For instance, on Program B, it says, "The reduction in exposed lake bed would moderately decrease the severity and frequency and the extent of dust storms in the Mono Basin." That actually conveys an inaccurate impression of where the dust storms are and who would be affected by it.
MR. FLINN: Mr. Del Piero, I'm going to renew the objection Mr. Dodge made in my absence. I appreciate it, but this is not on relevance. This is on competence grounds. This witness is not an expert in

0149

air quality. He admitted he's not an expert in Tufa. And his testimony about what's an accurate description of the conditions at Mono Lake is something he's not qualified to tell us.
HEARING OFFICER DEL PIERO: Ms. Goldsmith?
MS. GOLDSMITH: I can rephrase this as a hypothetical.
HEARING OFFICER DEL PIERO: Then I'm going to sustain that objection.
Q BY MS. GOLDSMITH: Assuming that the statement in the Exhibit 215 for no action which states that the dust storms would occur on the east side of the lake away from major visitor sites and residences is accurate.
A Okay.
Q You are an expert in conveying material and CV studies; are you not?
A Yes, I am.
Q Do you have an opinion whether or not the synopsis of dust storm effects on Exhibit 215 is accurate?
A It is not. Without that clarification being very strongly made to the respondent, the presumption is that telling people about the dust storms and they're violating state air quality standards, would be assuming that they're having an adverse effect either on local residents or visitors.

0150
Q It's true, isn't it, that the fact that these dust storms occur in the eastern part of the lake away from visitors is not mentioned even in Exhibit 215-A for Lake Level B or Lake Level C?
A Correct.
Q What was the process of the CV survey that was done? How was it done?
A Principally, Michael Hennimen and Thomas Wegge were in charge of designing the contingent valuation survey, went through a process of pre-testing on respondents and some work to insure that it worked. It was reviewed on several occasions as to the general statements made by the technical review team.
Q Then what happened to it?
A Then what happened to it? Then, you know, from that point out, they finalized the survey and went out and administered it to roughly 600 respondents.
Q How was it administered?
A It was administered in a combination mail-telephone survey where people were first called by phone and asked if they would be willing to participate in the survey. It was then -- these materials here --
Q Referring to 215 and 215-A?
A -- were sent out to the people who agreed to participate in the survey. Those people were then
0151
later called on the phone again and asked questions regarding Mono Lake, whether they had gone there, and were read descriptions of the programs and told to pull out this card and have it in front of them.
Q What we've referred to as the cheat sheet; is that right?
A Yes. And they were then asked whether they were willing to pay specific amounts for Programs A, B, and C.
Q So in actually responding on the telephone, we know that they were asked to pull out the cheat sheet, Exhibit 215 specifically, and were responding from that?
A Right. Yes.
Q Do you know whether all the respondents read the large pamphlet?
A Clearly, some respondents didn't read the pamphlet, and that's because we knew that we had to actually send back out questionnaires to some people who said they had never seen it and also in mail-telephone surveys of this type, people tend to set the thing aside and wait for you to call. So some people would have read it and some people would have not read it. And when they would have read it would have differed, you know, within -- some people may have
0152
read it the day of the interview. Some people may have read it a week earlier.
Q But we know that they were asked specifically to refer to the cheat sheet?
A Right. This was supposed to be pulled out and in front of them as they went over whether they were willing to pay specific amounts for each of these

programs.
Q Now, if people erroneously assumed that these dust storms were affecting tourist areas and the western parts of the lake where visitor centers are, do you think they might have more greatly valued the reduction of such storms than if they had correctly understood the location?
A Yes.
Q Now, Mr. Flinn also asked you, assuming that the snowy plovers would not be affected by changes in lake level, he asked you to assume that, and he asked you to assume that the Tufa effects were overstated in the survey material. Do you remember that?
A Yes, I do.
Q He asked whether under those circumstances, the points that were arrived at for Programs B and C would be higher. Do you remember him asking you that?
A Yes, I do.

0153

Q And do you remember that you stated that --
A I should make a -- yes, if the point for C would be higher.
Q My notes say B and C.
A Okay.
Q And did you -- do you remember your response that was that it would be somewhat higher?
A Yes, I do.
Q Now, in your direct testimony at Page 55 you stated that the maximum value for public trust benefits based on the CV survey was likely closer to Point A than to Point B, and that it would be a smooth curve. Do you remember that?
A Yes, I do.
Q How would a change -- an increase in the value of Point C affect your conclusion concerning the location of the maximum point of public trust benefit?
A As long as Program C remained substantially below Program B, it's not going to affect the general shape of the curve which places the maximum between Programs A and Programs B.
Q I'm going to ask why that is, but since when I ask you why that is, I'm unable to understand it, I'm going to ask if you can illustrate that for us. Be sure and take the microphone.

0154

A What I'm going to display here --
Q Is this Figure 1 from Dr. Hennimen's testimony?
A Yes, it is.
Better?
HEARING OFFICER DEL PIERO: It doesn't hold, so if you want to pull it up, the reason that you've got the clip below it is you can work the clip up to hold it in place. This is the nineties, the decade of limited expectations.
(Laughter.)
MS. GOLDSMITH: Would you like me to hold it?
DR. CARSON: No. I think I've got it right there.
Essentially, what Michael Hennimen in doing this curve -- what Jones and Stokes did is assume this

straight line between Programs A and B and another straight line with Program C.
Q BY MS. GOLDSMITH: Which you've now drawn in green?
A BY DR. CARSON: Which I've now drawn in green. Things in economics are typically much smoother than that, so you would expect the curve to be smooth. What he also didn't recognize in doing this is that the no-restrictions scenario is down here, so there are actually three points. You can ignore what C is altogether and just take the first three points and you

0155

get roughly the same shaped curve, which puts the maximum somewhere between Programs A and B.
You can also raise Program C up substantially, and it doesn't change the fact that the maximum is between Programs A and B. Okay? So we're looking at willingness to pay for the public trust benefits per household, and so this area right here is sort of the increment from going from 6375 to whatever level this Program B represents --
Q You're talking about the numbers on the vertical access?
A Be it 6390 or 6383. So what that's saying is that those public trust benefits are at a maximum somewhere past 6375 before you get to Program B.
Q How much higher would Point C have to go in order to affect that conclusion?
A Point C would -- what I've estimated here is Point C has to -- it's basically at zero right now, and it would have to get up into about the 60, $65 range, so a dramatic increase over where it is now.
Q Are you familiar with Dr. Stein's testimony concerning Tufa?
A Yes, I am.
Q And I'm going to read to you from Page 7 of his testimony, which is identified as NAS and Mono Lake

0156

Committee No. 1-T, where he --
MR. FLINN: Go ahead. I'm going to object to it, but finish your question.
Q BY MS. GOLDSMITH: Where he discusses --
MR. BIRMINGHAM: Excuse me. Before you ask that question and Mr. Flinn objects, may I confer just a moment with Ms. Goldsmith?
HEARING OFFICER DEL PIERO: Yes.
Dr. Carson, while they're conferring, can you put that back up?
DR. CARSON: Yes, I can.
HEARING OFFICER DEL PIERO: I want to ask you a few questions. Is that chart dependent upon an assumption that the highest point is Point B?
DR. CARSON: It depends on --
HEARING OFFICER DEL PIERO: Could it not be that if an alternative were chosen between the lake elevation of Program B and the lake elevation of Program C, that a point higher on the scale could have also caused the apex of that curve to be higher?
DR. CARSON: If you can get Point C up high enough.
HEARING OFFICER DEL PIERO: I'm not talking about

Point C. I'm talking about in terms of the survey, if there had been a median --

0157

DR. CARSON: Between A and B?
HEARING OFFICER DEL PIERO: Between B and C.
DR. CARSON: Between B and C.
HEARING OFFICER DEL PIERO: Is it possible that if an alternative had been available between relative elevations of B and C, could a point higher than Point B on that chart be a possibility?
DR. CARSON: Yes. Unlikely but possible.
Q BY MS. GOLDSMITH: Now, Points A, B, and C are identified on survey instruments with specific lake levels; is that correct?
A BY DR. CARSON: Correct.
Q And what they really describe is a set of conditions; is that right?
A That's correct.
Q And if the set of conditions differs from the lake level that's been identified in the contingent valuation survey, they would be more accurate for whatever the conditions are; is that right?
A That's correct.
Q Now, are you familiar with Dr. Stein's testimony?
A Yes, I am.
Q I'm going to read to you a portion of that testimony from Page 7 of National Audubon Society and Mono Lake Committee Exhibit 1-T on Page 7 at the top

0158

where he discusses conditions at Lee Vining Grove, Tufa Grove in summary.
A This is the visitor's center.
Q The last sentence of that summary says, "At a lake level of 6400 feet, roughly 5 percent of the Lee Vining Tufa towers are still visible with most of them water based, and when the lake reaches 6410 feet, all towers are submerged."
I'm also going to read you from Page 10 of that same exhibit from his summary of conditions at South Tufa Grove. The last paragraph of that summary says, "At a lake level of 6400 feet, approximately 90 percent of the small towers at South Tufa Grove would be toppled, roughly 5 percent of the towers of this grove would remain visible. Most would be water based. As the lake approached the management alternative level of 6410, all small towers would be toppled. All Tufa, standing or toppled, would be submerged."
Assuming that Dr. Stein's statements are correct, are the survey instruments consistent with those statements?
A Yes, they are.
Q And based on the oral responses, the amplifications that the survey respondents gave, is it likely that Point C would rise much above the value

0159

that was given?
A No, indeed. Because at Point C, the Tufa at the most visited places is basically all submerged, which is consistent with the statement "most of the lake's towers are covered with water." There would be no

reason to expect that Point C would rise, and Point C has to rise substantially for the maximum not to be between A and B.
Q Now, Ms. Koehler asked you whether you were familiar with Dr. Hennimen's testimony concerning pricing studies as compared with contingent valuation studies. Do you recall that?
A Yes, I do.
Q And I believe you were concerned about the accuracy of her characterization of Dr. Hennimen's testimony?
A Yes, I was.
Q Have you had a chance to review his testimony, his written testimony -- and I'm sorry, I don't remember the exhibit number of it. Is it on the front? It's a State Water Resources Control Board exhibit.
MR. SATKOWSKI: Is that Hennimen's exhibit on the curves?
DR. CARSON: Yeah, the written testimony.
MR. SATKOWSKI: 34

0160

Q BY MS. GOLDSMITH: It was the State Board Staff Exhibit 34. Have you had a chance to review that?
A BY DR. CARSON: Yes, I have.
Q And did Dr. Hennimen state in his testimony that the pricing approach is more accurate than the contingent -- wait for me to ask the question, please.
A Right, I am.
Q Is more accurate than the contingent valuation or the other way around?
A Dr. Hennimen's testimony does not address the relative accuracy of either approach in the abstract.
Q It's nice to see that you don't discriminate against attorneys. What did he say in his testimony?
MR. FLINN: Just in the order of time, his testimony is what it is. We don't need to have this witness take all of her time reading something that's already in the record.
MS. GOLDSMITH: It may already be in the record, Mr. Del Piero, but there were some points that Ms. Koehler was making that are relevant, and I think that the record on this cross-examination should be accurate. And they relate to some of the questions that I have to ask.
HEARING OFFICER DEL PIERO: Let me point out you have six minutes left of your 30 minutes. Okay?

