

IN THE SEVENTH JUDICIAL DISTRICT COURT OF EMERY COUNTY
STATE OF UTAH

HEAL UTAH, et al.,

Plaintiffs,

Case No. 120700009

vs.

KANE COUNTY WATER CONSERVANCY

DISTRICT, et al.,

Defendants.

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TRANSCRIPT OF TRIAL - DAY THREE

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BEFORE THE HONORABLE GEORGE M. HARMOND

SEPTEMBER 25, 2013

50 West Broadway, Suite 900, Salt Lake City, UT 84101
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APPEARANCES:

FOR THE PLAINTIFFS:

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-and-

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WITNESSES:

KENT JONES (CONTINUED)

Cross-Examination by Mr. Flitton

Cross-Examination by Ms. Valdes

Re-Direct Examination by Mr. Wright

Re-Cross-Examination by Mr. Flitton

NILS J. DIAZ, PH.D.

Direct Examination by Mr. Wright

Cross-Examination by Mr. Flitton

ARNOLD GUNDERSEN

Direct Examination by Ms. Swensen

Cross-Examination by Mr. Wright

Cross-Examination by Ms. Valdes

Re-Direct Examination by Ms. Swensen

Re-Cross-Examination by Mr. Wright

1 PRICE, UTAH; WEDNESDAY, SEPTEMBER 25, 2013; 8:31 A.M.

2 BAILIFF: Seventh District Court, in and for
3 Carbon County, State of Utah, is now in session, the
4 Honorable Judge George M. Harmond, Jr. presiding.

5 THE COURT: Please be seated, ladies and
6 gentlemen. We'll be on the record in Emery County Case
7 Number 1207009. This is Heal Utah, et al. v. Kane
8 County Water Conservancy District, et al. It appears
9 that counsel for all parties are present. Mr. Jones,
10 the State Engineer, was on the stand. If you would
11 come forward, Sir. Are you ready for cross-
12 examination?

13 MR. FLITTON: We are. Thank you, Your Honor.

14 THE COURT: Good morning, Mr. Jones. How are you?

15 MR. JONES: Good.

16 CROSS-EXAMINATION OF MR. JONES

17 BY MR. FLITTON:

18 Q. Good morning, Mr. Jones.

19 A. Good morning.

20 Q. Let me, if I can, let me have you turn to
21 Exhibit 6 in the exhibit binder.

22 A. Order of the State Engineer?

23 Q. Yes, exactly, and this is the order on the
24 Kane County gauge application. Is it not?

25 A. Yes.

1 Q. Okay. I would just like to, kind of, walk
2 through some of the items that are contained in this
3 decision with you and why don't we start by turning to
4 page 3 of the decision. That's the section that
5 discusses unappropriated water in the proposed source.
6 Do you see where I'm talking about?

7 A. Unappropriated water in the proposed source?

8 Q. Right.

9 A. Yeah.

10 Q. Okay. So, this is one of the criteria that
11 you looked at in evaluating these applications,
12 correct?

13 A. That is.

14 Q. Okay and let me see if I can summarize, kind
15 of, how you viewed it; and that is that you went
16 through and looked at the Colorado River Compact and
17 the allocations under that compact to make a
18 determination that there was, in fact, water available
19 there as, kind of, a first step. Is that right?

20 A. Yes. Yes, we did.

21 Q. Okay and, then, you also looked at the local
22 area in terms of moving the diversion to Green River to
23 see if there was water available in that area. Is that
24 also correct?

25 A. Yes.

1 Q. Okay. So, tell me, a little bit, about what
2 documents or what information you relied upon in making
3 the determination that there was unappropriated water
4 at that location?

5 A. The information we looked at, first, the
6 Colorado River Compact and the allocations of water
7 assigned to Utah for our percentage of water that we
8 had available. We looked at applications, as they were
9 approved, within the system and where we were as far as
10 our allocation of the Colorado River and, knowing that
11 we were about a million acre feet, slightly over, of
12 our use of about 1.4 million. So, we looked at that to
13 make sure that we were within our limitations there.

14 Then, we looked at the Green River Gauge, near
15 Green River, to look at the amount of water that was
16 available in the river, at that point, to see how much
17 water was flowing by to see if we felt like there was
18 adequate water in the river to be able to take
19 additional flows from the river at that point.

20 Q. Okay and, so, you were, mostly, concerned, on
21 that second part, with looking at the physical flows
22 that were available in the river. Is that correct?

