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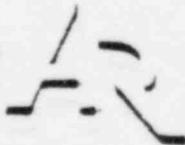
In the Matter of:

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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 In the Matter of: :
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 ARIZONA PUBLIC SERVICE COMPANY, et al. : Docket Nos.
 : 50-528 OL
 (Palo Verde Nuclear Generating Station, : 50-529 OL
 : 50-530 OL
 Units 1, 2 and 3) :
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Courtroom 2, Seventh Floor
 U.S. Courthouse and
 Federal Building
 230 North First Avenue
 Phoenix, Arizona

Friday, April 30, 1982

Evidentiary hearing in the above-entitled
 matter was resumed, pursuant to adjournment, at 9:30 a.m.,

BEFORE:

DR. ROBERT M. LAZO, Esq., Chairman,
 Atomic Safety and Licensing Board

DR. RICHARD F. COLE, Esq. Member

DR. DIXON CALLIHAN, Esq., Member

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1 APPEARANCES:

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C O N T E N T S

		<u>DIRECT</u>	<u>CROSS</u>	<u>REDIRECT</u>	<u>RECROSS</u>	<u>VOIR DIRE</u>
1						
2	<u>WITNESSES</u>					
3	John Schaper					
	By Mr. Gehr	805		827		
4	By Ms. Bernabei		810		828	
5	Robert Steytler					
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10	<u>EXHIBITS</u>		<u>IDENTIFIED</u>		<u>IN EVIDENCE</u>	
11	<u>Joint Applicants'</u>					
12	R		805			809
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P R O C E E D I N G S

9:35 a.m.

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3 JUDGE LAZO: Will the hearing come to order,
4 please. Good morning ladies and gentlemen.

5 Mr. Gehr, are Applicants ready to proceed with
6 their next witness?

7 MR. GEHR: We are ready. I would like to call
8 Mr. John Schaper, please.

9 Whereupon,

10 JOHN SCHAPER

11 was called as a witness, and having been first duly sworn,
12 was examined and testified as follows.

13 MR. GEHR: In explanation, I've asked Mr. Schaper
14 to appear because of the questioning by Dr. Cole, beginning
15 on page 590 of the transcript for the April 28th hearing.

16 (The document referred to was
17 marked for identification as
18 Joint Applicants' Exhibit R.)

DIRECT EXAMINATION

19
20 BY MR. GEHR:

21 Q Would you please state your name and address?

22 A My name is John Schaper. My address is 215 East
23 Lexington Avenue, Phoenix, Arizona.

24 Q And how are you employed, Mr. Schaper?

25 A I am self-employed in the practice of law.

1 Q Are you familiar with the affairs of the Buckeye
2 Irrigation District?

3 A Yes. I have represented the Buckeye Irrigation
4 Company and the Buckeye Water Conservation and Drainage
5 District since 1960.

6 Q Mr. Schaper, would you -- I'll show you a copy of
7 Joint Applicants' Exhibit R, which is a copy of an agreement
8 number 12493. Are you familiar with this document?

9 A Yes, I am.

10 Q What is it?

11 A It is the contract between the Buckeye Irrigation
12 Company and the city of Phoenix, which was entered into on
13 June 1st, 1971, for the delivery of sewage effluent from
14 the 91st Avenue Treatment Plant by the City of Phoenix to
15 the Buckeye Irrigation Company for agricultural irrigation
16 purposes.

17 Q How much effluent is the city obligated to deliver
18 pursuant to that agreement?

19 A The agreement contemplates the delivery of 30
20 thousand acre feet annually in monthly segments of 2500 acre
21 feet each and every month of the year.

22 Q Would Buckeye Irrigation Company be entitled to
23 demand more deliveries in any month than 2500 acre feet?

24 A No. It has always been the understanding that
25 deliveries are made under the contract at constant flow rates,

1 measured at 91st Avenue, so as to produce 2500 acre feet
2 per month.

3 Q Is that so provided in the contract?

4 A It is not specifically provided in the contract.
5 The contract does provide a limitation of 2500 acre feet
6 per month, in paragraph 4, I believe.

7 Q As it's been implemented in the -- as you've
8 indicated, what is the constant flow rate?

9 A The constant flow rate is 41.51 cubic feet per
10 second, which produces approximately 26.8 million gallons
11 per day.

12 Q Those two numbers are equivalent, I take it?

13 A They should be.

14 Q In your limited appearance statement, Mr. Schaper,
15 you indicated that you took -- that Buckeye Irrigation
16 Company used more effluent than that. What is the source
17 of your taking that additional quantity?

18 A Well, there is effluent discharged by the city
19 at 91st Avenue pursuant to an informal understanding with
20 the Arizona Game and Fish Department. That effluent is not
21 used for consumptive purposes, but is used to sustain
22 riparian vegetation between 91st Avenue and the confluence
23 of the Salt and the Gila Rivers. That effluent continues
24 to flow downstream and is diverted into the Buckeye Canal.
25 In addition, there is now and for a number of years, there

1 has been effluent produced at 91st Avenue in excess of the
2 city's commitments to the Arizona Game and Fish Department
3 and to the Buckeye Irrigation Company. That effluent also
4 has flowed downstream in the river and has been diverted and
5 used in the Buckeye Valley, in the Buckeye District.

6 Q Under what right does Buckeye Irrigation Company
7 take that water?

8 A That right is exercised under a decree entered
9 in the Maricopa County Superior Court in 1917, which
10 adjudicated all water rights in the Salt and Gila River
11 systems downstream from what was then known as Joint Head
12 Dam. That's commonly referred to as the Benson-Allison Decree.

13 Q Do you pay the City of Phoenix for this effluent
14 that you take under the decree?

15 A No. We pay the city for the 30,000 acre feet
16 which we receive pursuant to the contract, which commits
17 the city to deliver that water to the river. We do not pay
18 the city or anyone else for the water which is allocated to
19 the Game and Fish Department or for the excess above the
20 37,500 acre feet that is committed by the city.

21 Q Are there other sources of water in the river that
22 you take from the river at the -- that Buckeye Irrigation
23 District takes at its heading?

24 A Yes. Our water supply is derived from a number
25 of sources including natural flows in the Gila and the Salt

1 River, water which we receive from the Salt River Project
2 under a decree entered in a different law suit in 1944.
3 water which we receive as return flow from the Roosevelt
4 Irrigation District, and also ground water.

5 MR. GEHR: I have nothing further of this witness.

6 JUDGE LAZO: Ms. Bernabei.

7 MS. BERNABEI: I have some cross examination
8 which requires one document that's being copied. If we
9 could wait a few minutes, it should be here in just a few
10 minutes.

11 JUDGE LAZO: Very well.

12 MR. GEHR: I'd like to offer Joint Applicants'
13 Exhibit R. I wish to offer and do offer Joint Applicants'
14 Exhibit R.

15 JUDGE LAZO: Are there any objections?

16 MS. BERNABEI: No objection.

17 MR. DEWEY: No objection.

18 JUDGE LAZO: Very well. It may be received.

19 (The document referred to, having
20 been previously marked for
21 identification as Joint
22 Applicants' Exhibit R, was
23 received in evidence.)

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CROSS EXAMINATION

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BY MS. BERNABEI:

Q Good morning, Mr. Schaper. The contract you were just speaking of provides for 30,000 acre feet delivered per year. Is that correct?

A That's correct.

Q Now, the provision specifically you were speaking of was paragraph 4 in that agreement. Is that right?

A That's right.

Q Now, that paragraph says that nothing shall obligate the city to operate the plant so as to deliver effluent in uniform monthly amounts. Is that correct?

A That's correct.

Q However, it does not say that upon request, if the effluent were available, that they would operate at more than the monthly prorata share? In other words, if the Buckeye Irrigation District asked for more for one month and the effluent were available, you would receive it. Is that correct?

A No. The contract does contemplate that we have any right to demand effluent deliveries.

Q No. I understand that. But what I'm saying is that if you needed it for one month, you could ask for it and if the effluent were available, you would receive it.

A No. That's not my understanding of the contract

1 and I don't believe that's what it provides. The contract
2 contemplates that the city will deliver this water into a
3 channel of the Salt River on some land owned by the city at
4 91st Avenue, but it does not contemplate that we can order it
5 or that we have any right to demand delivery at any particular
6 time or that we can call the city and say we want 100 acre
7 feet today or 500 acre feet tomorrow.

8 Q Right. However, is it fair to say that the city
9 could not deny you water or effluent entirely for one month?

10 A So long as the production of the plant were
11 adequate to provide it, yes. In other words, if the
12 production in a given month exceeds 2500 acre feet plus
13 whatever the monthly commitment to Game and Fish, we would
14 be entitled to receive that under the contract prior to any
15 deliveries by the city to anyone else.

16 Q So you're monthly -- if you divide the 30,000
17 acre feet per year by 12, that would be the minimum that
18 you are entitled to under the contract each month?

19 A That would be all we're entitled to under the
20 contract.

21 Q But that would also be a minimum, would it not?

22 A Well, it's both a minimum and a maximum. I say
23 that because at the time the contract was being negotiated,
24 this plant wasn't producing very much effluent, and there
25 was some question at that time as to whether it would produce

1 2500 acre feet a month.

2 Q I understand that; but in terms of how the
3 contract is written and assuming there's enough effluent
4 to cover the monthly amount, the minimum amount in this
5 contract is 30 acre feet per year divided by 12.

6 A Thirty -- well, the minimum and maximum amount
7 in the contract assuming adequate production is 2500 acre
8 feet per month.

9 Q Now, if there came a year when there was more
10 effluent available during a particular month, and the
11 Buckeye Irrigation District needed it for some reason, you
12 would be provided that effluent, would you not, above the
13 monthly prorata share?

14 A Not under the terms of the contract, no. We
15 would not be provided it and we would not pay for it.

16 Q What I'm asking you, is there a possibility
17 under the contract that you could ask for it and receive it?

18 A No, not under the contract.

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1 Q Now, I believe you're talking about the
2 way the dealings have evolved over the years, you're
3 not talking, about any particular words in the contract
4 are you?

5 A No, I'm talking about the understanding
6 of the contract which is that the city has a commitment
7 to us for 30,000 acre feet per year delivered in segments
8 or increments of 2,500 acre feet per month and that
9 is the only commitment and the only contract we have
10 with the city. Whatever we get over and above that
11 is free.

12 Q Now, this contract is it not is in part
13 a settlement of a suit the Buckeye Irrigation District
14 brought against the City of Phoenix?

15 A That's correct.

16 Q And part of the consideration the Buckeye
17 Irrigation District gave in this contract an agreement
18 not to pursue a suit against the city of Phoenix?

19 A Yes, the contract contains a covenant not
20 to prosecute a suit which was filed I believe in 1952
21 and consistent with that covenant that suit has been
22 dismissed without prejudice.

23 Q Without prejudice.

24 A That's correct.

25 Q And that means that you could reinstitute

1 that if warranted?

2 A Well, it means so long as the contract remains
3 in effect and the parties abide by the contract, the
4 suit will not be prosecuted.

5 Q But it means also that if the parties do
6 not agree by the contract and for some reason it is
7 breached, you could go back into court and sue them
8 asgain on the same grounds?

9 A I assume so. That's what dismissals without
10 prejudice are all about, I think.

11 Q Right, and the problem why Buckeye Irrigation
12 District brought the suit was that it was -- it felt
13 it was being deprived of water because Phoenix was trapping
14 water behind the gates of the Horseshoe Dam, is that
15 right?

16 MR. DEWEY: Objection, Your Honor. I don't
17 see any reason to go into the basis for hypothetical
18 speculative type of lawsuit that probably will never
19 be brought and this Court does not need to waste its
20 time on this.

21 MS. BERNABEI: The lawsuit has already been
22 brought. I'm trying to get behind the basis for this
23 lawsuit because I think it has to do with the availability
24 of water between the parties and I believe what counsel
25 is trying to show is that there is really no problems

1 in terms of the availability and the struggle over water
2 between the Buckeye Irrigation District and the Applicants
3 in this case and I think it's been a longstanding problem.

4 JUDGE LAZO: Very well, we'll overrule the
5 objection.

6 MR. GEHR: May I --

7 MS. BERNABEI: Okay, Mr. Schaper -- I believe
8 it's been overruled Mr. Gehr.

9 MR. GEHR: Well, I have the right to make
10 an objection, too.

11 Can we have the question again?

12 MS. BERNABEI: This agreement, am I not
13 correct, was a settlement of a lawsuit by the Buckeye
14 Irrigation District against the City of Phoenix for
15 what it felt was a deprivation of certain waters going
16 to Phoenix through the placing of gates in the Horseshoe
17 Dam?

18 WITNESS SCHAPER: Do you want me to explain
19 the lawsuit?

20 BY MS. BERNABEI:

21 Q No, I want you to answer my question, sir.

22 A I can't answer your question without explaining
23 the lawsuit.

24 Q Okay, why don't you explain the lawsuit.

25 A When the City of Phoenix and the Salt River

1 Valley water users association applied to the Arizona
2 State Land Department for a permit to store water behind
3 the flood gates to be constructed at Horseshoe Dam and
4 this occurred in the 1940's, the Buckeye Irrigation
5 Company as a downstream appropriator with prior appropriative
6 rights objected to the issuance of that permit and the
7 permit was issued with a stipulation that those gates
8 would not be closed until certain waters had been allowed
9 to pass Horseshoe Dam and I don't recall the exact quantities
10 and I can't at this moment tell you what all of the
11 limitations of the permit were.

12 In 1952 when there were flows and in 1951
13 when there were flows in the Verde River, the gates
14 at Horseshoe Dam were closed and water was stored for
15 the benefit of the City of Phoenix in a manner which
16 the Buckeye Irrigation Company considered to be inconsistent
17 with the limitations of that permit.

18 That suit was then brought to enjoin both
19 the City of Phoenix and the Salt River Valley Water
20 Users Association from operating the gates at Horseshoe
21 Dam in any manner other than as provided by the permit
22 which had been issued by the State Land Department.

23 That suit was not litigated. It dragged on. It was
24 in an inactive state when this contract was executed
25 and part of the consideration of the contract was that

1 went into operation. isn't that right?

2 A I believe so, I can't really testify to
3 that.

4 Q Now, there was a time prior to the present
5 time when the Buckeye Irrigation District received more
6 effluent from the 91st Avenue Treatment Plant, isn't
7 that correct? More than 30 acre feet per year?

8 MR. GEHR: 30,000.

9 JUDGE COLE: You mean 30,000.

10 BY MS. BERNABEI:

11 Q Well, 30,000 acre feet per year?

12 A The answer to that question is yes because
13 the plant's capacity has regularly increased over the
14 years and all of that effluent has been discharged to
15 the river and has been diverted and used in the Buckeye
16 Valley.

17 Q And in fact, even during some of the years
18 this contract was in effect, the Buckeye Irrigation
19 District received more than the 30,000 allotted it under
20 the contract?

21 A 30,000 acre feet.

22 Q 30,000 acre feet, right.

23 A To the best of my knowledge, since the contract
24 was executed there has always been more water put in
25 the river at 91st Avenue than the 30,000 acre feet allocated

1 to Buckeye and the 7500 allocated to game and fish.

2 Q And in fact the Buckeye Irrigation District
3 has received if I'm not wrong, up to 70,000 acre feet
4 per year from the 91st Avenue Treatment Plant? It has
5 used, physically used that amount?

6 A I can't off the top of my head verify that
7 figure. I can probably look here some place and give
8 you an exact figure if you want it. I won't quarrel
9 with it.

10 Q But does that sound about right?

11 A I won't quarrel with it. I'm not sure it
12 has been that high. My recollection is that it is in
13 the neighborhood of 60 to 65,000.

14 Q But in otherwords, during some periods in
15 which this contract was in effect, there has been a
16 use, over twice the amount that is required under the
17 contract.

18 A Oh sure.

19 Q So in otherwords, its fair to say that the
20 Buckeye Irrigation District can use more effluent whether
21 or not it is entitled to it under the contract?

22 A That is a debatable question, because of
23 problems of water logging and drainage which are caused
24 by the application of that much water in the Buckeye
25 Valley.

1 Q But it is true that in the past it has used
2 up to twice this amount and I assume used it fruitfully?

3 A Yes, that is true in the past but if you
4 take into account water balance problems involving rising
5 groundwater tables there are limitations upon the amount
6 of surface water which you can apply in the Buckeye
7 Valley.

8 Q And what you're saying is that there's going
9 to be a need to use more groundwater?

10 A Well, there is a continuing need in the
11 Buckeye Valley to maintain a balance between surface
12 water and groundwater use in order to prevent the water
13 logging of lands and I don't know if you know what water
14 logging is, but basically if you put water on ground
15 it causes a rising groundwater table if you don't pump
16 it out and eventually the land becomes unproductive.

17 Q But isn't there also a problem in Buckeye
18 that the groundwater is a very bad quality and isn't
19 that a continuing problem in the last 10, 15 years?

20 A Generally groundwater in the Buckeye Valley
21 is of poor quality, particularly drainage water.

22 Q And that means, does it not that you --
23 Buckeye Irrigation District would like to use more surface
24 water because of the very poor quality of the groundwater?

25 A The answer to that is that generally surface

1 water is more desirable than groundwater because of
2 the lower salinity levels.

3 Q Right, but isn't there a particular problem
4 in the Buckeye Irrigation District different, not different
5 than but of a greater magnitude than the rest of the
6 Valley in terms of the quality? In otherwords, isn't
7 the Buckeye Irrigation District water worse than the
8 groundwater from some of the other areas?

9 A I'm not really sure I can answer that question
10 because my knowledge on this subject is pretty much
11 confined to water quality in the Buckeye Valley and
12 I'm not sure that I can say it's that much better than
13 it is in the Roosevelt Irrigation District or MWCD or
14 the RID or someplace else.

15 Q Well, do you not know that there was a suggest-
16 tion in 1977 and '78 by certain members of the Army
17 Corps of Engineers that the Applicants could use the
18 Buckeye Irrigation District groundwater instead of effluent
19 for use at Palo Verde?

20 A Yes, I'm aware of that suggestion.

21 Q And isn't that suggestion in part, because
22 the Buckeye Irrigation District groundwaters have such
23 poor quality that it would be useful to use it at a
24 power plant?

25 A Ms. Bernabei, I have absolutely no idea

1 why the Corps of Engineers came up with that scheme.

2 It was something that we felt was totally incomprehensible
3 that that water could be made available. We opposed
4 it and it never came to fruition.

5 Q But it was an idea back in '77 and '78,
6 right, of the Army Corps of Engineers?

7 A There have been lots of people who have
8 ideas of how they want to use water that we're entitled
9 to.

10 Q What I'm trying to establish is, in the
11 past the Buckeye Irrigation District has used more than
12 twice the amount of effluent that is currently allocated
13 under this contract?

14 A That is true.

15 Q And I assume if possible it would contract
16 for or use more than the 30,000 that is now available
17 to it under the contract?

18 A We would certainly anticipate that and if
19 such a contract could be entered into, we would certainly
20 give it consideration.

21 MS. BERNABEI: Okay, thank you.

22 JUDGE LAZO: Mr. Dewey?

23 MR. DEWEY: No questions.

24 JUDGE CALLIHAN: I have just one very minor
25 question. I think in your statement and certainly in

1 the contract, there's reference to the gates at Horseshoe.
2 I don't see it at the moment, but you recognize what
3 I'm speaking of?

4 WITNESS SCHAPER: I don't recall anything
5 I said in my limited appearance about the operation
6 of the gates at Horseshoe Dam. I may have.

7 JUDGE CALLIHAN: Well, in the first paragraph,
8 really, second paragraph of the contract, it says a
9 dispute has existed and now exists between the city
10 and Buckeye with respect to the operation of the flood
11 gates at Horseshoe Dam?

12 WITNESS SCHAPER: That's correct.

13 JUDGE CALLIHAN: Now, yesterday we heard
14 of gates put above the spillway at Horseshoe Dam and
15 that led to gate water and so forth. Are these the
16 same gates?

17 WITNESS SCHAPER: That's what we're talking
18 about. We're talking about water which was developed
19 and stored in Horseshoe Dam above the original spillway
20 level as a result of the installation of gates paid
21 for by the City of Phoenix.

22 JUDGE CALLIHAN: And that's Phoenix water?

23 WITNESS SCHAPER: And that's the gate water
24 that Mr. Juetten I believe testified about yesterday
25 that was available for city use.

1 JUDGE COLE: Thank you. Mr. Schaper, I think
2 you have answered my principal question about the time
3 distribution of the 30,000 acre-feet. How is that effluent
4 delivered to Buckeye.

5 WITNESS SCHAPER: Well, as I indicated in my
6 limited statement, that effluent -- as a matter of fact, all
7 effluent from the 91st Avenue Plant is now discharged into
8 the Salt River at 91st Avenue on property which the City of
9 Phoenix owns in the riverbed. The contract contemplates that
10 the City assumes no responsibility for it after that point
11 as far as our interests are concerned. It is our
12 responsibility to do whatever is necessary to ensure the
13 delivery of that effluent at a point six miles downstream.
14 It travels by gravity flow in the natural bed of the Salt
15 River, into the Gila River, and in the natural bed of the
16 Gila River to the diversion dam of the Buckeye Canal on the
17 Gila River.

18 JUDGE COLE: So you are guaranteed 37,500 acre-
19 feet per year by virtue of the contract that you have, and
20 after it satisfies the, the effluent after it satisfies the
21 requirement of the Arizona Fish and Game, that is your water.

22 WITNESS SCHAPER: That is the delivery at 91st
23 Avenue, and of course there are losses by evapo-transpiration
24 during the movement of that water in that reach of the river.

25 JUDGE COLE: I understand, sir. You indicated

T3,2 1 in your earlier testimony today that you had several sources
2 of water. You indicated the Salt River Project water, and
3 some from the Roosevelt Irrigation District, or Roosevelt
4 Dam.

5 Do you have an estimate of the average total
6 monthly use of water by the Buckeye Irrigation District?

7 WITNESS SCHAPER: I not only have an estimate.
8 I have an accurate breakdown of it for many years. Those
9 records are kept very meticulously.

10 JUDGE COLE: I suspected that you might have that,
11 so could you give me an estimate of that?

12 WITNESS SCHAPER: Um --

13 JUDGE COLE: Let me tell you why I am asking. I
14 don't need an exact figure, but if at some time in the future
15 there will be less -- there is a probability that less water
16 will be discharged into the canal from the treatment plant
17 for your use, and what would the impact on your operations be,
18 and what your total water use is, compared to any differences
19 there, would indicate any magnitude of a problem.

20 WITNESS SCHAPER: We have had a specific study
21 made of that, as I indicated, through 1983, on a month by
22 month basis, assuming continuing cropping patterns and
23 consumptive use to be the same as they have been during the
24 last five years. That is a rather lengthy report. It is
25 rather detailed. It is not a private document. It is public.

1 It is available. I would be glad to make it available to the
2 Board or to Mr. Gehr, if you wish to have me do so. If you
3 want me to go through it here in detail, I can't.

4 JUDGE COLE: I don't think I need that level of
5 detail, sir. I guess what I was interested in is a statement
6 from you that would indicate whether the proposed scheme for
7 the operation of the water resources in the valley, including
8 the Palo Verde plant, would create problems for the Buckeye
9 Irrigation District, and do you perceive any problems?

10 WITNESS SCHAPER: Well, if I can, let me refer to
11 1987, because that is from our standpoint the most critical
12 year.

13 JUDGE COLE: All right, sir.

14 WITNESS SCHAPER: We anticipate in 1987 that we
15 will require 110,000 acre-feet for distribution. We expect
16 to receive 30,000 of that under our contract with the City of
17 Phoenix. We expect to receive approximately 14,400 under our
18 commitments from the Salt River Project. We expect to obtain
19 approximately 95,000 from wells. We think that there will be
20 an additional 26,000 acre-feet available from the Gila River,
21 and that out of that we will lose approximately 56,000 acre-
22 feet, and we will have an adequate supply.

23 The reason that there are discrepancies is because
24 there is substantial water taken into the system in the winter
25 and it is not delivered, because there is no demand for

1 irrigation water during the winter months, or a very limited
2 demand.