0161

MS. GOLDSMITH: In the 30 minutes? I would ask for an application for more time and the reason is that there was roughly four or five hours of cross-examination in which the cross-examiners got multiple opportunities to extend their time, and I believe that this is a subject that needs clarity.
MR. FLINN: Mr. Del Piero, I would oppose if that time is given now. I do not oppose, if Ms. Goldsmith gets more redirect after I leave. I would oppose her having it now.
MS. KOEHLER: Mr. Del Piero, if I may add some clarity to this.
HEARING OFFICER DEL PIERO: You, too, have

something to contribute.
MS. KOEHLER: I do have something very short to contribute.
HEARING OFFICER DEL PIERO: You've been sitting next to Dodge too long.
MS. KOEHLER: I'm sorry if I was unclear in my questions this morning. My questions were not with regard to Dr. Hennimen's written testimony. They were with respect to his testimony on direct and cross-examination. I was not making any representations with regard to Dr. Hennimen's written testimony this morning.

0162

HEARING OFFICER DEL PIERO: Ms. Goldsmith?
MS. GOLDSMITH: Although, I would prefer to continue with the direct, I will yield to Mr. Flinn, and I would hope that I will have the time I feel I need for redirect. I'll yield right now. I think we're going to a new subject.
HEARING OFFICER DEL PIERO: Fine. Mr. Flinn, are you prepared?
MR. FLINN: I'm ready. I apologize --
HEARING OFFICER DEL PIERO: I need to point out that if recross and redirect in whatever order takes place is not completed by four o'clock, I'm leaving. Staff's leaving.
MS. FORSTER: I'll stay.
(Laughter.)
HEARING OFFICER DEL PIERO: I'm taking the Court Reporter. She's got to do Big Bear tomorrow morning at eight o'clock.
(Laughter.)
MR. BIRMINGHAM: Ms. Forster, we have more Reporters back at our office.
(Laughter.)
HEARING OFFICER DEL PIERO: No. You don't you use the same firm.
Okay. Mr. Flinn.

0163

RECROSS EXAMINATION BY MR. FLINN

Q I'm revisiting -- I apologize for it. This will be very quick -- Table 3 and 14, and I just want to revisit with you gentlemen the suggestion that was made by a number of people yesterday that we ignore a point of reference and simply take a look at the incremental changes on each one of these values starting from the no restriction and going forward. And I'll represent to you gentlemen that I did just that with each one of the columns to the right shows what the value would be if you normalize the no restriction to zero.
Follow me so far?
A BY DR. CARSON: Yes.
Q If you do that, would you agree with me that -- strike that.
I know you gentlemen dispute the absolute value of the 759.7 million. You explained that yesterday. You don't need to revisit that again. But if you accept that number as accurate, would you not agree that you would have to have shortage costs on the order of $700 million at any of these lake levels in order to get a

negative economic benefit of restoring the public trust at Mono Lake?
A BY DR. WADE: Those numbers are expressed in absolute values up there? That number 746? I would -- as a

matter of fact, we put into the record absolute value numbers, two billion, five billion, six billion. Which one do you want?
A BY DR. CARSON: Maybe --
MR. FLINN: Could I have the question read back, and could I have an answer to my question?
(Whereupon the record was read as requested.)
DR. CARSON: No, I don't. I should explain that answer, and if I could have that graph back up, I'll explain what the problem is.
Q BY MR. FLINN: Your answer no is fine, Sir. I'll take your no. You disagree with that, and we'll put on somebody else who could say that that's perhaps different.
Let me go and visit another subject because I have a limited amount of time. In the answers to some questions Mr. Frink asked, I believe it was you, Dr. Wade, who gave us the acre-foot cost of your -- of the water that under your analysis MWD was actually able to deliver at approximately $676 an acre-foot. Do you recall that question?
A BY DR. WADE: Yes.
Q And then Mr. Frink asked you some questions about that, and we didn't get too far. And I spent some time doing up this table, and I'll have this typed up and

marked as our exhibit next in order for the record. And what I did was I put in the first column three different alternatives, the L.A. management plan, 6390 that Mr. Frink asked, and 6410. And then I took the 45,700 acre-feet, which I understand to be L.A.'s estimate of its exports under its management plan, and then the Draft EIR's 3700 and -- 37,000 and 22,000 exports at the two other alternatives from the Draft EIR 6390 and 6410. And I did a little arithmetic and simply subtracted from 6390 the difference from the management plan and subtracted the same for 6410. And then what I did was I multiplied those differences times six -- $776, and we have 5.9 million and 16 million incremental costs between 6390 and 6410.
Now, with that explanation of what this chart is all about, Sir, I'll ask you a very simple question. If you assume, and I know neither one of you agree with this assumption, but if you assume that MWD does have the additional 8700 or the additional 23,700 available to supply to the City of Los Angeles, and assuming that they bought it at your calculated cost of 700 -- $676, am I not correct that the costs annually of the 6390 is approximately 5.9 million, and at 6410, 16 million?
A Mr. Flinn, you've opened a whole new can of worms here, which is a deficiency both in my analysis and in

the Jones and Stokes' analysis. Neither my analysis nor the Jones and Stokes' analysis dealt with the front end numbers of years of diversions to the lake to fill

the lake to either one of these levels. And so, in fact, the analysis -- the arithmetic that you have there, while I would not quarrel with that arithmetic, it turns out that it's a meaningless -- it's meaningless, it's the front end loading of the filled water that is the key difference in cost that is omitted in the Jones and Stokes' analysis and was also omitted in my analysis.
Q If you assume that -- again, I know you don't agree with the assumption, assume that MWD can supply that fill water and assume that they can supply that at $676 an acre-foot, for each additional acre-foot of fill water you need, you just add $676 to that. Is that right?
A Yes.
Q Dr. Carson --
A BY DR. CARSON: Yes.
Q Let me back up here. If I can get this back from Mr. Birmingham. Here. I've got a hard copy of that. Let me get this back for a second.
You'd agree with me that once we fill the lake, assuming the things I asked you to assume, that's the

0167

number?
A BY DR. WADE: I don't think you asked me anything other than is 23,700 times 706 $16 million, the answer to that question is yes.
Q Dr. Carson, in answer to Ms. Koehler's questions, she asked you about whether or not the respondents in the Carson-Mitchell CV study were -- had at the time they gave the study were experiencing increasing block rate pricing. I recall that you said the answer to that question was yes.
A BY DR. CARSON: In a number of the water districts where the survey was done that was true. In some water districts, there was basically a flat rate. So in other words, over the area in which the survey was done, there was variation in this.
Q Isn't it true that in your study the Northern California sample was much smaller than the Southern California sample?
A Yes, it was.
Q Isn't it true that in 1987 nobody in Southern California with the exception of Goleta had an increasing block rate structure?
A I don't think that statement is true, but if you have got some document which makes that statement, we have -- what's confused in my mind now is that we've

0168

been putting together a list of cities and their block pricing structures which have a huge amount of variation in them.
Q Is the answer to my question that you don't know?
A Yes.
Q Dr. Wade, when you were answering, I believe it was Staffs' questions about the fact that there was all this uncertainty about water transfers and that should have been in the EIR, and I wrote down something about you could have sat down with some people for half a day and come up with a set of reasonable scenarios on water

transfers? Do you recall that testimony?
A BY DR. WADE: Yes.
Q Was there any reason why you didn't sit down for half a day with some reasonable people and get some reasonable water transfer scenarios?
A I was never invited.
Q I take it that if the Water Board got testimony that it was the equivalent of a reasonable person giving some reasonable scenarios about water transfer, that would satisfy you about the non-speculativeness about water transfers?
A Not wholly, as a matter of actual fact. A lot of reasonable people have come and will come before this Board, and I've read their testimony making claims

0169

about transfers, about reclamation, and about other things, that are really not far removed from would-have, could-have, should-have's.

I would recommend to this Board that a much higher standard of proof be required such as those as is president across the street at the California Energy Commission, specifically during the eighties when I appeared there a number of times related to co-generation projects which were very sexy and stylish in the eighties. And they were backing out generation capacity from the utilities which made them somewhat unhappy, and there was a huge war over that issue. And the fact as to what was a real as opposed to a potential or wanna-be a project became a very important issue which was decided as a matter of policy. And I would suggest some sort of a policy be adopted by this Board with respect to these wanna-be projects.

Q Do you have an opinion, Sir, as to which is more speculative if by the year 2000, there will not be 1.2 million acre-feet available in the Colorado aqueduct, or that these water transfers might be possible? Which of those two is more speculative in your opinion?

MS. GOLDSMITH: Objection. Calls for speculation.

MR. FLINN: Does he have an opinion as to what is more likely than the other?

0170

HEARING OFFICER DEL PIERO: Excuse me --

MR. FLINN: I withdrew the question.

HEARING OFFICER DEL PIERO: You withdrew the question?

MR. FLINN: I withdrew the question.

HEARING OFFICER DEL PIERO: I had hoped to rule on it, but please proceed.

Q BY MR. FLINN: Do you have an opinion, Sir -- you can answer this yes or no whether you have one or not -- as to whether or not it is more speculative to count on water transfers or more speculative to count on MWD losing approximately half of its current California aqueduct deliveries?
A BY DR. WADE: I personally believe that transfers are the future in the California water business, and that's a personal speculation on my part. But if you examine the numbers, the economic cost and benefits of moving water around, it has to occur. But that's a speculation because I cannot lay before you the path

that's going to make that happen.
Q I want to talk once more about shortage costs and probably to you, Dr. Carson. You were testifying as to the use of an ultra-low-flow shower head incurs a shortage cost because it deprives people of the luxury of all that water pressure and all that flow of water?

