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Case # 4993

File # 161

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IN THE DISTRICT COURT FOR THE FIFTH JUDICIAL DISTRICT
WASHAKIE COUNTY, STATE OF WYOMING

IN RE:)
)
THE GENERAL ADJUDICATION)
OF RIGHTS TO USE WATER)
IN THE BIG HORN RIVER)
SYSTEM AND ALL OTHER)
SOURCES, STATE OF)
WYOMING.)

Civil No. 4993

FILED

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19 81

Margaret V. Hampton CLERK

DEPUTY

VOLUME 54

Afternoon Session

Thursday, May 7, 1981

ORIGINAL

1 THE SPECIAL MASTER: Okay, we'll please
2 come to order.

3 Would you like me to swear in this witness,
4 Mr. Echohawk?

5 MR. ECHOHAWK: Yes, Your Honor.

6 THE SPECIAL MASTER: Before I do, I think
7 it's appropriate for me to call on Mr. Merrill
8 for a little bit of the civilities of our
9 profession and of the joy we can share with
10 some of our colleagues. Would you like to make
11 a statement, Mr. Merrill?

12 MR. MERRILL: Absolutely, Your Honor, I
13 think it's only appropriate since Mr. Perry
14 is going to be with us a short time longer
15 before he departs with his new wife for Europe,
16 that we all congratulate him on his forth-
17 coming marriage.

18 THE SPECIAL MASTER: Very fine, we're
19 happy to do that and that's official.

20 MR. PERRY: Thank you.

21 THE SPECIAL MASTER: I hope you have a
22 very happy life.

23 All right, Mr. Dorbusch, please stand up
24 and raise your right hand.

25

1

DAVID M. DORNBUSCH

2

being first duly sworn, was examined and testified

3

as follows, to wit:

4

DIRECT EXAMINATION

5

BY MR. ECHOHAWK:

6

Q Please state your name for the record.

7

A My name is David Dornbusch.

8

MR. ECHOHAWK: Your Honor, at this time,

9

before Mr. Dornbusch begins his testimony,

10

I'd again like to set the stage for where we're

11

at in the Government's case. So far we've

12

had testimony on the arable land base for both

13

the future and historic, specifically the

14

future. We've had Dr. Mesghinna just conclude

15

his testimony as to engineering designs and

16

associated costs to serve a certain portion

17

of those arable lands, and some design projects.

18

Testimony presented by Mr. Dornbusch

19

will determine whether or not the project,

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as designed by Dr. Mesghinna and his associates

21

are economically feasible, and as such that

22

will conclude the Government's case on the

23

future portions of the future lands, as to

24

the practicably irrigable acres or economically

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dornbusch-direct-echohawk

1 feasible acres.

2 THE SPECIAL MASTER: Very good.

3 Q (By Mr. Echohawk) Mr. Dornbusch, where do
4 you reside?

5 A I live at 5837 St. Paul Court in Oakland,
6 California.

7 Q What is your occupation?

8 A I'm a consultant economist.

9 Q And Mr. Dornbusch, where are you employed at?

10 A I'm employed at David M. Dornbusch and Company
11 in San Francisco.

12 Q Does Dornbusch and Company have just one office
13 in San Francisco?

14 A We have two; one in San Francisco and one in
15 Portland, Oregon.

16 Q And what is your position at Dronbusch and
17 Company?

18 A I'm the president of the firm.

19 Q And how long have you been president of that
20 firm?

21 A Since 1971 when I founded the firm.

22 Q Just for a little brief background on your
23 firm, how many professional people are
24 employed in your company?

25 dornbusch-direct-echohawk

1 A Presently we have seven.

2 Q And what would be the specialized capabilities
3 of those people employed by you?

4 A It's a fairly wide range of capabilities,
5 primarily orientated around the skills of
6 economics, ranging from agricultural, industrial,
7 commercial economics and natural resources
8 economics to urban and regional development
9 economics, econometrics, which is really a
10 blend of economics and statistics, model
11 building.

12 We also do some social and environmental
13 analyses related primarily to economic
14 development projects, and we have skills in
15 those fields.

16 Urban and regional planning, natural
17 resources planning, I think that about covers
18 the range.

19 Q What are your duties as president of Dornbusch
20 and Company?

21 A Oh, I administer all of the contracts that
22 the firm has, I'm responsible, primarily
23 responsible for marketing of new projects.

24 I'm also responsible for particularly directing
25 dornbusch-direct-echohawk

1 a number of the firm's projects, and I also
2 get directly in performing analyses myself
3 in some of those projects.

4 Q Would you describe for us your educational
5 background.

6 A Yes. I received a Bachelor's of Civil Engineering
7 from Cornell University in 1964 that was with
8 distinction.

9 I received a Master's of Business
10 Administration from Harvard University with
11 distinction in 1966.

12 Q What did you do after you graduated from
13 Harvard?

14 A I joined a consulting firm by the name of
15 Lewis Berger Incorporated. It's an international
16 consulting firm.

17 Q And what were your duties with Lewis Berger
18 Incorporated?

19 A I was an economist with them, and as such,
20 I was responsible for economic analyses and
21 worked together with engineers, planners and
22 architects in the firm.

23 Q Your work with Lewis Berger Incorporated, was
24 that primarily in the United States or outside?

25 dornbusch-direct-echohawk

1 A In the beginning it was primarily outside
2 the United States and later it was in the
3 United States.

4 Q How many years did you spend outside the United
5 States?

6 A Approximately three years outside of the U.S.

7 Q What type of clients did you have in that work?

8 A Our clients were primarily the international
9 financial agencies such as the World Bank,
10 the Asian Development Bank, the United Nations,
11 Interdevelopment American Bank. We also did
12 work directly for national governments on
13 similar projects.

14 Q Would you give us an example or two of the
15 type of work that you did during your period
16 of association with Lewis Berger?

17 A Yes. I guess a good example would be the
18 first project I did for them overseas where I
19 was the general economist on a project in
20 Thailand. There was a large area southeast
21 of Bangkok that's called the Sattahip.

22 Q Could you spell that?

23 A Sattahip, S-a-t-t-a-h-i-p. And the situation
24 there was that both U.S. and Thai military

25 dornbusch-direct-echohawk

1 bases had been developed in that region.
2 The Thai government was very concerned about
3 the shift away from the natural resources
4 base of economy to the military base, and it
5 was our job to develop a plan for the region
6 which would orient the economy back to that
7 natural resource base. And project -- I was
8 there for about nine months of the project.
9 My responsibilities were to work with a team
10 of engineers and others, and look at what the
11 potentials were for development, and I was
12 focusing primarily on agriculture, which was
13 in that region essentially one crop. It was
14 called mandioc or we know it as tapioca,
15 grown for animal food.

16 Q Could you spell mandioc?

17 A M-a-n-d-i-o-c.

18

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1 THE WITNESS: Also I was investigating
2 the fish industry, and my role was primarily
3 to analyze what the potential was for those
4 industries and looking specifically at the
5 production of those products and the trans-
6 portation and marketing of those products.

7 Q Was the work you did in Thailand an economic
8 feasibility study?

9 A Yes, it was. That's right.

10 Q And exactly what would be associated in an
11 economic feasibility study?

12 A Well, part of the work was an economic
13 feasibility study, I would say one of the
14 major parts. What was entailed?

15 Q Yes.

16 A In that situation we had a deteriorating
17 economic situation because of a number of
18 factors, the industries were becoming old,
19 and competition from other markets for fish
20 and tapioca, and in that case we found that
21 one of the most sensitive aspects of the
22 economic condition was the ability to transport
23 the products at low cost. Their costs were
24 going up, transportation costs were going up,

25 dornbusch-direct-echohawk

1 and I guess to sum up, one of my conclusions
2 was that if they were able to obtain access
3 to a port that the Thai government would not
4 have to spend a great deal of money on, they
5 would be able to market their products outside
6 of the region, which they hadn't been very
7 successful in doing before outside of the
8 country. In fact, I have learned that about --
9 I guess it's over a year now, maybe two years
10 ago, my recommendations were accepted in that
11 the U.S. government would turn over -- well,
12 originally my recommendation was that in the
13 development of the military port at Sattahip,
14 which was to supply the air base, that part
15 of that port be dedicated to the domestic Thai
16 civil products, and that ultimately if they
17 could succeed in negotiating a transfer of
18 the entire military port later, to have the
19 U.S. military help convert that military part
20 to civilian purposes, and I understand about
21 a year or over a year ago that occurred.

22 Q Would you give us another example of your
23 projects you worked on overseas?

24 A Immediately after the Thai project, I went over
25 dornbusch-direct-echohawk

1 to Iran, and this was an irrigated agricultural
2 development project in Jiroft Minab Valley
3 south and somewhat east of Tehran, somewhat
4 just south and east of the Persian Gulf.

5 THE SPECIAL MASTER: Was this in '70?

6 THE WITNESS: That was in '67. And I
7 was part of a team composed of agronomists,
8 water resource engineers, farm management
9 specialists, transportation engineers. It's
10 somewhat of an interesting story, so give me
11 a minute.