23 A. Well, both parts, we were concerned about but,
24 yes. We were very concerned. Is there water, in that
25 river, at that point, that we could withdraw additional

1 water and not cause impairment to the rights of others.

2 Q. What about existing water rights on the Green
3 River? Did you look at those?

4 A. Yes, we did.

5 Q. Okay and what did you do as part of that
6 investigation, let's say?

7 A. The investigation entailed looking at water
8 rights, specifically, from the Price River drainage
9 down through the Green River area, looking at the water
10 rights that were there and the diversions that were
11 happening from the river. We looked below the Green
12 River Gauge to see what water rights were existent
13 there and tried to put those together and quantify the
14 amount of water that we have available.

15 Q. Okay and, so, you quantified the water rights
16 that you looked at?

17 A. Yes.

18 Q. Okay and do you recall what that number came
19 up to be?

20 A. I think we had it in the order, here, and I
21 think it's—I'm not finding it. Like about 400 second
22 feet of diversion and 125,000 acre feet of water that
23 were approved to divert above that. Then, we looked at
24 about 37 cubic feet per second of water applications
25 below that diversion.

1 Q. Okay and that's all of the applications or is
2 that just the ones that have been diverting water?

3 A. That would be all of the applications.

4 Q. Okay. You spoke, a little bit, yesterday
5 about Western Water. You're familiar with that case, I
6 assume?

7 A. Yes.

8 Q. Okay and were you the State Engineer when that
9 was decided?

10 A. I was not. No.

11 Q. Okay, who was the State Engineer at that time?

12 A. I believe it was Jerry Olds.

13 Q. Okay and I recall reading, in that memorandum
14 decision, that there was a statement, in there, that
15 the State Engineer wrote that this was a gargantuan
16 application. Do you recall that?

17 A. I don't recall that.

18 Q. Okay but, nevertheless, it was a large
19 application, correct?

20 A. Okay.

21 Q. Okay, do you recall what the amounts of water
22 were under that application?

23 A. I'm not remembering, exactly. I'm thinking
24 ninety-something thousand acre feet of water.

25 Q. So, it's, like-well, almost half again or

1 twice as much as this application, correct?

2 A. Yes.

3 Q. Okay and what did the applicant seek to do in
4 that case?

5 A. The applicant was asking for new appropriation
6 of water out of the Utah Lake, Provo River and Jordan
7 River drainage systems, of water; that they had done a
8 study to identify that there was additional water there
9 above what was allocated that they thought that they
10 could put to use and, then, market that water to
11 anybody who would like to buy it.

12 Q. Okay and do you know what investigations were
13 made with respect to that case? Was it a similar
14 investigation in terms of looking at unappropriated
15 water?

16 A. We did and the Jordan River has been fully
17 appropriated. Since the late 1800's, Utah Lake waters
18 have been allocated, except for extremely high flow
19 times. So, we did look at existing water rights and we
20 looked at what we felt might be water availability in
21 that situation. We're of the opinion that the water
22 rights were fully accounted for out of that river
23 system.

24 Q. Okay. Just for comparison purposes, what's
25 the State Engineer's position with respect to the

1 Colorado River and new appropriations—the Green River?

2 A. The Colorado River, on new appropriations, we
3 feel like that we have actually authorized more
4 applications to appropriate water on the Colorado River
5 system and what our allocation is under the Colorado
6 River.

7 Q. Okay. So, it's close to new, larger
8 appropriations, correct?

9 A. And we are close to new, larger
10 appropriations.

11 Q. Okay. So, the finding in Western Water was
12 that there was no unappropriated water in the source,
13 correct?

14 A. That is correct.

15 Q. And that was—was that one of the major reasons
16 for denying the application?

17 A. I believe that was one of the—you know,
18 there's no water to be appropriated there and the
19 applicant had no set purpose to put that water to
20 beneficial use, other than trying to tie that extra
21 water that they had identified, but we didn't feel like
22 there was any unidentified water there. So—

23 Q. Okay and that application, in part, sought to
24 take water from the Jordan River system, correct? I
25 mean, from the Jordan River?