3 JUDGE COLE: 56,000 acre-feet lost. How would
4 you lose these acre-feet, sir?

5 WITNESS SCHAPER: Well, you take it into the
6 system, and there is no demand for it. There are no
7 deliveries to farmers, it goes out the drainage system, and
8 is returned to the river.

9 JUDGE COLE: So that is a time of use problem?

10 WITNESS SCHAPER: Primarily.

11 JUDGE COLE: All right, sir.

12 WITNESS SCHAPER: There are natural losses
13 because of the nature of the distribution system, seepage,
14 evaporation.

15 JUDGE COLE: I think you have satisfied my
16 questions, sir. Thank you very much.

17 MR. GEHR: One question?

18 JUDGE LAZO: Dr. Cole asked my questions, so Mr.
19 Gehr, do you have some redirect?

20 REDIRECT EXAMINATION

21 BY MR. GEHR:

22 Q If the City were to breach the contract, the
23 Buckeye Irrigation District would not be limited in its
24 remedy just to refileing its lawsuit, is that correct?

25 A No, I would assume that we would have any remedies

1 available for breach of contract, including claims for
2 damages, or specific performance, or remedies to enforce the
3 limitations of the permit at horseshoe. There may be some
4 others, but they don't come to mind right away.

5 MR. GEHR: No further questions.

6 MS. BERNABEI: I have a few.

7 JUDGE LAZO: Please proceed.

8 RE CROSS EXAMINATION

9 BY MS. BERNABEI:

10 Q Okay, you testified that the water currently, or
11 the effluent currently comes to the Buckeye Irrigation
12 District through the canal.

13 A Yes, the water is diverted from the Gila River
14 by a diversion dam and dike. There is no storage capacity,
15 and it is a direct flow diversion into the canal.

16 Q And how does it get to the Gila River from the
17 plant, the 91st Avenue treatment plant?

18 A Well, the confluence of the Salt and the Gila
19 River is located about two or three miles downstream from the
20 plant.

21 Q And how does it physically get there from the
22 plant? Does it come down the river?

23 A Water runs downhill.

24 Q Okay, now, is this -- will this change if and when
25 the Applicants build a pipeline to Palo Verde? In other words

T3,6

1 will the way you, the Buckeye Irrigation District, gets its
2 water change?

3 A We have entered into an agreement with Arizona
4 Public Service Company, which would permit us to take our
5 allocation of effluent through the ANPP pipeline to what is
6 known as the Buckeye turnout, which is a structure which would
7 permit that water to be discharged directly into the
8 Buckeye canal from the pipeline.

9 Q So in other words, once the pipeline, the APS
10 pipeline, is built, you would be taking your water from a
11 turnout, from that pipeline, right?

12 A That is what has been contemplated. That
13 arrangement has not been finalized with the City of Phoenix.

14 Q With APS?

15 A No, with Buckeye. We have not --

16 Q Yet signed a contract?

17 A -- had an amendment of our contract to change the
18 point of delivery.

19 Q And at what distance from the treatment plant
20 would that turnout be, the turnout at which the Buckeye
21 Irrigation District got its water?

22 A I really can't answer that question. Seven, eight
23 miles, perhaps?

24 Q Mr. Von Brunt has testified that it is seven or
25 eight miles in the deposition, so that is probably right. How

1 would the amount of water that the Buckeye Irrigation District
2 receives be monitored, once the pipeline goes into effect,
3 if it does?

4 A If that water is delivered through the pipeline,
5 it will be metered at the Buckeye turnout, and it will be
6 delivered through a valve which will be set to establish a
7 constant flow of approximately 41 and a half cubic feet per
8 second.

9 Q And who will monitor that turnout, or that flow?

10 A That has not been specifically agreed, but in all
11 discussions it will be monitored by the manager of the
12 Buckeye Irrigation Company, by someone from Arizona Public
13 Service Company, and by someone from the City of Phoenix.

14 Q And how do you envision that monitoring taking
15 place, on a monthly basis, a weekly basis?

16 A Well, the valves will have a continuous recording
17 meter, and the valve is designed to operate in such a way
18 that it is self-regulating, and will provide the flow for
19 which it is set.

20 Q And who will check to make sure that that flow
21 is correct, and on what --

22 A All of the parties I have mentioned. It is
23 contemplated that both the Buckeye Irrigation Company
24 manager, and a representative of Arizona Public Service
25 Company will have access to that meter, and check it

1 periodically.

2 Q And when you say periodically, you mean once a
3 week, once a month?

4 A I don't know that we have gotten that specific
5 in the discussions.

6 Q But what would you envision?

7 A I would imagine we would check it once a day.

8 Q Once a day, to make sure you were getting the
9 flow correctly?

10 A Well, to make sure that it is working properly,
11 and that it is not providing too much or too little, because
12 we have to know on a daily basis what our supply is, so that
13 we can meet orders from farmers.

14 Q Now, there have been water quality problems at
15 the 91st Avenue treatment plant in the last, say, five years,
16 is that correct?

17 A That is my understanding.

18 Q And in fact the plant was shut down for about
19 eight days during one period of time, is that right?

20 A I don't have any recollection of that. It is
21 possible.

22 Q And what was the quality problem with the water,
23 if you know?

24 A That I cannot answer. I really do not know
25 that much about waste water treatment or what specific

1 problems existed in the operation of the plant.

2 Q And in the case there is a problem such as that,
3 and the plant is shut down, what happens to the Buckeye
4 Irrigation District?

5 MR. GEHR: Objection. I don't understand the
6 purpose of the cross-examination, and it is certainly getting
7 far afield from the direct examination, and I think it is
8 time to get on with the other matters.

9 MS. BERNABEI: I think it is very important how
10 this water goes to Palo Verde, and what connections it has
11 with other water systems.

12 MR. GEHR: It has nothing to do with this
13 witness's testimony.

14 MS. BERNABEI: I believe he has testified there
15 is a pipeline, that Buckeye Irrigation District enters into
16 that pipeline, or there will be a pipeline, and that the
17 monitoring and the connection between the two is important,
18 in the problems with quality failure, and in times of proper
19 water quality.

20 JUDGE LAZO: Your question is getting rather
21 far afield from the direct testimony.

22 BY MS. BERNABEI:

23 Q Okay, I have one other question for you.

24 You are familiar with the MAG 208 studies, is
25 that correct?

1 A Generally.

2 MR. DEWEY: Objection, Your Honor. This is -- she
3 is only entitled to ask questions about what the Board was
4 asking questions on.

5 MS. BERNABEI: Well, this will go to the contract
6 with Phoenix. That is where the cross-examination is leading.

7 JUDGE LAZO: Well, we thought you had completed
8 your cross-examination. The purpose for opening it up again
9 was to give you an opportunity to ask any questions regarding
10 answers that he gave to Board questions, so try and keep it
11 within the scope of that.

12 MS. BERNABEI: Well, I just have one more series
13 of questions. It shouldn't take too long.

14 JUDGE LAZO: Relating to what, ma'am.

15 MS. BERNABEI: To the contract.

16 JUDGE LAZO: Very well.

17 BY MS. BERNABEI:

18 Q Now, you are familiar with the 208 plans?

19 A Yes, I am generally familiar with the 208 plan.

20 Q And there came a time when you made comments in
21 the original stages of the 208, is that correct?

22 A I am sure I have. I have made a lot of comments
23 about it over the years.

24 Q And do you remember when you made the comments on
25 the original 208 plan, the 1979 one, that you mentioned there,

1 you commented on a draft of the 1979, and said that you wanted
2 to make sure there was an understanding that Phoenix had
3 control over the effluent, is that right?

4 A I would have to go back and look at whatever those
5 comments were. I don't have independent recollection of
6 what my specific statements were in that regard.

7 MS. BERNABEI: May I introduce an exhibit at
8 this point? I don't want to tax this Board, but I think it
9 is important for -- I don't want to tax you, but I do have
10 an Exhibit.

11 JUDGE LAZO: You wish to introduce the Exhibit,
12 yes.

13 MR. GEHR: Is it proper to ask when this is going
14 to be tied to the contract?

15 MS. BERNABEI: Pretty soon. Are we on Exhibit VII
16 or VIII? I am not quite sure.

17 JUDGE LAZO: I believe it is VIII.

18 MS. BERNABEI: VIII.

19 JUDGE LAZO: There is a VII.

20 MR. DEWEY: May the Counsel for the other parties
21 see the Exhibit before you give it to the witness?

22 MS. BERNABEI: I am afraid I don't have copies.

23 MR. DEWEY: Well, we should look at it before you
24 give it to the witness anyway.

25 MS. BERNABEI: Okay, no problem. If we give him

T3.12 1 a chance to read it, I will certainly give other Counsel a
2 chance to read it.

3 MR. GEHR: What is it?

4 BY MS. BERNABEI:

5 Q Have you had a chance to read the portion I --

6 A Yes.

7 Q -- pointed out to you?

8 A Right.

9 Q And in that comment, you note that you believe
10 the question of ownership of effluent has never been settled
11 by judicial decree, is that correct?

12 A To the best of my knowledge, there has never
13 been an opinion from an appellate court in Arizona
14 establishing that.

15 MR. GEHR: Objection.

16 WITNESS SCHAPER: Or dealing with that issue.

17 MR. GEHR: Objection.

18 JUDGE LAZO: What is the objection?

19 MR. GEHR: I thought we had decided we were not
20 getting into the questions of validities of contracts.

21 MS. BERNABEI: Well, we are talking about this
22 particular contract, and the interpretation of the contract.

23 JUDGE LAZO: The Buckeye Irrigation contract?

24 MS. BERNABEI: Yes, we are.

25 MR. GEHR: Does it matter?

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1 MS. BERNABEI: I think it matters --

2 MR. GEHR: The parties to the contract have been
3 implementing it for a good many years.

4 MS. BERNABEI: And the question is whether they
5 can go on implementing it, as --

6 MR. GEHR: Those are the only parties who are
7 interested in that, in the validity of that contract.

8 MS. BERNABEI: Part of the problem is that whether
9 or not contracts such as this can be implemented depend on a
10 great deal of factors, and one of that is who -- the ownership
11 of the effluent, and Mr. Schaper here has been concerned
12 about it, concerned enough to write comments on the MAG 208
13 study, and I believe part of the reason he is concerned is
14 because he has a contract for effluent that says the City of
15 Phoenix owns it.

16 JUDGE LAZO: Let us overrule the objection, and
17 get on.

18 BY MS. BERNABEI:

19 Q Mr. Schaper, you express your opinion in those
20 comments, do you not, that the City of Phoenix, or the
21 municipalities, own the effluent, because they add value to
22 it, because they put their own resources into the water?

23 A I would say that my comments, which appear in my
24 memorandum submitted to the 208 plan, are what my comments
25 would be today. My opinions have not changed from what they

1 are as expressed in that memorandum.

2 Q And your opinion is that the effluent is owned
3 by the City of Phoenix?

4 A No, that is not what I said, and that is not what
5 I have expressed in this --

6 Q And what did you express in that memorandum?

7 A It has always been my opinion that the ownership
8 of waste water within a municipal sewage system is uncertain.
9 It is generally considered in this jurisdiction that no one
10 technically owns water, but that people can acquire a right
11 to apply water to beneficial use, and thereby have certain
12 limited property rights in water, and in the use of water,
13 but water is regarded as a natural resource, and it is not
14 something that you can acquire a quote "title" to in the sense
15 that we generally think of ownership.

16 Q So in other words, when you speak of beneficial
17 rights, you are talking about the right to make certain uses,
18 for instance, to sell the water?

19 A Well --

20 MR. DEWEY: Objection, Your Honor. This goes to
21 the very thing that we talked about in the Pima-Maricopa suit.
22 We are talking about property rights of water and disputes as
23 to who owns it. She is just trying to get this through the
24 back door once again.

25 MS. BERNABEI: I am trying to show that --

1 MR. DEWEY: And this -- and there are -- once
2 again, I will say, this goes back to the Kent decree, it goes
3 back to all these lawsuits and all these cases, and to embroil
4 ourselves in all these little -- every single type of water
5 right dispute and to try to say that somebody doesn't have a
6 right to do this with the water, and somebody doesn't have a
7 right to do that with the water, I think that this is the same
8 subject matter that we were talking about for the Pima-
9 Maricopa Indian suit.

10 MS. BERNABEI: I think --

11 MR. DEWEY: And the Board has already
12 indicated this is not a permissible area.

13 MS. BERNABEI: I think when you --

14 JUDGE LAZO: No, I think it is somewhat -- it is
15 somewhat different. This contract between the City of
16 Phoenix and Buckeye Irrigation Companies is the subject of
17 this examination, and we are going to permit the cross-
18 examination.

19 BY MS. BERNABEI:

20 Q Mr. Schaper, you testified in your mind there is
21 a difference between ownership rights and beneficial rights
22 in water, is that right?

23 A As I indicated in this memorandum that I prepared
24 and is part of the 208 plan, there is in the minds of most
25 lawyers a distinction between outright ownership of something

1 and a right to use something, and I stated in the memorandum
2 that the quote "ownership", unquote, of waste water has never
3 been resolved by judicial determination in this jurisdiction,
4 but it has generally been assumed that a municipality has a
5 right to dispose of waste water as an incident to the
6 operation of a sewage treatment plant.

7 Q And that would be important to your client, the
8 Buckeye Irrigation District, would it not, because it has a
9 contract to buy effluent from the City of Phoenix?

10 A We have a contract under which we pay the City
11 of Phoenix a certain amount in return for the city's agreement
12 to return effluent to the natural channel of the Salt River,
13 where in my opinion, it then becomes subject to rights of
14 prior appropriation for downstream users.

15 Q But Phoenix's right to return that effluent to the
16 river where you can take -- use your appropriative rights, is
17 important to you, is it not?

18 A Sure is.

19 Q Because otherwise someone else could take claim
20 over that effluent, and the Buckeye Irrigation District
21 wouldn't get it.

22 A No, I would not agree with that, once the effluent
23 is returned to the river.

24 Q I am talking about before that. I am talking
25 about whether or not Phoenix has the right to return it to the

1 river so that you can take control over it, is important,
2 whether or not Phoenix has the right to do that.

3 A I am not sure I understand your question. Are
4 you asking me whether or not a city has a right to --

5 Q No, I am asking you whether or not it isn't
6 important that Phoenix be deemed to have a right to return
7 that water, effluent, to the river so that you, the Buckeye
8 Irrigation District, can take control over it for your use?

9 A Well, to me it is important that they have the
10 obligation to return it under the contract.

11 Q But now we are talking about something different.
12 If they didn't have some rights to the water, whether or not
13 we are talking about beneficial use rights or ownership,
14 whether they didn't have even a minimum use right to it, they
15 couldn't contract with you to sell it to you, is that right?

16 A No, that is not what I said, and that is not my
17 opinion. What I said was that it is my opinion that any
18 municipality in the operation of a waste water treatment
19 facility has a right to dispose of byproducts from that
20 facility, including water.

21 Q And if that were in dispute, that would have some
22 effect on your contract, the contract we are talking about,
23 of the Buckeye Irrigation District into the City of Phoenix,
24 if your opinion were said by a court of law or were deemed to
25 be not valid, isn't that right?

1 A Well, this whole subject was litigated in 1967
2 with the City of Phoenix and the Salt River Project, and that
3 question has been resolved as far as I am concerned.

4 Q Hasn't it only been resolved between those two
5 parties, that is, the Salt River Project and the City of
6 Phoenix?

7 A I cannot conceive of any other parties who might
8 have a right to litigate the issue with respect to 91st
9 Avenue.

10 Q Well, we are also talking about claims of the
11 Indians, which I know this Board has prior -- I mean, the suit
12 that you are speaking about was a suit brought by the Salt
13 River Project against the City of Phoenix, is that not right?

14 A That is right, and the Buckeye Irrigation Company
15 was an Intervenor in that suit.

16 Q And that was in what year?

17 A 1967, I believe.

18 Q And that suit was dismissed with prejudice, is
19 that not right?

20 MR. GEHR: Objection.

21 BY MS. BERNABEI:

22 Q But that establishes, I mean, you are an attorney,
23 that establishes --

24 JUDGE LAZO: Ms. Bernabei, you are really getting
25 very far afield, and into the area that we had decided was not

1 going to be gone into in this proceeding. You are also
2 getting rather argumentative with the witness.

3 MS. BERNABEI: Well, I guess there are two
4 lawyers. I think that is the problem.

5 JUDGE LAZO: It may be the witness is getting
6 argumentative.

7 MS. BERNABEI: Let me just ask one question which
8 is restricted to this contract.

9 BY MS. BERNABEI:

10 Q If it were deemed that Phoenix or a municipality,
11 municipalities in general, did not have certain rights to
12 dispose of effluent, that could affect your contract with
13 the City of Phoenix, is that not right?

14 MR. GEHR: Objection. There is no basis for this
15 hypothetical question.

16 MS. BERNABEI: I believe he has testified that
17 there has been no judicial decree determining the matter,
18 and that his opinion is something, but I think he is -- the
19 implication is there may be another opinion on the matter.

20 WITNESS SCHAPER: I think you misunderstood my
21 testimony.

22 JUDGE LAZO: You may answer. Well, you have
23 answered.

24 WITNESS SCHAPER: What I said, was first, there
25 has never been an opinion from an appellate court in this

1 jurisdiction which would be precedent, dealing with the
2 question of the rights of municipalities regarding the
3 ownership of effluent. There are opinions from other
4 jurisdictions.

5 BY MS. BERNABEI:

6 Q What I asked you, is regardless of judicial
7 decrees, if it were -- if it were -- there is a possibility,
8 as I understand your testimony, that it could be deemed
9 that the municipalities would not have certain disposal
10 rights, use rights over the effluent, and if that were deemed
11 by a court of law that such a decree would affect your
12 contract with the City of Phoenix --

13 MR. GEHR: Objection. This is too speculative.

14 MR. DEWEY: She is arguing with the witness.

15 MS. BERNABEI: I don't believe he has answered
16 the question.

17 JUDGE LAZO: Well, I don't believe he is --

18 WITNESS SCHAPER: I can't answer the question,
19 because I don't know what is meant by "if it is deemed."

20 BY MS. BERNABEI:

21 Q By a court of law.

22 JUDGE LAZO: No, we are going to sustain the
23 objection. Don't --

24 MS. BERNABEI: Okay, fine. Thank you.

25 JUDGE LAZO: Mr. Gehr, do you have any further

1 questions?

2 MR. GEHR: No questions.

3 JUDGE LAZO: Mr. Dewey?

4 MR. DEWEY: No questions of the witness.

5 JUDGE LAZO: Very well. Thank you, Mr. Schaper.

6 MS. BERNABEI: Mr. Chairman, subject to my
7 making copies, I would like to move these comments into
8 evidence.

9 JUDGE LAZO: Your Exhibit VIII?

10 MS. BERNABEI: That is correct.

11 MR. GEHR: I never saw these.

12 MS. BERNABEI: I believe you have a copy, don't
13 you? Someone just brought you a copy.

14 MR. DEWEY: Your Honor, I have to -- to postpone
15 this motion until I can look at this document during the
16 recess. I haven't had a chance to see it, read it, and
17 understand it.

18 MS. BERNABEI: I do apologize for not giving
19 copies to opposing Counsel. There is a production problem.
20 We did turn it over to Mr. Gehr during our production of
21 documents. He is aware of the document.

22 JUDGE LAZO: Well, bring it to our attention
23 again after all parties have had an opportunity to look at
24 it.

25 MS. BERNABEI: Sure.

1 JUDGE LAZO: Mr. Gehr, are you ready to proceed?

2 MR. GEHR: Yes, sir. I would like to call Mr.
3 Robert Steytler to the stand.

4 Whereupon,

5 ROBERT B. STEYTLER

6 was called to the witness stand and, having been first duly
7 sworn, was examined and testified as follows:

8 DIRECT EXAMINATION

9 BY MR. GEHR:

10 Q Would you please state your name and address?

11 A My name is Robert Steytler. The address is
12 125 East Washington.

13 Q By whom are you employed?

14 JUDGE LAZO: Would you spell your name for the
15 reporter, please?

16 WITNESS STEYTLER: Sure. Steytler is S-t-e-y-t-l-
17 e-r..

18 BY MR. GEHR:

19 Q By whom are you employed, Mr. Steytler?

20 A I am employed by the City of Phoenix, I am the
21 assistant director of the water and sewer department for the
22 city. My basic responsibilities are in waste water.

23 Q I beg your pardon?

24 A My basic responsibilities are with the waste
25 water section of the Water and Sewer Department.

1 Q As distinguished from the water treatment for use
2 by the residents of the city?

3 A That is true.

4 Q How long have you held that position?

5 A I was employed in December of 1976.

6 Q What is the current nominal capacity of the 91st
7 Avenue sewage treatment plant?

8 MS. BERNABEI: Objection to the form of the
9 question. The word "nominal?" I believe you can ask him
10 what the capacity is.

11 MR. GEHR: Let us see if the witness can answer
12 the question.

13 MS. BERNABEI: It is a characterization of the
14 capacity.

15 JUDGE LAZO: Well, you can attend to that in
16 cross-examination.

17 WITNESS STEYTLER: The design capacity of the
18 91st Avenue Plant is 90 million gallons a day. It has
19 treated successfully up to 120 million gallons a day.

20 BY MR. GEHR:

21 Q And what is the design capacity of the 23rd
22 Avenue plant?

23 A The 23rd Avenue capacity, by design, is 40
24 million gallons a day, and it has treated 40 million gallons
25 per day, successfully.

1 Q Is the capacity of the 91st Avenue plant
2 currently being expanded, and if so, to what extent?

3 A Yes, sir. We are currently into a 30 million
4 gallon a day expansion of the plant, which will bring the
5 capacity up to -- the design capacity up to 120 million
6 gallons per day.

7 Q What is the status of the construction of that
8 expansion?

9 A The construction is going very well. We would
10 hope this summer to have the liquid stream on. We would hope
11 that the total construction, including the landscaping and
12 roadwork, would be done possibly by the end of 1983.

13 Q Will it become partially operative at some point
14 before that?

15 A Yes, we hope the liquid stream will be operative
16 this summer.

17 Q Does the City of Phoenix have any plans for
18 further expansions of the 91st Avenue plant?

19 A Yes, sir. We have hired a consultant for the
20 next expansion. They are now doing a feasibility study.
21 We would hope that the next expansion would be complete
22 sometime prior to the end of 1986.

23 Q The 1979 MAG report included a project to
24 upgrade the 23rd Avenue plant. Has the city undertaken
25 such a project, and if so, what is its status?

1 A Yes, sir. We have hired design consultants. We
2 would hope to let the first of four contracts in July of this
3 year.

4 Q Will that upgrading of the 23rd Avenue plant
5 increase the capacity of the 23rd?

6 A No, it won't. It is to upgrade the existing
7 plant, which is a 40 million gallon a day capacity.

8 Q Does the City of Phoenix have any plans to
9 install any other sewage treatment plants other than the 91st
10 Avenue and the 23rd Avenue plants?

11 A Yes, we do. We are looking at water conservation
12 practices where we can save the fresh drinking water supply
13 and to this end, we are looking at sources such as irrigation
14 and other things where we would have to build local plants
15 close to the source of use, and we are contemplating building
16 a number of these. None of these have been under design as
17 yet.

18 Q Has any schedule been established for any such
19 plants?

20 A No, sir.

21 Q What would be the -- has any size or capacity of
22 such plants been determined?

23 A Not officially. We have one that is under study
24 now, which would be approximately a 4 million gallon a day
25 plant to be built in the Moon Valley area of the City of

1 Phoenix, which would be used to irrigate three golf courses.
2 The actual size and location of the plants would depend on the
3 use and necessary quantity of use.

4 Q Would that area be outside the boundaries of the
5 Salt River Project?

6 A Yes, sir. It is.

7 Q Mr. Steytler, I would like to hand you a document
8 which has been marked Joint Applicants' Exhibit E. It has
9 been admitted into evidence. I would like you to examine it.
10 Have you had an opportunity to look at it?