12 That valley about 2,000 years ago was in
13 heavy irrigated agricultural use, and the
14 way they used to do that is they would bring
15 water from the mountains drowning the valley
16 in a system of underground tunnels that were
17 hand dug tunnels by a group of people that they
18 maintained with special privileges and food,
19 and it was really dependent upon the monarchy
20 to do that, and they had, as I said, a successful
21 irrigation project there. Well, after the
22 monarchy, the ancient monarchy went out of
23 existence, the tunnel collapsed and the valley
24 went back to dry farming as best as they could

25 dornbusch-direct-echohawk

1 maintain it. The engineers that I was
2 working for had found through drilling deep
3 wells, they found very high-quality water.
4 In fact, it was artesian water, and as a
5 result of the finding of that water, the
6 Iranian government then hired us to perform
7 feasibility studies to determine what crops
8 could be grown there, what the costs of
9 growing those crops would be, costs of trans-
10 porting them to markets, what markets, and
11 the returns that could be obtained in those
12 markets. I was responsible for working with
13 the agronomists and the farm management
14 specialists to put together their cost, analyze
15 the transportation costs myself, and the
16 returns that could be obtained in the markets.
17 And if you know anything about Iran, the
18 marketing is very complex and not all that
19 well understood by anybody but the people in
20 it, and it entailed a great amount of inter-
21 viewing and gathering of data. In many respects
22 it entailed some of the -- a lot of the same
23 kind of functions I performed here on this
24 project.

25 dornbusch-direct-echohawk

1 Q Would you give us real briefly, kind of hit
2 a couple other real high points of the
3 feasibility analysis you performed also with
4 Louis Berger real shortly, if possible?

5 A Okay. Yes, there were a number of other
6 studies overseas. One was I was an economist
7 on a Brazilian master transportation study
8 for the World Bank, and did some other studies
9 in Paraguay, and that one was feasibility
10 of either rehabilitating the National Rail-
11 road or converting to a highway system to
12 transport their agricultural, commercial and
13 industrial products. There were a number of
14 other feasibility studies, also economic
15 impact studies, and as I said, all in all I
16 spent about three years overseas.

17 Q What did you do upon your return to the United
18 States?

19 A I became the director of domestic economic
20 planning for Louis Berger, and as such headed,
21 directed and also worked on a number of
22 economic feasibility and impact studies in
23 the United States.

24 Q How long did you stay in that position?

25 dornbusch-direct-echohawk

1 A That was about a year.

2 Q What did you do after that?

3 A The firm acquired an engineering firm in
4 San Francisco who in many respects was similar
5 to Louis Berger, they were an international
6 engineering consultant, but they had no
7 economic activities and I was transferred to
8 San Francisco to that firm. The name is
9 McCreary-Koretsky International, and my
10 responsibility as vice president of economic
11 and financial planning was, one, to help
12 integrate the firms by creating an economic
13 division with McCreary-Koretsky, and then to
14 market and run studies there.

15 Q How long were you with McCreary-Koretsky?

16 A About a year.

17 Q What did you do after leaving there?

18 A Then I formed my own firm.

19 Q That was what year?

20 A 1971, ten years ago.

21 Q Could you give us a general description of the
22 overall type of -- strike that, I've already
23 covered that one.

24 At Dornbusch and Company would you give us
25 dornbusch-direct-echohawk

1 a description of the agricultural-related
2 work, a little more detailed description
3 of agricultural-related work by you and your
4 firm? Specifically, if possible, highlight
5 your involvement in each project.

6 A All right. Our agricultural work has focused
7 primarily on the feasibility of developing
8 irrigated agricultural projects. These
9 projects are located primarily in the western
10 United States -- well, exclusively in the
11 western United States.

12 Q All right. Do those deal with Indian tribes?

13 A Yes, they do.

14 Q What Reservations are involved?

15 A Would you like me to list them?

16 Q Yes.

17 A Okay. The first study involved the Fort
18 Berthold Reservation and the Rosebud Sioux
19 Reservation. The second one was for the
20 Coleville Indian Reservation.

21 THE SPECIAL MASTER: Coleville in Utah
22 or Coleville in Oregon?

23 THE WITNESS: No, Coleville in Montana --
24 excuse me, in Washington. After that, and the
25 dornbusch-direct-echohawk

1 study that is going on now is for the Northern
2 Cheyenne. We finished -- or I finished the
3 study for five mission bands near San Diego;
4 the Pala, Pauma, Rincon, San Pasqual and
5 LaJolla Bands. It's a group of Reservations
6 clustered near one another. Another study
7 that's going on now -- that's not an
8 agricultural study, excuse me, and a study
9 that is going on is for the San Carlos Apache
10 in New Mexico -- Arizona, excuse me.

11 Q A description of your development in Fort
12 Berthold and Rose Bud Sioux, what did you do?

13 A I was the principal investigator, that was
14 my title. I oversaw the project, I directed
15 the project.

16 Q You said you oversaw and directed. Did you
17 do any of the actual data gathering for review?

18 A I did not do the field data gathering, that
19 was the responsibility of Jim Merchant who
20 testified here earlier, but I directed the
21 structure of the study, what methods we were
22 going to use, how we were going to go about
23 the study; then I oversaw the gathering of the
24 information and reviewed the analysis.

25 dornbusch-direct-echohawk

1 Q What specifically was the study about on those
2 Reservations?

3 A Okay, that was an analysis of the importance
4 of water to the economic development of the
5 Reservations, essentially looking at what the
6 limitation of water supply would mean to in-
7 hibiting economies of the Reservation.

8 Q Now about on the Coleville Reservation?

9 A That was part of a litigation, water rights
10 litigation, and I was responsible for
11 developing an analysis of the cropping pattern
12 of budgets and returns available.

13 Q Did you have an occasion on that project to
14 determine crop yields?

15 A Yes, I did.

16 Q Did you also on that determine cropping
17 patterns?

18 A Yes, I did.

19 Q Okay. Could you just -- will you please
20 skip through Northern Cheyenne and also what
21 your involvement was there?

22 A Okay. This is again a water rights litigation.
23 We are doing both the agricultural and the
24 non-agricultural water development analysis.

25 dornbusch-direct-echohawk

1 We are, incidentally, working with Stetson
2 Engineers and HKM, as well, on that study.
3 It's going on presently, and we are involved
4 now, and I am presently developing crop budgets
5 and yields and analyzing the terms.

6 The mission bands study was an analysis
7 of the damages. This is an Indians claims
8 case. It's an analysis of the damages that
9 occurred to those Reservations as a result of
10 their deprivation of water historically. It's
11 not a water rights claim, but a damages claim.

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DORNBUSCH DIRECT ECHOHAWK

1 A (continued) I performed that study myself with
2 assistance of some of my staff, and I guess the
3 other one is the San Carlo Apache. This is
4 also a water rights adjudication. I'm directing
5 the study now and it's an investigation of the
6 irrigated agricultural development potential
7 on the reservation. And we're working with
8 Stetson Engineers on that one too.

9 Q Can you give us a brief description of the other
10 economic analysis work done by you at Dornbusch
11 and Company?

12 A It falls mainly into areas, that's economic
13 feasibility and economic impact. It touches on
14 a number of areas such as -- well, primarily
15 oriented around resource development and resource
16 development protection, I'm sorry, it's resource
17 protection. And it's -- to look at either the
18 feasibility development of a resource or economic
19 development or the impact of those developments,
20 we've done the studies related to off-shore oil
21 and gas development, Anacon Oil and Gas Development.
22 We've done such things as analyze the impact and
23 ofc development, say in Alaska on the western
24 states, looking at the staging facilities, the
25 dornbusch-direct-echohawk

1 production facilities and trans-shipment points.
2 Also looking at things like an impact on recreation
3 of those kinds of developments. We've done things,
4 urban studies such as the impact of high rise
5 building developments in urban areas, intensive
6 development impact of the Bart System in the
7 San Francisco Bay area on the economy, and land
8 use of the region.

9 I did a large study in the Tahoe Basin on
10 which we looked not only into the economic develop-
11 ment potentials but what the impact would be of
12 those developments, and the implications for
13 social and environmental conditions in the basin.

14 Q All in all, Mr. Dornbusch, how many years exper-
15 ience do you have as an economist?

16 A Since the beginning from the time I graduated,
17 15 years approximately.

18 Q Mr. Dornbusch, I hand you what has been marked
19 as United States' Exhibit WRIR-C-266. Would you
20 please identify this exhibit for us.

21 A This is a copy of my current resume.

22 Q Mr. Dornbusch, is there a correction to be made
23 regarding your education?

24 A Yes.

25 dornbusch-direct-echohawk

1 Q Could you just go ahead and write that in on the
2 original exhibit and tell us what correction
3 you're making.

4 A Under education it's Cornell University, B.S.
5 and this is a typo, it should read B.C.E.

6 Q To the best of your knowledge, Mr. Dornbusch,
7 is your resume accurate?

8 A I believe it is without exception.

9 MR. ECHOHAWK: Your Honor, at this time I
10 would offer Mr. David Dornbusch as an expert
11 in economics and economic feasibility analysis.

12 THE SPECIAL MASTER: Is there a desire to
13 voir dire either the witness or the resume?

14 MR. MERRILL: Your Honor, I don't believe
15 the resume's been offered, but I would like to
16 voir dire the witness.

17 THE SPECIAL MASTER: All right.

18 VOIR DIRE EXAMINATION

19 BY MR. MERRILL:

20 Q Mr. Dornbusch, did you take any economics courses
21 at Cornell as part of your undergraduate studies?

22 A One.

23 Q What course was that?

24 A It was an introductory economics course.

25 dornbusch-direct-echohawk
dornbusch-voir dire-merrill

1 Q Did you take any other economics courses at Cornell?

2 A There were one, perhaps two. I've forgotten
3 exactly. It was in the engineering school, it's
4 called engineering economics, I believe.