0171

A BY DR. CARSON: Yes.
Q How about an ultra-low-flush toilet. Assuming that an ultra-low-flush toilet is efficient at doing the thing that toilets do as a regular toilet, is there a shortage cost associated with that? Beyond the cost of the device itself?
A At least the initial generations of low-flush toilets created lots of problems and resulted in large numbers of consumer complaints. Supposedly, designs now being used eliminate those problems. If, indeed, that's the case, there would not be any cost other than the cost of installation.
A BY DR. WADE: I would report, however, though those problems are not going away, and it remains a problem in the water companies of California and probably Arizona. There is consumer dissatisfaction with a number of these devices.
Q Do either of you proffer yourself as an expert on the effectiveness or efficiency of ultra-low-flush toilets?
A I would say assuredly I am. I have one, and it doesn't work, and I am not crazy about it.
HEARING OFFICER DEL PIERO: Gentlemen, I'm not -- I really am not going to tolerate having anybody attempt to establish what the parameters are for an

0172

expert in low-flush toilets.
Why don't you continue?
Q BY MR. FLINN: I want to go back to your Table B, Dr. Wade. I don't know if we've got a blow up of that or not. It could be found while I'm asking these questions.
A BY DR. WADE: It's right there. Table B as in boy?
Q Yes. Yes. You said that your ERM model used demands that included best management practices; is that right?
A That's correct.
Q Is that the same demand figures that show up in Table B, or are they different demand figures?
A They're different. Table B is a comparison of the Jones and Stokes' numbers and their sampling approach to the Jones and Stokes' numbers in our simulation approach. So we have the demand numbers and supply numbers that are identical or virtually identical in the top and the bottom, and the difference between the top and the bottom is one correction --
Q I haven't asked you about the difference between the top and the bottom. I may get to that.
Let me just -- the assumptions in Table B with regard to demand, local groundwater, reclamation, supplies, were all the same ones as in the Jones and

0173

Stokes' models?

A Correct.
Q Okay. Let me put another overhead up here, if I can. It's not one we've seen, but for the record, this is a copy of National Audubon Society and Mono Lake Committee Exhibit 4. Let me tell you a little bit about it to the extent it's not self-explanatory.

This is a chart that attempts to do two things. It attempts to depict historically between 1978 and 1992 or '3 what L.A.'s historical demand and from what sources that demand was met, and then shows the results of a simulation model that will be presented by Cal-Trout and Audubon. So I'm not going to ask you any questions about the projections, so I'm going to draw a line here at 1992 and just sort of ignore this for the time being.

Are you gentlemen generally familiar with L.A.'s historical supply and demand figures from '78 to '92?
A Well, as indicated in the Jones and Stokes' Draft EIR and in my own adoption of those.
Q So nothing here jumps out at you as plainly wrong about those numbers; is that right?
A I would say I'd have to compare those numbers on the table to numbers I might have on the table. I couldn't answer the question. Why don't we just go on

0174

and agree with you?
Q Sure. Let me ask you to assume they're accurate. Am I right that --
A BY DR. CARSON: It would be helpful if you could simply point out what was what. Actually, I suspect this shows up real well in color. So at the bottom, we're looking at the Mono Basin --
Q I'll just draw little arrows here. This is Mono, and this is Owens. This is groundwater, and excuse me, and this is MWD, I believe. Yes.
A Okay. So do these things add on top of each other, or are we going up cumulatively?
Q They add on top of each other so the top line is the total demand.

Am I right that this graph shows a dramatic decline from a peak in 1987 of over 700,000 acre-feet to below 600,000 acre-feet between the peak in '87 and 1992?
A BY DR. WADE: It looks to me like the drop off is between '90 and '92, isn't it?
Q I'll just represent to you that the actual very peak, the most L.A. ever used in water was in 1987. It was approximately 712,000 acre-feet, and the actual number for 1992 is less than 600,000.
A Probably associated with an anomalously dry, hot

0175

year in 1987 following a very wet year in 1986?
Q Who knows?

My next question to you is simply between 1987 and 1992, did the City of Los Angeles endure a shortage of the type that your shortage costs that you've been telling us about at $4,000 an acre-foot were endured?
A No. The City of Los Angeles endured some shortage in 1991.
Q Not 1992 at all?

A Not really. 1992 was a much better year.
Q So even though 1992 was the lowest -- was 100,000 acre-feet less than the population used in 1987, it was a larger population in 1992, they weren't enduring any shortage costs?
A The question is perhaps best answered with reference to the time frames for the programs. The City of Los Angeles went into its Phase Three of its Water Emergency Management Plan in May 1, 1991. It went into Phase Two in, I think, March 1991. I'm not quite sure when they came out of that --
A BY DR. CARSON: 1992 you're also starting to see a massive contraction of the Southern California economy.
MR. HERRERA: Two minutes, Mr. Flinn.
DR. WADE: To cut to the chase, Metropolitan was

0176

in Phase Five of its management plan from March 1991 until February 1992, and then it was backed off. So they were both out of their water management plans in early 1992.
Q BY MR. FLINN: Dr. Carson, I'd asked the Reporter to mark some testimony, and we can find it if you don't recall it. But I recall that I heard you say that reclamation and water conservation were not expected in the City of Los Angeles to be a method of meeting increased demand. Is that accurate?
A BY DR. CARSON: I believe maybe Dr. Wade made that statement.
A BY DR. WADE: But I didn't make that statement.
Q Okay. So whatever's in the record --
A BY DR. CARSON: Maybe we could have the record read.
Q We could do that, but I've only got a few more minutes, and I'll just try to ask the question.
Neither one of you would quarrel with the proposition that the City of Los Angeles can meet expected increases in demand by a combination of water reclamation and demand reduction?
A BY DR. CARSON: Those methods will certainly help to contribute to meeting the demand.
Q But they can't meet it by themselves. Is that your testimony?

0177

A I should say I'm not sufficiently familiar with what projects could technically be done to answer that.
Q So you don't have an opinion one way or the other on that subject?
A Correct.
Q Now, since 1988, L.A.'s done without any Mono Basin water; isn't that right?
A Correct.
Q And --
A At least according to your chart.
Q As one of the lawyers involved in getting the injunction to accomplish that, I'll ask you to assume that's the case.
L.A. has been able to replace the water with MWD's supplies and other mechanisms; is that right?
A BY DR. WADE: Yes.
Q If you accept as true --

A They've been able to replace the water with Metropolitan supplies virtually exclusively and seemingly associated with the production and demand driven both by the demise of the Southern California economy and drought in 1991.
Q If you accept as true the proposition that increased demand will be met by reclamation and demand production measures and if MWD's ability to deliver

0178

water at least does not diminish as it is now, then you'd agree with me that L.A. could continue to do without any Mono Basin water at all?
A I wouldn't agree or stipulate to your last condition about Metropolitan. Metropolitan's ability to continue to make these large deliveries to MWD are unknown.
Q I ask you to assume that their ability at least would not diminish. If you accepted those as true, you would agree with me that L.A. does not need any Mono Basin water?
A Yes. But the reason we've sat here this morning is dealing mostly with the question of whether or not Metropolitan can make the deliveries.
MR. HERRERA: Your time is up.
MR. FLINN: I'll stop now.
HEARING OFFICER DEL PIERO: Thank you very much. Have a safe trip.
MR. FLINN: Thank you. And I appreciate the consideration.
HEARING OFFICER DEL PIERO: Ms. Goldsmith, had you reached your 20 minutes?
MS. GOLDSMITH: I think I had seven minutes left.
HEARING OFFICER DEL PIERO: Mr. Herrera?
MR. HERRERA: That's correct.

0179

HEARING OFFICER DEL PIERO: I assume you're going to request an additional 20?
MS. GOLDSMITH: I probably am.
HEARING OFFICER DEL PIERO: Fine. You take the first seven, and then let me know how much more.
MS. GOLDSMITH: Fine.
MR. HERRERA: Could you move the microphone, Ms. Goldsmith?
REDIRECT EXAMINATION BY MS. GOLDSMITH (Continued)
Q All right. Ms. Koehler had asked you about Dr. Hennimen's testimony, oral testimony, concerning pricing studies as compared with CV, and we had established, I think, that the statements that she made and the characterization that she made of his testimony is not contained in the written testimony which you reviewed. Is that right?
A BY DR. CARSON: That's correct.
Q All right. Well, assume that in his cross-examination, he said that the pricing study conducted by Griffith was more accurate than yours and that's why it was used. Do you agree with that?
A I don't agree with that. That is a statement which is consistent with his written testimony that he made a comparison between two particular studies, not between two particular methods.

0180
Q Do you believe that Griffith's shortage cost valuation is more accurate than the one which the Carson-Mitchell study estimates?
A No, I don't.
Q Why not?
A There are a couple of very substantial problems with the Griffith work. At just the most cursory view, it was based on a very limited amount of experience. This is clearly acknowledged in the Griffith report. In other words, when you estimate something on past behavior, you prefer to have a lot of data. And this actually had a very small amount of data relative to how these things are typically estimated.
The second -- and a problem which I believe is the much more severe -- is that at the time this study was conducted, Met and L.A. DWP and other water agencies in Southern California had cranked up a massive increase in their advertising campaign to attempt to persuade people to voluntarily conserve water.
Now, what the Griffith study does, it acknowledges this in some ways, but thinks that it accurately controlled for this but misses the large increase in advertising, is it confounds the price -- the effects of increasing price in reducing demand with the effects of the advertising admonishing people to voluntarily
0181
reduce demand for fear of much more severe future impacts if that was not done.
This is a case where you can't have it sort of both ways to the extent that advertising was causing people to reduce their demand to be good citizens, then the price -- then assigning all of the effects of reducing the water to the price effect, massively underestimates the price that it would have taken had price alone been used to reduce the water consumption.
There are some further problems with the work that are just based on just, again, the limited amount of data and the people they drew -- another important aspect to point out, though, is because the Griffith study simply pulled the records of residential houses that were on the upper end of the block pricing scheme. It ignores any impact on businesses, and this was a time period where these water shortages and the potential for future water shortages was having a relatively severe impact on future business decision making and on their actions at the time.
So the Griffith study -- the price effect greatly underestimates for the residential sector alone what the shortage cost would be.
Q Now, the Griffith study was the basic study that underpinned the Los Angeles mayor's blue ribbon panel?
0182
A Right. And what's to recognize is Los Angeles did a very, very good thing by moving to a block pricing structure with increasing prices. It's something that any good economist would basically recommend that they do, and it did, indeed, have some effect on reducing demand.
The problem with that study is it attributes all

the reduction of demand solely to the increase in price.
Q Thank you.
Now, you mentioned that there was a very extensive advertising campaign. Would those costs normally be included in this shortage cost? Yes or no?
A No. But they perhaps -- they're certainly not included in the Carson-Mitchell shortage costs. There would be an element of perhaps double counting that could be sorted out because it's not complete double counting, but part of those costs should probably be added.
Q Okay. Now, the two --
A BY DR. WADE: Could I read the offending paragraph where the factual error is made?
Q I'd prefer not.
A All right.
Q The two criticisms that Dr. Hennimen may have had