11 A Yes, sir.

12 Q Would you -- is that -- is the top letter a letter
13 which you sent under your signature -- over your signature?

14 A Yes, it is.

15 Q Was the attachment to the letter prepared under
16 your direction and supervision?

17 A Yes, it was.

18 Q Is that attachment true and correct?

19 A It is to the best of my knowledge.

20 Q Thank you. Mr. Steytler, I have handed you
21 another document which has been marked Joint Applicants'
22 Exhibit D for identification.

23 A Yes, sir.

24 Q Was this -- do you recognize this document?

25 A Yes, sir. This was also prepared under my

1 supervision.

2 Q Could we -- I would like you to explain what the
3 document shows. I will be asking you several questions.

4 A Well, the document is a two-page document. The
5 first page shows actual flows, as broken down to the two
6 treatment plants and the cities involved. Actually, in
7 1979, '78.

8 Q Perhaps I can interrupt and get at it this way.
9 It starts out, it is captioned "flow projection comparison,"
10 is that correct?

11 A Yes, sir.

12 Q And then below that it states that it is MAG 208
13 study versus Phoenix Waste Water Division projection in
14 million gallons per day?

15 A Yes.

16 Q The -- across the page, there are a number of
17 columns by years, 1978, '79, '80, '81 and so forth, is that
18 correct?

19 A That is correct.

20 Q I would like to consider some of these figures.
21 First of all, I notice -- and if we look at the totals line,
22 which is the lowest line, for example in 1978, or let us take
23 1981, 1980 actual, 1980 actual totals is --

24 MS. BERNABEI: Objection. Mr. Gehr is testifying.
25 This witness has the exhibit before him and can testify.

1 MR. GEHR: Pardon me?

2 MS. BERNABEI: Mr. Gehr is testifying as to the
3 numbers on this chart. It is a leading question, which is
4 improper with his witness.

5 MR. GEHR: I haven't even asked my question.

6 JUDGE LAZO: Please proceed, Mr. Gehr.

7 BY MR. GEHR:

8 Q The number in the totals on the column, 1980
9 actual, is 127.4, is that correct?

10 A 127.04, million gallons a day.

11 Q Point oh four. I stand corrected. And that
12 total, does that total include both 91st Avenue and 23rd
13 Avenue?

14 A Yes, sir.

15 Q How do we determine what is the 91st Avenue
16 total?

17 A The 23rd Avenue total flow is for the City of
18 Phoenix, which is in that particular year 34.55, the summation
19 of the meters in the 91st and the 23rd is the total of
20 127.04. The 91st flow, then, would be the difference.

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BY MR. GEHR:

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Q Very well. That could is also -- could be arrived at by taking the sum of 5178, which shows -- under caption -- where it shows, Phoenix 91st Avenue Waste Water Treatment Plant, 51.78, in the column, 1980.

MS. BERNABEI: Objection.

JUDGE LAZO: Is that a question, Mr. Gehr?

MR. GEHR: Well, the problem is -- and maybe I haven't been going at it very expertly. I'm trying to shorten it. But let me do it this way.

BY MR. GEHR:

Q To get the total of the amount from -- that is treated at 91st Avenue, should one add what is shown for Phoenix 91st Avenue plus all of the amounts shown for Scottsdale, Glendale, Mesa, Tempe and Youngtown?

MS. BERNABEI: Objection to the form of the question. This witness has the exhibit before him. He can reading the exhibit. This is a leading question on direct.

JUDGE LAZO: Why don't you just ask him how to make a certain calculation and let the witness tell us what to add or what to subtract.

BY MR. GEHR:

Q Will you do so, Mr. Steytler?

A Yes, sir. The --

MS. BERNABEI: Objection. The question -- I

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1 don't understand what the question is at this point.

2 MR. GEHR: I asked him to make the calculation.

3 MS. BERNABEI: Which calculation?

4 MR. GEHR: Of how much effluent was discharged
5 in 1980 according to the chart.

6 JUDGE COLE: From the 91st Avenue --

7 MR. GEHR: From the 91st Avenue Plant.

8 WITNESS STEYTLER: Yes. It would be the flow
9 from 91st Avenue -- or from the City of Phoenix that's
10 treated at 91st Avenue, plus the flow from the other cities.
11 None of the other cities discharge into 23rd Avenue.

12 BY MR. GEHR:

13 Q Very good. The MAG -- there are several words
14 used in the report, MAG-208 study in one of the captions,
15 and several of the columns, it's 208 report; on page 2,
16 it's 208 study. Are these all the same?

17 A These are all from the same report. Yes, sir.

18 Q And what report would that be?

19 A It was the MAG -- we unofficially call it the
20 1979 report.

21 Q Very good. I notice in footnotes 3 and 6,
22 there is a reference to it, 1980 208 report.

23 MS. BERNABEI: Objection. Mr. Gehr continues
24 to testify for the witness.

25 JUDGE LAZO: Well, I don't think you gave him

1 an opportunity to complete his question.

2 MR. GEHR: That's correct. I just observed
3 what footnotes 3 and 6 say. And I'm now going to ask him
4 whether that's the same report or a different report.

5 JUDGE LAZO: Yes.

6 WITNESS STEYTLER: No. The footnotes aren't
7 quite clear. Actually, we're still talking about the 1979
8 208 report; however, in the '79 report, they gave us flows
9 for 1980 estimated flows.

10 BY MR. GEHR:

11 Q Very good. Would you direct your attention to
12 the column 1981, City Projection?

13 A Yes, sir.

14 Q How was that projection prepared?

15 A This was done on the basis of six months actual
16 flow measurements plus an estimate for the last six months
17 of the year.

18 Q Is there any basis that you use for estimating
19 that or formula that you use for doing the estimate for the
20 last six months of the year?

21 A This is done pretty much on historical values.
22 Roughly, the last six months of the flow has historically
23 exceeded the first six months by about seven percent.

24 Q I notice on the subsequent -- or other columns,
25 1985, 1990, 1995, and the year 2000, the caption also appears,

1 City Projection.

2 A Yes, sir.

3 Q Were these projections prepared on the same basis?

4 A No. These were done basically on a regression
5 analysis, which is a quite complex engineering formula for
6 projecting flows, and then after the flows were projected,
7 a study of the area to see if it would support the increases
8 that we had calculated.

9 Q Were those projections prepared by you or under
10 your direction and supervision?

11 A They were done under my direction and supervision.

12 Q Were there any basic assumptions used in making
13 those reports -- projections?

14 A As the footnote shows, there were a number of
15 basic assumptions that entered into the projections.

16 Q I was wondering whether such matters as population
17 or per capita usage -- were those elements of the projection?

18 MS. BERNABEI: Objection to the form of the
19 question.

20 JUDGE LAZO: Sustained.

21 BY MR. GEHR:

22 Q Would you advise me whether or not --

23 MS. BERNABEI: Same objection.

24 MR. GEHR: -- population figures and per capita
25 usage requirements were included in those projections.

1 MS. BERNABEI: Objection to that, the form of
2 that question.

3 MR. GEHR: That does not require a yes or no
4 answer and it is not a leading question.

5 JUDGE LAZO: Well, let's get on with it. The
6 witness may answer the question.

7 WITNESS STEYTLER: No. The basic formula used
8 was really the trends of flow increases in the past and did
9 not involve the particular things that you asked about.

10 BY MR. GEHR:

11 Q Do you know whether or not this is the same basis
12 as other customary -- that the City of Phoenix has customarily
13 used in developing its projections?

14 A It's the same basis that I have used in developing
15 my projections every year. I don't know that anybody in the
16 City of Phoenix, outside of myself, has developed sewage
17 flow projections.

18 MR. GEHR: If the Chairman please, I'd like to
19 offer into evidence Joint Applicants' Exhibit D, marked
20 for identification.

21 JUDGE LAZO: Are there any objections?

22 MR. DEWEY: No objection.

23 MS. BERNABEI: No objection.

24 JUDGE LAZO: Very well. It may be received.

25 ///

1 (The document referred to, having
2 been previously marked for
3 identification as Joint
4 Applicants' Exhibit D, was
5 received in evidence.)

6 BY MR. GEHR:

7 Q Mr. Steytler, in --

8 JUDGE LAZO: Pardon me one moment. Please
9 proceed.

10 MR. GEHR: Yes.

11 BY MR. GEHR:

12 Q Are you able to tell us what projects, including
13 new wells, are currently in progress or authorized to augment
14 the City of Phoenix's water resources?

15 A No, I'm not. That's not an official responsibility
16 of my particular job.

17 Q Are you able to advise us of the City of Phoenix's
18 current and planned water conservation program?

19 A No. That is still not in my area of responsibility.
20

21 MR. GEHR: Mr. Chairman, we submitted and
22 requested and obtained and served a subpoena for Mr. William
23 Chase, who is employed and a member of the management of
24 the City of Phoenix. At the same time, we submitted a
25 letter to Mr. Stephens explaining that we had submitted the

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1 request for a subpoena, providing him with a copy of that
2 request and the subpoena. We stated in that letter the
3 questions which we wished to put to Mr. Chase. Subsequently,
4 Mr. Stephens advised us that Mr. Steytler would be able to
5 respond to those questions in those areas.

6 MS. BERNABEI: I'm going to --

7 MR. GEHR: Just a minute please. It is clear
8 that Mr. Steytler cannot do so on three subjects, two of
9 which I've asked Mr. Steytler right now. The third subject
10 was planned or other potential projects to augment the city's
11 water resources. Obviously, he cannot answer to that either.
12 Under those circumstances, at the next hearing, I should
13 like to have Mr. Chase or someone else designated by the
14 City of Phoenix appear to respond to those questions. They
15 have relevance to the weight to be given to our -- to Joint
16 Applicants Exhibit O. I was not apprised of the fact until
17 this morning that Mr. Steytler was not going to be able
18 to testify on these matters.

19 MS. BERNABEI: I'm going to object to this being
20 brought up at this time. We never were served with a copy
21 of this letter to Mr. Stephens. The only thing we received
22 is the application for subpoena to Mr. Chase. We had no
23 idea what this witness was to testify to today, even though
24 I formally requested of Mr. Bischoff and Mr. Gehr some
25 indication of what he was to testify to. I certainly knew

1 of no arrangement that he was testify as to things he's
2 unprepared for, since I never knew what he would he testify
3 to to begin with, including any arrangement with Mr. Stephens
4 or Mr. Chase. And I don't believe this is the appropriate
5 way in which to bring this forward. If this witness can't
6 testify about certain things, the Applicants' intention
7 to pursue it in another way is not -- should not be brought
8 up during an examination of a witness.

9 JUDGE LAZO: Well, we're going to -- I think
10 we're going to have to insist that before the next session
11 of this hearing that all parties are to be made aware of
12 which witnesses are going to testify, who they're going to
13 be, and a summary of the topic on which they're going to
14 testify. The Board would also require such information.
15 But certainly the parties should have the opportunity of
16 knowing what they're going to face. And the Board should
17 also have copies of these witnesses lists and summaries of
18 their proposed testimony. Will you --

19 MR. DEWEY: Your Honor --

20 JUDGE LAZO: Pardon me, Mr. Dewey. Would you
21 go ahead.

22 MR. DEWEY: It seems to me that if this hearing
23 is going to be postponed for several weeks, maybe the
24 parties should submit canned testimony for the next hearing.
25 That is the usual procedure in these proceedings. I realize

1 that we went ahead this time without the benefit of canned
2 testimony because of the eleventh-hour nature of some of
3 the broadenings of the contentions.

4 JUDGE LAZO: Prefiled, written testimony for
5 direct testimony would certainly be a convenience for all
6 parties as well as the Board. I think it will depend on
7 when we reschedule, the length of time between the recess
8 here today and the time we schedule the next session. So
9 let's not make a decision on that now. But whether we have
10 prefiled, written direct testimony for the next session or
11 not, we simply must insist that the parties and the Board
12 will know in advance who the witnesses are going to be and
13 what they're going to talk about.

14 Do you anticipate filing another subpoena for
15 Mr. Chase, or are you going to determine through Mr. Stephens
16 who an appropriate witness might be?

17 MR. GEHR: I would get in touch with Mr. Stephens
18 and find out whether he -- who the proper witness is and
19 then I will subpoena him.

20 MS. BERNABEI: Could we be served with all the
21 papers? I assume Mr. Gehr will serve us with all the papers
22 involved in this.

23 MR. GEHR: Very well.

24 MS. BERNABEI: Thank you.

25 JUDGE LAZO: Then you have no further direct

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examination of this witness.

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MR. GEHR: That's correct.

JUDGE LAZO: Ms. Bernabei.

Ms. Bernabei, I just noticed it might be a good time to take a mid-morning recess before we start.

MS. BERNABEI: Sure. No problem.

JUDGE LAZO: All right. We'll recess for 15 minutes please.

(Whereupon, a brief recess was taken.)

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1 JUDGE LAZO: Will the hearing come to order,
2 please? Ms. Bernabei?

3 CROSS-EXAMINATION

4 BY MS. BERNABEI:

5 Q Good morning, Mr. Steytler, how are you?

6 You testified that you're responsible or that you have
7 been responsible for quite awhile for the City of Phoenix's
8 projections of available effluent, is that correct?

9 A Yes, ma'am.

10 Q And I assume that means that since 1976
11 when you began work for the, in your present position?

12 A Yes, ma'am.

13 Q And did you make projections for the city
14 of Phoenix prior to that time?

15 A No, ma'am.

16 Q So, your projection career has started in
17 1976?

18 A Yes.

19 Q Now you therefore made as projection for
20 the City of Phoenix in 1977, is that right?

21 A Yes, ma'am.

22 Q And your projection was that, if you remember,
23 that effluent would increase from 1977 to 1978 by about
24 4000 acre feet per year and if you remember, oh, 6800
25 acre feet per year from 1978 to 1979?

1 A I don't recall those projections.

2 Q I'm going to show you what's been marked
3 as Applicants Exhibit 6.

4 MR. GEHR: That can't be six.

5 MS. BERNABEI: Oh, excuse me. Applicants'
6 Exhibit G.

7 BY MS. BERNABEI:

8 Q Now do you see the lines near the top which
9 are the projections for the city of Phoenix?

10 A Yes, ma'am.

11 Q And those would be -- if those are correct,
12 those are your projections is that not right?

13 A Yes.

14 Q And on reviewing them, do you believe those
15 projections are in fact what you projected for those
16 years?

17 A Yes, ma'am.

18 MR. GEHR: Excuse me. Did the witness say
19 that he didn't know, or did he say that he didn't remember?

20 MS. BERNABEI: I believe he said that he
21 reviewed them and he felt that those were accurate that
22 those were his projections.

23 BY MS. BERNABEI:

24 Q Is that what you testified sir?

25 A I thought the question was, were they, did

1 I feel that the projections were accurate at the time
2 I made them and my answer was yes.

3 Q And are the projections reflected on that
4 sheet in fact the projections that you made?

5 A I really -- I don't understand the question.

6 Q In otherwords, does that accurately reflect
7 the projections you made during those years, the top
8 lines of that chart?

9 A I'm not familiar with the chart. The projections
10 by the city of Phoenix would have to be my projections.

11 The date on the chart of 1982 would mean that to me,
12 possibly, that that was the date of the projection.

13 Q Let me say this. This was introduced as
14 an exhibit in this hearing and it was introduced, that
15 chart was prepared by Mr. Hulse who is an APS vice president
16 as you know.

17 A Yes, ma'am.

18 Q Now, Mr. Hulse testified that he used projections
19 of the city of Phoenix in preparing that chart. Now
20 in reviewing the figures in that chart, do you have
21 any reason to believe that those were not your projections
22 for those years?

23 A I really don't know the basis of the chart.
24 When it says projections by the city of Phoenix, I'm
25 the only person that makes projections in the city of

1 Phoenix and on that basis I assume that they are my
2 projections.

3 Q Okay. We're having a little problem because
4 I only have one copy of this. We're going to have to
5 share it. Is it not true that your projection for 1977
6 projected an increase from 1978 to 1979 of about 6800
7 acre feet per year and for 1978, your projections for
8 1978 projected an increase from 45,900 to 52,300?

9 MR. GEHR: Objection.

10 MS. BERNABEI: I'd also appreciate it if
11 Mr. Gehr did not signal to the witness what answer he'd
12 like to give him.

13 MR. GEHR: No, I have no intention of --

14 JUDGE LAZO: There's an objection to the
15 question.

16 MR. GEHR: I think the record would be clearer
17 if we said if the question were gauged in the sense
18 that the amounts shown on the top line for those different
19 years were this or that, rather than stating that they
20 are his projections or the City of Phoenix's projections
21 because the witness has said that he doesn't know much
22 about how this chart was prepared, he doesn't know anything
23 about how this chart was prepared and he's just stating
24 that --

25 MS. BERNABEI: I asked him to review it

1 and I asked him if he had any reason to believe these
2 were not correct, especially since Mr. Hulse has testified
3 that he took them off the City of Phoenix's figures.

4 Now, this witness says since he was the
5 only person doing them, he has good reason to believe
6 they're probably correct.

7 JUDGE LAZO: Yes, he said he assumed they
8 probably were.

9 I think as far as this next line of questions
10 is concerned, I agree with Mr. Gehr it would be clearer
11 to those reading the transcript -- you're using differences
12 aren't you?

13 MS. BERNABEI: That's correct.

14 JUDGE LAZO: It might be a little more clear
15 if you would refer to the two figures and then we can
16 do the subtraction so that someone reading the transcript
17 and looking at the exhibit will know what numbers you
18 were using to arrive at your figures.

19 MS. BERNABEI: Okay. Do we have an extra
20 copy of the chart? That might be the easiest, if I
21 could --

22 (Pause)

23 BY MS. BERNABEI:

24 Q Okay, now looking at the projections for
25 the City of Phoenix for the years -- the 1977 projection

1 for the City of Phoenix, that's B on this chart..

2 A I have two problems with this. I haven't
3 read the footnotes to understand exactly what it is.
4 My projections are always in million gallons a day.

5 These projections are in acre feet.

6 Q Do you ever convert your projections into
7 acre feet per year?

8 A No, ma'am.

9 Q You never do that?

10 A No.

11 Q So on review of this, you really can't tell
12 if these are correct or not?

13 A I can't.

14 Q And if I told you that Mr. Hulse, the APS
15 vice president testified that he got these figures from
16 your projections, would you have any reason to believe
17 that wasn't true?

18 A From the City projections --

19 MR. GEHR: Objection. He's being asked
20 what Mr. Hulse considered or said and whether he believed
21 Mr. Hulse. I don't think that's a proper cross-examination.

22 MS. BERNABEI: I'm trying to understand
23 whether or not the projections made -- well, it seems
24 to me that there's no reason that this witness would
25 not accept these as his own and that the Applicants

1 have no standing to object that these figures are incorrect
2 and what I'm trying to get at, I believe he has testified
3 that upon review and upon the stipulation that Mr. Hulse
4 did testify that these were true and derived from his
5 figures, he would have reason to believe they were probably
6 an accurate reflection of his figures.

7 JUDGE LAZO: I think that's correct. He's
8 stated that he's the only one making projections for
9 the City of Phoenix but we do have the problem of the
10 differing varying units and maybe if we could convert
11 one of those units Mr. Steytler would recognize it as
12 one of his own projections.

13 BY MS. BERNABEI:

14 Q Well, Mr. Steytler, do you know how to convert
15 this from acre feet per year to millions of gallons
16 per day?

17 A Yes.

18 Q Could you do that for column B, the City
19 of Phoenix, 1977 projections and then going over to
20 1978 what appears to be the projection of 54,000 acre
21 feet per year. Could you take that figure, sir, and
22 convert it into millions of gallons per day?

23 A It would take a calculator.

24 MS. BERNABEI: Someone here must have a
25 calculator.

1 MR. DEWEY: Excuse me. We have some conversion
2 factors that the witness might like to take a look at.

3 MR. GEHR: Thank you, Mr. Dewey.

4 (Pause)

5 MS. BERNABEI: Mr. Gonzales, I think he
6 may be confused with your conversion table.

7 WITNESS STEYTLER: I don't understand this
8 conversion factor.

9 (Pause)

10 WITNESS STEYTLER: I'm not familiar with
11 the calculator.

12 BY MS. BERNABEI:

13 Q Are you saying you can't make the calculations,
14 sir?

15 A I'm saying I can't make the calculations.

16 JUDGE COLE: Could we fault the calculator?

17 MS. BERNABEI: Mr. Gonzales, do you have
18 a calculator with you?

19 I regret having to ask you to do this, but
20 these were the only documents we were provided with
21 prior to your appearance. Otherwise, we could have
22 provided better figures for you to work with.

23 BY MS. BERNABEI:

24 Q Let me ask you this. Do you have any reason
25 to believe that these figures are not an accurate conversion

1 from your figures of millions of gallons per day to
2 acre feet per year?

3 A I have no reason to believe they are anything
4 else but that they are converted from my figures.

5 Q Okay, then reading the chart and reading
6 line B, the city of Phoenix projections for 1977, there's
7 a difference is there not, between the 54,000 acre feet
8 per year projection for the 1978 and the 60,800 projection
9 for 1979?

10 A Yes, ma'am.

11 Q And how much is that difference?

12 A Approximately 6800 acre feet.

13 JUDGE COLE: I'm sorry, I thought you said
14 the 54,000 was -- okay, year '78, prediction made year
15 '77. Okay.

16 BY MS. BERNABEI:

17 Q Okay, and that's an increase of about how
18 much, sir?

19 A About 6800 acare feet.

20 Q Per year?

21 A Yes, ma'am.

22 Q Now, you're going to line C for the City
23 of Phoenix for 1978. In 1978, am I not correct, you
24 projected for 1978, a discharge ofd 45,900?

25 A Yes, ma'am.

1 Q Okay, and am I not correct for 19--

2 MR. GEHR: Wait a minute.

3 MS. BERNABEI: 45,900 acre feet per year.

4 MR. GEHR: No, we're going to disturb the
5 record and -- the -- if you will stay with comparing
6 the figures on the chart rather than casting them in
7 the light that they are Mr. Steytler's estimates, I
8 have no objection.

9 MS. BERNABEI: I believe -- we've gotten
10 this far. We can have anyone read the chart into evidence.

11 Mr. Steytler has testified he believes they
12 are probably his figures.

13 MR. GEHR: No, he has not. He has said
14 he has no reason to believe they are not proper conversions.

15 MS. BERNABEI: From his figures.

16 MR. GEHR: Well, that's an entirely different
17 thing than saying they're his figures.

18 MS. BERNABEI: I assume his testimony will
19 be weighed in light of his testimony prior to the testimony
20 that will follow.

21 BY MS. BERNABEI:

22 Q And the projection for 1979, according to
23 the City of Phoenix projections for 1978, that's line
24 C, is 52,300 is that not correct?

25 A Yes, ma'am.

1 Q And there's a difference between 1978 and
2 1979 according to the City of Phoenix's projection of
3 1978 for how much?

4 A 6400 acre feet.

5 Q So in both cases, that is both in B and
6 C, projections for 77 and 78, there's an increase?
7 An increase in acre feet per year according to those
8 projections?

9 A Yes, ma'am.

10 Q Now, the actual discharge for 1978, reading
11 the last line of the chart, was 64,320 is that not right?

12 MR. GEHR: Where are now?

13 MS. BERNABEI: We're in the actual discharge
14 line, 1978 -- it's the last line on that chart.

15 WITNESS STEYTLER: The 45,900?

16 BY MS. BERNABEI:

17 Q No, the very bottom line prior to the footnotes.

18 A Okay.

19 Q And that's a figure of 64,320 for 1978 is
20 that not right?

21 A Yes, ma'am.

22 Q And for 1979, the actual discharge figure
23 is 60,573 is it not?

24 A Yes, ma'am.

25 Q And that means does it not, that the actual

1 discharges from the 91st Avenue wastewater treatment
2 plant declined?

3 MR. GEHR: Objection. Up until now, we've
4 been talking -- you know, I've maintained that this
5 witness is not familiar with this chart. He has not
6 accepted on the projections that these items on lines
7 A, B, and C are his projections. He did not recognize
8 them because they were not in his units of measurement.