1 A. Well, there were several sources: Jordan
2 River and Utah Lake and different sources involved in
3 that system.

4 Q. The water is physically flowing, for example,
5 in the Jordan River.

6 A. Yes.

7 Q. Even at that time, correct?

8 A. Yes.

9 Q. Okay and some of that water flowed into the
10 Great Salt Lake as well, correct?

11 A. Some of the water was flowing into the Great
12 Salt Lake, yes, but there are rights at the mouth of
13 the Great Salt Lake and in the Great Salt Lake for bird
14 refuges and hunting clubs and different things that
15 have some pretty early priority rights. The water has
16 to get down there to satisfy those rights before it
17 actually goes into the lakes.

18 Q. Okay. So, you see a difference between the
19 physical availability of the water, even there. I've
20 heard you say that, you know, the prior use systems
21 will take care of, for example, these change
22 applications. Why wouldn't the priority system take
23 care of an application that's filed now, at the end of
24 the system, near the Great Salt Lake or whatever?

25 A. And I—technically, I guess, it could. We

1 could just keep granting applications, but knowing that
2 there is no water there and, so, therefore, you never
3 get to divert but, at some point, when we close those
4 basins to appropriation, it doesn't make sense to keep
5 approving new applications knowing that they are never
6 going to have an opportunity to be able to use that
7 water.

8 Q. Is the difference with these water rights sort
9 of the desire to further the policy of using-up our
10 Colorado application? I mean, it seems, to me, that
11 there's a real similarity between the two, in many
12 respects and, yet, we're moving these water rights up,
13 you know, miles from their original points to the Green
14 River.

15 A. I don't think there's, really, any similarity
16 between the two applications in that the ones that
17 we're dealing with are applications to appropriate that
18 have been approved for use on the system. They are
19 existing, valid, approved water rights; whereas,
20 Western Water application, were just asking for new
21 appropriations of water in a fully appropriated basin.
22 If these applications, before us, were asking for new
23 appropriations out of the Colorado River drainage,
24 then, they would be the same, but they are not the
25 same. These are existing, valid water rights on the

1 Colorado River system.

2 Q. Except you looked at the Green River system
3 and you evaluated whether there's unappropriated water
4 in that system as opposed to the entire Colorado as
5 well, correct?

6 A. That's right.

7 Q. Okay and, so, in effect, these change
8 applications are a new appropriation within the Green
9 River sub-basin, correct?

10 A. Within the Green River. This is a new
11 withdrawal of water from the Green River based on these
12 rights which were originally approved for down, lower,
13 in the system.

14 Q. Okay. So, isn't there some similarity there
15 in terms of you moving new water rights? You're moving
16 53,000 acre feet into the Green River system when it
17 wasn't there before.

18 A. Yeah, if you tip your head side-words and look
19 at it very narrowly, there might be a similarity there,
20 yes, because we are looking at a new diversion of water
21 in the Green River that has not been there before.

22 Q. Let's talk, a little bit, about the water
23 rights themselves. You're looking at water right
24 number 89-74, correct?

25 A. Yes.

1 Q. And that water right is a Kane County water
2 right, as we've said before. When was that water right
3 filed?

4 A. It was filed January of '64, 1964.

5 Q. Okay and has any use been made of this water
6 since January of 1964?

7 A. Not to my knowledge.

8 Q. Okay, any diversion facilities built to date?

9 A. Not to my knowledge.

10 Q. Okay and you mentioned, yesterday, that there
11 is a, sort of, a statutory cut-off and I know there's,
12 sort of, a rebuttable presumption for municipal
13 suppliers, but it used to be the law was, if you had an
14 allocation for 50 years, that was it, correct?

15 A. It used to be, yeah. Back in the '80's that
16 changed.

17 Q. Okay and, so, now, a municipal water supplier
18 can come in and try to show things and tell us again
19 what the conditions are for being able to get past that
20 50-year deadline.

21 A. The 50-year deadline, it's actually to all
22 water users. Right now, there are three different
23 criteria that talks about—it says any user that comes
24 up to the end of the 50-year period, if they've
25 constructed their works, they've got the system to be

1 able to deliver the water and can deliver that water,
2 the State Engineer, then, can grant extensions of time
3 necessary for them to submit proof and that's for any
4 water users.

5 The statute goes on, more specifically. It has
6 amended, fairly recently, to give extensions to public
7 water suppliers past the 50-year time frame and it says
8 that these public water suppliers, then, have a water
9 right that is coming up to the 50-year time frame and
10 need extensions beyond 50 years, if they have
11 constructed their works to be able to deliver the
12 water, but have not used the water, but need that water
13 to meet the reasonable future needs of the public, and
14 that is defined as a 40-year projected time frame that
15 they're going to be able to need or use that water
16 within the 40-year time frame, then, they can get
17 extensions beyond that 50-year time frame based on that
18 and it also says, if they haven't constructed the works
19 or haven't done anything but, yet, that they can show
20 that that water is needed to meet the reasonable future
21 needs of the public for the next 40 years, it says the
22 State Engineer may grant extensions beyond that 50-year
23 time period.