0183

your Carson-Mitchell study was, first of all, that it's outdated. Do you agree with that?
A BY DR. CARSON: Certainly, you would like to do these studies more often and a newer study has been commissioned. Relative to most of these economic numbers that run around in these models, a number which is only five years old is basically a current number.
Q And are you aware of any events or circumstances that, in your opinion, would have drastically changed those estimates?
A As I testified earlier, certainly you would expect some change in the distribution as people's expectations were fulfilled somewhat differently than what they thought at the time, but given our examination of Northern California which experienced more water shortages than Southern California, you wouldn't expect very drastic sort of changes.
MR. HERRERA: That's seven minutes, Ms. Goldsmith.
MS. GOLDSMITH: I'd like to ask for another 20.
HEARING OFFICER DEL PIERO: Granted.
Q BY MS. GOLDSMITH: The other criticism that Dr. Hennimen had --
HEARING OFFICER DEL PIERO: Excuse me, Ms. Goldsmith. I think it's probably also safe to

0184

assume that we are not going get done with this panel at four o'clock.
MS. GOLDSMITH: Our next day is December 1st, if I'm correct.
HEARING OFFICER DEL PIERO: How many more witnesses do you have?
MR. BIRMINGHAM: Total, we have two witnesses and then an additional panel that consists of two witnesses.
HEARING OFFICER DEL PIERO: And that's it?
MR. BIRMINGHAM: And that is it.
HEARING OFFICER DEL PIERO: So it's probably reasonable to assume that we'll be done with you on the 1st of December?
MR. BIRMINGHAM: I would -- yesterday, I would

have said that was reasonable. Today I don't know.
MS. GOLDSMITH: One of the -- the last panel has to do with hydrology.
HEARING OFFICER DEL PIERO: Has to do with hydrology?
MR. BIRMINGHAM: The last panel will also have a lot of information on the Los Angeles Department of Water and Power Management Plan, and many of the questions that have been asked by the Staff during the examination of other witnesses will be answered during

0185

that presentation.
HEARING OFFICER DEL PIERO: No economists on that?
MR. BIRMINGHAM: There are no economists.
MS. GOLDSMITH: There are water modelers, though.
MR. DODGE: Just to indicate that, at least our little table here, we'll have very few questions for those folks.
MR. BIRMINGHAM: Then it may be reasonable to expect we'll finish in one day.
MS. GOLDSMITH: One of the things that's been concerning me in terms of the session that's planned over the mountains is whether or not we're going to go until dark and beyond on the 2nd, and I would venture to say that certainly Los Angeles in --
HEARING OFFICER DEL PIERO: Oh, we're going to break early on the 2nd.
MS. GOLDSMITH: -- in chief would be done by the time --
HEARING OFFICER DEL PIERO: We're going to break early on the 2nd. Maybe I didn't indicate that yesterday, but I was talking to Mr. Canaday of breaking like at three o'clock in the afternoon on the 2nd in order to accommodate travel over to -- I think we're doing June Lake?

0186

MR. CANADAY: Pardon?
HEARING OFFICER DEL PIERO: June Lake? Where are we going? Have we got a location?
MR. SMITH: The visitor's center.
MR. CANADAY: We will be doing it at the Forest Service visitor's center in Lee Vining.
HEARING OFFICER DEL PIERO: That's on the 3rd, right? I had assumed that we were going to break between two and three on the 2nd in order to facilitate travel over the Sierras that night so that everyone could be there the following morning.
MR. CANADAY: Mr. Del Piero, do you wish to start at 9:00 a.m. that morning or later?
HEARING OFFICER DEL PIERO: Mr. Dodge?
MR. DODGE: Well, I don't want to waste the hour we have left, but one thing that we've talked about informally is possibly taking aircraft over Friday morning and coming back Friday evening. And I -- I've talked informally to Mr. Birmingham about that and also to Staff as to how many people might be representing the Water Board going over.
HEARING OFFICER DEL PIERO: Well, I'll tell you what. We'll figure that out when I'm gone, and

Mr. Canaday can negotiate the transportation schedule.
MS. GOLDSMITH: I think there's a reasonable

0187

likeliness that our case can finish by the afternoon of the 2nd.
HEARING OFFICER DEL PIERO: I was just given authorization by the Chair of the Board to delegate that authority to you, Mr. Canaday, so you can arrange whatever works out.
MR. CANADAY: We'll have gambling bus leaving --
(Laughter.)
HEARING OFFICER DEL PIERO: Thank you.
CHAIRMAN CAFFREY: We're going to call you Captain in this capacity.
MS. CAHILL: Mr. Del Piero, could I raise one other issue that we might start thinking about? I think that the first portion of the Department of Fish and Game's case will be the Eldon Vestal deposition which is on tape, and I don't know whether it has been your intent to play it here in the hearing room or if, in the interests of conserving time, you had wanted to make other arrangements to see it. That would give us some flexibility if Los Angeles finished early on the 2nd, we could play the Vestal tape.
HEARING OFFICER DEL PIERO: How many hours is it?
MS. CAHILL: I think about three and a half.
MS. GOLDSMITH: In-flight movie.
MR. FRINK: I think with the breaks, it's less

0188

than three.
MS. CAHILL: It's three to three and a half.
HEARING OFFICER DEL PIERO: Do we have copies of it made?
MR. CANADAY: We have one copy.
HEARING OFFICER DEL PIERO: Can we have duplicates made?
MR. CANADAY: How many copies do you want?
HEARING OFFICER DEL PIERO: Five, one for each member of the Board.
MR. BIRMINGHAM: Excuse me, Mr. Del Piero. I'd like to note for the record that the Court Reporter, who has a financial interest in making copies, is nodding her head affirmatively that copies can be made.
HEARING OFFICER DEL PIERO: Actually, it's Mrs. Anglin's husband who does that, but I'm sure she'll pass that information on to him.
HEARING OFFICER DEL PIERO: Five copies, Mr. Canaday, if you would. It's probably safe to assume that we will not have that played during the course of the hearing. The Board members will afford themselves the opportunity to review that since cross-examination of a videotape --
MS. CAHILL: It seems to me likely that -- I'm trying to figure out when we start -- it looks like

0189

probably we wouldn't start on the 2nd. If we do start then, why don't we play the tape?
HEARING OFFICER DEL PIERO: I don't know. Who do you have planned for your witnesses after the tape?
MS. CAHILL: It would be Dr. Stein would be our

first witness.
HEARING OFFICER DEL PIERO: I would strongly recommend you have Dr. Stein ready to go on the 2nd.
MS. CAHILL: He's not available in the morning on the 2nd.
HEARING OFFICER DEL PIERO: When's he available?
MS. CAHILL: In the afternoon on the 2nd.
HEARING OFFICER DEL PIERO: What time?
MS. CAHILL: He teaches 'til 12? Which is about the time we talked about breaking.
HEARING OFFICER DEL PIERO: Pardon me?
MR. CANADAY: It would be about 1:30 like we had the other day based on his class schedule.
HEARING OFFICER DEL PIERO: You tell him to be here at 1:30 on the 2nd. I'm still not convinced L.A.'s going to be done on the 1st. I keep hoping that we're going to make one of these predictions of mine. We haven't made one yet, but we'll try.
Ms. Goldsmith, you've got, what, how many more minutes does she have? 20?

0190

MR. HERRERA: She's got 20 short five seconds.
Q BY MS. GOLDSMITH: The other criticism, and it wasn't a criticism of the study because Dr. Hennimen did say that it was a fine piece of work, but in terms of using it in connection with the EIR, the other comment that he had is that because it covered more than just the area of Los Angeles, he felt that the Griffith study was more appropriate to use.
Can you comment on whether or not that's a fair criticism of whether it would be accurate to use that study?
A BY DR. CARSON: Generally, one likes to use a study specific to the area. What should probably have been done here would been to have taken the raw data, and the sample for the Greater Los Angeles area is actually larger than the sample for the CV survey that was used for Mono Lake. So L.A. area specific estimates could have been derived, and my memory of having done those estimates once upon a time suggests that they're not greatly different from the estimates for the overall state report.
Q Now, comparing just in general in the abstract, and to save time, I'm going to try and put it in my words of having to agree or disagree. Is it fair to say that there are problems with both the pricing

0191

approach and the contingent valuation approach?
A Yes.
Q And the problem with the contingent valuation approach is that people are getting hypothetical answers to hypothetical questions, and there's not as solid as one might like reality; is that right?
A Right.
Q And the problem with the pricing analysis is as a lady pointed out, is that it assumes that whatever response you're seeing is not wholly due to price?
A Right.
Q And at the time that the Griffith study, which was used in the EIR, was being conducted, there was an

advertising campaign as well, there was a severe drought ongoing, and there were mandatory restrictions; is that right?
A Correct.
Q Thank you.
Is it reasonable to presume or to assume that the sort of water reduction that you'll see people engage in in a crisis situation is likely to be a long-term effect?
A No. Indeed, these big reductions that you see can't be maintained over a many-year period.
Q And so would you agree with me that the level of

0192

conservation that you see in that sort of a situation is not something that you would plan long-term?
MR. DODGE: Objection. Ambiguous as to whether we're talking about maintaining a decline, or whether we're talking about a continuous decline.
HEARING OFFICER DEL PIERO: Sustained. You can rephrase the question.
Q BY MS. GOLDSMITH: In terms of maintaining a conservation level that has been initiated and has been demonstrated during a severe drought, is it reasonable to assume that that level of conservation can be maintained long-term?
A BY DR. CARSON: No. What you tend to see is that water consumption tends to creep back up toward its former levels.
Q Some questions to Dr. Wade. You testified that the ERM shortage estimates included consideration of factors related to D 1630; is that right?
A BY DR. WADE: Yes.
Q And they did not include consideration of water requirements related to the Endangered Species Act and maintenance of the delta?
A The modeling assumptions do not include anything related to the Endangered Species Act.
Q And the modeling assumptions also did not include

0193

any consideration of a two-part-per-thousand salinity standard in the delta; is that right?
A No.
Q If the study had included those factors, how would it have affected shortage in the Metropolitan Water District service area?
A Based on the results distributed last week in Sacramento, the amount of water available for diversion would be reduced substantially somewhere between 550,000 and three million acre-feet are the numbers reported in the press, substantially more requirements, more water from both the ag and the coastal urban water users would be required for ecosystem improvement.
Q Ms. Koehler stated that this proceeding is not a planning procedure. Would you agree with that?
A I would not.
Q And in a planning process -- why would you disagree with it?
A Well, the decision here ultimately has to do with the allocation of water between competing beneficial uses, the City of Los Angeles and the Mono Lake

ecosystem. The decision here has to do perhaps with the distribution of environmental impacts between the Sacramento-San Joaquin Delta and the Mono Lake ecosystem.