9 In fact, I don't know whether they -- if we're talking
10 about projections, whether they have a proper allowance
11 and how he deals with matters like the 3800 acre feet
12 deduction and now we are going down to something that
13 is not projections, we're going down to a line that
14 talks about actual discharges.

15 MS. BERNABEI: If Mr. Gehr wants to get
16 into this on Redirect, I have no problem. I think I'm
17 entitled to have the witness testify as to his projections

18 JUDGE LAZO: Well, actually all you're asking
19 the witness to do here is to confirm numbers that are
20 on this chart --

21 MS. BERNABEI: That's correct.

22 JUDGE LAZO: And I wonder if that is necessary

23 MS. BERNABEI: Maybe we can short-circuit
24 this.

25 JUDGE LAZO: It's in evidence, we've all

1 received the chart. There's no point in having him
2 read the numbers.

3 MS. BERNABEI: I understand.

4 BY MS. BERNABEI:

5 Q Is it not true that the projections for
6 1977 and 1978 showed an increase in available effluent
7 for the 91st Avenue Treatment Plant?

8 A Yes, ma'am.

9 Q And isn't it true that the effluent actually
10 available that was measured historically decreased,
11 is that not right?

12 MR. GEHR: But that's the point. Objection.

13 MS. BERNABEI: If he knows from the chart
14 or any other way?

15 MR. GEHR: What's shown on the exhibit?

16 MS. BERNABEI: No.

17 BY MS. BERNABEI:

18 Q Do you know to your knowledge that that's
19 true?

20 A No, I don't.

21 Q You don't know whether the discharge declined
22 from 1978 to 1979?

23 A I know that the discharge increased from
24 1978 to 1979.

25 Q Therefore, you believe the figures on this

1 chart are incorrect?

2 A Yes, that's true.

3 Q Okay. Now, you're familiar with the MAG
4 208 studies, is that correct?

5 A Yes, I am.

6 Q Now, the thrust of the MAG 208 studies,
7 were they not -- were to develop a plan for wastewater
8 management in the Phoenix metropolitan area?

9 A May I go back to your previous question.
10 I gave you a bad answer.

11 Q Sure.

12 A In discussing the flows increase from 78
13 to 79, the total flow for the City of Phoenix did increase.
14 The flow for the 91st Avenue Plant had a slight decrease.

15 Q Thank you. That's what we were talking
16 about, the 91st Avenue Treatment Plant. I can understand
17 your confusion.

18 Okay, going back to the MAG 208 plan. Was
19 that not a plan to develop a wastewater treatment system
20 for the Phoenix metropolitan area?

21 A Yes, ma'am.

22 Q And in order to develop that plan, the Governor
23 appointed, did he not six councils of government throughout
24 the State in order to help develop that plan, if you
25 know?

1 A I don't know.

2 Q Let me ask you this. Who was in charge
3 of developing that plan, at least in this area?

4 A The Maricopa Association of Governments.
5 Or MAG as we refer to it.

6 Q And that's in fact why it's called the MAG
7 208 plan?

8 A Yes.

9 Q Now, there were -- if you know, advisory
10 councils were there not to aid in this plan?

11 A Yes, ma'am.

12 Q And there were citizens advisory councils,
13 there were agricultural advisory councils and technical
14 advisory councils?

15 A I am familiar with only one advisory council,
16 one group.

17 Q And that's the citizens?

18 A And it was made up of citizens from various
19 areas.

20 Q Now to develop the report or the plan that
21 is encompassed in the MAG 208 '79 report that you've
22 testified to, there were alternatives considered by
23 these groups involved in the planning were there not?

24 A Yes, there were.

25 Q And one of the alternatives was to greatly

1 enlarge the capacity of the 91st Avenue Treatment Plant
2 and build several inter-connectors to link up different
3 cities to the 91st Avenue Treatment Plant, is that not
4 right?

5 MR. GEHR: Objection. Objection. This
6 cross-examination is going far beyond the scope of
7 the direct examination.

8 MS. BERNABEI: I believe this has to do
9 with the sub-regional plants or the so-called satellite
10 plants and Mr. Gehr did question the witness as to the
11 satellite plants and I think it certainly is relevant
12 in terms of the amount of effluent to be discharged
13 by the 91st Avenue Treatment Plant in the future.
14 It's highly relevant.

15 JUDGE LAZO: Very well, you may proceed.

16 BY MS. BERNABEI:

17 Q Now, one of the alternatives discussed in
18 the MAG 208 1979 report was to expand the 91st Avenue
19 Treatment Plant and connectd many of the cities to that
20 plant, is that not right?

21 A At that point in time, many of the cities
22 were -- all the cities were already connected. One
23 of the plans was to make the major expansion at the
24 91st Avenue Plant.

25 Q Right, but that would involve, would it

1 not construction of what they call the inter-connector,
2 the 99th Avenue inter-connector?

3 A Yes, ma'am.

4 Q Okay, and that also involved I believe it
5 is called the southeastern or southern inter-connector?

6 A Southern Avenue Interceptor.

7 Q Thank you. And the idea was to link up
8 many of these small cities with the 91st Avenue Treatment
9 Plant in order that that treatment plant could serve
10 the many cities?

11 A Okay, yes.

12 Q That's substantially correct?

13 A Well, the problem that I have is that most
14 of the cities were already connected. The Southern Avenue
15 Interceptor for instance, does not connect any new cities
16 but allows for greater capacities from the cities that
17 are connected, and in that context there were a number
18 of interceptors involved. The city of Glendale was
19 already connected at the time, although the increased
20 flow indicated that the 99th Avenue Interceptor was
21 necessary so I'm hesitating on the answer -- the cities
22 were connected and the interceptors we talked about
23 were really for additional capacity, not to connect
24 the cities.

25 Q But that was one alternative contained in

1 the plan, was it not? The alternative to increase the
2 capacity of the 91st Avenue Treatment Plant and build
3 these inter-connectors?

4 A Yes, ma'am.

5 Q I take it that was a preferred alternative
6 in 1979?

7 A It was.

8 Q Now one of the other alternatives presented
9 in the MAG 208 1979 report was to build a number of
10 sub-regional plants in the area, is that not right?

11 A Yes, ma'am.

12 Q And in 1979 that was rejected by the Maricopa
13 Associations of Governments essentially, was it not?

14 A Yes, ma'am.

15 Q And there has been an update to the MAG
16 208 study. Are you familiar with that?

17 A Yes, ma'am.

18 Q And that update -- there was one update
19 issue in May of this year. Are you familiar with that?

20 A The current update that they are working
21 on has not been completed. There have been drafts issued--

22 Q Right and there was one issued?

23 A Yes, it's not an official document but the
24 draft was issued in May of this year.

25 MR. GEHR: Perhaps just to be clear, the

1 document bears a date, May 1982. Obviously it was issued
2 prior to that time because it has already been introduced
3 as evidence in this proceeding.

4 JUDGE LAZO: Thank you, Mr. Gehr.

5 MS. BERNABEI: I just want to make sure
6 that we're talking about the same document. There is
7 an executive summary and there is a report. I just
8 want to make sure we're talking about the same document.

9 Does counsel for Applicants have a copy?
10 I believe Mr. Gehr has one over there?

11 BY MS. BERNABEI:

12 Q This is what we're talking about, is it
13 not?

14 A Yes, ma'am.

15 Q Now between 1982 and 1979, the cities involved
16 in the Phoenix metropolitan area re-examined the alternatives,
17 is that correct?

18 A Yes, ma'am.

19 Q And when they re-examined them, this revised
20 MAG 208 turned out a little differently, didn't it?

21 A Certainly, yes.

22 Q And one of the differences was, was it not
23 that certain of the cities that originally intended
24 to bring their wastewaters to the 91st Avenue Treatment
25 Plant decided to build sub-regional plants of their

1 own. Is that not right?

2 MR. GEHR: Objection. The question is is
3 whether some other cities had decided to build other
4 plants and I think first we have to find out whether
5 the witness knows what the other cities had decided
6 to do.

7 JUDGE LAZO: Sustained.

8 BY MS. BERNABEI:

9 Q Well, perhaps we should examine the MAG
10 208 process a little bit. This is the Maricopa Associations
11 of Governments which is comprised of representatives
12 of various cities in the area, is that not right?

13 A That's correct.

14 Q And so when they came out in 1982 with a
15 revised plan that was --

16 MR. GEHR: Objection, objection. The witness
17 has already stated that it is not a plan. It is a draft.

18 MS. BERNABEI: Well, I believe he has testified
19 it is a plan. It's a draft plan, but in no sense is
20 it a plan any less than the 1979 plan was a draft.

21 MR. GEHR: The witness has stated it is
22 not official.

23 WITNESS STEYTLER: It hasn't gone through
24 the public hearing process or been officially adopted
25 by MAG as the plan.

1 MS. BERNABEI: Okay, the draft plan then.

2 The draft plan is essentially the preferred alternatives
3 of the city governments at this point in time, 1982?

4 MR. GEHR: Objection. It's just contrary
5 to what the witness has already said, that MAG has not
6 adopted it. Now, it cannot be that the preferred alternative
7 of MAG if MAG has not adopted it.

8 MS. BERNABEI: We didn't say MAG, we said
9 the cities involved in discussing the alternatives.
10 I said.

11 JUDGE LAZO: We have that same objection
12 -- does he know what the city's views -- the other cities'
13 views are on it?

14 MS. BERNABEI: Well, the process is such
15 that it's encompassed in the update and I believe he
16 knows, he's familiar with the update.

17 BY MS. BERNABEI:

18 Q Is not true that the update is different
19 than the original MAG Plan?

20 A Yes, ma'am.

21 Q And, perhaps you could tell us how the draft
22 plan is drafted? In otherwords, how did they get to
23 this changed plan?

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1 A Well, naturally, all the cities were contacted,
2 flows were projected, a series of schemes were set forth.
3 Whether -- the assumption was made that the other cities
4 did approve those things that were happening to them. In
5 fact, there were some meetings between cities when there
6 were differences. Officially, none of the cities have put
7 a seal of approval on this document.

8 Q I understand. But what's contained in there
9 now, am I not correct, the draft plan, is the preferred
10 alternative in terms of the cities that discussed it in
11 the planning process?

12 MR. GEHR: Objection.

13 MS. BERNABEI: He's answered the question.
14 There's a planning process and then there's an official
15 adoption process. He said, there's no official adoption,
16 but the cities have approved this as an alternative.

17 MR. GEHR: Well, then there can't be a preferred
18 alternative.

19 MS. BERNABEI: When Mr. Gehr interrupted, that
20 was what he was saying.

21 JUDGE LAZO: Well, the objection is to your
22 continuing expression that there is a preferred alternative.
23 Is there an argument about that?

24 MS. BERNABEI: No, there is not. That is what
25 this document is all about, the preferred alternative. I

1 can ask this witness.

2 BY MS. BERNABEI:

3 Q There have been alternatives discussed among the
4 cities between 1979 and 1982, have there not been?

5 A Yes, ma'am.

6 Q And this plan, is it not -- the draft plan in
7 the May 1982 update -- is the preferred alternative of the
8 cities as they discussed it and planned it? Is that right?

9 MR. GEHR: Well, it may be the preferred state-
10 ment. It's a statement -- it's a draft of a plan which
11 includes a preferred alternative as a matter of form, but
12 it is not -- since it is not adopted by any city -- I
13 don't even know who representatives on the cities are.
14 And the witness has said it has not been adopted by any city.
15 The witness has said it has not been adopted by MAG. There-
16 fore, it cannot be categorized as a preferred plan of any
17 city or group of cities.

18 MS. BERNABEI: I'm using the words from the
19 document itself. There were alternatives considered and
20 the cities involved adopted preferred alternatives in this
21 plan. They have not been formally adopted.

22 JUDGE LAZO: Well, then I think the record is --

23 MR. GEHR: The document will speak for itself
24 on that.

25 JUDGE LAZO: The record is clear as to what this

1 means and what the draft plan states at this point.

2 MS. BERNABEI: Fine.

3 JUDGE LAZO: With the argument of Counsel and
4 the statements that have been entered into the record, I
5 think everyone will understand the status of the plan.

6 MS. BERNABEI: Fine. And this witness can
7 testify further as to this draft, May 1982 plan, correct?

8 JUDGE LAZO: Yes. Right.

9 MS. BERNABEI: Good.

10 MR. GEHR: My point is continued without having
11 to renew it each time?

12 JUDGE LAZO: We will note in the record your
13 continuing objection to this line of questioning.

14 BY MS. BERNABEI:

15 Q Now, you're familiar somewhat with the differences
16 between the 1982 update and the 1979 report. Is that right?

17 A Yes, ma'am.

18 Q Now, one of the differences, is it not, is that
19 some of the cities that originally were going to send their
20 effluent to the 91st Avenue Treatment Plant, have decided
21 to build regional plants of their own?

22 A The document is permissive of that. The document
23 does not insist that they do.

24 Q Right. But is the document not, in fact, a
25 reflection of their preferred alternative? Are those not the

1 words used in the document?

2 A I'd say, probably if we considered a recommended
3 -- at this point in time, and will be preferred after
4 approval. The recommended situation at this point in time
5 is that 91st Avenue be increased to take the full load and
6 that the other cities would be allowed to build certain
7 plants as mentioned in the document as time goes on. However,
8 the other cities then will still own capacity at the 91st
9 Avenue Plant even though they are not treating sewage there.

10 Q I understand. But there is a recommended
11 alternative that they build subregional plants instead of
12 sending everything to the 91st Avenue Treatment Plant.

13 A Well, recommended, it's a permissive. If you
14 read the document closely, they are permitted. What we
15 say with the 208 is that that's a master plan for the Valley
16 and if anybody does anything different, the State Health
17 Department will not give them a permit to build -- all the
18 other cities, having agreed, you know, become upset. So
19 unless it's permitted in the 208 plan, nobody will build
20 these things. The other cities have expressed a desire to
21 build satellite plants. And the document permits this.
22 However, the document calls for the -- what they call
23 preferred, which at this point in time is recommended
24 alternative. It is that everybody purchase necessary capacity
25 at the 91st Avenue Plant; and then at a later date, they

7-5

1 would be permitted to build the satellite plants.

2 Q But these satellite plants are a change, are
3 they not, from the 1979 report? At least some of them are.

4 A Yes, ma'am. They were not permitted in the
5 early report.

6 Q And we're talking about here -- and I'm going
7 to give you some cities, and if you know, if you could tell
8 me if these are some of the cities that want to build
9 satellite plants. East Mesa. Does not East Mesa want to
10 build a satellite or regional plant?

11 A I'm not familiar with East Mesa. Mesa -- the
12 City of Mesa has talked about building a satellite plant.
13 And under the 208 plan, they will be allowed to build that.

14 Q And the area of -- I believe it's called
15 Scottsdale Road, Reed Road --

16 A The City of Scottsdale will be allowed to build
17 a regional plant or a satellite plant.

18 Q The area of Northeast Phoenix, Paradise Valley
19 and North Scottsdale. Is that what you're talking about?

20 A They will be permitted, yes.

21 Q And that's a third subregional plant. Is that
22 right?

23 A Yes, ma'am.

24 Q And the area of Southeast Phoenix, Chandler,
25 Gilbert, and East Mesa. Are you familiar with that?

7-6

1 A That would be the Mesa plant, yes.

2 Q That's the Mesa plant you're talking about. Now,
3 it is true that certain cities that originally intended to
4 link up to the 91st Avenue Treatment Plant, according to
5 the 1979 report, have not yet done that. Is that right?

6 A I can't off the top of my head think of any
7 city that hasn't tied into the 91st Avenue Plant. With the --

8 Q The Surprise --

9 A Okay. The smaller cities, yes.

10 Q The smaller cities, right. Of Surprise. Is
11 that correct? They have not hooked up to the 91st Avenue
12 Treatment Plant?

13 A They are not hooked up to the 91st Avenue Plant.
14 I don't remember the '79 report that well to remember if
15 they were supposed to.

16 Q And the Luke Air Force Base, they haven't linked
17 up, have they?

18 A No.

19 Q And it was envisioned in the 1979 report that
20 they would. Is that not right?

21 A I really can't answer that. I never really got
22 into the detail of the smaller cities. I don't remember
23 where they were supposed to go.

24 Q And is it not true that since 1979, some of the
25 -- what's called, as I understand it, in this area --

1 developments have build their own plants, smaller plants?

2 MR. GEHR: Objection.

3 MS. BERNABEI: Developments as opposed to cities,
4 municipalities.

5 MR. GEHR: I don't see the relevance of this.
6 It has nothing to do -- certainly, it goes beyond the scope
7 of the direct testimony. We got to talking about regional
8 plants, but what difference does that make?

9 MS. BERNABEI: Waste waters that flow to regional
10 plants won't go to the 91st Avenue Treatment Plant.

11 MR. GEHR: But the contract is limited to six
12 cities; and to talk about communities like Surprise and Luke
13 Air Force Base, they're not part of the contract.

14 JUDGE LAZO: You're getting rather far afield,
15 Ms. Bernabei.

16 MS. BERNABEI: I think it's directly relevant
17 to how much effluent is going to be available at the 91st
18 Avenue Treatment Plant. There's been a lot of testimony, by
19 this witness and also by others, of the amounts of water
20 that will be available. And it's not --

21 JUDGE LAZO: But now, you're asking him to
22 speculate as to new developments, population growth.

23 MS. BERNABEI: No. I'm not asking him to
24 speculate. I'm asking him about whether any developments
25 that are actually constructed and established have developed

1 their own subregional plants. And there are several that
2 have. And this witness probably knows about them. And that
3 is water that may have gone, in 1979, to the 91st Avenue
4 Treatment Plant, and it doesn't anymore.

5 JUDGE LAZO: So that's the purpose of your
6 question. All right. You may proceed.

7 BY MS. BERNABEI:

8 Q Are you familiar with Arrowhead Ranch, sir?

9 A Vaguely familiar with Arrowhead Ranch, yes, ma'am.

10 Q And they have their own treatment plant, small
11 treatment plant, do they not?

12 A I don't know that they do. I don't know that
13 they don't.

14 Q How about North Peoria?

15 A I'm not familiar with that plant.

16 Q Do you know of any developments, as opposed to
17 municipalities, that have developed their own treatment
18 plants since 1979?

19 A There is a plant that's been developed, a small
20 plant, to the east of Scottsdale -- and I forget the name
21 of it -- which is the only one I can think of. Well,
22 actually, Tolleson increased their plant. But those are
23 the only two that I know that have actually been constructed.
24 That does not mean that there's others that I haven't heard
25 of.

7-8

1 MS. BERNABEI: And this is going to relate to
2 why this may be a continuing trend, because I anticipate
3 objections.

4 BY MS. BERNABEI:

5 Q There's been a suggestion or an idea floating
6 around at the municipalities, has there not, that they may
7 be able to trade effluent with Indian communities -- with
8 the Indian community CAP allocation?

9 MR. GEHR: Objection.

10 JUDGE LAZO: Well, we're getting even farther
11 afield.

12 MS. BERNABEI: Well, this has to do with why this
13 trend may very well continue. In other words, the trend
14 of building subregional satellite plants instead of expanding
15 the 91st Avenue Treatment Plant. I can make it proper as to
16 what the evidence would show.

17 MR. GEHR: Objection.

18 JUDGE LAZO: You're also getting very far from
19 the area of expertise of this witness, let alone the subject
20 matter for which he was offered.

21 MS. BERNABEI: Well, he was offered to -- he
22 makes projections for the City of Phoenix as to how much
23 effluent would be available from the 91st Avenue Treatment
24 Plant. And I believe he's an expert in terms of how the
25 waste water systems work in this area. And he makes the

1 projections based on certain assumptions of other treatment
2 plants, what's going on in the area in terms of waste water
3 management. I think he's an expert in this field.

4 MR. GEHR: Objection.

5 MS. BERNABEI: And he would know what -- why
6 subregional plants were being developed today and were not
7 envisioned in 1979, and whether or not that's likely to
8 continue.

9 JUDGE LAZO: Mr. Dewey.

10 MR. DEWEY: Well, I don't think it's been
11 established that these subregional plants that she has
12 referred to, were actually counted upon for the projections
13 we have here in the first place. So in that regard, they
14 wouldn't really be relevant that there have been a few
15 subregional plants, if in fact they weren't computed as part
16 of these projections, that effluent. The only --

17 MS. BERNABEI: It's in the MAG-208 plan and the
18 MAG-208 plan has been admitted into evidence. And that shows
19 that this would have some effect on the amount of effluent
20 flowing from the 91st Avenue Treatment Plant.

21 MR. GEHR: He has not testified as to the
22 validity or invalidity of the MAG-208 projections. He has
23 testified solely about the 1981 City of Phoenix projection.
24 That's the only thing he has testified to. He has testified
25 as to how he made that projection. That's all. And we're

7-10

1 getting so far afield, by stretches of the imagination,
2 on what's connected. I guess, we'll get back to the Indians
3 in New Mexico.

4 JUDGE LAZO: We're close to there now, aren't we?

5 MS. BERNABEI: I think it's very relevant. This
6 witness is an expert in terms of projections of what
7 effluent is available from the 91st Avenue Treatment Plant.
8 He works for the City of Phoenix. He has a great deal of
9 experience in the area. And he certainly knows all about
10 the MAG-208 plan. His figures, in fact -- he's identified
11 figures from the MAG-208 plan on direct testimony.

12 MR. GEHR: That doesn't make him an expert on
13 the MAG-208 projections. He testified --

14 JUDGE LAZO: I agree with you, Mr. Gehr. Let's
15 reign in the scope of this cross examination. It's going
16 far beyond the direct.

17 BY MS. BERNABEI:

18 Q Do you have an opinion as to whether this trend
19 toward the construction of subregional plants will continue?

20 A I really don't have an opinion. I'm very
21 interested in it, but I haven't enough information to get
22 an opinion.

23 Q Let me just ask you this. Is one of the reasons
24 that the subregional plants have been created, or being
25 envisioned by some of the cities, that the cities wish to

1 trade their effluent with Indian communities for their
2 allocation of CAP water?

3 MR. GEHR: Objection. She is now asking the
4 witness to imagine what the other cities -- some other city,
5 undefined, may wish to do.

6 MS. BERNABEI: I'm saying whether that's an idea
7 that has been envisioned by the cities. Mr. Stephens, I
8 believe, testified in his limited appearance that the cities
9 are interested in doing that.

10 JUDGE LAZO: Well, let's find out if Mr. Steytler
11 knows.

12 WITNESS STEYTLER: Let me give you my opinion,
13 which doesn't answer your question. Is that all right?

14 All the cities in the Valley are quite concerned
15 with running out of drinking water. And they're quite
16 concerned that this might happen before CAP water comes in.
17 And even when CAP water comes in, eventually it runs out.
18 Each city, including the City of Phoenix, is very energetical-
19 ly trying to find some way to get more drinking water. And
20 they were exploring everything from irrigating golf courses
21 to selling to conservation districts for irrigation and
22 trading. And the Indian question has come up. And this is
23 one of the things that is being investigated. To my
24 knowledge, there has been no contracts in any of these areas.
25 And almost any way that the effluent can be changed, traded --

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1 nobody contemplates drinking the effluent -- but any way
2 it can be traded for drinking water is very paramount.
3 And everybody in the Valley who is in the business is very
4 excited about trying to do this.

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1 A (Cont'd) Is that an answer?

2 Q Yes, it is. And could you explain to us how the
3 exchange with the Indians would work?

4 MR. GEHR: Objection. They have not been made,
5 and it is not clear, and he doesn't -- he hasn't purported to
6 be an expert on how they can be made.

7 MS. BERNABEI: I am just asking what the idea
8 is, and he has testified there is an idea that is percolating
9 around that the cities are considering, and I am asking you
10 how it works.

11 WITNESS STEYTLER: I would have no idea how it
12 works. I know that the Indians have certain allocations, and
13 others have certain allocations, and anybody that has water,
14 we are all looking at as to how we can get it, but we haven't
15 or I don't know as to the way we would get that water.

16 BY MS. BERNABEI:

17 Q But when you are talking about allocations, you
18 are talking about CAP allocations, is that right, to the
19 Indians?