5 Q It was taught by the engineering school?

6 A It was taught in the engineering school. Does that
7 answer your question?

8 Q Yes. Thank you.

9 Isn't it true that as part of your studies
10 at Harvard for your Master's in Business Adminis-
11 tration, you focused on financial analysis as
12 opposed to economic analysis?

13 A Oh, I wouldn't say there's a real distinction
14 there, I don't think the business school would
15 identify an area called economic analysis.
16 Financial analysis included economic analysis.

17 Q Would you say that your studies focused on
18 economic analysis?

19 A Well, they focused on studies dealing with both
20 economics and finance, in that we were, I think
21 it was primarily focused on things that dealt
22 with the kinds of things that are considered in
23 both economic and financial analysis, yes.

24 Q Mr. Dornbusch, what are the major differences
25 between an economic analysis and a financial

dornbusch-voir dire-merrill

1 analysis?

2 A Essentially the differences that a financial analy-
3 sis deals with the actual dollars that exchange
4 through hands and an economic analysis deals with
5 the same kinds of principles, but instead of dealing
6 with the precise dollars, will seek to evaluate
7 the resources that are used in the project and
8 developed in a project in terms of what we call
9 their true values and not necessarily what their
10 dollar cost is in the market.

11 Q What do you mean by "true values"?

12 A The values in terms of its value to the society
13 in which it's being consumed or generated, and
14 their techniques for doing that and, for example,
15 the World Bank, the United Nations, all the
16 national development banks, when they develop
17 a project it's in economic terms and they use
18 techniques which seek, if the dollar value in
19 the market is not representative of the true
20 value, will get rid of those effects and seek the
21 true value in order to develop the analysis.

22 Q Are you saying then that an economic analysis
23 is more of a societal prospective on the costs?

24 A Yes, I think that would be a fair expression of it.

25 dornbusch-voir dire-merrill

1 THE SPECIAL MASTER: Which one is prone to
 2 give some attention to impact, financial or
 3 economic?

4 THE WITNESS: They both give attention to
 5 impacts. It's a matter of the point of view.

6 Q (By Mr. Merrill) Mr. Dornbusch, do you consider
 7 yourself to be knowledgeable as a theoretic
 8 economist?

9 A In some areas I think so, yes.

10 Q Do you consider yourself to be knowledgeable
 11 concerning the theories of benefit cost analysis.

12 A Yes, I do.

13 Q Would you please tell the Court what is an in-
 14 commensurable benefit?

15 A I think I would have trouble doing that.

16 Q Can you tell the Court what the difference is
 17 between an incommensurable benefit and an intangible
 18 benefit?

19 A I think I'd have trouble doing that.

20 Q Okay. Can you tell the Court or define for the
 21 Court the term consumer surplus?

22 MR. ECHOHAWK: Objection, Your Honor, this
 23 isn't a quiz.

24 MR. MERRILL: That's absolutely what it is,
 25 dornbusch-voir dire-merrill

1 Your Honor, he's being offered as an expert witness,
2 and --

3 THE SPECIAL MASTER: Voir dire is an exercise
4 long devoted to allowing questions testing the
5 man's qualifications as an expert and somewhat his
6 experience and education. It goes into it, and
7 I am not sure that I think that failure to answer
8 necessarily reflects on the witness, but I'm not
9 sure that I can quarrel with the question either.
10 Go ahead.

11 Q (By Mr. Merrill) Would you like me to repeat
12 the question?

13 A Yes.

14 Q Would you please define consumer surplus for the
15 Court.

16 A I think going back to your earlier question, you
17 asked me to distinguish true benefits, I think
18 I can deal with intangible benefits. An intangible
19 benefit is one that isn't necessarily possible to
20 measure in dollar terms, but is a benefit never-
21 theless. I think an example might be free time,
22 the quality of a resource that might not be easily
23 expressed in dollar terms or available in that
24 kind of measure.

25 dornbusch-voir dire-merrill

1 Q Okay.

2 THE SPECIAL MASTER: Can you define consumer
3 surplus, was the question?

4 THE WITNESS: Yes. Consumer surplus is
5 essentially that amount of value in something
6 which you buy, for example, which is over and
7 above what you have to pay for it. In other
8 words, if you would actually be willing to pay
9 more than you have to pay in the market, the
10 difference what you'd be willing to pay and
11 what you actually do pay is your consumer sur-
12 plus.

13 Q (By Mr. Merrill) Would you describe for the
14 Court the relationship between consumer surplus
15 and benefit cost analysis?

16 A Well, first of all, a benefit cost analysis can
17 take a number of forms, and as I said before,
18 it depends on the point of view. The benefit
19 cost analysis could be in strictly financial
20 terms, it could be in terms of the point of
21 view, say, of the national economy where you're
22 seeking to evaluate the benefits and the cost
23 in the terms of their value as a social cost
24 or benefit. And in that respect you'd be trying

25 dornbusch-voir dire-merrill

1 to seek the true values to the national economy.

2 Q Why don't we limit the question now to benefit
3 cost analysis in the economic sense.

4 A Okay. If you're seeking to measure the benefits
5 and you're seeking to measure benefits that
6 determine the value to society and you feel that
7 it's appropriate to include the consumer surplus,
8 you might very well be justified in including
9 consumer surplus in the benefits.

10 Q Do you feel that in performing an economic bene-
11 fit cost analysis it is appropriate to include
12 consumer surplus?

13 A Well, consumer surplus is a very difficult thing
14 to measure, and the problem is that as soon as
15 you try you begin to get into a world which be-
16 comes very debatable. And for example, one way
17 to try to measure consumer surplus is to take
18 a survey and ask people regardless of what you
19 have to pay for something, what would you be
20 willing to pay for it if you -- if it was priced
21 at any level, how far would you go. Well, the
22 problem with that is that it's not clear that
23 what somebody says he's willing to pay is a true
24 reflection of what he actually would pay, and the

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dornbusch-voir dire-merrill

1 problem you run into is very clearly that if
2 you're talking to a conservationist and a member
3 of the Sierra Club and ask him or her what he'd
4 be willing to pay for a recreation resource, since
5 he or she doesn't actually have to pay that, they
6 can say anything they want, recognizing that
7 somebody's going to use that value and work it
8 into an analysis and come out with these very
9 high values. On the other hand if that person,
10 say is a member of an oil company and you're
11 asking him or her what they'd be willing to pay
12 for recreation at the Santa Barbara Channel at
13 the beach and they recognize somebody maybe
14 evaluating they're benefits in terms of their
15 answer, that might penalize development of oil.

16 THE SPECIAL MASTER: Especially if they're
17 associated with Poly Partners or Husky Oil.

18 THE WITNESS: They might very well give a
19 low answer, so you run into those kinds of
20 problems.

21 There are proxy measures, there are other
22 ways of trying to get at what the consumer
23 surplus is in other ways, but because they're
24 open to questions, because they're debatable,

25 dornbusch-voir dire-merrill

1 economists may or may not use them, depending
2 on how much stress they might be under to defend
3 them, such as in a court of law.
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1 THE SPECIAL MASTER: To complete your answer to
 2 Mr. Merrill's question, if you were to include
 3 consumer surplus in the benefit cost analysis, at
 4 least would you identify and give those subjective
 5 analyses you just made?

6 THE WITNESS: If it's possible. If the consumer
 7 surplus seems to be large, for example, over and above
 8 what the market was valuing the resource, if there
 9 seemed to be a lot of consumer surplus and if you
 10 ignored it, if you would be undervaluing the benefits,
 11 yes, I think it might be important to try, and at
 12 least try to attach some value to that or at least
 13 say there is a large consumer surplus involved, like
 14 a recreational development project. There would be
 15 a good example. However, on the other hand, where
 16 there is a free market operating, where you have a
 17 very competitive free market, there tends to be
 18 little, if any, consumer surplus because people are
 19 able to bid the price if it's actually free to the
 20 level that there is virtually no consumer surplus.
 21 Like an auction; if you auction off a product and
 22 you allow people to bid freely, the theory goes that
 23 they will bid up to the point that they are willing
 24 to pay, and no more for it, and you won't have much,

25 dornbusch-voir dire - merrill

1 if any, consumer surplus.

2 Q. (By Mr. Merrill) Do you believe that the consumer
3 surplus notion is relevant at all to the cost side
4 of an economic benefit costs analysis?

5 A. Well, yes.

6 Q. Will you please define an externality for the Court?

7 THE SPECIAL MASTER: An externality?

8 MR. MERRILL: An externality, Your Honor.

9 THE SPECIAL MASTER: An externality?

10 MR. MERRILL: Yes, Your Honor.

11 MR. ECHOHAWK: Same objection, Your Honor.

12 THE SPECIAL MASTER: Well, before I can rule on
13 it, I have to know how to spell it.

14 MR. MERRILL: E-x-t-e-r-n-a-l-i-t-y, Your
15 Honor.

16 THE SPECIAL MASTER: Extranality?

17 MR. MERRILL: I believe it is pronounced
18 externality, Your Honor.

19 THE SPECIAL MASTER: E-x-t-e-r?

20 MR. MERRILL: Yes.

21 THE SPECIAL MASTER: Now, the objection?

22 MR. ECHOHAWK: Same objection. This isn't a
23 course in economics, it is to test the qualifications
24 as to whether the man is experienced enough to make

25 dornbusch-voir dire- merrill

1 a judgment to render an opinion in this case, not
2 whether he remembers textbook definitions Mr. Merrill
3 has dug out from who knows where.