0194

Q And does the decision here have to do with a consideration of the reliability of supplies for the demand in Southern California?
A It has to do with the considerations of reliability of supplies in Southern California versus the needs of the Mono Lake Basin.
Q When engaged in a planning process, is it generally wise to base decisions on firm supplies rather than speculative supplies in water?
A Yes. I would counsel that some policy be adopted to require some standards of proof for the numbers that the various experts, including myself, would bring before this proceeding with respect to the assumptions about demand and conservation, reclamation, water transfers.
Q I'd like to talk a little bit about water transfers because they were the subject of quite a lot of the cross-examination. And would you agree that if water transfers are too speculative to include for environmental impact assessments, that they're too speculative to base future water supply planning on?
A That would seem to be -- have some fairness to it.
Q Other than the Imperial Irrigation District transfer to MWD, Metropolitan Water District, are you aware of any long-term transfers that have been

0195

consummated south of the delta?
A The only other transfer I'm aware of as an assumed fact is the Rusty Areias transfer for Metropolitan discounting the all American canal. I think you probably already assumed that one.
Q Are you aware that Thomas Graph and the Environmental Defense Fund several years ago offered to find water through transfers to provide a replacement supply to Los Angeles?
A Yes, I am.
Q Are you aware of how much water they found for transfer for Los Angeles?
A I don't think they've been successful.
Q So they found none?
A Zero.
Q Concerning the price at which water can be obtained, we're talking about shortages of rather large proportions; isn't that right?
A Yes.
Q And as the amount of water transferred increased, would transferable water become more scarce, would you expect?
A That's reasonable.
Q And as it became more scarce, would the price of transferable water go up?

0196

A One would expect that.
Q Is it valid in calculating the amount of replacement costs for loss of Mono Basin supply, is it

valid to assume that the cost of the first block of water, the lower cost water for transfers, would be dedicated to replacing the Mono Lake supply rather than reducing the already existing shortage that Met has?
A Metropolitan's water supply outlook is actually, as is well recognized by this Board I'm sure, so dire that they must make a number of -- they must find water in a number of new ways to sustain their service area over the next 30 years of the usual planning.
MR. DODGE: Move to strike. Nonresponsive.
MS. GOLDSMITH: Would you read back the question?
HEARING OFFICER DEL PIERO: It was nonresponsive to the question. I don't know if you're satisfied with the answer.
MS. GOLDSMITH: I've forgotten the question.
HEARING OFFICER DEL PIERO: I'm going to overrule the objection because --
MS. GOLDSMITH: Fine. I'm trying to hurry through this.
MR. HERRERA: You have ten minutes.
Q BY MS. GOLDSMITH: I'm confused as to whether or not the questions relating to the current price of

0197

transferred water is appropriate to use in considering the likely price of replacement water for the Mono Basin.
Wouldn't the appropriate price of water be the marginal cost of water?
MR. DODGE: Objection. Unintelligible.
HEARING OFFICER DEL PIERO: You want to rephrase the question?
MS. GOLDSMITH: I will try.
HEARING OFFICER DEL PIERO: Okay.
Q BY MS. GOLDSMITH: In the context of my prior question to you, increasing scareness of transferable water and the reasonableness of assuming that the first block of low-priced water would be the water that should be assigned as the replacement cost of Mono Basin water. Is that a reasonable assumption?
A BY DR. WADE: I'm sorry. I didn't follow your question.
Q I guess Mr. Dodge was right.
A It's that time of the afternoon. I could try and answer anyway because I have a notion in my head, but I'm not sure it's the question.
Q What I want to know is since MWD's already looking for a large block of water and since you have agreed with me that as transferable water gets scarcer, the

0198

price is going to go up, wouldn't you agree with me that the proper replacement cost for lost Mono Basin supply would be the most expensive transferred water rather than the least expensive transferred water?
A Yes. And we don't know what that's going to be. We may know what they have bought recently, but we don't know what they will buy to replace this.
Q Now, Metropolitan Water District supplies a great deal of the water in Southern California; isn't that right?
A Yes.

Q And if Metropolitan Water District had a shortage and knew it was going to have a shortage of some substantial proportions, what do you expect the economic impact in the Los Angeles area would be?
A Well, they had a shortage in 1991, and it coincided, unfortunately, with the downturn in the economy. So we don't have any empirical data, but the studies that I've done have shown substantial losses related to drought and to large shortages.
Q Would inhibition of growth in Southern California be a likely response?
A Actually, there's no evidence on that. We looked.
Q Does Metropolitan Water District have an interest -- an institutional interest in assuring its

0199

constituents that it will be able to provide adequate water supply to them in the future?
MR. DODGE: Objection. Calls for speculation.
HEARING OFFICER DEL PIERO: Sustained. You can rephrase the question.
MS. GOLDSMITH: I'll withdraw the question.
HEARING OFFICER DEL PIERO: Okay.
Q BY MS. GOLDSMITH: At the very end of the cross-examination, there was some discussion between the panel and the Board Staff about the extent to which the EIR is required to consider the impacts which may occur from transfers. And is it true that the EIR suggests that water transfers may be a source of replacement water?
A BY DR. WADE: Sort of superficially, yes.
Q Do you believe that it would be irresponsible for the Board to simply ignore the effects of water shortage that would be exacerbated by a decision in this action?
A That was my direct testimony.
Q And wouldn't it be necessary for an informed and responsible decision maker to at least want to know the general environmental impacts of its decisions?
MR. DODGE: Calls for a legal conclusion.
HEARING OFFICER DEL PIERO: I'm sorry. My

0200

attention was drawn away. I apologize.
MS. GOLDSMITH: The question was wouldn't an informed and responsible decision maker want to know the likely environmental impacts of its decision?
MR. DODGE: That wasn't the question. He already answered that one, and then you went on to ask him whether it was necessary to do so. That's the one I objected to.
HEARING OFFICER DEL PIERO: The basis of the objection, Mr. Dodge?
MR. DODGE: Calls for a legal conclusion.
HEARING OFFICER DEL PIERO: Sustained.
MS. GOLDSMITH: Do you object to the question that I just asked?
MR. DODGE: He's already answered it, and I don't mind your asking it again.
Q BY MS. GOLDSMITH: Wouldn't an informed and responsible decision maker want to know the likely environmental impacts of its decision?

A BY DR. WADE: I would think so.
Q And in this case, do you believe that the Board can know those effects if the environmental impacts of transfers are not discussed in the chief environmental document, the EIR?
A They cannot.

MS. GOLDSMITH: I have no further questions.
HEARING OFFICER DEL PIERO: Thank you very much, Ms. Goldsmith.
Ms. Koehler? I'm sorry, Ms. Cahill?
MS. CAHILL: No questions.
MR. DODGE: Mr. Del Piero, I have just a couple of questions.
MR. BIRMINGHAM: Excuse me, Mr. Del Piero. I believe that the National Audubon Society and Mono Lake Committee has completed their cross-examination of their witnesses. Mr. Flinn was given that opportunity and Mr. Flinn concluded and departed.
MS. GOLDSMITH: In fact, he didn't use his entire time.
MR. DODGE: Really my point, he didn't use his entire time.
HEARING OFFICER DEL PIERO: How many questions do you have, Mr. Dodge?
MR. DODGE: Two minutes.

RECROSS-EXAMINATION BY MR. DODGE

Q Dr. Carson?
A BY DR. CARSON: Carson, yes.
Q Good afternoon. You were read some testimony, written testimony, by Dr. Stein, and we're talking about the 6410 elevation, and the upshot was that at

the Lee Vining Tufa Grove, 5 percent was still visible, and at the South Tufa Grove at 6410, it was all submerged. And then -- trust me on this. That's what it said.
And then Ms. Goldsmith asked you is the survey consistent with that result, and you said Point C is not likely to rise. These are the most visited places. Do you recall that testimony?
A BY DR. CARSON: Yes, I did.
HEARING OFFICER DEL PIERO: Mr. Dodge, I'd point out you have two minutes left.
MR. DODGE: Thank you.
Q BY MR. DODGE: Why is it important that these are the most visited places?
A BY DR. CARSON: Because people go to Mono Lake, at least a large number of them, to see the Tufa.
Q Now, if hypothetically if, at 6410, the second most visited Tufa grove still had approximately 55 percent of -- excuse me. Still had approximately 50 percent of its towers remaining, would that change your answer?
A That would be substantially less than Program B and, hence, that would tend to make -- almost guarantee that Program C would fall lower than B. In other words, if you wiped out half the Tufa and the Tufa that

remained was much more covered with water, so less was

protruding.
Q Now, let me back up. At 6410 on the two groves that Ms. Goldsmith talked to you about, only 5 percent remained in one grove and none remained in the other.
A Actually, it says that at a lake level of 6400, roughly 5 percent are still visible. When the lake reaches 6410, all towers are submerged.
Q Hypothetically, if at the second most visited grove there was still, at 6410, approximately 50 percent of the towers remaining, wouldn't that tend to push Point C higher?
A Yes. But it would still be substantially lower than B.
Q Can you quantify how much higher?
A No. I mean, the two most visited places are the visitors' center and South Tufa. So if you could tell me what place we were talking about --
Q I'm talking about a hypothetical place right now. It's the second most visited Tufa Grove, and at 6410, approximately 50 percent of the towers remain. Isn't it a fact that that would tend to push Point C higher?
A Yes.
MR. BIRMINGHAM: Objection. Asked and answered.
MR. DODGE: Yes.

HEARING OFFICER DEL PIERO: Thank you very much.
Mr. Koehler?
MS. KOEHLER: Thank you.
HEARING OFFICER DEL PIERO: I have to tell you, Ladies and Gentlemen, I'm really looking forward to going down to San Bernardino and listening to Mr. Somach.
MR. BIRMINGHAM: That's because we like each other so much.
HEARING OFFICER DEL PIERO: And Mr. O'Brien. I can keep them under control.
MR. BIRMINGHAM: Excuse me, you can keep Stuart Somach under control?
HEARING OFFICER DEL PIERO: I've got a more direct line in terms of throwing the gavel. He's keeps calling me your Honor when I'm down there. Much more important than I do here.
(Laughter.)
RECROSS-EXAMINATION BY MS. KOEHLER
Q I'd like to see if we can move down the road towards answering Board Member Forster's questions about the bottom line, and I'd like to do that by starting to ask you, Dr. Wade, what is it that your testimony is not about? Is it correct that your testimony is not about the cost of replacing Mono Lake

water with other -- with water from other sources? Isn't that correct?
A BY DR. WADE: That's kind of a complicated question. Why don't we rephrase it as a positive rather than a double negative?
Q No. I'd like to phrase it the way that I did phrase it. So why don't I try again, so that it's clear for you.
In your testimony you did not provide any

information about the replacement cost for Mono Basin water from the Colorado River, do you? Your testimony is about shortage cost, not about replacement cost; isn't that correct? The $95 million estimate?
A No. We assumed some replacement.
Q The $95 million estimate is, as I understand it, the cost of a shortage based on a contingent valuation study; is that correct?
A That's correct.
Q That study does not include the cost to buy water when there's replacement water available. That is cost of a shortage; isn't that correct?
A Partially correct. That $95 million is the result of first asking what water's available to purchase from the State Water Project and what remains a shortage.
Q And the $95 million cost is the cost of shortage

0206

as measured by the Carson-Mitchell 1987 contingent valuation study; isn't that correct?
A And as measured by the hydrologic uncertainty on the State Water Project.
Q Fine. But it does not include the cost of buying Colorado River water, does it?
A No.
Q It is assumed that that water's not available. It does not include the cost of buying additional groundwater, does it?
A No.
Q It does not include the cost of buying water from the local supply or buying local supplies?
A Pretty soon you're going to be selling air because I don't think --
Q In addition -- we're talking -- I am trying to talk about water to replace Mono Basin water. That is not a cost that's included in your $95 million estimate; isn't that correct?
A That's correct.
Q All right. To put it positively now, if you'd like to. Your $95 million estimate is the cost when there is no water available and you are measuring the, if you will, lifestyle cost of not -- of foregoing water; isn't that correct?