20 A Yes.

21 Q And the general idea of the cities is to trade
22 effluent for CAP allocations?

23 A Or for any fresh water.

24 Q Right, but one of the alternatives is to trade
25 the effluent of the cities for the Indians' CAP allocation?

1 A That is one of the situations that is being
2 explored, yes.

3 Q Now, is it not true that the cities can do this
4 in one of two ways, that the cities can trade individually
5 with the Indians --

6 MR. GEHR: Objection.

7 JUDGE LAZO: I am sorry. You are now testifying.
8 He has said he doesn't know how they would do it, that it is
9 an interesting idea.

10 MS. BERNABEI: But this does get into whether or
11 not the subregional plants will be built. This is directly
12 tied to his prior testimony. I can ask the question in a
13 different way.

14 JUDGE LAZO: All right.

15 BY MS. BERNABEI:

16 Q If a municipality were to build a subregional
17 plant, it could or they could trade directly with the Indians
18 for their CAP allocation, is that not right?

19 MR. GEHR: Objection.

20 JUDGE LAZO: You are really overreaching with
21 the witness at this point.

22 MS. BERNABEI: Well, I believe he is testifying
23 as to the ideas the city have, and one of the ideas the city
24 has is to use this effluent to trade for fresh drinking water.

25 JUDGE LAZO: Well, that has been established. You

1 are repeating now. That is on the record.

2 MS. BERNABEI: But this also has to do with
3 whether or not the cities will continue to send effluent to
4 the 91st Avenue treatment plant or build subregional plants.
5 There is a connection that he may know about, since he does
6 seem knowledgeable in this area, and his duty and
7 responsibility is the 91st Avenue treatment plant. It is
8 directly connected.

9 JUDGE LAZO: But it is also repetitious.

10 MS. BERNABEI: Do you understand -- well, I am
11 not sure that this witness has talked about the connection
12 between the two. I don't mean to argue with you, Mr.
13 Chairman, but I do believe there is a connection between his
14 prior testimony as to the likelihood of the building of
15 subregional plants and how this exchange with the Indians
16 might have an effect on that, and again, if subregional
17 plants are built, that may take effluent away from the 91st
18 Avenue treatment plant.

19 JUDGE LAZO: I don't -- you are trying our
20 patience, but you may proceed.

21 BY MS. BERNABEI:

22 Q Well, let me ask you the question directly. Can
23 you see any way in which this idea of trading with the
24 Indians, the city's trading with the Indians, effluent for
25 drinking water, could that idea have any effect on the number

1 of subregional plants that were built in the area?

2 A Well, yes. It could. Using the word "could."

3 Q And explain that, sir.

4 A All I really know is that the Indians have
5 allocation water, and they do a lot of farming, and they could
6 use effluent water on those farms, and that is the limit of
7 my knowledge --

8 Q And how could that be --

9 A -- and that leads to the fact that we should
10 explore a method, but no method has been set forth for
11 trading. There has been no contracts made, to my knowledge.
12 It has not been done yet, but the fact that somebody has
13 something you want, and you have something they could use has
14 led everybody to think along those lines, but there is not
15 enough specific -- I think you are asking me for specific
16 information which I don't have. I don't know.

17 Q Well, I am asking you if this idea that you have
18 just been speaking about, whether or not that could have an
19 effect, on whether or not cities choose to construct their
20 own subregional plants.

21 A And I answered --

22 MR. DEWEY: Asked and answered.

23 MR. GEHR: Asked and answered. Objection. He
24 has already given the answer, and he said he didn't know, and
25 he couldn't give her the answer. Let us not repeat it.

1 MR. DEWEY: Several times he has done this.

2 MS. BERNABEI: Okay, fine. I have no -- I may
3 have a few more questions.

4 BY MS. BERNABEI:

5 Q Now, you have made projections for the City of
6 Phoenix for a period of time, since 1976?

7 A Yes, ma'am.

8 Q Now, in making those projections, have you ever
9 considered increasing conservation measures taken by cities?

10 A No, I have not.

11 Q And is it not true that in 1980 the Ground Water
12 Act of 1980 was passed in Arizona?

13 A I know the Ground Water Act has been passed. I
14 don't know the exact date that -- there is such a thing, but --

15 Q And that Act, if you know, imposes certain
16 conservation requirements on Arizona in general, is that
17 not right, the users of water?

18 A Yes, ma'am.

19 Q And that could lead to conservation generally in
20 the area, could it not?

21 A It could, yes.

22 Q And that could change your projections, could it
23 not, conservation measures taken pursuant to the Ground
24 Water Act of 1980?

25 A It could. The projections were not made with

1 conservation factors in them.

2 Q Now, did you consider in your projections an
3 economic downturn, in other words, the possibility of a
4 depression or a recession?

5 A Only that which was reflected in the prior
6 years' flows. My projections are based on a trend of flows
7 in the past, and only the trend of flows, plus an area big
8 enough to populate, or to use the flow.

9 Q So in other words, economic factors such as
10 unemployment or inflation are not factored in?

11 A No, they weren't factored in.

12 Q And I believe you testified that population
13 growth or decline was not factored in?

14 A No, ma'am.

15 JUDGE COLE: Excuse me. You added to your answer
16 indicating that an area large enough to provide the flows. I
17 don't know what you meant by that.

18 WITNESS STEYTLER: Oh, okay. The -- if we
19 calculate a city is going to triple flows in 40 years or 20
20 years, and over half of that city is populated, there is just
21 not enough room to get to that conclusion. In other words,
22 we did our pure mathematical regression analysis, and then
23 looked at the answers we got, and then looked at the size, the
24 area that the city contained, and how much of it was
25 already populated, to actually correct the figures.

1 JUDGE COLE: All right, sir.

2 WITNESS STEYTLER: They couldn't get that many
3 people in certain of the cities.

4 JUDGE COLE: All right, sir, so that when you
5 say your projections are based upon the historical record,
6 if you have knowledge of what portions are available for
7 expansive growth, population, commerce and industry, isn't
8 that included in your projections?

9 WITNESS STEYTLER: No. The projections are a
10 very complicated formula and the base factors are the flows,
11 monthly flows over the last, in most cases, 10 to 15 years.

12 JUDGE COLE: So you are telling me that -- please
13 correct me if I am wrong, sir -- that your projections of
14 future flows are based entirely upon measurements that have
15 already been made of waste water flow?

16 WITNESS STEYTLER: Yes, sir.

17 JUDGE COLE: All right, thank you.

18 BY MS. BERNABEI:

19 Q Have you, sir, considered in your flows variations
20 in temperature or rainfall in --

21 MR. GEHR: Objection.

22 MS. BERNABEI: Cyclical changes in rainfall or
23 temperature?

24 JUDGE LAZO: What is the basis?

25 MR. GEHR: The objection is, is that he has

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1 stated that he -- his projections are based on historical
2 data and no special items of any nature have gone into those,
3 and therefore, the question has been asked and answered; to
4 the extent that there has been population growth in the past,
5 that there have been temperature variations, and all these
6 other things, growth in commercial areas, are reflected, and
7 those trends in the past have been reflected in the historical
8 data that he has used, obviously they are in his projections,
9 but they have not specifically been accounted for.

10 You can go on and ask about a thousand things
11 that he has not included, because he has stated that he has
12 done it on the basis of a historical record.

13 JUDGE LAZO: I think that is clear, Ms. Bernabei.

14 BY MS. BERNABEI:

15 Q I just have one more question. The flows that --
16 or excuse me, the projections you have indicated on
17 Applicants' Exhibit D, do you have that, sir?

18 A Yes, ma'am.

19 Q You are talking here about projections for
20 physical supply of effluent, is that not right? You are
21 not talking about the legal right to this effluent in any
22 sense?

23 A No.

24 Q You are talking about the physical supply?

25 A Yes, ma'am.

1 MS. BERNABEI: Thank you.

2 JUDGE LAZO: Mr. Dewey?

3 MR. DEWEY: No questions.

4 JUDGE LAZO: Do you?

5 MR. GEHR: Yes, I have one more question in light
6 of that last question that was asked.

7 REDIRECT EXAMINATION

8 BY MR. GEHR:

9 Q Would you turn to page two of Joint Applicants'
10 Exhibit D? And on that page, does it not show projected
11 effluent usage, and also in another caption, uncommitted
12 multi-city effluent, and a group of figures showing
13 commitments?

14 MS. BERNABEI: Objection to the form of the
15 question. Mr. Gehr is testifying for the witness.

16 JUDGE LAZO: Well, this is redirect examination.
17 I think it will expedite the proceeding.

18 MR. GEHR: Amen.

19 BY MR. GEHR:

20 Q Does that, does page two so indicate?

21 A Yes, sir.

22 Q What is referred to in the word "commitments?"

23 A The commitments are those taken from existing
24 contracts.

25 MR. GEHR: No further questions.

1 JUDGE COLE: I just have a couple of questions,
2 Mr. Steytler. Who operates the 91st Avenue plant?

3 WITNESS STEYTLER: The City of Phoenix is the
4 lead agency for the group of cities. The City of Phoenix
5 operates the plant.

6 JUDGE COLE: Are you familiar with the 91st
7 Avenue plant?

8 WITNESS STEYTLER: Oh, yes.

9 JUDGE COLE: As a sanitary engineer, I have got
10 to ask this question. Could you just describe the plant, the
11 flow process?

12 WITNESS STEYTLER: Okay. It is an activated
13 sludge plant, step aeration. We have screening and grit
14 chamber, primary tanks, aeration tanks, and the final
15 clarifiers, and go to a chlorine content chain.

16 JUDGE COLE: All right, sir. Thank you.

17 In Joint Applicants' Exhibit E, which you
18 prepared, Mr. Steytler, on page one or two, it would make no
19 difference, but the columns that you have, let us take page
20 one. You have several columns identified as flow MG. Could
21 you tell me what that means?

22 WITNESS STEYTLER: I am trying to find what
23 exhibit that is.

24 JUDGE COLE: It is Exhibit E.

25 MR. GEHR: I took it back from him. That is the

1 reason he doesn't have that. I will return it to him.

2 JUDGE COLE: That puts him at a distinct
3 disadvantage.

4 WITNESS STEYTLER: Yeah, the flow in million
5 gallons.

6 JUDGE COLE: Is that the total monthly flow
7 during, for example, the first item there?

8 WITNESS STEYTLER: Yes.

9 JUDGE COLE: Under Glendale, January, 459.83?

10 WITNESS STEYTLER: Is the total monthly flow.

11 JUDGE COLE: And the next column identified as
12 ADF, all capital letters, what does that --

13 WITNESS STEYTLER: Average daily flow.

14 JUDGE COLE: That is where my problem is, sir.
15 If I divide 459.83 by 31, I do not get 13.14. So, how do
16 we get to that figure from --

17 WITNESS STEYTLER: Well, let us hope that is a
18 typo. It should be divided by the days in the month to get
19 the average daily flow.

20 MR. GEHR: Just so we don't get too confused
21 in the record, would you look at the last column to the
22 right side? It says RPT days? I believe that must stand
23 for report days?

24 JUDGE LAZO: That is helpful.

25 JUDGE COLE: That is very helpful. So that, Mr.

T8, 12

1 Steytler, do you agree with that?

2 WITNESS STEYTLER: Yes.

3 JUDGE COLE: So that figure of 13.14 was arrived
4 at by dividing the 459.83 by the figure at the very end of the
5 column, which indicates, it states report days?

6 WITNESS STEYTLER: Report days, yes, and I have
7 forgotten.

8 JUDGE COLE: Which in that case is 35?

9 WITNESS STEYTLER: What happens here is we are
10 working on weekly meter readings, and some will be four
11 weeks, and some will be five weeks, but the 35 and 28 days
12 are what we divide by then.

13 JUDGE COLE: All right, sir. So that the average
14 design flow is in effect the average flow that you received
15 for a 35-day period, most of which was January?

16 WITNESS STEYTLER: I -- maybe I didn't hear you
17 quite. Could you restate the question?

18 JUDGE COLE: January has only 31 days.

19 WITNESS STEYTLER: Yes, sir.

20 JUDGE COLE: But the figure you have here is
21 based upon a 35-day flow.

22 WITNESS STEYTLER: That is right. Most of which
23 is in January, yes, sir.

24 JUDGE COLE: All right, so including all of
25 January plus possibly some overlap into either December, or --

1 WITNESS STEYTLER: That is right.

2 JUDGE COLE: -- February. All right, sir. I
3 understand how those figures were calculated. I have no
4 further questions.

5 JUDGE LAZO: Does anyone have any further
6 questions of Mr. Steytler?

7 MS. BERNABEI: I have one further question.

8 JUDGE LAZO: Very well.

9 RECROSS EXAMINATION

10 BY MS. BERNABEI:

11 Q Mr. Steytler, has there been any problem in your
12 tenure at the 91st Avenue treatment plant with water quality,
13 in other words, meeting EPA standards for water quality?

14 A Very little. The --

15 MR. GEHR: Objection.

16 WITNESS STEYTLER: In our last permit, which was
17 October, 1980, we performed, oh, maybe 3,000 tests the year.
18 I made a calculation last week that we have passed -- have
19 been within standards in about 99 and a half percent, so we
20 have a half a percent miss over that period of time.

21 BY MS. BERNABEI:

22 Q Has there been ever a time that you remember that
23 the plant has been shut down because of water quality problems?

24 MR. GEHR: Objection.

25 JUDGE LAZO: Well, it is well beyond the scope of

1 the direct testimony.

2 MS. BERNABEI: It does have to do with an important
3 issue in this proceeding, and he has been there since 1976.

4 MR. GEHR: I won't object to this one question,
5 but let us not go beyond this on quality.

6 JUDGE LAZO: You said you had one question.

7 MS. BERNABEI: It is about quality.

8 JUDGE LAZO: It appears to us you had one area
9 of questions.

10 MS. BERNABEI: That would be more accurate. I
11 don't have many questions, though.

12 WITNESS STEYTLER: The plant has not been shut
13 down since I have been here.

14 BY MS. BERNABEI:

15 Q Since you have been there. Have you read the
16 Final Environmental Impact Statement for the Palo Verde
17 plants? I am not sure if you reviewed this.

18 A No, I haven't.

19 Q You haven't.

20 A I am not familiar with it.

21 Q Well, let me read -- this has been entered
22 into evidence. Let me just read you something and see if
23 this refreshes your recollection. It says that the plant
24 has been shut down for a period of eight days because of a
25 load of industrial waste. Do you remember anything like that

1 in your experience?

2 A I don't remember that. Was there a date?

3 Q No, there was no date, but perhaps this was
4 before 1976. It does mention, however, that there are
5 industrial wastes going to the 91st Avenue treatment plant
6 for which it was not originally designed. Do you know
7 anything about that?

8 MR. DEWEY: Objection. What page are you
9 referring to?

10 MS. BERNABEI: I am sorry, it is 4-12 in the L.S.

11 MR. GEHR: Well, I think he has already
12 answered the question. It is crazy to continue asking the
13 same question. He says he doesn't know, it hasn't happened
14 as far as he knows. What more can we do with that subject?

15 MS. BERNABEI: I will ask one more question.
16 This will be the last.

17 BY MS. BERNABEI:

18 Q Is it a problem, to your knowledge, that
19 industrial wastes now come to the 91st Avenue treatment plant?

20 A I would have to define problem. Industrial
21 wastes come to all treatment plants. We have an industrial
22 waste team that works for the city. We try to control the
23 wastes. We are re-writing our ordinance. I am having
24 trouble with the word "problem."

25 Q Well, the plant was originally designed to handle

1 residential wastes, was it not?

2 MR. GEHR: Objection. She started out on an
3 area of quality which was far beyond the scope of the direct
4 testimony, and now we are just wasting time. In fact, I
5 raised the objection. I withdrew one objection. I don't
6 intend to withdraw any more.

7 JUDGE LAZO: We are going to sustain the
8 objection, Ms. Bernabei.

9 MR. DEWEY: I would also like to point out that
10 the record has been mischaracterized. The FES only states
11 that a portion of the facility was shut down, not that the
12 facility was shut down.

13 JUDGE LAZO: Very well.

14 Thank you, Mr. Steytler. You may be excused.

15 WITNESS STEYTLER: Thank you.

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1 JUDGE LAZO: There was some question concerning
2 Intervenors' Exhibit VIII earlier this morning, I guess
3 because copies had not been submitted to the parties. The
4 exhibit has been offered into evidence.

5 MR. DEWEY: Your Honor, I got a copy of this too
6 late to be ready before this thing started again, so I
7 haven't had a chance to read it.

8 JUDGE LAZO: All right. Well, then after the
9 luncheon recess, we'll ask again whether it may be admitted
10 into evidence or whether there are any objections.

11 MR. BERNABEI: The only problem might be that
12 Mr. Schaper might not be here if there is other testimony
13 required. If anyone is going to make an objection on the
14 basis of identification or authentication, I suppose it
15 would be proper to make that now.

16 MR. DEWEY: No problem.

17 MS. BERNABEI: No problem.

18 MR. GEHR: No problem.

19 JUDGE LAZO: Fine. Well, then we'll recess
20 until 2:00 o'clock.

21 (Whereupon, the hearing in the above-entitled
22 matter was adjourned at 12:23 p.m., to reconvene this same
23 day, Friday, April 30, 1982, at 2:00 p.m.)

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A F T E R N O O N S E S S I O N

2:00 p.m.

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3 JUDGE LAZO: Would the hearing come to order,
4 please. Are there any objections to the admission into
5 evidence of Intervenors' Exhibit VIII?

6 MR. DEWEY: I have a statement I'd like to make
7 with respect to this exhibit, Your Honor. This exhibit does
8 contain much legal discussion about the water rights owner-
9 ship issue. It talks about various cases and the Kent (Ph.)
10 decree and various legal positions, which Mr. Schaper advances
11 on the behalf of his client. And of course, there's no
12 legal positions that have been advanced by other parties,
13 so I don't think that we can really take this as being
14 necessarily an accurate position as to these legal positions
15 that he's making. However, since this witness has already
16 been shown this document and he has answered certain questions
17 with respect to it, Staff will not object to it as an
18 exhibit. But we would like to point out that in the future,
19 we would like to be shown a copy of an exhibit before it is
20 given to a witness. If this would've done in the first
21 place, I think we would've objected at that time.

22 JUDGE LAZO: I understand.

23 MR. DEWEY: And as a matter of fact, I did --
24 let the record show that I did specifically ask to receive
25 the document, and the witness was still given to the witness.

1 And I asked for it. But I will not object though at this
2 point. It can be entered.

3 JUDGE LAZO: All right. Mr. Gehr.

4 MR. GEHR: We have no objection to the acceptance
5 of this document.

6 JUDGE LAZO: Very well. It may be received into
7 evidence.

8 (The document referred to,
9 having been previously marked
10 for identification as Joint
11 Intervernors' Exhibit VII, was
12 received in evidence.)

13 JUDGE LAZO: Mr. Gehr, are you ready to proceed
14 with your next witness?

15 MR. GEHR: Yes, sir. I'm ready to call Mr.
16 William Bingham.

17 Whereupon,

18 WILLIAM G. BINGHAM
19 was called as a witness, and having been first duly sworn,
20 was examined and testified as follows.

21 DIRECT EXAMINATION

22 BY MR. GEHR:

23 Q Mr. Bingham, will you please state your name and
24 address.

25 A My name is William G. Bingham. I reside at

1 8481 Los Coyotes Drive, Buena Park, California.

2 Q By whom are you employed, Mr. Bingham?

3 A Bechtel Power Corporation.

4 Q In what capacity?

5 A My title is Project Engineering Manager. I'm
6 responsible for all engineering and design activities performed
7 by Bechtel as the architect engineer on the Palo Verde
8 project.

9 Q Have you always held that position on the Palo
10 Verde project?

11 A I have always had the responsibility. The title
12 changed from project engineer in about 1976, to project
13 engineering manager.

14 Q Were you involved at the outset of the project
15 in 1973?

16 A Yes, I was.

17 Q As project engineer?

18 A Yes.

19 Q What were your duties and responsibilities in
20 respect of the demonstration facility that was installed at
21 the 91st Avenue Plant?

22 A I was responsible for the formulation of the
23 plans, the engineering, and overseeing the procurement of
24 the equipment and the overall testing program.

25 Q To what extent have you been involved in the

1 engineering and design of the water reclamation facility?

2 A I have a project engineer that reports to me,
3 who resides out of our San Francisco office. Now, that work
4 is conducted in the same manner that the work is conducted
5 on the rest of the power station.

6 Q Was that project engineer responsible to you as
7 to the design of that facility?

8 A Yes, sir.

9 MR. GEHR: I'd like to have the reporter, please
10 -- ask the reporter to mark this document Joint Applicants'
11 Exhibit S.

12 (The document referred to was
13 marked for identification as
14 Joint Applicants' Exhibit S.)

15 BY MR. GEHR:

16 Q Mr. Bingham, do you recognize the document marked
17 as Joint Applicants' Exhibit S?

18 A Yes, I do.

19 Q Would you explain what it is?

20 A It's the resume of William G. Bingham.

21 Q Is it the same resume as is attached to the
22 affidavit of William G. Bingham on Contention 5?

23 A Yes.

24 MR. GEHR: If the Board please, I'll move that
25 the Joint Applicants' Exhibit Number S be admitted in the

1 record.

2 JUDGE LAZO: Are there any objections?

3 MS. BERNABEI: No objection.

4 MR. DEWEY: No objection.

5 JUDGE LAZO: Very well. It may be received.

6 (The document referred to,
7 having been previously marked
8 for identification as Joint
9 Applicants' Exhibit S, was
10 received in evidence.)

11 BY MR. GEHR:

12 Q Before we leave your qualifications, Mr. Bingham,
13 have you had in the course of your duties as project engineer
14 or project engineering manager, been responsible for the
15 design that portion of the facility known as the ultimate
16 heat sink?

17 A Yes, sir.

18 Q Are you familiar with the regulations of the
19 Nuclear Regulatory Commission with respect to safety matters?

20 A Yes.

21 Q To what extent have you participated in the
22 development of the FSAR for the Palo Verde project?

23 A Excuse me. Did you say FSAR?

24 Q FSAR. Well, I'll make it PSAR and FSAR and all
25 other safety and licensing documents.

1 A I've been intimately involved with all of the
2 preparation of the documents and have supervised the prepar-
3 ation of the documents in concernt with the APS engineering
4 staff.

5 Q What were your duties in connection with the
6 engineering of the pipeline between the 91st Avenue Plant
7 and the Palo Verde site?

8 A I was responsible for that design. The design
9 was done by the project engineer in San Francisco that
10 reported to me. Excuse me. I should say, the project
11 engineer and his staff.

12 Q Mr. Bingham, do you have a copy of your affidavit
13 on Contention 5?

14 A Yes, I do.

15 Q Are the matters stated therein true and correct?

16 A Yes.

17 MR. GEHR: If the Board please, I would like
18 to have the affidavit of William G. Bingham on Contention
19 Number 5 inserted in the record as though read as his
20 testimony.

21 JUDGE LAZO: Are there any objections?

22 MR. DEWEY: No objection, Your Honor.

23 MS. BERNABEI: Well, I object on the grounds
24 this is not direct testimony.

25 JUDGE LAZO: I'm sorry.

1 MS. BERNABEI: I object on the grounds that this
2 is not the usual direct testimony filed prior to a witness's
3 appearance. I would like to hear the witness testify as to
4 these matters. This is sort of the gist of what he's
5 testifying to.

6 JUDGE LAZO: You're asking that he --

7 MS. BERNABEI: Testify directly.

8 JUDGE LAZO: Simply repeat this testimony?

9 MS. BERNABEI: Well, I believe he's going to
10 speak about many of the things that are in his affidavit.
11 And it appears that it might be more useful if he testified
12 of his own knowledge, or testified directly rather than --

13 MR. DEWEY: Your Honor, I have to object to
14 that. It was stated earlier that there would be direct
15 testimony filed in this proceeding. The Staff filed direct
16 testimony by modifying the affidavit of our witness. The
17 Applicant stated at that time that he was going to use the
18 affidavit as his direct testimony. And I see no reason
19 why this cannot be used especially since the Intervenors'
20 have had ample time to prepare any questions with respect
21 to his affidavit.