4 MR. MERRILL: Your Honor, these are not
5 textbook definitions, these are terms that are going
6 to relate very directly to the economic analysis Mr.
7 Dornbusch will testify about on his direct examination.
8 He is being offered as an expert in economics and
9 economic analysis.

10 THE SPECIAL MASTER: I will overrule the objection,
11 but after about seven more definitions of terms, I
12 might sustain the objection on the basis, you know,
13 of redundancy or saturation.

14 MR. MERRILL: I think I have five or six more,
15 Your Honor.

16 THE SPECIAL MASTER: Let's go ahead with the
17 definition of externality. I want to know what it
18 means.

19 THE WITNESS: Yes. An externality is, as the
20 word implies, something that seems to occur external
21 to the immediate affect that you see. For example,
22 if you were to develop a water resource project like
23 a, oh, let's say a recreation project on a lake,
24 there may be benefits that come external to the actual

25 dornbusch-voir dire-merrill

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1 water resource development project on that lake.
2 You may affect the air quality, you may affect --
3 you may generate noise in the region. These have
4 economic implications, but they are external to the
5 immediate -- to the immediate project.

6 And anticipating Mr. Merrill's next question,
7 depending upon your point of view, they may be very
8 important and, in fact, in some cases they are
9 considered the most important part of the project.

10 Q. (By Mr. Merrill) How do you determine whether factors
11 such as noise and other impacts you described are,
12 indeed, external to a given situation?

13 A. It requires isolation; but you must determine that the
14 noise or noise external factors you are looking at,
15 are, indeed, associated with that project and not
16 associated with others.

17 THE SPECIAL MASTER: They may be external
18 to the project, but they have to be a root to the project,
19 is that right, a creation?

20 THE WITNESS: That's right.

21 Q. (By Mr. Merrill) Would you describe the difference
22 between a pecuniary externality and technological
23 externality?

24 A. I'm not sure what pecuniary means.

25 dornbusch-voir dire- merrill

1 Q. A pecuniary from a --

2 MR. MERRILL: From a technological.

3 THE WITNESS: No, I don't have a ready definition
4 for you.

5 Q. (By Mr. Merrill) Mr. Dornbusch, are you aware of a
6 concept called the fundamental --

7 A. But I could define a kind of technological externality.

8 Q. Please go ahead. I didn't mean to cut you off.

9 A. The space program has generated a great number of
10 technological externalities, essentially benefits
11 from the space program that were not a focus
12 originally of the space program, they're kind of
13 offshoots from it.

14 Q. Are you familiar with the concept that sometimes is
15 known as the fundamental rule of benefit costs
16 analysis?

17 A. Say that again.

18 Q. Are you familiar with a concept that is sometimes
19 known as the fundament rule of benefit costs analysis?

20 MR. ECHOHAWK: Objection, Your Honor.

21 Mr. Merrill says "sometimes known." Sometimes known
22 to whom, and in what context are we speaking?

23 MR. MERRILL: To economists, Your Honor.

24 THE SPECIAL MASTER: You are getting close,
25 dornbusch-voir dire - merrill

1 Mr. Echohawk. One or two more times. When we can
2 hook these things to the BC cost factor, they become
3 a little more relevant because this is a field that
4 the BIA has spent four generations in since 1912 --
5 since 1901 beginning in Shoshone, Wyoming, with what
6 is a benefit cost ratio, what is it, what is 1.51,
7 what does -- it almost hurts in your head on what
8 is relevant and what isn't.

9 MR. ECHOHAWK: My point is, Your Honor, perhaps
10 these types of questions would be more appropriate
11 during cross-examination once we have a little more
12 meat to deal with.

13 THE SPECIAL MASTER: You have a point. There may
14 be some examples where they are thought to be
15 applied and they might affect his testimony, but
16 I would imagine a few more questions and we may be
17 passing judgment on whether he can continue with
18 this or not.

19 You may answer, Mr. Dornbusch, if you can.

20 THE WITNESS: I can't define the fundamental rule
21 for it.

22 Q. (By Mr. Merrill) Are you familiar with the concept
23 of shadow pricing?

24 A. Yes.

25 dornbusch-voir dire - merrill

1 Q. Do you know what assumptions must be made by economists
2 when using shadow price in a benefit cost analysis?

3 A. Well, let me tell you what a shadow price is.

4 Q. Okay.

5 A. A shadow price is the same thing as the opportunity
6 cost, it is an assignment of a value which seeks to
7 reflect what its true value is in terms of, say,
8 a national perspective, and in this case it's a
9 relevant question. Just because you pay X number
10 of dollars for something doesn't mean its value to the
11 nation is that amount of dollars. In fact, the value-
12 might be quite different. And what the value to the
13 nation is is called the shadow price or its opportunity
14 cost. The way you measure it, and I suspect it is
15 what Mr. Merrill is getting at, is that you seek
16 to determine what the value of that resource is in
17 terms of its next best use.

18 Q. What assumptions must be made when you use shadow
19 pricing in those benefit costs analysis?

20 MR. ECHOHAWK: Objection, Your Honor, assumptions
21 as to what?

22 THE SPECIAL MASTER: Since it failed to be shown
23 it is used in benefit cost analysis, you might check
24 on what assumptions did he use. But do you have very

25 dornbusch - voir dire - merrill

1 many more of these, four or five more?

2 MR. MERRILL: I have two or three, Your Honor,
3 specific economic terms. I have other voir dire.

4 THE SPECIAL MASTER: If you know of any specifics
5 that you must put before you crank in a shadow price
6 of BC ratio, state it, if you know of any.

7 THE WITNESS: Well, the assumption is that the
8 value that is expressed in the market is not the true
9 value to the nation.

10 THE SPECIAL MASTER: Which puts a stronger test,
11 a more harsh test, on coming up with an acceptable
12 BC ratio, does it not, or more realistic one?

13 THE WITNESS: Well, it would be from the point of
14 view of the nation, it would give you a more realistic
15 value, yes.

16 Q. (By Mr. Merrill) Mr. Dornbusch, when you are designing
17 a project and evaluating its feasibility, what is meant
18 by the internal rate of return for a project?

19 A. Okay. When you evaluate a project and you seek to
20 lay out the costs and the returns, you will find
21 generally that not all the costs and returns occur
22 right at the same time, that they will occur at
23 different points in time. In order to relate them
24 together, you have to recognize that there is a value

25 dornbusch - voir dire - merrill

1 in that time difference. What I am saying is this:
2 That if I were to promise to give you a dollar today
3 or promise to give you a dollar in ten years and ask
4 you which one you want, I think you would say you want
5 a dollar today because that has some time value to it.
6 Well, it's the same principle here. Costs that occur
7 today of the same magnitude of the costs that occur
8 in the future are of a higher value; same thing with
9 benefits. Okay. So in order to relate the costs and
10 the benefits that occur through time to each other,
11 you do an analysis which will determine how they
12 relate to one another, and you can do that in terms
13 of -- in two ways; you can develop a benefit cost
14 ratio which uses a discount rate or something just
15 like the internal rate, or you can express it another
16 way. Instead of describing it as a benefit cost
17 ratio, you could lay out these costs and returns
18 and express the returns in an internal rate return,
19 so you could say either the project is feasible
20 as it has a benefit cost ratio of, say, 1.2, benefits
21 to cost, or it has an internal rate of return of,
22 let's say, 7 percent, positive rate of return 7
23 percent, or either way you would show it being
24 feasible. The two methods are not -- they are
25 dornbusch - voir dire - merrill

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equivalent in terms of expressing that feasibility,
you could do it either way. It is a matter of
preference.

1 Q (By Mr. Merrill) Is there a difference between the
2 internal rate of return of a project and the net
3 present value of a project?

4 A Oh, yes. The internal rate of return is a rate, a
5 percentage. The net present value is simply the
6 benefits minus the costs, the dollars.

7 Q Is there any relationship between the two?

8 A Well, yes. If you were to take a stream of bene-
9 fits and costs, you could either discount that
10 stream back to the present, using a discount rate
11 and coming up with a net benefit or you could ex-
12 press that stream in terms of an internal rate of
13 return.

14 Q Are you familiar with the concept known as compen-
15 sating variation?

16 A Compensating variation, I could not define that for
17 you.

18 Q Mr. Dornbusch, under what circumstances is it ap-
19 propriate to use benefit cost analysis as a public
20 decision-making tool?

21 A It's appropriate whenever the public decision
22 makers feel that they want to make a decision
23 based upon economic values or financial values,
24 in terms of dollars or an expression of returns

25 dornbusch - voir dire - merrill

1 to dollars.

2 Q. You testified on your direct examination that you
3 did some evaluation of irrigated agriculture for the
4 Coalville Reservation. Is that true?

5 A. That's true.

6 Q. Did you testify as a result of that work?

7 A. I did not.

8 Q. Did you write a report as a result of that work?

9 A. I developed a series of exhibits, yes, I'd say you'd
10 call it a report.

11 Q. Were those exhibits admitted into evidence by Judge
12 Neal?

13 A. Were they, excuse me?

14 Q. Admitted into evidence.

15 A. They were not presented.

16 Q. You stated on your direct testimony that you've
17 worked as a consulting economist for fifteen years;
18 is that correct?