0207

A Yes. That's one way of expressing it, lifestyle cost.
Q Thank you.
A Changed quality of life.
Q Fine. As long as we're clarifying for the Board that we are not talking about the cost of additional alternative supplies of water. That's what I'm trying to get across here.
Turning to the shortage costs, you've testified, if I understand your testimony earlier, you have -- it's your position that those shortage costs are very sensitive to the assumptions that you've made about available water supply; is that correct?
A That's correct.
Q And your water supply assumptions are relatively conservative. If I can review and make sure I understand, you've assumed no water transfers

whatsoever?
A Not true.
Q From sources other than the Colorado river?
A I assumed 106,000 from the Colorado River.
Q I'm sorry. Let met make that -- let me rephrase the question.
You assume that there were no water transfers available from sources other than the Colorado River

0208

and the irrigation district?
A That's correct.
Q All right.
A There are no other transfers in the record.
Q There are no other transfers in the record? I'm sorry. Didn't we establish earlier that Metropolitan had, indeed, transferred 200,000 acre-feet in water as recently as two years ago?
A Yes.
Q Thank you.
You also assume that -- again, I'm just making sure I understand your prior testimony -- that there will be no Colorado River water available other than the firm you already discussed; isn't that correct? The 500 plus the -- the 600 --
A Yes. That's planning assumption.
Q That's it. Right.
And you assume that there will be local supply availability that's somewhat lower than predicted in MWD's recent planning document. I believe we established that earlier?
A I don't believe that we established that it was lower. I think we had something like 1.3 million.
Q You estimated 1.3 million. MWD estimates 1.6. So then it's -- is it fair to say, then, that your

0209

estimates of shortage cost depend on the evidence that will be submitted to this Board regarding the certainty or the firmness of other sources of water supply over the next -- over the planning period to 2010?
A Yes. And I have also suggested, pontificating, if you will, that some standards of proof be required around those.
Q That's right. You have done so.
And is it correct to say that you've assumed that there really will be no new water from any of those sources we've just discussed between now and 2010 firm enough that you feel this Board can rely on those sources?
A As is in the record today in California, that's a fact.
Q All right. Do you believe it's appropriate to advise this Board to make its decision in this proceeding assuming that there will be no water transfers from the Central Valley over the next 20 years?
A I'm going to repeat the same point I made before. I think this Board should adopt as a policy --
Q I didn't ask you that question. I asked you a very specific question, and I only have 20 minutes, so I'm going to request that you answer it.

0210
A Would you repeat the question, please?
Q My question is do you think it's appropriate to advise the Board to make its decision in this proceeding assuming that there will be no water transfers to MWD from Central Valley in the next 20 years?
A My answer to the question is I think this Board should make its decision based on firm factual knowledge of what water resources will be available.
MS. KOEHLER: I request the Board to ask the witness to respond.
HEARING OFFICER DEL PIERO: The answer was not responsive, Doctor. Do you want this question read back one last time?
DR. WADE: I understand the question, Sir. The answer to that question would have to be no.
Q BY MS. KOEHLER: Fine. Thank you. I appreciate that.
A BY DR. WADE: And I have to caveat with the answer.
Q Ms. Scoonover asked you several questions on DWRSIM. Do you know whether or not the Metropolitan Water District agrees with the assumptions in DWRSIM that you relied on in your analysis?
A I do not have specific factual knowledge of that -- Metropolitan Water District employs a
0211
consultant to run DWRSIM. We had numerous conversations with him, but we did not go line by line with that fellow. I don't think we're widely disparate on that.
Q Thank you.
Turning to Dr. Hennimen's written testimony. I'm sorry I confused you earlier in my representations. I have several questions.
You indicated, Dr. Carson, that the data is not updated, that it's only five years old. Isn't it correct, Sir, that your 1987 data is actually based on a survey having to do with the earlier drought 1976-1977 drought?
A BY DR. CARSON: No.
Q That's incorrect?
A Yes.
Q All right. Are you aware that Dr. Hennimen makes that representation in his written testimony?
A He does not.
Q Let me read to you, Sir, from Dr. Hennimen's written testimony. At the time of your -- I'm paraphrasing here somewhat. At the time of your survey, now I'm quoting, their only experience of drought would have been ten years earlier in 1976-1977. I was concerned that things might have changed at least
0212
somewhat since then, and I prefer data that incorporated people's actual experience with the recent drought."
A That is correct, but that's not -- the question --
Q That's fine.
A The question that you asked for clarification here is did the survey ask about willingness to pay to avoid

a future drought. It did not specifically deal with anything on the past drought. But that was experience --

Q But --

A That was your experience base.

Q That was the experience base of your survey?

A Right. But what people were explained was what steps would be taken in a drought, and those were fairly simple and easy to understand.

Q Okay. Moving along to Dr. Hennimen's other concerns. I'm going to read to you here so you don't have any questions about what Dr. Hennimen does and does not think. "The second reason -- " and this is the second concern that he has with using -- "Not with your study generally, but with using your study for purposes of this Draft Environmental Impact Report, is conceptual and has to do with how one analyzes the CV data and whether or not one allows for the possibility

0213

of price rationing in the event of a drought, which is what actually occurred in Los Angeles in 1991." And then I'm skipping, "The result is what economists call a selectivity effect. The outage costs associated with actual water reductions that occur are not drawn evenly from the entire spectrum of water users but disproportionately more from those with lower outage costs. This reduces the aggregate gate outage cost.

"The existing analysis of the Carson-Mitchell data does not allow for this effect and is, therefore, upwards biased upwards, at least to some degree."

Do you agree with that paragraph? First answer yes or no.

A No.

Q You don't. All right.

A I should caveat the general statement that Michael Hennimen's trying to make here is that price rationing does indeed reduce the cost of the shortage by allowing the most high-valued people to obtain the water, and that's a very good thing.

What happens, though, is you're looking at a median willingness-to-pay number, so the people who are at the very top of the curve are actually way above the median. So you're not changing the median, so on the statement that it's biased upward is mistaken.

0214

Q Thank you.

You stated that the Griffith's work for the L.A. blue ribbon committee ignored impacts on business. Isn't it true that the Carson-Mitchell CV study also did not include impacts on business?

A No. That's not correct because in our contingent valuation study, we informed people that there would be impacts on business. And in the discussions of that study, it was basically assumed that we had included in our estimates some of the business impacts but not all; that is, that we had included part of the business impacts, but not all.

By the nature of the Griffith study, since they only sampled residential water household bills and estimated a price reaction, by the way that study was

constructed, they could get none of the business impacts. In that regard, both studies thus underestimate the water shortage costs to business; one less so than other.
Q Thank you.
I have a clarifying question, Dr. Wade, with regard to the impact of the anticipated EPA package, if you will, of standards, EPA and the other federal agencies, that are coming out in December. You indicated that according to the press reports that you

0215

had read, the impacts were going to be extremely high; is that correct?
A BY DR. WADE: I indicated that the press reports had suggested a range between a half a million to three million acre-feet.
Q All right. It's that range I'd like discuss with you. Are you aware, then, that there are two sets of numbers? EPA has a set numbers, and DWR has a set of numbers?
A Yes, I'm aware of that.
Q Do you have any reason the believe that one set of numbers is more accurate than another set?
A I haven't examined either set of numbers. Each new set of numbers does have one number in common, one million.
Q Right. That's right.
My last question goes to the legal standards at issue in this proceeding. Are you aware, either of you, that there are two separate legal standards that are governing these proceedings?
A BY DR. CARSON: Vaguely, but I couldn't really describe --
Q I'm not asking you to. I'm just trying to find out if you know anything about them.
A No. The answer is, I know CEQA has something to

0216

do with this and I know this has been remanded by a court, but that's the extent of --
Q Let me suggest to you, then, since I don't want you to be making legal conclusions, that under Fish and Game Code Section 5937, the Board will be required to make its decision about flows that keep fish in good condition without regard to economic impacts whereas, putting it simply, the public trust issues may be at that point when the public trust considerations come into play, at that point economic impacts may be -- may be considered.
Does your analysis of economic impacts allow for this -- do you allow for -- let me find another way to put this. Does your analysis allow the Board any means of separating out the incremental economic impact of the public trust issues in this case as opposed to the Section 5937 fish issues?
A Certainly, perhaps not impossible, what would you actually have to do is to separate out what the physical and biological impacts were first before an economist could make some separation.
Q So you're saying that that analysis could be done. Is there anything --

A Potentially.
Q -- in your testimony that allows the Board today

0217

to determine the economic impacts of the public trust?
A No. Because what -- you'd have to specify the physical and biological impacts before you could address the economic impacts.
Q Then as you testified today, your testimony before the Board does not allow them to make that distinction?
A If you had -- if you had the physical and biological --
Q I didn't ask you if you had that information. I asked you as you're sitting here today, does the testimony that you've submitted allow the Board to make that distinction in economic impacts?
A No. But you could certainly go back.
Q You could go back, but that wasn't my question, Dr. Carson. Thank you.
HEARING OFFICER DEL PIERO: Thank you very much.
Ms. Scoonover?
MS. SCOONOVER: Yes. I have a few questions.
RECROSS EXAMINATION BY MS. SCOONOVER
Q Once again, I'd like to start with you, Dr. Carson. The majority of my questions were raised by Ms. Goldsmith on redirect, and so that will be the focus of the majority of questions.
Are you an expert on air quality or air quality -- air toxics?