22 JUDGE LAZO: Well, it's customary in these
23 proceedings to incorporate prefiled, written testimony
24 directly into the transcript without taking the time to
25 read it. We agree with Counsel for Staff. You've certainly

1 had plenty of opportunity to study it. It's not exactly
2 in the form generally used, but I think it would expedite
3 matters to simply put it into the transcript.

4 You have sufficient copies for the reporter, do
5 you?

6 MR. GEHR: Yes, we do.

7 JUDGE LAZO: Very well. Then we'll direct the
8 reporter to incorporate it directly into the transcript as
9 if read.

10 (Whereupon, the statement of William G. Bingham
11 was bound into the transcript as if read.)

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Avenue Plant") and the City of Tolleson wastewater treatment plant ("Tolleson Plant"), respectively.

4. Each unit at PVNGS will require approximately 21,350 acre-feet of treated wastewater effluent per year for cooling water, based on the following assumptions:

- a. Each Palo Verde unit will operate at a capacity factor of 95% of rated power for 11 months each year and will experience a one-month outage each year for refueling and maintenance.
- b. There will be no treatment of the cooling water blowdown from the circulating water system.
- c. Use of annual average ambient meteorological conditions.
- d. Cooling water losses will be as defined in Figure 3.3-1 of the Environmental Report - Operating License Stage for PVNGS.
- e. Concentrations of dissolved solids in the influent to the circulating water system will be permitted to be increased by a factor of 15.

5. The effluent from the 91st Avenue Plant and the Tolleson Plant will be further processed at the Water Reclamation Plant ("WRP") located at PVNGS.

6. In the early design stages of Palo Verde it was recognized that (a) the design and specification of materials for the circulating water system for the Palo Verde units could be impacted by the quality of the waste-

water effluent discharged from the 91st Avenue Plant and (b) the quantity of effluent required for blowdown to control scale formation, fouling and corrosion and other treatment to limit biological growths within tolerable limits would be a function of the concentrations of suspended and dissolved solids present in the effluent.

7. Accordingly, during the period from August 1973 to September 1974, analyses of the effluent discharged from the 91st Avenue Plant were performed and a demonstration plant incorporating the principal relevant features of the proposed tertiary treatment plant and a circulating water system was established and operated at the 91st Avenue Plant.

8. From such extended analyses and demonstration plant operation, it was determined that the principal constituents in the effluent discharged from the 91st Avenue Plant which could cause scale formation, fouling, corrosion and/or contribute to biological growths were calcium, magnesium, silica, phosphorus and ammonia and that reductions in the concentrations of such materials could reduce significantly the quantity of blowdown water required to control scale formation, fouling, corrosion and biological growths within tolerable limits and minimize chlorination requirements.

9. Accordingly, the WRP was designed to incorporate a two-stage lime treatment process to remove dis-

solved solids, including calcium, phosphorus, silica and magnesium. Additionally, trickling filters are provided to reduce ammonia which reduces chlorination requirements, corrosion potential and sludge production; filtration is provided to remove residual suspended solids, including calcium, phosphorus and other solids; and chlorination is provided to control biological growths.

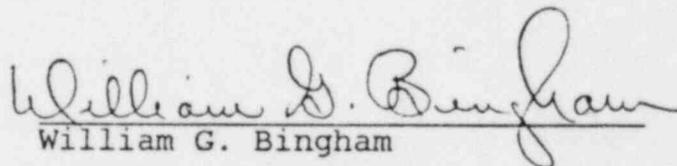
10. The treatment described above is designed to remove quantities of suspended and dissolved solids and to limit biological growths to a degree that the resulting concentrations in the treated effluent may be increased by a factor of 20 in each generating unit's circulating water system without excessive scaling, fouling or corrosion of system components and heat exchangers.

11. The foregoing factor of 20 is predicated upon the assumption that the concentrations of dissolved solids in the effluent discharged from the 91st Avenue Plant will be within the range of fluctuation of such concentrations observed during the period of effluent analyses and demonstration plant operation referenced in Paragraph No. 7 hereof.

12. If treatment were limited solely to filtration and chlorination, the increase in concentration of dissolved solids in the cooling water would be limited to a factor of about 5 and effluent consumed would be increased by a factor of 4.

13. The concentrations of dissolved solids in the effluent discharged from the 91st Avenue Plant are primarily a function of water sources for the domestic water systems of the communities using the 91st Avenue Plant, principally the Salt and Verde Rivers. Consequently, subject to normal seasonal variations, this element of effluent quality has been and is expected to continue to be relatively stable.

14. Nonetheless, for conservatism in estimating the quantity of effluent required for operation of each of the Palo Verde units, the blowdown requirements included in the 21,350 acre-feet are based on the assumption that concentrations of dissolved solids in the influent to the circulating water system will be permitted to be increased by a factor of 15.


William G. Bingham

Subscribed and sworn to before me this 11th day
of January, 1982.


Notary Public

My commission expires:
OCTOBER 1, 1984

RESUME

WILLIAM G. BINGHAM

Educational Background:

University of California at Los Angeles - B.S.
Engineering

Golden Gate University, San Francisco, California -
M.B.A.

Professional Licenses:

Registrations in California and Arizona

Memberships:

American Nuclear Society

Professional Level Experiences:

Joined Bechtel Power Corporation in 1957 following graduation from the University of California at Los Angeles.

- Project Nuclear Engineer on the Rancho Seco Nuclear Generating Station, Sacramento, California (prior to 1973)
- Project Engineer and Project Engineering Manager at Palo Verde Nuclear Generating Station, Phoenix, Arizona. Responsible for all engineering and design (1973 to present)

1 MR. GEHR: If the Chairman please, we
2 previously have advised the Board and Counsel at these
3 proceedings that Mr. Bingham would be testifying on three
4 subjects. One was the methodology used in developing the
5 requirements or need for effluent for condenser cooling;
6 the second subject matter was the matter of the quality
7 of the effluent as it might impact on the quantity of
8 effluent required; and three, the non-safety issue. I
9 would like to proceed with the development of the first
10 item.

11 I have one exhibit to be marked and I'd like to
12 have that marked as Joint Applicants' Exhibit T.

13 (The document referred to was
14 marked for identification as
15 Joint Applicants' Exhibit T.)

16 MR. GEHR: I do expect to be able to complete our
17 case without going back on the alphabet.

18 JUDGE LAZO: Going back on the -- what's that?

19 MR. GEHR: The alphabet.

20 JUDGE LAZO: All right.

21 BY MR. GEHR:

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1 Q Mr. Bingham, do you have a copy of Joint
2 Applicants' Exhibit T?

3 A Yes, I do.

4 Q Was this document prepared by you or under
5 your direction and supervision?

6 A Yes, it was.

7 Q Does the document consist of three pages
8 marked WGB-2, WGB-3 and WGB-4?

9 A Yes, it does.

10 Q Would you explain what this document shows?

11 We will ask the witness to utilize an overhead projector
12 of the exhibit pages and the screen so that everyone
13 can follow it more readily.

14 JUDGE LAZO: Is there any way to move your
15 table, Ms. Bernabei?

16 MR. GEHR: Could she move around on this
17 side? She may be able to see better.

18 JUDGE LAZO: That might solve the problem.
19 Put your chair on the other side.

20 BY MR. GEHR:

21 Q Mr. Bingham, do you have two microphones
22 there or just the one?

23 A I believe I just have one.

24 Q That phone is connected to the reporter's,
25 recorder's instruments so you will have to speak up

1 in a loud clear voice to be heard by the rest.

2 A Okay, how is this? Can you all hear me?

3 Fine.

4 JUDGE LAZO: Can you see it?

5 JUDGE COLE: Yes, I can see it, sir.

6 MS. BERNABEI: Mr. Chairman, I would like
7 some indication of how this fits into his affidavit?

8 I assume he's talking about the average monthly conditions?
9 Is that what you're doing? There is no pending question
10 as I can tell.

11 MR. GEHR: If you'll move the slide up a
12 little bit -- one of the reasons I identified the pages
13 constituted in the document, you will see at the bottom
14 of that document, WGB-2 which is the first page of Joint
15 Applicants' Exhibit T.

16 WITNESS BINGHAM: On this exhibit, what
17 I wanted to do was to provide some clarification of
18 the calculation of averages. The Table is split into
19 water consumption and meteorology. First the water consump-
20 tion was calculated using monthly averages based on
21 average monthly conditions.

22 Second, those monthly values were summed
23 for the annual averages.

24 With regard to meteorology, the parameters
25 were continuously monitored by the meteorological station.

1 They were calculated with an arithmetic daily average
2 and we calculated an arithmetic monthly average from
3 the daily average and those are the averages that were
4 used in the monthly calculations. This is part of Exhibit
5 T, page WGB-2.

6 MS. BERNABEI: Mr. Chairman, would it be
7 possible for counsel to ask the witness questions?
8 I'm having trouble fitting in his testimony with what
9 I assume he's working from which is his affidavit.
10 It seems more appropriate that it be in question and
11 answer form.

12 JUDGE LAZO: Well, it seems to us this is
13 an answer. He was asked to describe the tables and tell
14 us what they are. Does that cause you a problem?

15 MS. BERNABEI: Well, I'm trying to find
16 out how this relates to the topics on which he is testi-
17 fying.

18 JUDGE LAZO: I am assuming that we're going
19 to hear some questions after we've identified some of
20 the benchmarks.

21 MR. GEHR: Perhaps as to this particular
22 point which has been raised by counsel for Intervenor,
23 this particular testimony is amplification of the paragraphs
24 in his affidavit which has been received as though read.
25 The paragraphs in particular are paragraphs 4, I'll

1 stop. Just paragraph 4. It appeared from -- to us
2 that everything in paragraph 4 was quite clear. The
3 number 21,350 I think has been repeated many times.

4 MS. BERNABEI: Mr. Chairman, I thought --

5 - MR. GEHR: Let me finish, please. Each
6 of the sub-paragraphs A relating to the capacity factor
7 used, the other matters I think are clear, one element
8 of that paragraph 4 that may have been misunderstood
9 and not understood is paragraph C which relates to the
10 use of annual average ambient meteorological conditions.

11 I just read from sub-paragraph C and paragraph 4.
12 And this particular slide or page of Exhibit T is intended
13 to deal with that problem of providing further amplification
14 as to how annual average ambient meteorological conditions
15 were used.

16 MS. BERNABEI: Mr. Chairman, I believe Mr.
17 Gehr misunderstood my objection. My objection is that
18 I wanted the witness to testify and explain what he
19 was talking about and how this was connected to his
20 affidavit. I did not ask for Mr. Gehr's testimony on
21 this.

22 JUDGE LAZO: Ms. Bernabei, I think it is
23 a perfectly proper procedure if an exhibit is going
24 to go into the record, to ask the person who prepared
25 it to describe it and explain what it is all about.

1 BY MR. GEHR:

2 Q Will you proceed to the next page of Exhibit
3 T?

4 A Yes, I will.

5 Q And explain that page?

6 A This is page WGB-3 of Exhibit T. And it
7 depicts the calculation of effluent requirements based
8 upon Table 3.4-2, sheet 2 of the ER-OL. I would like
9 to take just a moment and describe the calculation at
10 this time. This is the monthly calculation. I've listed
11 in this column each of the 12 months. The make up in
12 gallons per minute are listed in the second column and
13 those are the numbers taken directly from ER Table 3.4-
14 2, sheet 2.

15 On the third column, we have converted those
16 numbers from gallons per minute to acre feet per day.
17 The average of those numbers is at least arithmetically
18 about 65.5 and weighted 65.6. We have rounded up to
19 use 66 in our calculations. The calculation is shown
20 on the right side of the exhibit, the annual use being
21 the 66 per day times the 365 days per year is 24,100
22 acre feet per year.

23 Q Mr. Bingham, what was the capacity factor
24 used in that calculation? Did you mention that?

25 A I'll get to that. I haven't gotten there

1 yet. As we have said, in one month, the unit is down
2 for refueling, we have selected December at 57 which
3 is the smallest value. If we take the 24,100 less 57
4 times the 31 days in the month, that gives us 22,333
5 acre feet. Further, in the assumptions and I'm dealing
6 with the assumptions under paragraph 4. We have a 95%
7 capacity factor. That yields 21,216 acre feet per year
8 cooling power make up.

9 It has also been indicated in the ER-OL
10 that there are small losses from the reservoir and in
11 the water reclamation facilities. Note (B) indicates
12 that the water reclamation facility loss is 70GPM.
13 The reservoir loss is 180GPM. The total for three units
14 is 250GPM for 403 acre feet per year, dividing that
15 by 3 is 134 acre feet per year. We add that to the
16 21,216 acre feet per year cooling power make up and
17 that yields 21,350 acre feet per year effluent required.

18 Q Would you proceed to page 3, WGB, the next
19 page which is WGB-4?

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T12

1 A This is page WGB-4 of Exhibit T, and it is
2 depicting the cooling tower makeup rates for June, in acre-
3 feet, looking at five years of onsite data. The first
4 column indicates the basis, June '74 and '75, June of 1976,
5 June, 1977, June 1978, and for comparative information, an
6 average of the June 1976 through 1978 data. The purpose for
7 this Exhibit is to determine if there has been a trend in
8 subsequent years in the water requirements for the month of
9 June.

10 The table shows that the average of the three
11 succeeding years is 2,114 acre-feet, and that compares with
12 the 2123 that we had for the base data.

13 Q Does that complete your amplification of your
14 explanation of the manner in which the effluent requirement
15 per unit was established?

16 A Yes, it does.

17 MR. GEHR: I should now like the witness to -- I
18 would like to have marked for identification -- I beg your
19 pardon. Before I do that, I would like to offer in evidence
20 Joint Applicants' Exhibit 2. T, excuse me.

21 JUDGE LAZO: Objections?

22 MR. DEWEY: No objection.

23 MS. BERNABEI: I assume I would have no objection.
24 I assume this was composed either by you or -- the figures
25 were gotten either by you or people under your supervision

T12,2

1 or direction, is that correct?

2 WITNESS BINGHAM: That is correct.

3 MS. BERNABEI: Okay, no objection.

4 JUDGE LAZO: Very well. It may be received.

5 (Joint Applicants' Exhibit No.
6 T was thereupon received into
7 evidence.)

8 JUDGE COLE: While you have that in your hand,
9 Mr. Bingham, the WGB-4, under the column makeup, does that
10 include blowdown, drift, and evaporation, or is it just
11 evaporation?

12 WITNESS BINGHAM: As I recall, it includes all the
13 elements.

14 JUDGE COLE: All right, sir.

15 JUDGE CALLIHAN: And also while you have it,
16 Mr. Bingham, there is on page three, WGB-3, of Applicants'
17 Exhibit T values like 21,350 acre-feet per year. On -- for
18 how many units?

19 WITNESS BINGHAM: That is the per-unit number.

20 JUDGE CALLIHAN: Per unit. Thank you.

21 MR. GEHR: Now I would like another document
22 marked as Joint Applicants' --

23 JUDGE LAZO: Pardon me one minute, Mr. Gehr.

24 MR. GEHR: I ask that this next document be
25 marked Joint Applicants' Exhibit U.

T12,3

1 (Whereupon, the document
2 referred to was marked as Joint
3 Applicants' Exhibit No. U for
4 identification.)

5 MS. BERNABEI: Mr. Chairman, can I ask a point of
6 procedure?

7 JUDGE LAZO: Surely.

8 MS. BERNABEI: If Mr. Gehr -- I am going to put a
9 continuing objection on the record if Mr. Gehr is going to
10 elicit testimony through this witness similar to the other
11 Exhibit. I believe it is more proper to get a brief
12 description of the document, and elicit the rest through
13 question and answer form, and it appears that the witness is
14 prepared to give a presentation on the document, and I don't
15 believe that is the proper form for a hearing of this sort.

16 JUDGE LAZO: Well, Mr. Gehr, what are your plans,
17 and how many Exhibits of this type do you have?

18 MR. GEHR: There is one on the matter of the
19 quality of the effluent as it affects the quantity or needs
20 for effluent, and there is one on the non-safety issue.

21 JUDGE LAZO: Have Counsel for the other parties
22 seen these Exhibits?

23 MR. GEHR: They were given a copy yesterday. It
24 seems to me I have been criticized for asking too many
25 leading questions, which are -- I think is a little bit unfair,

T12,4

1 but the reason for doing so has only been on simple questions
2 where it expedited the proceeding to get the work -- the
3 testimony in.

4 JUDGE LAZO: Well now, the Exhibit which has
5 been identified as Applicants' Exhibit U consists of -- I
6 can't tell, maybe a dozen pages or more. Is it your
7 intention to put up a slide of each of these pages?

8 MR. GEHR: Yes, sir. We are going to -- it is
9 easier to do that than it is to -- for me to ask a question
10 about each page. I think it will be much clearer if we just
11 let Mr. Bingham proceed. I can ask him each page as we will,
12 as we go, but it is not going to expedite any matter.

13 JUDGE LAZO: Wouldn't it be simpler to simply have
14 him describe the Exhibit? He has obviously prepared these
15 charts.

16 MR. GEHR: He certainly has.

17 JUDGE LAZO: He could tell us what is in them.

18 MR. GEHR: That is what he was trying to do. That
19 is what he just did before. Now, what is --

20 MS. BERNABEI: I will restate --

21 MR. GEHR: I think this next one -- I don't know
22 how to do it without having him describe what is there and
23 how -- why it is there. Now, I can ask these questions if
24 you wish, but we won't be done in the hour and a half that I
25 expect to spend on this, or less.

T12,5

1 MS. BERNABEI: Well, there is a proper form in
2 which lawyers question witnesses during hearings, and this is
3 not a presentation of the FSAR, and Mr. Bingham is obviously
4 prepared, and we certainly have no objection to him
5 referring to his documents, but I believe that this should be
6 in a question and answer form. This is a hearing according
7 to certain rules of procedure, and it is not according to
8 those rules of procedure that the witnesses given
9 presentations.

10 MR. GEHR: I do not understand where the
11 concept has arisen that testimony must be in question and
12 answer form.

13 MR. DEWEY: Well, Your Honor, the Applicants'
14 Counsel could give the witness a document and ask him to
15 describe what the document was, and that would be a very
16 legitimate question.

17 JUDGE LAZO: Of course.

18 MR. DEWEY: For example, he could say what is
19 page one of JA Exhibit U, and would you please describe this
20 document. The only difference being, that I can see, is that
21 he is pointing out to these numbers on the board as opposed
22 to saying well, the second column here is this, and thus and
23 so. I don't think there is really that much difference, as
24 if he were just asking to describe what the document was.

25 MS. BERNABEI: Well, there also is the fact that

T12,6

1 Mr. Bingham is actually telling Mr. Gehr what the questions
2 are. I have no doubt this witness knows a great deal about
3 the subject and can be very helpful to us all. I am complain-
4 ing about the form. It is not a presentation. This is a
5 formal hearing in which lawyers or experts on occasion ask
6 questions of witnesses.

7 JUDGE LAZO: Mr. Gehr, is it your intention
8 after you have gone through the slides to ask your witness
9 to express some conclusions regarding these data? Or
10 express an expert opinion regarding anything over and above
11 what he has already expressed in his affidavit?

12 MR. GEHR: No, I find this contentious argument
13 made here absolutely ridiculous. We wouldn't even be doing
14 this unless if the Intervenor had not withdrawn the request
15 for admissions.

16 Now, we have tried to respond to that withdraw-
17 al, which was done on Monday, and what has happened here is
18 she has challenged whether the quality of the effluent
19 impacts the quantity. Mr. Bingham will come up in this
20 presentation and explain what the ranges, or in what
21 manner and to what degree the impact on the quantity -- what
22 impact on quantity quality would have.

23 Counsel for Staff was absolutely right. You
24 know, I can go through here and ask him what does page
25 WGB-5 purport to show? And he will go ahead and tell me and

T12,7

1 he will do just what he did before.

2 JUDGE LAZO: Well, you may proceed, Mr. Bingham.

3 BY MR. GEHR:

4 Q Mr. Bingham, was Joint Applicants' Exhibit U
5 prepared by you or under your direction and supervision?

6 A Yes, it was.

7 Q Does it consist of a number of pages, each of
8 them numbered WGB-5 through WGB-17B?

9 A Yes, it does.

10 Q Mr. Bingham, how does this Exhibit U pertain to
11 paragraph 9 of the affidavit? Or perhaps may I ask, in
12 order to set the stage and to -- for the explanation of this
13 Exhibit, I am going to ask that Mr. Bingham read paragraph
14 9 of his affidavit.

15 A Paragraph nine states, "Accordingly, a WRP was
16 designed to incorporate a two-stage lime treatment process
17 to remove dissolved solids, including calcium, phosphorus,
18 silica, and magnesium. Additionally, trickling filters are
19 provided to reduce ammonia, which reduces chlorination
20 requirements, corrosion potential, and sludge production.
21 Filtration is provided to remove residual suspended solids
22 including calcium, phosphorus, and other solids and
23 chlorination is provided to control biological growths."

24 Q Would you proceed and read paragraph 10 as well?

25 A Yes, sir. "The treatment described above is

T12,8

1 designed to remove quantities of suspended and dissolved
2 solids and to limit biological growths to a degree that the
3 resulting concentrations in the treated effluent may be
4 increased by a factor of 20 in each generating unit's
5 circulating water system without excessive scaling, fouling,
6 or corrosion of system components and heat exchangers."

7 Q There is one more paragraph which is essential
8 to understand the treatment system, and that is paragraph 11,
9 and I will ask you to read this one more paragraph, one
10 additional paragraph.

11 A Paragraph 11 states, "The foregoing factor of
12 20 is predicated upon the assumption that the concentrations
13 of dissolved solids in the effluent discharged from the 91st
14 Avenue Plant will be within the range of fluctuation of
15 such concentrations observed during the period of effluent
16 analyses and demonstration plant operation referenced in
17 paragraph number seven hereof."

18 Q Now, Mr. Bingham, returning back to paragraph
19 nine, it mentions the purpose of the --that the plant was
20 designed, to incorporate a process to remove dissolved
21 solids, including specified ones. Is that what is indicated,
22 is that what the purpose of your page WGB-5 is about?

23 A Yes.

24 Q Would you proceed to the explanation of what is
25 shown on that page? You may use the overhead projector if

T12,9

1 you so desire.

2 A This is Exhibit WGB-5 of Exhibit U. Its purpose
3 is to present a simplified version of Table 3.6-1 of the
4 EROL, concentrating on those items that were stated in
5 paragraph nine, such as total dissolved solids, calcium,
6 magnesium, silica, phosphate, and ammonia. The first
7 column represents values in milligrams per liter, and I
8 believe, Mr. Gehr, this Exhibit needs to be corrected to show
9 that, and shows the influent from the Phoenix 91st Avenue
10 sewage treatment plant with the values.

11 It also indicates the water reclamation plant
12 effluent that will result.

13 Q Would you now turn to the next page of the
14 document, WGB-6?

15 A Yes, sir.

16 Q Would you please explain this page?

17 A Yes, I will.

18 Q What it purports to show?

19 A This figure is a little busy, but its intent was
20 to provide some insight into the effect of cycles of
21 concentration to makeup required for three units. The graph
22 at the top of the page shows the design value of 64,050
23 acre-feet per year occurring at 10 cycles, and depicts water
24 usage at other points along the curve with regards to cycles
25 of concentration.

T12, 10

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JUDGE CALLIHAN: While you have it, Mr. Bingham, can you tell us what a cycle of concentration is, please?

WITNESS BINGHAM: Well, that is the concentration that we would have in the cooling tower, in the circulating water system, for example, one cycle would be the effluent -- or the influent from the water reclamation plant. Fifteen cycles would be what it would be when we are blowing down and running at our maximum concentrations in the tower.

JUDGE CALLIHAN: It is the number of passes of the cooling water through the system, is that a cycle?