19 A. That's correct.

20 Q. And during that time you have never testified as an
21 expert; is that correct?

22 A. I have never testified in a water rights case as an
23 expert witness like in the situation like this, that's
24 correct. But I have testified as to my findings
25 dornbush - voir dire - merrill

1 before groups in the International Financial
2 Institution, various people who are interested in the
3 results of the studies that are done.

4 MR. MERRILL: Your Honor, I have no further
5 questions on voir dire, and the State of Wyoming would
6 object to the qualification of Mr. Dornbusch in
7 economics and economic analysis on the grounds that
8 number one, goes to --

9 THE SPECIAL MASTER: I presume Mr. Echohawk will
10 move to its admission and you're objecting?

11 MR. MERRILL: I think Mr. Echohawk proffered
12 Mr. Dornbusch as an expert.

13 MR. ECHOHAWK: That's right, Your Honor.

14 THE SPECIAL MASTER: I beg your pardon.

15 MR. MERRILL: And if I'm not mistaken, in the
16 field of economy and economic analysis.

17 MR. ECHOHAWK: Economic feasibility analysis.

18 MR. MERRILL: Economic feasibility analysis.

19 The field of economics as you're well aware, and as
20 Mr. Dornbusch testified, in the work of his own firm,
21 is very broad, and I don't believe that it's proper
22 to qualify someone over such a broadly-dispirit
23 field as economics, per se, since there are many types
24 of economics involved here.

25 dornbusch -voir dire-merrill

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Secondly, I don't believe that Mr. Dornbusch can qualify on economic feasibility analysis because he was unfamiliar with some of the fundamental terms that are used to define economic feasibility analysis and its application to certain situations.

Third, Mr. Dornbusch has never been qualified as an expert economist in the water rights proceeding, and in a case of this magnitude, I don't think it's appropriate to do so for the first time.

THE SPECIAL MASTER: I'd like to respond to a few of those observations, Mr. Merrill. They're probably all true and with merit, but I think I must, in a matter of eminent fairness, overrule them and admit him as an expert because one, there has never been a water case in America quite like this one; we're setting a national precedent, not a world-wide precedent, saying here is the way this dispute will be settled and there will not be an Indian Claims Commission adjudication, there will not be a big massive public works project where you can go in and claim BC rates in order to accept it publicly, you know, a political benefit to all people of a given area. It's a new whole ballgame and we're treading new fields, and we have to accept and work with what

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we can.

Secondly, I think his qualifications are adequate to qualify him as an expert witness, and like the rest of us in life he has to begin somewhere, so this is my first case as a Special Master, it's his first water case as an expert to testify, and I think I'll admit him on the basis of what I feel is a competency to proceed as an expert in his special field in the economic feasibility of what we're talking about in the Wind River Indian Reservation.

MR. MERRILL: Thank you, Your Honor.

DIRECT EXAMINATION (Continued)

BY MR. ECHOHAWK:

Q. Mr. Dornbusch, what was your responsibility --

THE SPECIAL MASTER: Do any of you want to take a five-minute break, I'll give it to you?

MR. ECHOHAWK: Maybe it's just as good a time. We're getting ready to plunge into it so it may be a good time.

THE SPECIAL MASTER: All right, let's take a five-minute break.

1 THE SPECIAL MASTER: Let's resume, please.

2 Mr. Echohawk?

3 Q. (By Mr. Echohawk) Mr. Dornbusch, please explain for
4 us what your responsibility was with regards to the
5 future lands portion of the United States' case.

6 A. Yes. My responsibility was to determine the feasibility
7 of the development of those future lands. The development--

8 THE SPECIAL MASTER: All five units?

9 THE WITNESS: All five units, correct.

10 Q. (By Mr. Echohawk) When you say the future lands
11 or the five units, do you know specifically the names
12 of those units that we are sure we are talking about
13 the same thing?

14 A. Yes. North Crowheart, South Crowheart, Riverton East,
15 Arapahoe Flats and Big Horn -- I'm sorry, Arapahoe and
16 Big Horn Flats.

17 Q. You did a feasibility analysis. Will you please
18 explain for us a little more what that is, what kind
19 of feasibility analysis?

20 A. Okay. Perhaps to illustrate, we performed an
21 economic feasibility analysis. It's the feasibility
22 analysis using the techniques and approaches that
23 I feel are most appropriate for evaluating the
24 feasibility of these projects for a water rights

25 dornbusch - direct - echohawk

1 claim.

2 Q. You had just a little discussion with Mr. Merrill as
3 to the difference between economic analysis and
4 financial analysis. Is there anything else you would
5 like to add to that discussion, what the difference
6 is between those two?

7 A. Well, perhaps to restate it, some of the things --
8 perhaps I have left out some. The economic evaluation
9 seeks to determine true value of the resources
10 consumed and the resources developed in the project.
11 When I say "true value," the value from the prospective
12 of the people most concerned with the use and
13 consumption of those resources. I feel in this
14 case the national prospective is the most appropriate
15 one, and I used an approach, techniques that are
16 used by and recommended by the World Bank, the United
17 Nations, our own Water Resources Council. It's a
18 technique that seeks to evaluate the project on an
19 equal level with all other projects of its kind
20 that may be proposed anywhere in the United States.

21 For example, the techniques we used would
22 evaluate an irrigated agricultural development
23 project on the Wind River Reservation on the same
24 basis we would a similar project right next door to
25 dornbusch - direct - echohawk

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1 that reservation that might be developed by non-Indian.
2 And our analysis would show relative benefits
3 and costs without special considerations for either
4 one.

5 And let me be more specific. In our analysis
6 we eliminate such things as subsidies, and we would
7 eliminate other values that are really not an
8 expression of ^{the} creation or the consumption of
9 resources. I guess a telling way to show you to
10 demonstrate the difference between the financial and
11 economic, and in my case I'm choosing the economic,
12 is that in the case of the Indian tribes they have a
13 very unique subsidy available to them in the Leavitt
14 Act that would permit them to borrow money to finance
15 the construction of really the main cost components
16 of the system.

17 THE SPECIAL MASTER: In putting together your
18 costs -- in putting together your economic feasibility
19 analysis, did you crank in a factor for cost of land?

20 THE WITNESS: I did.

21 THE SPECIAL MASTER: You did?

22 THE WITNESS: And I'll get to this.

23 THE SPECIAL MASTER: I don't want to anticipate
24 your case.

25 dornbusch - direct- echohawk

1 MR. MERRILL: Excuse me for interrupting.
2 I move to strike that portion of Mr. Dornbush's
3 answer concerning the Leavitt Act and whatever
4 he said about it, permitting Indian Tribes
5 to borrow money. That's an illegal conclusion
6 to the legal effect of the Leavitt Act. He's
7 not a lawyer, it's for this Court to decide
8 whether the Leavitt Act applies and secondly,
9 in what way it applies and what effects it has.

10 MR. ECHOHAWK: Your Honor, we've not
11 applied the --

12 THE SPECIAL MASTER: If it was germane,
13 I would sustain the objection. I think I'll
14 let it stay in the record for whatever it may
15 be worth, it's advantages or disadvantages,
16 if any, and what you're concerned with right
17 now --

18 MR. ECHOHAWK: Let me clear that up with
19 Mr. Dornbusch.

20 Q (By Mr. Echohawk) Mr. Dornbusch, in your
21 analysis, economic analysis, that you're
22 applying in this case, are you using the Leavitt
23 Act?

24 A No, I did not.

25 dornbusch-direct-echohawk

1 Q In your reference to Leavitt Act, is that
2 in reference to what thing you could consider
3 in a financial analysis?

4 A That's right. I was citing an example of why
5 I think -- a telling example of why a financial
6 analysis would not be appropriate in this
7 case, And to go on, you were to analyze the
8 effects of the Leavitt Act, you'd find that
9 the Indians would be able to borrow a great
10 deal of money to finance the construction of
11 the project, they would not have to repay it
12 for a great number of years, if at all, and
13 the net effect in terms of the present value,
14 which I talked a little bit about and I'll
15 talk some more about it later, would be to
16 cost the -- some of the largest development
17 costs at zero or virtually zero. In effect,
18 you'd come up with a very low cost for that
19 development for the Indians, whereas non-
20 Indians who may be trying to develop a similar
21 project right next door who have those costs
22 included and it would be clearly feasible for
23 the Indians to develop the project and not
24 necessarily feasible for someone else, the

25 dornbusch-direct-echohawk

1 evaluation would not be comparable at all,
2 and it's a telling weakness in the financial
3 approach.

4 However, in the economic evaluation, you
5 would be evaluating them on balanced terms,
6 and we actually do include all of those costs.
7 We do not defer those costs for any consideration
8 of the Leavitt Act. When I get into my
9 analysis you'll see how I handle it further.

10 Q What other specialized considerations would be
11 found in a financial analysis that are not
12 included in an economic analysis?

13 A Oh, such things as other types of subsidies
14 such as artificially raising the prices of
15 commodities that are sold which do not represent
16 their true value. Transfers within the
17 economy that really don't represent a con-
18 sumption of goods or services but just a
19 movement of funds which, for example, in the
20 Indians' case, the Indians don't pay taxes
21 that nonIndians would, and if you had to
22 include those taxes, it would again unfavorably,
23 it would show the project, the nonIndian
24 unfavorably relative to the Indians. So we

25 dornbusch-direct-echohawk

1 are seeking to evaluate, as I said, using
2 the true value of resources the same way
3 the World Bank would evaluate the project,
4 the same way the United Nations would, and
5 using essentially the principles that are
6 recommended and prescribed by the Water
7 Resources Council.