0218

A BY DR. CARSON: I've done a substantial amount of work on EPA grants on air quality. I've done some work on air quality modeling. I've done substantial work on epidemiology, and my work has played a part in a number of EPA criteria documents.
Q Do you know the federal primary health-based standards for the P.M. Ten for a 24-hour?
A It's been about eight years since I've done air quality modeling, and so the answer is with regard to the current P.M. Ten standard, I couldn't rattle it off the top of my head.
Q Are you aware that in May of 1993 during Mono Lake storms, there were three gross exceedances of the federal primary health based standards in one month?
A In something I read, that sounds correct. In doing epidemiology work, you look at exceedances and exposure.
Q Are you aware that one of those exceedances reached 981 micrograms per cubic meter.
A No. But I'll take your word for it.
Q Are you aware that dust storms at Mono Lake have covered hundreds of square miles?
A No. I actually have not seen anything to that effect.
Q Are you aware that aside from the Owens Basin,

0219

Mono Lake has the worst P.M. Ten violations anywhere in the United States including downtown Los Angeles?
A No. I have not seen a comparative thing, and this would depend on where the air quality monitors were placed.

Q Do you know the source of majority of the P.M. Ten -- the P.M. Ten source material at Mono Lake?
A Do I know the source material?
Q What the source of the P.M. Ten substance is?
A Basically, an alkaline material from around the lake, as far as I know.
Q Do you know at what level this alkaline material from around the lake will no longer be exposed?
A I have, at one time, actually when I was on the technical review committee, gone through all that. I couldn't tell you the exact -- as the lake level rises, the dust storms go down.
Q Are you aware that state park rangers at Mono Lake advised visitors not to go into areas when there are dust storms appearing?
MS. GOLDSMITH: Objection. Mr. Del Piero, this line of questioning goes well beyond any expertise that Dr. Carson has even expressed and amounts to testifying.
MS. SCOONOVER: Mr. Del Piero, on the contrary, I

0220

believe Ms. Goldsmith asked the Doctor a series of questions about air quality at Mono Lake and whether or not Mono Lake Committee Exhibit 215 and 215-A accurately reflected the exposure to alkaline dust at the lake. The Doctor responded that the lake -- that the source of the dust was much more limited than was described in 215-A. The questions went on from there. I'm almost finished.
HEARING OFFICER DEL PIERO: Ms. Goldsmith?
MS. GOLDSMITH: I asked Dr. Carson a hypothetical that had to do with whether or not the description was accurately stated and the impression it would give on the respondents to the CV survey, not about his personal experience or expertise concerning the origin of dust storms at Mono Lake.
MS. SCOONOVER: If I may, that I believe asking the Doctor his opinion of whether the information in 215-A and 215 is accurate is directly reflective of what the witness is alleging as fact. That's all I'm trying to get at. I don't mean to be argumentative.
MS. GOLDSMITH: I believe I asked him to assume.
(Whereupon the record was read as requested.)
HEARING OFFICER DEL PIERO: I'm going to overrule the objection, but if you go much farther into this, Ms. Scoonover, I'm likely to sustain a similar

0221

objection.
MS. SCOONOVER: I understand.
HEARING OFFICER DEL PIERO: Go ahead and answer, Doctor.
DR. CARSON: Yes.
MR. BIRMINGHAM: You've answered, Doctor.
MS. SCOONOVER: Thank you.
Q BY MS. SCOONOVER: I believe Ms. Goldsmith asked you some questions about Tufa as well and asked you to make some assumptions, so I'm not going to go into the underlying assumptions.
The only thing I want to ask you is what the basis of the information on Tufa and Tufa loss is upon which

you're relying?
A BY DR. CARSON: The development work for the contingent valuation study consisted of several focus groups and a number of pre-tests. There are also verbatim responses in the questionnaire. And --
Q I'm sorry, Dr. Carson. I didn't state that question very clearly.
A BY DR. CARSON: I thought that was what were you asking.
Q No. What I'm asking is the information on what happens to the Tufa at varying lake levels is -- that's the area that I'm interested in. Upon what did you

0222

base your assessment of what happens to Tufa at the varying lake levels? What information did you use?
A Scott Stein, in the original development work for the contingent valuation survey, provided the original information which is included in the contingent valuation survey.
Q Very good. Thank you.
I believe, Dr. Wade, I have a couple of questions for you. Isn't it true that this period of time, this post-drought period of time, the City of Los Angeles is still saving 20 to 30 percent in water?
A BY DR. WADE: It's true that demand in Los Angeles in 1993 is down. I don't think it's down 20 or 30 percent.
Q Let's assume that it is down 20 to 30 percent. Do you believe these people are still suffering the -- an impact to their quality of life, or are they, perhaps, better informed due to the large-scale public information program that was discussed earlier?
A I think a combination of a lot of things including that, including some hardware changes, which will be permanent, which will also harden demands, including declining economic activity, including a lot of things. Behavior. Conservation is composed of technology and behavior, and the behavior changes will

0223

dissipate.
Q Thank you.
You also answered a question that Ms. Goldsmith asked and then Ms. Koehler again discussed the issue with additional EPA restrictions on delta water exports, what the impact would be on -- to the Metropolitan Water District supply. You said you'd seen figures between one-half and three million acre-feet as the impact?
A As the impact to all diversions from above and below the delta.
Q Is DWRSIM the basis for one or more of these assessments?
A Yes.
Q Now, you say that water transfers are too speculative to base future water needs on. Is that accurate?
A Not precisely as you've written it, as you've stated there. I've said that how water transfers are going play out is a matter of speculation. I think they will play out. I cannot speculate as to how or

when, how much water will be transferred at what cost. I don't know that, and no one in the room knows that.
Q How do existing south-of-delta transfers affect future water -- meeting future water demands?

A How do existing south-of-delta transfers affect meeting future water demands.
Q Not very well stated. Let me restate it for you. I think I'm trying to put several things together in an effort to do it quickly, and I'm afraid it's been at the expense of clarity. So let me go a little slower.
In your analysis, you looked at the likelihood of meeting future DWP demands with a majority of MWD water based on the assumptions made in the Draft Environmental Impact Report. Your concern, as I believe, and please correct me if I'm wrong, was that it has been not been proven that there will be adequate supplies of MWD water to supply the Department of Water and Power's additional requests. Now, we've gotten -- is that accurate?
A That's precisely accurate.
Q Now, we've gotten to the point where we're talking about predicting the Metropolitan Water District being able to meet DWP's demands and whether or not water transfers can be factored into that equation or whether they are too speculative.
My question to you is, can you, in that equation where you're trying to figure out whether there's adequate supplies of Metropolitan Water District water to meet the Department of Water and Power's future

demands, factor in or have you factored in existing south-of-delta water transfers?
A Yes. I have factored in the Imperial Irrigation District south-of-delta water transfer of 106,000 acre-feet.
Q Are there any others?
A There are no others except the Rusty Areias transfer, which is allegedly going to be signed in the very near future.
Q So you are aware of no other south-of-delta water transfers --
A There are no other long-term --
Q -- with the Metropolitan Water District?
A There are no other long-term transfers.
Q Thank you.
In response to another question from Ms. Goldsmith, I believe you stated that the task of this Board was to balance competing uses. It was in response to a question Ms. Koehler asked about what the purpose of these proceedings was. Do you recall that discussion?
A The public trust doctrine requires the balancing of competing beneficial --
MR. DODGE: Objection. Nonresponsive. Move to strike.

MS. SCOONOVER: Let me try it again, and I'll be a little more specific.
MR. DODGE: Can I have a ruling, please?

HEARING OFFICER DEL PIERO: I've refrained from striking comments. I've not ruled in that fashion since the beginning of this hearing. I'm somewhat reluctant to do it because if I had done it uniformly throughout the entirety of the hearing, meaning no disrespect, but 50 to 60 percent of the testimony delivered in the last day and a half would have been struck.

I'm going to overrule the objection.

MR. DODGE: Thank you.

Q BY MS. SCOONOVER: Let me ask the question a little differently. Are you familiar with the California Supreme Court case referred to commonly as the National Audubon Case that defines public trust doctrine with respect to Mono Lake?

A BY DR. WADE: Yes.

Q Thank you.

I believe Ms. Goldsmith asked about some work that Tom Graph and the Environmental Defense Fund did a number of years ago to find replacement water for Mono Lake water. Do you recall those questions?

A Yes.

0227

Q Are you familiar with that work?

A Yes.

Q Did you participate in that work?

A No.

Q Do you know if this work was -- strike that. Let me start over.

Were you asked to review this work professionally?

A No.

Q Do you know if there was any kind of final report, final findings, or any other published document relating to this work?

A I do not. I thought the final product was to be transferred.

Q Do you know in what context Tom Graph undertook this work? Do you know for whom he was working?

A It was a joint project. It's vague in my mind. I think it was joint state funded. I really can't remember any more details than that.

Q This most recent drought that we've just come through, would you classify it as perhaps the worst or second worst in history since, say, 1850?

MS. GOLDSMITH: Objection. Calls for a conclusion outside his area of expertise.

HEARING OFFICER DEL PIERO: Sustained.

Q BY MS. SCOONOVER: Let's assume, Doctor, that this

0228

past drought we've just come through has been the worst or second worst since 1850. In a time of drought, would you assume that the cost of water would go up, go down, or remain the same?

A BY DR. WADE: It should go up, but there are institutional rigidities and California water pricing.

Q As Metropolitan Water District's costs go up, are you aware whether or not member agencies are securing their own reliable sources of water?

A I'm aware of member agencies adopting very aggressive reclamation programs and very aggressive

conservation programs.
Q Your economic analysis assumed, I believe, a certain level of replacement water. I'd like to -- to set up a hypothetical for you, and I want you to work with me on it a little bit here.
Let's assume that the lake has stabilized and that from current diversions, the amount of water to be exported to Los Angeles is being reduced by 47,000 acre-feet. So let's assume it's 47,000 acre-feet that's going from the lake and is no longer being exported to Los Angeles.
Now, let's further assume that, say, 40,000 of those acre-feet are required to maintain stream flows under the standards that Ms. Koehler was alluding to

0229

earlier. So let's assume that instead of 47,000 feet being required to maintain a lake level, we have 40,000 feet being required, or -- now, I'm confusing myself as well as you, I'm sure.
We've assumed 47,000 acre-feet that were no longer exported to the Basin. Assume that 40,000 acre-feet per year is required to meet the stream flow standards. Assume then that you have 7,000 acre-feet that's being required to meet the public trust requirements of the lake itself.
If your economic analysis was to replace 7,000 acre-feet annually as opposed to 47,000 acre-feet annually, would a majority of the impacts that you've discussed be greatly reduced?
A Have you removed water from Los Angeles?
Q Los Angeles was previously getting 47,000 acre-feet that Los Angeles is no longer getting, but 40,000 of those acre-feet is required under court order. So we're only talking about making up 7,000 acre-feet, so assume, instead, you're replacing 7,000 acre-feet of water that Los Angeles was previously getting.
A The model runs that we did with the economic risk model simply deal with quantities of water not with respect to whether or not they're required under this

0230

or that law.
Q I guess what I'm asking, Dr. Wade, is if the quantities of water for which you have run the models are reduced, would not the impacts likewise be significantly reduced?
A By that, do you mean that the physical quantities of water being diverted from the City of Los Angeles are reduced?
Q Yeah. I'm asking you to assume that you're only making up 7,000 acre-feet annually. That's all. 7,000 acre-feet of water annually.
A If the shortage -- if the shortage that we measured was over 7,000 acre-feet instead of the 40,000 acre-feet, the incidence of shortage, the probability, the likelihood of shortage would be smaller.
MS. SCOONOVER: Thank you. That's all. I have no further questions.
HEARING OFFICER DEL PIERO: Thank you very much.
Mr. Frink?