WITNESS BINGHAM: No, it is a multiplier of the value of the concentrations in the cooling tower. For example, you would take the number 15 and multiply it by the influent number that came from the water reclamation plant.

1 JUDGE COLE: The total dissolves solids
2 concentrations?

3 WITNESS BINGHAM: Or whatever element we're
4 talking about, that's correct.

5 JUDGE COLE: How was this chart prepared?

6 WITNESS BINGHAM: Well, it was based on
7 our calculations of the concentration. Excuse me, are
8 you talking about this chart up here or this one down
9 here?

10 This was based upon our calculation feed
11 into the system. In otherwords --

12 JUDGE COLE: What assumption did you make
13 with respect to blow down and drift?

14 WITNESS BINGHAM: They were the same assumptions
15 used in calculating the 21,350 acre feet which are listed
16 in paragraph 4.

17 JUDGE COLE: I guess what concerns me about
18 that chart, I, because of the relatively small amount
19 of drift that I would have expected a stronger relationship
20 between cycles of concentration and make up requirements,
21 for example a doubling of the cycles of concentration
22 being closer to a halving of the make up water requirements
23 and that seems to be not even close to that kind of
24 a relationship. That's why I asked how the curve was
25 prepared.

1 WITNESS BINGHAM: I guess we didn't expect
2 that and we can go into more detail if that's desirable
3 at some time.

4 JUDGE COLE: I'm concerned about -- I'm
5 not saying that what you did there was wrong, sir, but
6 I was thinking that it would have been a stronger response.

7 WITNESS BINGHAM: For example, you have
8 for four cycles of concentration, you require a make
9 up of 85,000 acre feet per year and when you quadruple
10 the cycles of concentration rather than cutting that
11 85 by 4 or even three, you wind up with still somewhat
12 over 60 so a quadrupling of the cycles of concentration
13 cuts your water requirement by only a third when I thought
14 it should have cut it by a factor of three.

15 JUDGE LAZO: Why don't we look at that at
16 the recess and then we can perhaps deal with that particular
17 issue?

18 WITNESS BINGHAM: All right, sir.

19 BY MR. GEHR:

20 Q What is the --

21 A Excuse me?

22 Q Excuse me, I was just going to ask you to
23 proceed with the bottom half of the chart.

24 A Proceeding with the bottom half of the chart
25 we have taken the same constituents that I showed before

1 and have listed for information the demo plant average
2 data. We have listed for information what we define
3 as an extreme case and this little asterisk on the footnote
4 means that these are numbers that are tied to our performance
5 warranties on the equipment on the processing plant.
6 Finally, we have put for comparative purposes the average
7 quality of the water that has been measured from 1976
8 to 1980 and further on in the presentation I will talk
9 some more about that column.

10 Q Mr. Bingham, with respect to the total dissolved
11 solids, would it be -- if I were to characterize the
12 design basis of the water reclamation facility as the
13 capability to process water with a TDS concentration
14 of 1500 parts per million, would you agree or disagree
15 with such characterization?

16 A Well, that is a simplification. The design
17 of the plant is based upon the constituents such as
18 calcium, magnesium, silica, phosphorus and ammonia.

19 Q Is there any correlation between those con-
20 stituents and the amount of the total dissolved solids?

21 A Yes, tghere is.

22 Q What kind of correlation is that?

23 I mean, does it go up or down?

24 A Well, generally, as the TDS goes up we will
25 see some of the other constituents follow it.

1 Q Very well. Would you turn to page WGB-6--
2 7? Would you proceed to explain what this exhibit purports
3 to show?

4 A Exhibit WGB-7 is provided as a summary of
5 the sampling analysis from 1973 to 1980 and for clarifica-
6 tion, we are going to present the TDS calcium, magnesium,
7 silica, phosphate and ammonia which are the same constituents
8 which have been discussed on WGB-5 and WGB-6 and then
9 look at the trends in the measured data from 1973 to
10 1974 for the demonstration test and 1976 to 1981 based
11 on the consultants report, controls for environmental
12 pollution and we use CEP to denote that data.

13 Q Is that controls for environmental pollution,
14 is that the name of the consultant?

15 A Yes, it is.

16 Q Would you proceed, please?

17 A For the Board's information, what I intend
18 to do is to go through a brief discussion of the trends
19 and then I will put on the graph that shows the data
20 plotted so that you might see it in more detail. With
21 regard to total dissolved solids, TDS, it is shown on
22 WGB-8, the TDS of the 91st Avenue Plant was generally
23 constant at about 840 milligrams per liter until 1977.

24 Since 1977, there has been a downward trend in TDS
25 so that today it is at about 700 milligrams per liter.

1 During the demonstration plant study, TDS was at about
2 800 milligrams per liter.

3 JUDGE CALLIHAN: The first sentence would
4 be interpreted as the total dissolved solids in the
5 effluent output of the 91st Avenue Plant?

6 WITNESS BINGHAM: Yes.

7 JUDGE CALLIHAN: And where with respect
8 to that output was the pilot plant or I guess demo plant
9 is your terminology tie in, hitched on?

10 WITNESS BINGHAM: It was downstream -- it
11 was on this, yes.

12 BY MR. GEHR:

13 Q Was it close to or was it at -- where was
14 it physically?

15 A It was located on the property at the 91st
16 Avenue Treatment Plant.

17 Q Very well.

18 JUDGE CALLIHAN: Did it see only output
19 from the 91st Avenue Plant?

20 WITNESS BINGHAM: To the best of my knowledge,
21 yes. The figure WGB-9 is a plot taken from the consultant's
22 report that was mentioned on Exhibit WGB-7 and it shows
23 the values that we're talking about and the trend that
24 is downward. In addition, for information, we have
25 plotted the data from the demonstration plant and this

1 is the point on the left of the Exhibit. It says 1973,
2 1974 data. So there it is, right there.

3 BY MR. GEHR:

4 Q Is that the hexagonal?

5 A The hexagonal indication on the figure.

6 Q Thank you.

7 A I'd like to move on if I might to the next
8 constituent.

9 Q Would you, please?

10 A This is Exhibit WGB-10 and the next of the
11 constituents in our tables. It is calcium. The calcium
12 concentration generally varies between about 40 and
13 50 milligrams per liter as calcium which is a little
14 less than the average of about 53 milligrams per liter
15 found during the demonstration plant study.

16 JUDGE CALLIHAN: Again, is this the calcium
17 from the effluent in the 91st Avenue Plant and concomitantly
18 the calcium content of the input to the pilot plant?

19 WITNESS BINGHAM: Yes, it is.

20 JUDGE CALLIHAN: Thank you.

21 WITNESS BINGHAM: Exhibit WGB-11 presents
22 the data as before when I discussed total dissolved
23 solids. For reference, the demonstration test data
24 is shown in the hexagonal indication on the left side
25 of the exhibit and the measured values of the consultant

1 are plotted for you information.

2 JUDGE CALLIHAN: I have the same question
3 as before. I passed it -- I'll pick it up now. Can
4 you tell us about the non-linearity of the abscissa.

5 WITNESS BINGHAM: I believe it had to do
6 with the time at which the measurements are made. If
7 there are particular points and I will discuss some
8 on some of the other curves, that are troublesome, I'm
9 sure during the break we can look and see what the consultant
10 had to say about those particular points.

11 JUDGE CALLIHAN: Are these averages? Plotted
12 as averages or are they plotted at some particular date
13 in 1977 or 1979?

14 WITNESS BINGHAM: I believe they are related
15 to the date of the sampling.

16 JUDGE CALLIHAN: I illustrate my point without
17 being facetious and I'll offer any apology but it looks
18 like 1977 was a longer year than 1978.

19 JUDGE LAZO: I think if you put WGB-9, if
20 you put that slide back on that particularly illustrates
21 Dr. Callihan's point.

22 WITNESS BINGHAM: Surely. Is this the correct
23 slide? 9?

24 JUDGE LAZO: Yes.

25 JUDGE CALLIHAN: I might point out a typo.

1 It's 1979, I dare say and not 1989.

2 WITNESS BINGHAM: Yes, this was taken out
3 of the consultant's report and we probably should report
4 it as it is in the report.

5 JUDGE COLE: It looks like he gave equal
6 weight to sample rather than time.

7 WITNESS BINGHAM: Getting back to your point,
8 I'm sure we can verify that these are not average but
9 just plotted points of when the measurements were made.
10 Otherwise we would expect, I believe variation.

11 JUDGE LAZO: And you think the consultant
12 took a lot of measurements in 1976 compared to 1977,
13 is that why the abscissa is so spread out?

14 WITNESS BINGHAM: Yes, that's right. That's
15 absolutely correct.

16 JUDGE LAZO: Okay, thank you.

17 BY MR. GEHR:

18 Q Yes, would you proceed to -- you were on
19 11. Would you continue?

20 A The next constituent I would like to discuss
21 is magnesium and that's shown on Exhibit WGB-12. Again,
22 a brief statement -- the magnesium concentration is
23 generally varied from 20 to 30 milligrams per liter,
24 the average of 23 milligrams per liter during the demon-
25 stration plant study, is very near the average determined
since 1976.

1 And on the next exhibit, WGB-13 those data
2 are depicted. Again I would indicate on the left side
3 of the exhibit, the hexagonal data point, 1973 to 1974
4 for the demonstration plant.

5 May I continue to the next?

6 MR. GEHR: I believe I detected some movement
7 by Intervenor's counsel. I wonder if she wanted to
8 ask a question.

9 MS. BERNABEI: I did. I'm trying to understand
10 what 1973 - 1974 data point means.

11 WITNESS BINGHAM: Okay, this point is the
12 data that we measured at the time of the demonstration
13 plant operation.

14 MS. BERNABEI: And this is actually a projection
15 then from that data?

16 WITNESS BINGHAM: No. Let me see if I can
17 explain. In 73/74, we actually made tests daily.

18 MS. BERNABEI: Right, I understand.

19 WITNESS BINGHAM: And that is the data point.
20 Starting in 1976, a consultant went in periodically,
21 more in 1976 than in later years.

22 These points, maybe they shouldn't be connected
23 but the consultant connected the points. These points
24 were measurements just as these were for subsequent
25 years.

1 MS. BERNABEI: But this point, the 1973/74
2 data point is an average of all the points from the
3 tests taken during those years?

4 WITNESS BINGHAM: That's correct.

5 MS. BERNABEI: But it's not an average in
6 the sense of a monthly average or an average in terms
7 of frequency of time?

8 WITNESS BINGHAM: No.

9 MS. BERNABEI: It's according to the tests
10 that were taken. I understand.

11 JUDGE CALLIHAN: Was the data obtained in
12 the same manner?

13 WITNESS BINGHAM: I believe so.

14 BY MR. GEHR:

15 Q In otherwords, do I read that chart correctly
16 that it is on the ordinate, it is -- I'm looking --
17 what does it start out with?

18 A I'm sorry, I didn't understand. Are you
19 talking about this point?

20 Q Yes, what would that value be for the average
21 1973/74 data, approximately?

22 A Well, it's just a little less than 24 and
23 we said it was 23 on Exhibit WGB-12.

24 JUDGE CALLIHAN: Is the tick provided in
25 1980 significant on the third?

1 WITNESS BINGHAM: My people have told me
2 that it wasn't.

3 We have, basically the approach we took
4 was where we were concerned -- I'll be explaining reasons
5 why we believe the abnormality occurred and we'll discuss
6 any other points that might have occurred of importance.

7 JUDGE COLE: Mr. Bingham, do you know how
8 the samples were collected?

9 WITNESS BINGHAM: I personally don't know.

10 JUDGE COLE: Were they grab samples or time
11 samples that were one or two --

12 WITNESS BINGHAM: I suspect they were grab
13 samples. We could confirm that point also.

14 JUDGE COLE: That would explain the variability.

15 JUDGE CALLIHAN: Also we might learn something
16 about the spread in the samples, the uncertainty if
17 there were some error bars on these curves, it would
18 be helpful.

19 WITNESS BINGHAM: Yes, sir. It would be
20 helpful. I suspect that the consultant has some of
21 that information available.

22 What we did was to present the reduced data
23 that was presented in their report in this form. I'm
24 trying to remember but I believe that there is a breakdown
25 of data available for each year in some other form,
either in that report or I'm sure subsequent in their

1 files.

2 MS. BERNABEI: May I ask one further question?

3 JUDGE LAZO: Yes.

4 MS. BERNABEI: You're referring to the bar
5 graphs contained in the consultants report, is that
6 correct?

7 WITNESS BINGHAM: I'm not sure it's the
8 bar graphs but if you look up in the front of this document.

9 JUDGE CALLIHAN: Could the document be identified?

10 WITNESS BINGHAM: This is the consultant's
11 document that I identified on WGB-7.

12 MS. BERNABEI: This is the basis of the
13 information.

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14-1

1 MS. BERNABEI: It's not from there?

2 WITNESS BINGHAM: Yes, it is from here. I just
3 have the wrong page is all. All I want to do is make sure
4 that before I answer, that is correct. Yes, I believe that's
5 correct.

6 JUDGE CALLIHAN: For the record, sir, what is
7 correct?

8 WITNESS BINGHAM: That there is further explana-
9 tion in the referenced document on the variability of the
10 data. May I move on?

11 BY MR. GEHR:

12 Q Would you please.

13 A The next exhibit is WGB-14, Silica. The silica
14 concentration measured during the demonstration plant
15 studies averaged about 33 milligrams per liter. This is
16 somewhat higher than the average noted since 1976, which
17 was 28 milligrams per liter. The very high peak shown in
18 the CEP data, which I'll show in WGB-15, are likely due
19 to clays carried into the waste-water system during rainy
20 periods.

21 This is exhibit WGB-15, and as I was indicating
22 there are three peaks in '76, '77 and 1978. Again, the
23 hexagonal dot on the left-hand side of the figure shows
24 the 1973 to 1974 data.

25 Q Would you proceed please with the next page.

14-2

1 A The next constituent I'd like to discuss is
2 phosphate. The total phosphate has averaged about 7 to 7½
3 milligram per liter since 1973. The peaks have been
4 generally attributed to the day of the week of sampling,
5 such as detergents, either residential or industrial. Since
6 1977, there appears to be a downward trend.

7 The figure WGB-17 shows the data plotted in
8 the year 1977. These are the peaks that I was referring to
9 on figure WGB-16. Again, the data point on the left-hand
10 side, the hexagonal point, for the 1973-1974 demonstration
11 plant data and the trend I was talking to can be seen
12 toward the end -- to the right-side of the figure.

13 Q Would you proceed please.

14 A The last constituent I would like to discuss
15 is ammonia. This is figure WGB-17A. And I hope your copies
16 say 17 on them. Do they?

17 JUDGE COLE: 17A.

18 WITNESS BINGHAM: Ammonia generally varies from
19 about 20 to 30 milligrams per liter. These variations are
20 probably due to breakdown of organic nitrogen compounds and
21 nitrification in the 91st Avenue Plant. Some nitrification
22 is evident in 1978 and early 1980 when the ammonia is less
23 than one milligram per liter. During the demonstration
24 plant testing, ammonia averaged about 30.9 milligrams per
25 liter. And I think it's important to know that from review-

14-3

1 ing the chart, which WGB-17B, which I'll put up in a moment,
2 as the flow approaches the expended plant's capacity, the
3 ammonia will likely increase to about the observed average
4 values in our opinion.

5 BY MR. GEHR:

6 Q Which plant is that? Which plant capacity is
7 that?

8 A That is the 91st Avenue Plant.

9 The last exhibit that I have is WGB-17B, and
10 it depicts the ammonia concentrations. The two points I
11 was talking about was in mid-1978. And you can see again,
12 after the expansion and the capacity started, the ammonia
13 increased again in 1980. And right now, the data points --
14 is showing a low value. We're expecting that eventually
15 that will rise to the average value we've been experiencing
16 over the years. The 1973-74 data point is shown in the
17 hexagonal on the right-hand side of the exhibit.

18 JUDGE CALLIHAN: Is there some indication of
19 why that value is higher than the more recent data, which
20 is a bit contrary, I think, than the other cases?

21 WITNESS BINGHAM: I expect there is. I do not
22 know what it might be at this time.

23 That completes the series of exhibits in Exhibit
24 U.

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14-4

1 BY MR. GEHR:

2 Q What are the conclusions that you reached as
3 a result of this analysis?

4 A The conclusions we reached, as depicted in
5 WGB-6, are that there have been no significant trends or
6 surprises in the data that we have observed coming from --
7 the effluent coming from the 91st Avenue Plant since our
8 demonstration plant studies in 1973-1974.

9 Q What does that mean in terms of the impact on
10 effluent requirements?

11 A There should not be a significant impact.

12 Q From what? From a change in quality, is that --

13 A Yes. That was the intent of this exhibit, was
14 to demonstrate that the quality of the water has remained
15 relatively as we noted it during the demonstration plant
16 over subsequent years. And this is based upon the data that
17 I did present in, I believe, Exhibits WGB-8 through 17B.

18 Q Is that because of the correlation of the
19 average '73-74 data that was used in developing the design
20 of the plant in relation to the observed data subsequent?
21 Is that --

22 MS. BERNABEI: I'm going to object to the form
23 of the question.

24 JUDGE LAZO: We'll sustain the objection. I
25 think you'll have to let the witness do the testifying.

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BY MR. GEHR:

Q Well, Mr. Bingham, would you expand on why the data collected from '76 through '80 confirms your conclusion that you don't expect any surprises?

A Yes, I will. As a normal course in our business, we are always anxious to confirm that our design is satisfactory and that we have used the latest data available to confirm that. What I have done here for further clarification is provide that analysis which is normally done in everything that we do as the engineer. The conclusions that I have reached are that the data in general support quite well the design. In many cases, it shows a downward trend, which is to our advantage, and of course very important in operation of the plant. And I think, finally, that those abnormalities that have been that have been noted on the consultants' data have been reviewed to assure ourselves that the impact is not significant to the design of the plant.

MR. GEHR: Thank you, Mr. Bingham. As the third which Mr. Bingham was going to address was -- excuse me. Before I start on the next topic, I would like to offer into evidence Joint Applicants' Exhibit U.

JUDGE LAZO: Are there any objections?

MR. DEWEY: No objection.

MS. BERNABEI: May I just ask a question of the

14-6

1 witness?

2 VOIR DIRE EXAMINATION

3 BY MS. BERNABEI:

4 Q Is all the data incorporated in this exhibit
5 data either collected by yourself, your staff, your
6 consultants or someone under your supervision or control?

7 A Yes, it is.

8 MS. BERNABEI: I have no objection.

9 JUDGE LAZO: Perhaps before you begin the next
10 subject, Mr. Gehr, we might take an afternoon recess.

11 MR. GEHR: Yes. Before we do -- what was that
12 last question? Was CEP under your direction and control?

13 WITNESS BINGHAM: No. She -- well, why don't
14 you let her repeat the question again, or I'll state my
15 understanding. My understanding is that the data was under
16 our control and maybe there's a fine point that CEP, I
17 believe is under APS control, reviewed by Bechtel and in
18 that context, I said it was under my control.

19 MS. BERNABEI: I understand.

20 WITNESS BINGHAM: Okay.

21 MS. BERNABEI: I have one housekeeping detail.

22 JUDGE LAZO: Very well.

23 MS. BERNABEI: I had a continuing request for
24 these consultant reports. And I have received, last
25 weekend, the reports through '79. I have not received the

14-7

1 most recent data. And it appears this witness is going to
2 testify about data collected since 1979. And I would like
3 -- well, I don't know if an order -- a request by the Board
4 that Intervenor be allowed to examine the consultants'
5 report since 1979.

6 JUDGE LAZO: Are there a number of consultants'
7 reports beyond 1979? Mr. Bischoff, do you --

8 MR. BISCHOFF: Mr. Chairman, I had asked the
9 Arizona Public Service Company for copies of the consultants'
10 report containing test data from 1976 on. I was given,
11 I believe, four reports, which I provided to the Intervenor.
12 It was my understanding that those did contain all the data.
13 If there is some data missing, I will certainly track it
14 down immediately and provide it. I was unaware of that
15 however.

16 JUDGE LAZO: Very well.

17 MS. BERNABEI: Fine.

18 JUDGE LAZO: All right.

19 JUDGE COLE: Mr. Bingham, as regards WGB-6,
20 the makeup water requirement versus cycles of concentration,
21 I recalculated that and find that -- you don't have to
22 check that. I've satisfied myself that that's within the
23 range of my calculations.

24 WITNESS BINGHAM: Fine. Thank you.

25 JUDGE LAZO: Then we'll recess for 15 minutes.

(Brief recess.)

T15, 1g

1 JUDGE LAZO: The hearing will come to order,
2 please.

3 MS. BERNABEI: Mr. Chairman, there is one
4 housekeeping detail. Mr. Bischoff did provide me with a
5 1980 report which he says contains the latest, data, including
6 all the data that Mr. Bingham is testifying to.

7 JUDGE LAZO: The 1980 report, that is the
8 consultants' report?

9 MS. BERNABEI: That is correct.

10 JUDGE LAZO: Fine.

11 MS. BERNABEI: And I assume there is no 1981
12 edition.

13 JUDGE LAZO: Fine. Good. Mr. Gehr?

14 MR. GEHR: Yes, thank you.

15 BY MR. GEHR:

16 Q Mr. Bingham?

17 A Yes, sir.

18 Q We would like to have you identify and explain a
19 document which will be marked as Joint Applicants' Exhibit V,
20 as in Victor.

21 (Whereupon, the document
22 referred to was marked as
23 Joint Applicants' Exhibit No.
24 V for identification.)

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T15, 2g

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BY MR. GEHR:

Q Since you are the last witness, we are going to get through without running out of the alphabet.

Do you have a copy of Joint Applicants' Exhibit V, Mr. Bingham? Do you have a copy of Joint Applicants' Exhibit V?

A Yes, I do.

Q Was that document prepared by you or under your direction and supervision?

A Yes.

Q While we are at it and before you start, I would also like to have a document marked for identification only. I do not intend to introduce this one, so may I call it Joint Applicants' Exhibit V-1?

JUDGE COLE: You are afraid to get close to the end of the alphabet.

MR. GEHR: Yeah, I have got to save two. Got to save two. That document will be a color slide of the plant site which Mr. Bingham will use in the course of his explanation of the plumbing, I believe, in part, on this non-safety issue.

(Whereupon, the document referred to was marked as Joint Applicants' Exhibit No. V-1 for identification.)

T15,3

1 BY MR. GEHR:

2 Q Mr. Bingham, would you proceed with your
3 explanation of the first page, WGB-18, of Joint Applicants'
4 Exhibit V?

5 A Yes, I will. Exhibit WGB-18 depicts the overall
6 site arrangement. I would like to point out the important
7 features. The site is about 4,000 acres, at the northern part
8 of the site, the top of the Exhibit, is the water
9 reclamation facility we have been discussing. The pipeline
10 enters from the east. The direction is depicted on the right
11 side of the Exhibit. The storage reservoir is shown. The
12 three units are shown toward the west side of the site.

13 They are separated by about 1200 feet, and as I
14 will show on Exhibit WGB-19, each unit has its own 30-day
15 ultimate heat sink water supply.

16 Just for perspective, the distance --

17 Q Mr. Bingham, excuse me.

18 A Excuse me.

19 Q Your pointer was looking at three round
20 circles.

21 A I am sorry.

22 Q Do these constitute the --

23 A I am sorry. I meant to point to the unit itself.
24 Unit 1, Unit 2, Unit 3. The pointer head slipped to the
25 cooling towers for Unit 1, Unit 2, and Unit 3.

T15,4

1 For some insight to the dimensions, I indicated
2 between units was about 1200 feet. It is about 2500 feet
3 from the reservoir to the nearest unit, which is Unit 1.
4 The final feature at the site is the evaporation pond located
5 down on the lower portion of the site.

6 Q Would you proceed with the next page?

7 A Figure WGB-19 is a detailed view of each of the
8 units. Each of the units is identical, and just for
9 information, it shows the ultimate heat sink, two trains,
10 30-day supply of water, train A, train B, and I will discuss
11 that in more detail.