8 MR. ECHOHAWK: Excuse me, Your Honor,
9 can I have one minute?

10 (Brief pause.

11 THE SPECIAL MASTER: Sooner or later --
12 I'll wait for Mr. Echohawk to get through
13 with his exhibits over there. But I think
14 that sooner or later someone's going to direct
15 a question to you -- I'll just wait and see
16 if they do, if they don't then I will.

17 Q (By Mr. Echohawk) Mr. Dornbusch, I show you
18 what has been marked as United States Exhibit
19 WRIR C-267. Would you please identify what
20 267 is.

21 A Yes. Would you like me to just identify it?

22 Q Yes,,just identify it for now.

23 A It's a diagram which represents the process
24 we used in performing our economic feasibility

25 dornbusch-direct-echohawk

1 analysis.

2 Q Was this diagram prepared by you or under
3 your direction?

4 A It was -- I prepared the flow diagram and it
5 was prepared by a graphic artist under my
6 direction, and perhaps I should explain. It's
7 specifically related to the analysis we did
8 for irrigated agriculture on the Wind River
9 Indian Reservation.

10 Q Mr. Dornbusch, if you could step to the -- to
11 Exhibit 267 and give us a brief overview
12 of the process by which you made your economic
13 feasibility analysis.

14 A Yes. Beginning at the end, I'd just like to
15 show that where we're headed is the expression
16 of a benefit cost ratio, which expresses the
17 feasibility of each project area, each of the
18 five project areas that I named. The process
19 for determining that benefit cost ratio is
20 described here, and it essentially puts
21 together the components of the analysis that
22 we performed and shows how the components of
23 the analysis that the engineers performed
24 come in and integrate to complete the process

25 dornbusch-direct-echohawk

1 to arrive at those benefit cost ratios.

2 Q Would you give us just a brief run through
3 of the items that are considered in what you
4 did?

5 A Okay. The analysis begins with a selection
6 of crops and then an identification, a
7 determination of the crop yield which can be
8 expected, and it's done -- and I'll describe
9 in more detail later. According to two
10 different regions of the Reservation, high-
11 land or lowland, there is a distinction we make
12 because of difference in growing season and
13 suitability for crops.

14 Multiplying those by crop prices gives
15 us gross return, still by lowland and high-
16 land region. Subtracting the production
17 costs, which we determine, we get the net
18 returns for highland and lowland. Then from
19 a determination of the crop percent distribution
20 by highland and lowland area, we average to
21 determine the weighted average net return,
22 still by highland and lowland area.

23 Then recognizing the percentage of highland
24 and lowland area within each project area, we

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1 average again to determine the net returns for
2 each project area. Here we subtract out the
3 on-farm irrigation costs to determine the net
4 benefits by project area, and the major component
5 then is the benefit cost ratio which has been
6 determined, and the benefits are here and we
7 bring then the irrigation system cost. Dividing
8 the net benefit irrigation cost gives us the
9 benefit cost ratio given by each project area.

10 Q Okay. You can return to your seat.

11 Mr. Dornbusch, I hand you what has been
12 marked as United States Exhibit WRIR C-268.

13 Mr. Dornbusch, would you please identify
14 Exhibit C-268.

15 A Yes. It begins with a brief statement which
16 is roughly what I just gave you orally,
17 describing the process by which we perform
18 the feasibility analysis, and that is followed
19 by a series of tables which present the values
20 of the various quantities that comprise the
21 analysis, and are presented, the tables are
22 presented in a series according to that flow
23 diagram which I described. It also includes
24 some detail of some of our analyses and

25 dornbusch-direct-echohawk

1 conclusions, again presented in the tables.

2 And the final table, concluding as the
3 flow diagram does with the benefit cost ratios
4 for each project area.

5 Q Mr. Dornbusch, was Exhibit C-268 prepared by
6 you or under your direction?

7 A Yes, it was.

8 Q Mr. Dornbusch, in your brief description
9 regarding Exhibit C-267, you mentioned the
10 first thing you needed was crops. How did you
11 determine what crops were to be used in this
12 case or in your analysis?

13 A Okay. Based on information from a number of
14 sources, primarily a report that was prepared
15 by Douglas Agee, Extension Farm Management
16 specialist and associate professor at the
17 University of Wyoming, at least at that time
18 he was an associate professor, based upon
19 interviews with farmers, based upon interviews
20 with other knowledgeable people on and near
21 the Reservation, such as other agricultural
22 extension agents, we sought to determine which
23 crops were most suited to that area based upon
24 agrinomic constraints, climatic soils, etcetera.

25 dornbusch-direct-echohawk

1 Also which crops seemed to be raised in the
2 area, therefore, show the most experience
3 and the proof of the pudding, in that they
4 actually not only could be raised but were
5 being raised in the area.

6 And then we selected crops which would
7 give us good returns which were going to give
8 us good income which would tend to reduce
9 risk in terms of both disease and pests, and
10 also reduce risk of fluctuation in prices.
11 And also to recognize the fact that the main
12 agricultural activity on the Reservation is
13 livestock, primarily cattle, and would provide
14 the market necessary to consume the products
15 that we were seeking to grow on the Reservation.

16 Q Mr. Dornbusch, what crops did you choose to
17 use in your economic feasibility analysis?

18 A The crops we selected are the following: Alfalfa,
19 malt barley, and then corn for both silage
20 and grain.

21 Q Mr. Dornbusch, I ask you to turn to, in
22 Exhibit C-268, turn to Page 4, Table 1.

23 A Okay.

24 Q I noticed in the column there, first column

25 dornbusch-direct-echohawk

1 there is a couple items, bale straw and
2 aftermath. Are those considerations in --
3 are those derivations of your crop considerations?

4 A What's the question again?

5 Q Bale straw and aftermath.

6 A Yes.

7 Q Are those also part of your crop consideration?

8 MR. MERRILL: I object to the question.
9 The witness is now testifying to an exhibit
10 which is not yet in evidence.

11 MR. ECHOHAWK: Your Honor, the exhibit
12 is just merely being used as a point of
13 reference to following along, that there will
14 be no testimony to the figures derived in
15 this exhibit until it is offered.

16 MR. MERRILL: But the reference in the
17 question was to a certain page of the exhibit
18 itself.

19 MR. ECHOHAWK: It's merely for convenience.
20 I can ask him without the table. It's so every-
21 one can follow along.

22 THE SPECIAL MASTER: All right, objection
23 overruled.

24 THE WITNESS: Yes. On that exhibit there
25 dornbusch-direct-echohawk

1 are product crops that result after the
2 harvest of the main crops, and there are
3 returns to those, aftermath and baling of
4 the straw remaining after the barley harvest
5 and they're shown in my crop selection as
6 well.

7 Q (By Mr. Echohawk) Are these crops that you
8 mentioned, the malt barley, corn for grain
9 and corn for silage, are those the same
10 crops described in Dr. Mesghinna's testimony?

11 A Yes, they are.

12 Q In your economic feasibility analysis on the
13 Wind River Reservation, did you use this --
14 Did you use all these crops, the barley, the
15 alfalfa and the corn on all elevations of the
16 Reservation?

17 MR. MERRILL: Your Honor, I think we
18 moved on the preliminary phase of direct
19 examination and it's no longer appropriate
20 for Mr. Echohawk to use leading questions
21 to interrogate the witness.

22 THE SPECIAL MASTER: Well, he may ask
23 him what his authority was for using, for
24 selecting these crops.

25 dornbusch-direct-echohawk

1 MR. MERRILL: That would be fine, but
 2 questions are not containing all the facts
 3 and the witness simply has to say yes, I did.
 4 I think that's inappropriate.

5 THE SPECIAL MASTER: You may ask him
 6 what authority he used to select the crops
 7 he did.

8 MR. ECHOHAWK: Okay. My question, Your
 9 Honor, went to the question of whether the
 10 four crops that he described were used in the
 11 analysis on all elevations of the Reservation.

12 THE SPECIAL MASTER: I thought he said
 13 "Yes" to that. Then your next question had to
 14 do with whether they were the same that Dr.
 15 Mesghinna just testified to.

16 Would you go back to the question before
 17 last, Merissa?

18 (Thereupon the following
 19 (question was read back
 20 (as follows: "Q Are
 21 (these crops that you
 22 (mentioned, the malt
 23 (barley, corn for grain
 24 (and corn for silage,
 25 (are those the same crops
 (described in Dr.
 (Mesghinna's testimony?"

24 THE SPECIAL MASTER: You may answer that.

25 dornbusch-direct-echohawk

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THE WITNESS: No, I did not. When we divided the Reservation into two zones, I determined that it was less likely to be able to grow corn in the higher zone effectively, and therefore, omitted corn, both corn silage and corn grain from the crops in the higher elevation. So the lower elevation crop mix included the malt barley, the alfalfa and the corn silage and corn grain, but the higher elevation only includes malt barley and alfalfa.

* * * * *

dornbusch-direct-echohawk

1948
22-1-MN-v1b

1 Q. (By Mr. Echohawk) You have been mentioning high
2 land and low land areas. Why do you make a breakdown
3 between high land and low land?

4 A. As a result of our interviews, as a result of some
5 of the reports that we have read, we found that
6 there was a fair amount of opinion that in the
7 higher elevations of the reservation, because of
8 the shorter growing season, it might be difficult
9 perhaps impossible to grow corn.