MR. FRINK: Yes. I think I can do it in two minutes. I'll try and make them very simple.

RECROSS EXAMINATION BY THE STAFF

Q BY MR. FRINK: Dr. Wade, you testified in response to Ms. Goldsmith's question that as the number of water transfers increases, the cost of water available for transfer will also increase. Have you done any studies comparing changes in the price per acre-foot of the water transfers which occurred in the years 1986 through 1991?

A BY DR. WADE: No.

Q So was your response to Ms. Goldsmith's question essentially based on the simple assumption that as demand goes up, price also goes up?

A It was more or less based on the rising shape of a supply curve. The question was hypothetical and answered theoretically.

Q Okay. I appreciate that.

As an economist, would you agree that having an efficient market available can also influence the cost of the commodity sold?

A Yes.

Q One of the purposes of having an efficient market, is it not, is to reduce the transaction costs incurred?

A Yes.

Q Do you believe that the water transfers in California beginning in the mid 1980s have been accomplished within the structure of an efficient established water market?

A Absolutely not.

Q I believe you stated at one point in your testimony that you personally would foresee an increased reliance on water marketing in California. Is that correct?

A I did.

Q If that occurs, do you believe that a more efficient water market will develop in California?

A I would certainly hope so.

MR. FRINK: Thank you. That's all I have.

Any other staff questions?

HEARING OFFICER DEL PIERO: Mr. Satkowski? Mr. Smith? Mr. Herrera? Mr. Canaday?

Don't feel pressured, Jim.

MR. HERRERA: Mr. Frink did it in a minute 37.

HEARING OFFICER DEL PIERO: And I was impressed.

MR. BIRMINGHAM: I was impressed at the responsive answers.

MR. DODGE: The difference is, I wasn't supposed to mention it, that Mr. Frink didn't get an answer to his last question.

MR. FRINK: I believe I did.

HEARING OFFICER DEL PIERO: Yes, you did.

MR. DODGE: The question referred to an expectation and the answer referred to a hope.

HEARING OFFICER DEL PIERO: One can interpret the hope with the expectation.

Mr. Canaday?

Q BY MR. CANADAY: Doctor, I only have one question, but it is a long one.

HEARING OFFICER DEL PIERO: Several parts. Take notes.

(Laughter.)

MS. GOLDSMITH: Objection. Compound.

(Laughter.)

Q BY MR. CANADAY: Dr. Wade, in some of my -- my previous questions to you and I believe your response to Ms. Goldsmith, you replied that informed decision making with regards to water transfers and future water supplies, that this -- you felt that decisions that L.A. -- replacement for L.A. supplies, L.A. DWP supplies may be lost because of any decision by this Board. Is it the responsibility of this Board?

A BY DR. WADE: I don't think I stated that. I'm not sure what the question was.

Q Let me read you something from the EIR, and this is from the executive summary S-10. The EIR says as it describes the environmentally superior alternative, it says, "The City of Los Angeles may compensate for reduction in water supply from the Mono Basin in a variety of ways, each of which could have different environmental effects on the Los Angeles area and other

0234

areas of the state. Without knowing what particular actions the City may take, it would be speculative to attempt any detailed analysis of the effects of those actions."

In your testimony on Page 62 you state, "Any solutions to replacement -- any solutions to replace reduced Mono Lake supplies must or may impact the delta or other areas. Ignoring these impacts, as one was done in the EIR, is not defensible."

Do you still stand by that statement?

A I stand by that.

Q In the EIR, it was identified by Jones and Stokes as mitigation measures, the following mitigation measures could be implemented for the 6383.5 alternative and all higher lake level alternatives: Number One, L.A. DWP and the Mono Lake Committee should jointly apply for the remaining $48 million, and we'll hear testimony on that later of how much of that is still there, of Assembly Bill 444.

The second point would be the HR 429 commonly known as the Miller-Bradley Bill, and in that bill, there were points that there was specific language to developing 120,000 acre-feet per year of reclaimed water in Southern California specifically designed to replace water diverted from the Mono Basin. The second

0235

point of that bill was authorizing water transfers from agricultural users to urban water districts such as L.A. DWP.

Another mitigation measure identified is L.A. DWP should participate to the maximum degree possible in any MWD rebate programs.

Another mitigation measure identified was L.A. DWP could pursue other state and federal funding sources to assist it in its efforts to gain the capital financing

necessary for developing water reclamation projects to meet its water reuse goals of 250,000 acre-feet by 2010, 600,000 acre-feet by 2050, and 800,000 acre-feet per year, these figures are per year, by 2090.

Another mitigation is L.A. DWP should continue to develop demand-site reductions from its water -- from its water conservation program and implement and monitor compliance with all BMPs identified in the urban water management plan.

And finally, L.A. DWP could assess the feasibility of future projects that conserve additional amounts of local storm water runoff.

Now, the EIR suggests or options that the City of Los Angeles has, are you suggesting that this Board should pick options for the City of Los Angeles and, therefore, do the environmental analysis and direct the

0236

City as such?

A No. Rather, the intent of my comment was to say that the Jones and Stokes supply analysis had assumed a Metropolitan replacement, which was shown by DWRSIM runs not to be available. Therefore, if they're to get the water from Metropolitan, they have to be implicitly assuming water transfers, which creates some potential for incremental impacts to the delta. And I called attention to considering those incremental impacts.

Q The ultimate decision of which contracts to sign for water transfers would be the responsibility of the City, would it not?

A The ultimate --

Q To enter into contracts to transfer water?

A I think that would be the purview of Metropolitan rather than the City --

Q Other than the Board, it would be Metropolitan?

A I would think.

MR. CANADAY: Thank you.

HEARING OFFICER DEL PIERO: It's amazing. Truly amazing.

MR. BIRMINGHAM: Mr. Del Piero, may this panel be excused?

HEARING OFFICER DEL PIERO: This panel may be excused, Mr. Birmingham.

0237

Did you have a question, Mr. Brown? You did?

RECROSS EXAMINATION BY THE BOARD

Q BY MR. BROWN: To the panel, we've talked about L.A. Department of Water and Power. Has any discussion been had about the state and the impacts of the rest of the state on water marketing? Was that considered in the analysis? The current shortfall within the state and what's projected to be the shortfall?

A BY DR. WADE: I guess we've been talking about that perhaps in context with the EPA standards and such like that. Water supplies are going down, and demands are going up.

Q Right. That was -- so that was considered in your analysis?

A Not -- no. My analysis was done based on Decision 1630 considerations. Those that are being considered now are more restrictive than Decision 1630.

HEARING OFFICER DEL PIERO: All right. Gentlemen, thank you very much.

Mr. Birmingham, this panel's excused.

Ladies and Gentlemen, when next we meet is December 1st. I think it's safe the assume we will have a night session unless Mr. Canaday tells me there's some reason we can't have a night session on the 1st.

0238

MR. CANADAY: We have anticipated an evening session that night, Sir.

MS. CAHILL: Mr. Del Piero, can I just inquire with regard to the so-called Orange report that we were to be getting from Dr. Hardy?

HEARING OFFICER DEL PIERO: The Orange report. I recall the Orange report now. Mr. Birmingham?

MR. BIRMINGHAM: Dr. Hardy had said he would go back to Utah and mail it to us. I did not receive it on Friday. I have not been in my office yet this week.

HEARING OFFICER DEL PIERO: Really? We share a common interest, Mr. Birmingham.

MR. BIRMINGHAM: So I can't tell you if we have received it. If we have, we will have it duplicated and pass it out on Monday at Mono Basin to the parties on tour, and otherwise, we will have them available on the 1st.

The other reports that Dr. Hardy had referred to during his testimony were purged of work product. Those are supplied to the State Board Staff, and I'm not sure what the status is on the copies.

HEARING OFFICER DEL PIERO: Mr. Birmingham, inasmuch as -- I'm going to assume Dr. Hardy -- Dr. Hardy's Orange report is delivered to you sometime today or tomorrow or Friday. And I'm also going to

0239

assume that you're going to make copies.

For those individuals that are not going to be going on the field trip, if you could make those copies available to Mr. Canaday so that -- the field trip's Tuesday; is that true?

MR. CANADAY: That's correct.

HEARING OFFICER DEL PIERO: Are you working on Tuesday or Wednesday?

MR. CANADAY: Next week? Always.

HEARING OFFICER DEL PIERO: If you could make those copies available to Mr. Canaday, the other parties that may not be on the field trip can avail themselves of Mr. Canaday's assistance, and he'll be happy to provide those copies to you either on Tuesday or Wednesday of next week. That way everybody's had a chance to see them before the 1st.

MR. BIRMINGHAM: One additional matter. Figure 1, the Mylar copy of Figure 1 from Dr. Hennimen's testimony, which Dr. Carson used during his redirect, may we have that marked next in order?

HEARING OFFICER DEL PIERO: Yes. Whatever number is --

MR. SMITH: 85.

HEARING OFFICER DEL PIERO: 85.

(L.A. DWP Exhibit No. 85

0240

was marked for identification.)

MS. GOLDSMITH: We will have reproductions made for the next session which begins at 8:30?

HEARING OFFICER DEL PIERO: We'll begin on the 1st. That's a Wednesday. Wednesday, right? Yeah. We'll begin at 8:30 in the morning.

Ladies and Gentlemen, have a good week and a half off and have a happy holiday.

(Whereupon the proceedings were adjourned at 4:05 p.m.)

---o0o---

0241

REPORTER'S CERTIFICATE

---o0o---

STATE OF CALIFORNIA)
) ss.
COUNTY OF SACRAMENTO)

I, KELSEY DAVENPORT ANGLIN, certify that I was the official court reporter for the proceedings named herein; and that as such reporter, I reported, in verbatim shorthand writing, those proceedings, that I thereafter caused my shorthand writing to be reduced to typewriting, and the pages numbered 1 through 240 herein constitute a complete, true and correct record of the proceedings:

PRESIDING OFFICER: Marc Del Piero
JURISDICTION: State Water Resources Control Board
CAUSE: Mono Lake Diversions
DATE OF PROCEEDINGS: November 17, 1993

IN WITNESS WHEREOF, I have subscribed this certificate at Sacramento, California, on this 23rd day of November 1993.

_____
Kelsey Davenport Anglin, RPR, CM, CSR No. 8553