12 The containment building, the turbin building,
13 and other buildings of the facility.

14 Q That is a depiction of three units?

15 A That is one unit. Each unit is identical.

16 Q Would you proceed, please?

17 A Figure WGB-20 shows one-half of the ultimate
18 heat sink, with the spray ponds, and indicates where the
19 makeup water line comes into the pool. These are somewhat
20 difficult to perhaps understand if you are not familiar with
21 the drawings, and when I show Exhibit B-1?

22 Q V-1.

23 A V-1, which is a photograph at the site, I believe
24 you will be able to relate much more clearly to what I am
25 describing.

T15-5

1 JUDGE CALLIHAN: What are the dotted lines in the
2 upper left?

3 WITNESS BINGHAM: These are the main -- to depict
4 the main pipelines that go back to the power plant for
5 cooling of those systems.

6 JUDGE CALLIHAN: Thank you.

7 BY MR. GEHR:

8 Q Would you proceed, please?

9 A In order to provide some insight into the pond,
10 figure WGB-21 is a cross-section through the pond, and it
11 shows the top of the spray pond wall, the spray pond floor,
12 and the water level for 30-days' supply. The other items
13 depicted are the spray nozzles for the pond.

14 Q Would you proceed?

15 A This is Exhibit V-1.

16 Q For identification.

17 A For identification, and it is a recent photo of
18 the three units at the Palo Verde site. In the foreground of
19 the Exhibit is Unit number 1. If you recall from the previous
20 drawings, this is the containment, the turbine building, the
21 other buildings we have discussed, and this is the ultimate
22 heat sink for Unit number 1. This is where the 30-day supply
23 of water will be, and it will be filled with water.

24 Unit 2 is shown above this in the figure. Again,
25 I would like to focus your attention to the ultimate heat sink

T15-6

1 for Unit number 2, 30 days' supply for that unit, completely
2 separate and independent from Unit 1.

3 Unit 3 is at the top of the Exhibit. The spray
4 pond has not yet been constructed, but it will be in exactly
5 the same relation to the unit as it is on Units 1 and Unit 2.
6 Perhaps of interest to you would be the cooling towers. This
7 particular slide only shows Unit 2. Unit 1's are constructed
8 and are identical, and would appear in this area for Unit 1.

9 Q How is the 30-day supply established?

10 A There is a regulatory guide that I will put up
11 on the next exhibit, that indicates the criteria necessary to
12 establish the design of the ultimate heat sink.

13 Q Would you proceed, then?

14 A Yes, sir. This is Exhibit WGB-22, and it
15 depicts the safety design bases for the ultimate heat sink,
16 as stated in regulatory guide 1.27, rev. 2. For simplicity,
17 I have extracted those points that pertain to this
18 discussion.

19 The first one is that there be sufficient water
20 in the two essential spray ponds for a minimum cooling for a
21 nominal 30 days without makeup, 30 days without makeup.
22 Further, it states, two redundant flow trains should be
23 provided capable of supporting 100 percent cooling for
24 shutdown, and to mitigate the consequences of a postulated
25 loss of coolant accident.

T15-7

1 The final requirement is that procedures be
2 available for ensuring continued capability beyond the
3 nominal 30 days.

4 Q Would you proceed to the next and last page of the
5 document?

6 A Yes, sir.

7 Q Have the -- does the design provide a 30-day
8 supply?

9 A Yes, it does. Sometimes there is uncertainty
10 about the water supply, and figure WGB-23 is provided to
11 clarify the water supply for the ultimate heat sink. For
12 filling, we use the domestic water system. This is a non-
13 safety system, which is supported by two onsite wells.

14 To supply for our supply procedures --

15 Q Just a minute --

16 A Excuse me.

17 Q What is the purpose of the domestic water system
18 here in the first case?

19 A In the first case, it is to provide makeup --

20 Q No.

21 A Excuse me. To fill -- I thought I said it right.
22 To fill -- why don't you ask me the question, and I will see
23 if I --

24 MR. GEHR: Would you read back the question,
25 please?

T15-8

1 (Whereupon, the question was played back.)

2 WITNESS BINGHAM: The purpose of the domestic
3 water system is to provide makeup to the plant.

4 BY MR. GEHR:

5 Q Where does the 30 days' supply come from,
6 initially?

7 MS. BERNABEI: Objection. That has no connection
8 with the prior question. We were talking about the domestic
9 water system. I don't believe this witness has testified
10 the domestic water system has a 30-day supply.

11 MR. GEHR: I agree. This witness did not say
12 that the domestic water system has a 30-day supply. I asked
13 where did we -- how do we establish the 30-day supply
14 initially.

15 MS. BERNABEI: The question as asked is unclear,
16 what 30-day supply he is talking about.

17 MR. GEHR: Oh. I beg your pardon.

18 BY MR. GEHR:

19 Q Where is the -- how is the 30-day supply required
20 to satisfy the safety design basis established? Where does
21 the water come from?

22 A The water comes from onsite wells, transported
23 through the domestic water system to the ultimate heat sink.

24 Q Very good. Was that the intent of your first
25 bullet on that slide?

T15-9

1 A Yes, sir.

2 Q Thank you. Proceed, please.

3 A The second bullet is to indicate the supply
4 procedures. We indicated that there was capability to supply
5 water to the ultimate heat sink from the domestic water system
6 which is supplied by the two onsite wells.

7 Second, we indicated that there is a provision to
8 provide water should it ever become necessary from the station
9 reservoir. Third, we have indicated that further upon
10 conditions at the time, that water may be supplied by trucks,
11 rail car, or perhaps drilling other wells onsite.

12 Q Mr. Bingham, in the course of the discussions on
13 Tuesday, I believe, well, Tuesday or Wednesday, Dr. Callihan
14 asked if there would be a witness who could explain the
15 plumbing, meaning, I guess, the hardware connecting these
16 facilities, but I would suggest this may be an appropriate
17 time, Dr. Callihan, as to inquire what you were looking for.

18 JUDGE CALLIHAN: Thank you.

19 JUDGE LAZO: I think perhaps, Counsellor, that we
20 will wait until the examination and cross-examination is over,
21 and hold that for any Board questions of this witness.

22 MR. GEHR: Very well.

23 BY MR. GEHR:

24 Q Do you have anything to add, Mr. Bingham,
25 respecting the safety and non-safety issue? Explanation of

T15,10

1 the 30-day supply?

2 A I think just as a matter of clarification, it is
3 important to note that this is a completely separate,
4 independent system, and has been separate since the original
5 design on the plant. It does not rely on any other source of
6 water for its intended function, except for the 30-day supply
7 of water that will be in the spray ponds.

8 MR. GEHR: I have nothing further of this witness.

9 Before we -- at this time, I would like to offer
10 in evidence Joint Applicants' Exhibit Victor, V for Victor.

11 JUDGE LAZO: Are there any objections?

12 MR. DEWEY: No objection.

13 MS. BERNABEI: May I ask the witness a few
14 questions?

15 VOIR DIRE EXAMINATION

16 BY MS. BERNABEI:

17 Q Was this prepared -- did you prepare this
18 Exhibit?

19 A It was prepared under my direction.

20 Q People on your staff prepared this for you?

21 A Yes.

22 Q And in terms of the page WGB-22, now, you had the
23 reg guide 1.27 Rev. 2, revision two. Now, what this page
24 shows is that you believe these three things satisfied the
25 requirements for which reg guide 1.27 revision two implements,

T15, 11

1 is that what you are saying?

2 A I don't believe that is exactly what I am saying.
3 As an aid to understanding, I have extracted the words, the
4 salient features of reg guide 1.27 reg two for this discussion.
5 If you look at the reg guide, you will find these words in
6 that guide.

7 Q So what you are saying is that you paraphrased
8 words in the guide, and that is how you got to these three
9 factors here. Do you understand what a reg guide is,
10 regulatory guide?

11 A Yes, I do.

12 Q And what is it, sir?

13 A It is a -- in this particular case, it is a
14 guide that is put out by the Nuclear Regulatory Commission to
15 aid the designer in implementing a safety feature of the
16 plant.

17 Q Right, certain other requirements. It is not a
18 requirement in and of itself, is it?

19 A It is not.

20 Q Okay.

21 A Your question about paraphrasing, I believe we
22 tried to use the exact words. I would have to check to make
23 sure that that was the case, but the intent was not to
24 paraphrase the requirements.

25 Q So in other words, these three things, you believe,

T15,12

1 would satisfy the reg guide?

2 A No. These three items are necessary, at least
3 these three items are necessary, if one was to satisfy the reg
4 guide.

5 Q And there may be other things that are necessary
6 that you haven't listed?

7 A That is correct.

8 Q It is not a complete set of items.

9 MS. BERNABEI: Thank you. I have no objection.

10 JUDGE LAZO: Very well. I would instruct the
11 reporter that Joint Applicants Exhibit V, for Victor, will
12 be received in evidence.

13 (Joint Applicants' Exhibit No.
14 V was thereupon received into
15 evidence.)

16 MR. GEHR: May I, before cross-examination, and
17 lest I forget, as I am inclined to do, should the -- may I
18 ask the Chairman, should we have the FSAR and the ER marked
19 as Exhibits W and X?

20 JUDGE LAZO: Getting closer.

21 MR. GEHR: These are the Exhibits which are in
22 absentia, but will be provided in the proper number to the
23 reporter.

24 JUDGE COLE: What about the CESSAR document?

25 MR. GEHR: Not in this docket.

T15,13

1 MS. BERNABEI: And so the FSAR is Exhibit W, and
2 the ER is Exhibit X?

3 MR. GEHR: Yes.

4 MS. BERNABEI: And we may refer to sections of
5 those as Exhibits, as contained in Applicants' Exhibit W or
6 X, is that what you are suggesting?

7 MR. GEHR: No. I thought we had decided on the
8 first day, as one of the housekeeping matters, that it would
9 be prudent to incorporate in the record the FSAR and the ER
10 in their entirety, and accordingly, I don't know how to do
11 that except by giving them a designation and an indication
12 that they have been accepted as Exhibits.

13 JUDGE LAZO: Do you have -- will you be able to
14 advise us at this time of the current status of those
15 documents, in other words, it would be the environmental
16 report and some number of --

17 MR. GEHR: Including all supplements?

18 JUDGE LAZO: Well, will you be able to identify
19 how many supplements there are as of this date? For both
20 of those documents?

21 MR. GEHR: Well, let us start with Exhibit W.

22 JUDGE LAZO: Okay. What is that?

23 MR. GEHR: Which is the FSAR.

24 JUDGE LAZO: That is the FSAR?

25 MR. GEHR: It includes amendments 1 through 8.

T16,1

1 MR. DEWEY: Your Honor, Staff just has one
2 suggestion, and maybe this is not feasible, but in order not
3 to -- but just for the idea of not cluttering up the record,
4 and using a lot of supply space, maybe it would be
5 preferable just to put in the relevant sections of the FSAR
6 into this record. I am just thinking of how large these
7 bindings are, and if it is really necessary to put all of them
8 in.

9 MR. GEHR: I would prefer not to be that
10 selective. I am not that smart to do it all in that document.

11 JUDGE LAZO: I think we would prefer to have the
12 entire document as amended put into the record. That
13 doesn't mean we have to each carry one back to the office.

14 JUDGE COLE: Or that the reporter will have to
15 carry it.

16 MR. GEHR: No, we have promised the reporter that
17 we will ship.

18 JUDGE LAZO: And Joint Applicants Exhibit X, then,
19 will be the environmental report?

20 MR. GEHR: Including supplements 1 through 4.

21 JUDGE LAZO: Are there any objections to the
22 admission into evidence of these basic documents?

23 MS. BERNABEI: No objection.

24 MR. DEWEY: No objections.

25 JUDGE LAZO: Very well, they may be received.

T16,2

1 (Joint Applicants' Exhibits Nos.
2 W and X were thereupon marked
3 for identification and
4 received into evidence.)

5 JUDGE LAZO: Mr. Gehr, I think you owe us an
6 Exhibit. You were talking about Exhibit M, a re-do of a
7 map?

8 MR. GEHR: Yes, sir. And we have found over the
9 noon hour that that Exhibit will be available on Monday. We
10 would mail it to each of the parties and the Board, and to
11 the reporter.

12 JUDGE LAZO: Do you have a question?

13 MS. BERNABEI: I just have a question for Mr.
14 Gehr. I assume that you know that things are to be served on
15 me at this point.

16 MR. GEHR: I am delighted.

17 MS. BERNABEI: Thank you.

18 MR. GEHR: We have your address now.

19 MS. BERNABEI: Great.

20 JUDGE LAZO: Let me ask, since we are going in
21 order, Ms. Bernabei, would you expect to complete your
22 cross-examination of this witness within an hour?

23 MS. BERNABEI: I don't believe so. I believe it
24 will take several hours. In fact, I was going to request
25 that perhaps we start on cross-examination whenever the

T16,3

1 hearing resumes.

2 JUDGE LAZO: I am sorry. Could you bring the
3 microphone a little closer?

4 MS. BERNABEI: I was going to suggest that
5 perhaps it would be better to start with the cross-examination
6 when the hearing resumes. I anticipate it will take several
7 hours.

8 JUDGE LAZO: Does the Staff want to -- you would
9 prefer to wait until --

10 MR. DEWEY: Yeah, we wanted to -- to -- to wait,
11 although I have just a few questions now, but I still would
12 want to have an opportunity to respond after the Intervenor
13 has done hers.

14 JUDGE LAZO: Well, let us excuse the witness for
15 now, and talk about scheduling so we can calendar another
16 session.

17 MR. GEHR: Did I understand that the Staff
18 Counsel --

19 JUDGE LAZO: I don't mean excuse -- pardon?

20 MR. GEHR: Did I understand that the Staff
21 Counsel wanted to ask a couple of questions now?

22 MR. DEWEY: Well, I am willing -- you know, I
23 can ask these after we resume, too. Or I could ask them now.
24 Whatever. But I want to be able to also have the
25 opportunity to question the witness after the Intervenor has

T16,4

1 questioned the witness.

2 JUDGE LAZO: Well, then you might as well hold
3 your questions. Mr. Bingham, why don't you find a more
4 comfortable seat, or --

5 MR. GEHR: These benches back here are harder
6 than that nice chair that he had.

7 JUDGE LAZO: I think, Mr. Briggs, we might as well
8 go off the record.

9 (Discussion off the record.)

10 JUDGE LAZO: On the record. We will let the
11 record show that during the brief discussion off the record,
12 that it was agreed that the next session of this hearing
13 would commence at 9:00 a.m., on Tuesday, May 25, in a
14 courtroom to be designated at a later date.

15 The first order of business, as we understand it,
16 will be the cross-examination of Mr. Bingham. Now, are
17 there any other matters that we profitably may attend to
18 this afternoon before we adjourn? Mr. Dewey?

19 MR. DEWEY: Yes, sir. I specifically want to
20 bring up again the fact that the Staff believes it would be
21 preferable, because especially in view of the fact that we
22 have four more weeks to prepare, to have the canned
23 testimony of the expert witnesses, at least. This means the
24 intervenors --

25 JUDGE LAZO: Now, when you are referring to canned

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1 testimony, you mean --

2 MR. DEWEY: Written testimony.

3 JUDGE LAZO: -- prefiled written direct testimony?

4 MR. DEWEY: Right, and to have it in the hands of
5 the parties, at least. I know the rules call for 15 days
6 before the hearing. I guess we could probably settle for a
7 little less time than that if we had to. I think this would
8 help us focus in, and move the hearing along, and it is the
9 regular procedure.

10 Now, I realize that if witnesses are called that
11 are not experts as such, and when I am using the term
12 "expert," I am talking about consultants or somebody like
13 that, and it might be preferable to have live testimony, but
14 I think with respect to someone's own consultants, like the
15 Intervenors' expert witness here, we should have some
16 prepared testimony.

17 JUDGE LAZO: That seems a little unfair in some
18 ways when you think about. Your testimony, pre-filed
19 written testimony is already filed. Mr. Gehr has got his
20 all in, so where does the burden lie?

21 MS. BERNABEI: It would be very difficult,
22 especially since my witnesses are going to be out here, and
23 I doubt that I will be -- well, I live in Washington, and
24 work in Washington most of the time, and it would be
25 difficult to be out here that much earlier in order to get

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1 you direct testimony. We could certainly tell you in as great
2 a detail as we know the substance of our expert, and the
3 other witnesses we will call.

4 JUDGE LAZO: I think, Ms. Bernabei, it really
5 would be helpful if you could at least supply the parties
6 and the Board with a list of witnesses. You should probably
7 know by this time what Mr. Lorah is going to talk about.

8 MS. BERNABEI: No, I certainly do. That is
9 true.

10 JUDGE LAZO: And maybe even -- if you could get
11 him to file his testimony in writing, it would certainly
12 expedite matters. If you are unable to do that, at least a
13 summary of what you expect him to say.

14 MS. BERNABEI: I could certainly write a letter
15 explaining -- summarizing what he would be expected to
16 testify to. What I was thinking is, sort of along the lines
17 that Mr. Gehr provided me in terms of Mr. Steiner, the
18 general areas, and the kinds of -- well the kinds of areas
19 he would be questioned on, and the relevance to the issues
20 in the case. I could do that. Certainly for Mr. Lorah.

21 MR. DEWEY: Your Honor, this is the--- I think
22 that as far as equities lie, I would like to put one thing
23 into fact out here, is that --

24 JUDGE LAZO: A little bit louder, please, Mr.
25 Dewey.

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1 MR. DEWEY: Excuse me, the Intervenor did, at the
2 11th hour come in and expand or broaden the contention, and
3 the reason why I believe the Applicant had to rely on live
4 testimony this week was because we were hoping that the
5 hearings could be finished up, and rather than, you know,
6 postpone them, but now we have an opportunity to prepare
7 regular testimony.

8 Now, at least Staff would like to see the figures
9 and numbers or the type of things that the Intervenors
10 relied on to refute some of the numbers that we have put in
11 our main testimony, rather than waiting until we get here,
12 and all of a sudden looking at some numbers, and not having
13 a chance to study them or to adequately delve into them
14 during the hearing, and that is -- and our testimony was
15 filed long ago, and we had provided our charts and numbers,
16 and it doesn't seem to me that if -- even if the Applicants --
17 I mean the Intervenors' witness can't file written testimony
18 with respect to everything he wishes to say, at least he
19 could give us the charts or the numbers or whatever, upon
20 which he is relying.

21 JUDGE LAZO: You make a reasonable argument.

22 MS. BERNABEI: Mr. Chairman, I can tell you we
23 cannot provide written testimony. It is impossible to
24 provide written testimony for every single witness we will
25 call.

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1 MR. DEWEY: No, I am just talking --

2 MS. BERNABEI: I can say that in terms of our
3 expert, we will provide you with as detailed an explanation
4 as possible, probably not in the form of testimony, but a
5 detailed explanation, which is all the Applicant did in
6 terms of their affidavits, I would remind you, which I think
7 would form a sufficient basis upon which you could cross-
8 examine. Certainly any documents that Mr. Lorah will use in
9 his testimony, we will provide you, and we have done so
10 with the Applicants, who have the only outstanding requests
11 for any documents we are using in cross-examination. We
12 have provided any cross-examination documents that they have
13 requested.

14 We have no intention of withholding it. It is
15 just mechanically very difficult to provide canned testimony,
16 as Mr. Dewey calls it.

17 MR. DEWEY: Well, like I say, it seems to me that
18 you could at least provide us the charts or the tables, or
19 whatever, that --

20 MS. BERNABEI: I have agreed that I will do that.

21 MR. DEWEY: All right.

22 JUDGE LAZO: Have we established a date by which
23 these materials, list of witnesses, a summary of testimony
24 and a list of documents will be provided?

25 MR. GEHR: What about discovery during this

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1 period? Is that a way to avoid some of the burden on the
2 Intervenor as to permit some period of time for depositions
3 before, of those witnesses?

4 MS. BERNABEI: I think that would only create a
5 greater burden on the Intervenor. We haven't had much time
6 for any discovery prior to this hearing. We took one
7 deposition, and --

8 MR. GEHR: Well, that is --

9 MS. BERNABEI: -- I -- that would be a great
10 burden.

11 MR. DEWEY: I would like to add, the Intervenor
12 came in, Your Honor, with all these new things, about one
13 week before the hearing was supposed to start, and I don't
14 think it is fair for her to say she has been deprived of
15 discovery. Now, I think it is only fair that we be able to
16 depose Mr. Lorah.

17 MS. BERNABEI: Well, if you want to depose him,
18 then he -- we don't have the resources to bring him here. If
19 it any time except the day before or the week before this
20 hearing is to start, I will not be here, so the only way I
21 can see in which he could be deposed is if you were to go to
22 Colorado and depose him without counsel, and I think we would
23 have to arrange whether that would be possible or not.

24 I am willing to provide exactly what I was
25 provided by the Applicant, and the equivalent of an affidavit

1 of a witness that is testifying, and the charts or graphs
2 on which he is relying. After all, the Intervenor in this
3 proceeding does not have the burden. The Applicants have
4 the burden, and our witnesses will rebut their case. We are
5 not putting on a direct case in the sense that we have the
6 burden of proof.

7 JUDGE LAZO: You said you were willing to provide
8 an affidavit?

9 MS. BERNABEI: We will provide an affidavit of
10 Mr. Lorah, yes. Either in affidavit form, or in a letter
11 form, whatever would be more useful.

12 MR. GEHR: Did I understand, Counsel, that you
13 intended to bring in three or four more other experts?

14 MS. BERNABEI: We weren't talking about expe.
15 witnesses. We were talking about other people who might
16 testify, and I will provide you with a list.

17 MR. GEHR: Oh, I see.

18 MS. BERNABEI: There were several witnesses that
19 you presented that we weren't prepared for, and whose
20 testimony we would want the opportunity to rebut.

21 JUDGE LAZO: When would such a list and the
22 associated materials be ready?

23 MS. BERNABEI: We could probably provide that a
24 week before the hearing. That would be in about two weeks.

25

1 JUDGE LAZO: There's only three people involved.
2 You wouldn't believe that travel schedules could get so
3 complicated. But in order that we will actually receive
4 some of these materials before the hearing, I think the
5 better thing to do right now would be to first of all set
6 the date for mailing because it's certainly important that
7 the parties get this mailing. We also want it, but we're
8 going to have to advise you later as to where such mail to
9 us should go, so that we'll be able to pick this up.

10 MS. BERNABEI: That's fine.

11 JUDGE LAZO: We'll give you an address at a
12 later date. Thinking about addresses, you told us earlier
13 in the week that you had filed a notice of appearance and
14 I assume we will have a way of getting your address --

15 MS. BERNABEI: Yes.

16 JUDGE LAZO: -- once we get back to our offices.
17 Well, then will you be able to file -- by when?

18 MS. BERNABEI: The 17th or 18th, about a week
19 before.

20 JUDGE LAZO: Well, it takes awhile to get to
21 D.C. Could you do it on Friday, the 14th?

22 MS. BERNABEI: Okay. And we're talking about Mr.
23 Lorah's testimony. Is that correct?

24 JUDGE LAZO: And a list of any witnesses.

25 MS. BERNABEI: Right.

1 JUDGE LAZO: And any other documents that you
2 intend to rely on.

3 MS. BERNABEI: Right. Certainly.

4 JUDGE LAZO: Very well. Are there any other
5 matters we may profitably attend to this afternoon?

6 Well, then we'll adjourn this proceeding until
7 9:00 a.m., Tuesday, May 25th. I was going to say, hopefully,
8 in this courtroom, perhaps you could leave your boxes, but
9 I guess that's not quite practical.

10 Thank you. This session is adjourned.

11 (Whereupon, the hearing in the above-entitled
12 matter was adjourned at 4:51 p.m., Friday, April 30, 1982, to
13 reconvene at 9:00 a.m., Tuesday, May 25, 1982.)

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NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the

in the matter of:

Date of Proceeding: April 30, 1982

Docket Number: 50-528, 50-529, 50-530 OL

Place of Proceeding: Phoenix, Arizona

were held as herein appears, and that this is the original transcript thereof for the file of the Commission.

Horace W. Briggs

Official Reporter (Typed)

Horace W. Briggs

Official Reporter (Signature)