10 THE SPECIAL MASTER: Was it your judgment,
11 therefore, to exclude or was it the recommendation
12 of those experts whose business it is to make that
13 determination to make the judgment call?

14 THE WITNESS: Okay. There was mixed opinion,
15 and I'll tell you what the opinion was. In the report
16 by the Bureau of Indian Affairs, I think it's called
17 the Completion Report, the Bureau through their
18 investigations determined that the logical split
19 in the reservation would occur at the elevation
20 5900 feet.

21 Okay. I discussed this level and split with
22 people from the Agricultural Extension Service and
23 got a range of opinions that essentially said, well,
24 yes, there seems to be a shorter growing season at the
25 dornbusch - direct- echohawk

1 higher elevations, which may preclude the growing of
2 corn above 5900 feet. However, in my discussions
3 with farmers, some of them at very high elevations,
4 including farmers at the 6500-foot level in the
5 Crowheart area, I got farmers telling me that they
6 had successfully grown corn at that elevation, that
7 they had done it with what they felt good yields, that
8 they saw no problems of growing corn at the higher
9 elevations; in fact, the only reason they weren't
10 still doing it was they were having difficulty in
11 finding laborers to harvest the corn and had
12 discontinued it, but had grown it well and stated the
13 opinion that they could grow it again and other farms
14 could grow it at that elevation. I felt that although
15 it was possible that farmers could grow it, I, on
16 the basis of the mixed divided opinion, I felt that
17 the conservative approach, that is the approach which
18 certainly would not overstate the situation, I felt
19 that it might be desirable to leave corn out of the
20 crop mix in the higher elevations and, therefore,
21 did so.

22 Q. (By Mr. Echohawk) So what breakdown did you use,
23 what elevation did you finally use?

24 A. I used the 5900-foot elevation as the split behind the
25 dornbusch - direct- echohawk

22-3-MN-v1b

1 high land and the low land area. I don't recall,
2 Mr. Dornbusch, whether you mentioned what information
3 you used in determining the crop selection, what crops
4 you used. Could you please, restate that?

5 A. Okay. I began by using a study that was prepared
6 by Doug Agee, A-g-e-e, and his was a study that was
7 based on an analysis of interviews of farmers in the
8 Midvale Irrigation District, and I supported the
9 conclusions of his study with other interviews.
10 As to the specific selection of crops, I had
11 a number to chose from which included all of the
12 crops in here. I selected as the basis for my --
13 as one of the main crops alfalfa for the reason
14 I stated before, that it is an animal food, that it
15 had the best return of all of the crops that I studied,
16 it's highly marketable both on and off the reservation.
17 The selection of malt barley was on the basis of the
18 fact it has the second highest return of the crops
19 that I looked at. It is an excellent crop in that
20 area. It is sold to the beer brewing industry,
21 and as I said, it has the second best return.

22 And the selection of corn was, as you will see
23 later, part of the rotation of the alfalfa as is malting
24 barley. I selected it because corn silage is a good

25 dornbusch - direct- echohawk

1 food for livestock and corn grain has an excellent
2 market. The prices now are somewhat lower for corn
3 grain but there have been times in the past when the
4 net returns for corn grain have been even higher than
5 alfalfa and I felt that it would be wise to include
6 it in as a reduction of risks for the time in the
7 future when it's possible the prices again may shift
8 to such a point that corn grain may yield a higher
9 return, and I included it in. I believe that covers --
10 that covers the crops.

11 Q. In reference to Exhibit C267, I believe you said the
12 first step was to determine the crop, and we have
13 got the crops selection now. What was the next step
14 in your analysis after you determined what crops to
15 use?

16 A. Okay. The next step was to determine what crop yields
17 we might expect at the high land and low land
18 elevations.

19 Q. Just to point out, Mr. Dornbusch, I reference you
20 to what has been marked for identification as
21 United States Exhibit WRIR C269. Would you just for
22 the record identify that exhibit and explain why
23 certain boxes on that exhibit are blanked out?

24 A. Yes. As you can see, the structure of the exhibit
25 dornbusch - direct- echohawk

1 resembles exactly the structure of the first exhibit
2 we have been referring to, the flow diagram. However,
3 some boxes are blank and some are filled in. The
4 reason is that the second exhibit -- is that 269?

5 Q. Two hundred sixty-nine.

6 A. The purpose of that exhibit is to illustrate
7 specifically in a series of five tables in the
8 Exhibit 268 that I'm looking at now, and it helps you
9 focus on a particular section of the flow process
10 that is referred to specifically in those tables.
11 So as we go through the tables, you can see where
12 we are in the flow process, which is the elements of
13 it I'm talking about. And as you can infer, the
14 following five tables under 269, look like it and
15 take you stepwise through the process. It's
16 only to help you focus on the location of the process
17 we are talking about.

18 So the next step was to determine the crops yields,
19 both high land and low land.

20 Q. How did you do that?

21 A. Here again, I began by referring to the Agee report
22 that I mentioned earlier, and on the basis of the
23 fact that he concluded that the yields in his report
24 were attainable by the progressive farmers in the
25 dornbush - direct - echohawk

1 Midvale District and my judgment in connection with
2 others that these yields would be attainable on our
3 new project areas, I used his yields, and as I said,
4 also, in connection of interviews with farmers and
5 agricultural extension people, with the exception of
6 the barley, the malt barley, which apparently was
7 considerably lower than was being attained currently
8 in the region. His study was published in 1977, and
9 I suppose part of the reason is that it's a number
10 of years later the trend in yields has been almost
11 continuously up, and I found farmers even at higher
12 elevation with very significantly higher yields of
13 malt barley than what Agee shows, and as a result
14 I used yields based primarily on the farmer interviews
15 I was able to obtain, I and my staff.

16 Q. In using the Agee report, yields determined by Agee,
17 did you make an attempt to confirm the yields depicted
18 by Mr. Agee?

19 A. Yes. That was through the interviews that I mentioned
20 earlier.

21 Q. This would be interviews with whom?

22 A. With farmers and agricultural extension people.

23 Q. Previous testimony we have had in this case with
24 witnesses both from HKM, and I believe a little bit

25 Dornbusch - direct- echohawk

1 from Dr. Mesghinna, there has been some discussion
2 as to land classification, land classes. How did you
3 take into account various land classes as assigned to
4 soils by HKM?

5 A. In consultation with those people from HKM and
6 Stetson Engineers, and in questioning people who were
7 familiar with the products and lands on the Midvale
8 Irrigation District, I found that the lands, the
9 class of lands in our project areas were, for the most
10 part, better than the mix of lands that were being
11 farmed in the Midvale Irrigation District. In
12 questioning Doug Agee, I was told by him that the
13 farmers he interviewed had lands that were
14 representative of all of the lands in the Midvale
15 Irrigation District. And in examining the relative
16 quality of those lands to the quality of the lands
17 on our new project areas, it was apparent that based
18 only on the classification of lands that the
19 yields attainable in our new project areas could
20 be equal to or better than those in the Agee report,
21 and this was corroborated by my farmers interviews;

22 THE SPECIAL MASTER: To what do they contribute
23 that?

24 THE WITNESS: To what do who contribute?

25 Dornbusch - direct - echohawk

22-8-MN-v1b

1 THE SPECIAL MASTER: The farmers or your
2 interviewing by Agee, did he ask why or why it is
3 the Riverton East farmers were not yielding as well
4 in comparable soils?

5 THE WITNESS: No, I wouldn't say they weren't
6 yielding as well, I'm saying that was a reasonable
7 guide for me to use since the soils on our new
8 project areas were evidently somewhat better; that
9 we could expect at least the yields that were
10 being attained in the Midvale Irrigation District
11 for the low land areas, not necessarily for the high
12 land areas, but for the low land area to be somewhat similar to
13 the Midvale Irrigation District.

14 Q. (By Mr. Echohawk) So did you use the yields for
15 Midvale?

16 A. I did with the exception of the malt barley, as I
17 mentioned before.

18 Q. Were the yields for Midvale broken down into various
19 categories such as above average, average, below
20 average or --

21 A. No.

22 Q. Or were they depicted in one group?

23 A. No, these were stated as the representative yields
24 available for the full range of farmers that Doug

25 Dornbusch - direct - echohawk

1 Agee had interviewed in Midvale. I shouldn't say
2 "full range," I think he feels they were essentially
3 the progress of the farmers in Midvale.

4 Q. Your yields, how did you account for change in
5 elevation between your high land and low land areas
6 that you described earlier?

7 A. There is very little information in the immediate
8 vicinity of the reservation on -- published information
9 on the yields available at the higher elevation.
10 The reason is there are very few farmers above
11 5900 feet. I interviewed farmers above 5900 feet
12 and was surprised to find for the most part their
13 fields were not lower than the low land areas. However,
14 I interviewed some people at agricultural extension
15 service who told me that well, in the high land
16 areas, because of shorter growing season, you might
17 expect yields to be in the range of ten to fifteen
18 percent lower. I had to look at that information
19 in the face of the information from actual farmers
20 who were obtaining high yields, even higher than
21 some of the yields shown by Agee in the low land
22 areas. Again, to be conservative, I felt I could
23 certainly justify the yields -- the ten percent as
24 opposed to the fifteen percent on the basis of the

25 Dornbusch - direct - echohawk

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farmers' report.

So I made a judgment that the high land yields might be expected to be approximately ten percent lower than the low land yields.

1 Q (By Mr. Echohawk) When you determined your yield, did
2 you have any specific type of farmer in mind or farm
3 expertise, degree of expertise?

4 A. Yes. I had in mind the better than average farmer,
5 what Doug Agee calls progressive farmer, and I set up,
6 later you will see that I set up my budgets to reflect
7 progressive farming techniques, in that I've used a
8 decent portion of the budget for management, more, in
9 fact, than many other agriculture extension people use.
10 And built into the cost, as I'll get into that discus-
11 sion are costs for managing a farm and operating a farm
12 that could be expected to obtain these yields. And I
13 am assuming that we would have better than average
14 farmers on the new project areas, yes.

15 Q So the sources that you obtained your yield informa-
16 tion from are the type of sources that would normally
17 be relied upon by economists such as yourself?

18 A. Yes, they would.

19 Q What would be the next item in your analysis after you
20 determined the crops and the crop yields?

21 A. The next portion of my analysis was to focus on crop
22 prices and --

23 Q How did you determine the crop prices?

24 A. Okay. Here I have to describe the fact that we used

25

dornbusch - direct - echohawk

1 a technique called normalization. A normalization
2 simply means that the prices for anything, particularly
3 farm products, do fluctuate, do go in cycles, and that
4 the particular price that you may obtain or be able to
5 obtain in a market in any given day or year may be
6 higher or lower than what you really might consider to
7 be the representative price at that time because there
8 are cycles and fluctuations.

9 So to obtain a better measure of that price, you
10 seek to get out the noise, to get out the fluctuations,
11 to get out the cycles. And the way you do this, as
12 prescribed by the Water Resources Council and others,
13 is to normalize, and that technique essentially says
14 you should recognize that the latest price is probably
15 the most representative. And, as you go back in time,
16 the historic prices are less and less representative
17 as you go back in time.

18 And they develop a system for using weights that
19 go back through the years that you apply to historic
20 prices in order to determine what the current normal-
21 ized price ought to be. The current normalized price
22 may be somewhat lower, in fact, than the current price
23 and, in fact, generally is.

24 THE SPECIAL MASTER: How does it adjust to those

25 dornbusch - direct - echohawk

1 times when you do find a yo-yo effect in the price or
2 rather abrupt descending prices with rather abrupt
3 returns of high prices, say, like of the cattle market
4 over the last 20 years?

5 THE WITNESS: Right.

6 THE SPECIAL MASTER: How does that crank into
7 your analysis?

8 THE WITNESS: The cattle prices, I think, Mr.
9 Merchant testified to, it's desirable to go back
10 longer than just the full five years that might be
11 better representative of other crop prices, and to
12 get out those fluctuations, I believe he testified
13 he went back 10 years for cattle prices.

14 THE SPECIAL MASTER: Your price per unit for
15 these crops were only a four to five-year history
16 and you normalized that?

17 THE WITNESS: That's correct.

18 THE SPECIAL MASTER: And do you recall that each
19 year's price was a little higher than the year before?

20 THE WITNESS: For some I can -- Let me explain it
21 this way. That I was saved the task of having to go
22 back historically for two products, corn grain and
23 alfalfa, by the Water Resources Council. They per-
24 formed an analysis, they determined what the normalized

25 dornbusch - direct - echohawk

1 price is that should be used in analyses like this,
2 and they published these prices, and I used the
3 price that's published by the Water Resources Council
4 for the State of Wyoming directly for alfalfa and
5 corn grain.

6 It's not that simple for some of the other pro-
7 ducts, however, and to give you an example, for malt
8 barley, the way I determined the price there was to
9 use the weights that are prescribed for grains by the
10 Water Resources Council for the years '74 through '78,
11 and then I used the prices in the Riverton area for
12 malt and barley in each of those years and weighted
13 them by the appropriate weights. And, in fact, I
14 found that the price for malt and barley has gone
15 down from 1974 to 1978, and, therefore, the weighted
16 price is weighted more heavily by the latest price
17 which is lower than the earlier year's price.

18 THE SPECIAL MASTER: Okay, it's been fifty
19 minutes, almost an hour, since you began. Shall we
20 take a ten-minute break?

21 MR. ECHOHAWK: Yes, Your Honor, that's fine.

22 (Thereupon a ten-minute recess
23 (was taken.

24
25 dornbusch - direct - echohawk

- 1 THE SPECIAL MASTER: Okay, let's proceed.
- 2 Mr. Echohawk?
- 3 Q. (By Mr. Echohawk) Mr. Dornbusch, before the break
- 4 we were discussing the crop prices. In your determining
- 5 of crop prices did you pick them or select crop prices
- 6 for a certain year?
- 7 A. Oh, yes.
- 8 Q. Or over a stream of years?
- 9 A. Not only for prices, but as you will see through my
- 10 discussion, all of our costs as well as prices are
- 11 compared on the basis of 1979 normalized prices in
- 12 costs.
- 13 Q. Why did you chose 1979?
- 14 A. It, at that time, was the year for which the factors
- 15 were available, it was the lastesttyear for which
- 16 factors were available.
- 17 Q. Do you know whether Dr. Mesghinna's prices or costs
- 18 that he determined were for a certain year?
- 19 A. His costs were for 1979 and they were not normalized.
- 20 I performed that function.
- 21 Q. I refer you to, again, table one of exhibit 268.
- 22 A. Yes.
- 23 Q. Column price per unit. Would those prices reflected
- 24 in that column be what you determined normalized
- 25 Dornbusch - direct- Echohawk

1 prices or are those something else?

2 A. Those are all normalized prices, yes.

3 MR. MERRILL: Your Honor, anticipating you
4 would overrule any objection again based on the
5 exhibit -- testifying from an exhibit not in evidence,
6 I would ask I have a continuing objection until the
7 exhibit is, indeed, admitted.

8 MR. ECHOHAWK: Your Honor, just merely again,
9 so everyone can follow along, and also lay the
10 foundation for Exhibit 268.

11 THE SPECIAL MASTER: Getting close to a strong
12 reliance on it, I think I would offer it fairly soon.

13 Q. (By Mr. Echohawk) Mr. Dornbusch, how did you determine
14 the normalized prices for each of the crops that
15 you have used on your analysis?

16 A. I believe I already stated how I obtained the
17 normalized prices for alfalfa, corn grain and also
18 for malt barley. That leaves corn silage, and for
19 corn silage I used the feed equivalent of the corn
20 silage feed value compared with the corn -- or the
21 feed value of alfalfa, and computed its price
22 accordingly.

23 Q. Did you compute a price for baled straw?

24 A. Yes.

25 Dornbusch - direct - Echohawk

1 Q. And how did you do that?

2 A. Baled straw, you are referring to the baled straw
3 for malt barley?

4 Q. Yes.

5 A. I computed it on the same way, same principal,
6 that is, that I computed the corn silage, and that's
7 according to its feed value.

8 THE SPECIAL MASTER: Which isn't very much,
9 incidently, compared to the product.

10 Q. (By Mr. Echohawk) What is the feed value of malt
11 barley compared to alfalfa?

12 A. Baled straw compared to alfalfa, is that right?

13 Q. Yes. What would that feed value be, in comparison?

14 A. The feed value is two-thirds of alfalfa.

15 Q. What about how did you determine feed value for --
16 excuse me, the price for baled straw or --
17 strike that.

18 How did you determine a price for aftermath of
19 corn grain?

20 A. For corn grain?

21 Q. Aftermath.

22 A. Oh, yes, aftermath for both corn grain and alfalfa
23 were determined according to the normalized price
24 published by Wyoming Crop and Livestock Reporting Service

25 Dornbusch - direct- Echohawk

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for the price for the animal unit marked in 1978
and normalized to 1979.

1 Q (By Mr. Echohawk) Mr. Dornbush, did you determine
2 what would be the next step after you determined the
3 yield and the prices?

4 A Simply by multiplying, as shown there, crop yields
5 by the crop prices.

6 Q When you say "there", what are you referring to?

7 A I'm sorry, Exhibit 269. Multiplying crop yields by
8 crop prices we obtain the annual gross returns per
9 acre, and doing this for the highland and lowland
10 areas separately we obtain those returns for the
11 highland and lowland areas.

12 MR. ECHOHAWK: Your Honor, at this time we are
13 beginning to go into a new stage, Table 2, which is
14 quite a lengthy discussion on the development of crop
15 budgets and production costs. Perhaps this would be
16 a good time to break, being it's close to 4:30.

17 THE SPECIAL MASTER: We can break now and ad-
18 journ -- I mean, we'll adjourn now until 9:15 tomorrow
19 morning. Is that agreeable?

20 MR. MERRILL: That's fine.

21 THE SPECIAL MASTER: We may leave materials
22 right here where they are and use this same courtroom
23 tomorrow at 9:15.

24 MR. ECHOHAWK: Thank you.

25 (Thereupon the proceedings were
recessed at 4:20 p.m.)

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7 that we did at the time, date and place, as set forth,
8 report the proceedings had before the Honorable Teno
9 Roncalio, Special Master Presiding, in stenotype; that
10 the foregoing pages, numbered 4775-4966, inclusive, con-
11 stitute a true, correct and complete transcript of our
12 stenographic notes as reduced to typewritten form under
13 our direction.

14 We further certify that we are not agents,
15 attorneys or counsel to any of the parties hereto, nor
16 are we interested in the outcome thereof.

17 Dated this 7th day of May, 1981.

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19 
20 MERISSA RACINE
21 Registered Professional
22 Reporter

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19 
20 MARY NELSON
21 Registered Professional
22 Reporter