24 Q. Okay and how many such extensions has your
25 office granted?

1 A. I don't know the total number. I'm guessing,
2 in the last five years, we've, probably, done 50 of
3 those.

4 Q. Okay. So, when does this application hit that
5 50-year mark?

6 A. This application, I think, it's 2017. I'm not
7 sure exactly what-

8 Q. It goes off the date of approval rather than
9 the date of filing, correct?

10 A. It does from the date of approval, yeah.

11 Q. Okay. So, we've heard testimony, here-you've
12 been here for almost all the testimony, that 2017 would
13 be the earliest that this water would be able to be put
14 to use, correct? Do you recall that testimony?

15 A. Yeah, I think so.

16 Q. Okay. So, they're running, really, up against
17 the line to try to get this thing into beneficial use?

18 A. Well, they're coming up against that 50-year
19 deadline, which would mean a decision has to be made,
20 then, at that time do we grant extensions beyond 50
21 years.

22 Q. Well, you've also heard that the expect-I've
23 heard two things: that the expected life is at least
24 40 years of this nuclear facility; and, then, I think
25 it was Dr. George, yesterday, said it was 60 years on

1 the approval. How does that affect the extension
2 request issue?

3 A. The extension request comes—at the time of the
4 extension request, we would look at the information
5 that's before us and would have to make a decision
6 based on that. I mean, that application is not before
7 us, right now, but the criteria is as I have explained
8 to you, under statute; that, you know, the State
9 Engineer may grant those extensions even though no
10 water has been put to use and even though there are no
11 infrastructure put in.

12 It also talks about there's an option to grant
13 extensions if a considerable amount of money has been
14 spent in the development of this project. So, that
15 could even be substituted for infrastructure put in if
16 significant amounts of money have been spent to develop
17 this water.

18 Q. Does the State Engineer have a policy relating
19 to situations like this where you have a conservancy
20 district that's part of a completely different county
21 and that water is being moved to another county? Does
22 that have any relevance?

23 A. It has relevance in that we would still come
24 back and ask the public water supplier how this water
25 right fits in with their 40-year plan, but this happens

1 routinely. I think, in 2007, Wayne County Water
2 Conservancy District moved approximately 49,000 acre
3 feet of water into the Green River Area to be able to
4 be used in a farm to be able to put that water to
5 beneficial use and that water being used there, now,
6 under a change application. So, we looked at Wayne
7 County. They said their need is to be able to use the
8 water to help generate funds so that they can do
9 additional projects in Wayne County, release that water
10 to that farmer and he's using that water there. So,
11 it's not an uncommon practice as long as it-

12 Q. How long is the terms-I didn't mean to-how
13 long is the term of that lease?

14 A. I don't know. I don't. I know it was long-
15 term.

16 Q. Okay. Let's talk, a little bit, about this
17 concept of the storage facilities on the Green River
18 and, you know, these flows that are there to protect
19 the fish, okay? You understand that the target flow
20 under the operating agreement is 1,300 second feet,
21 correct?

22 A. That is the target flow, yeah.

23 Q. Minimum target flow, okay.

24 A. Minimum, yeah, because there are different
25 target flows.

1 Q. Right and that's the flow that covers—I mean,
2 as a minimum, that covers all three reaches of the
3 Green River, correct?

4 A. I know we've established one that's something
5 less than that up in the first reach that's about
6 1,100. We've signed an agreement with them, but I'm
7 guessing they would like to have that recommendation
8 flow all the way through the system.

9 Q. Okay and, I think, as you said, yesterday,
10 that flow is based on a number of studies, most notably
11 the study that was done at the early part of the
12 2000's, right?

13 A. Yes.

14 Q. Okay and, so, it looked at the fish and the
15 habitat and they came up with that number because
16 that's what the studies determined would be needed to
17 protect and to recover those species, correct?

18 A. Yes.

19 Q. And how did that all come about? Do you know
20 the history, a little bit, about what happened with
21 Flaming Gorge and why there were these series of
22 studies and, finally, the operating plan?

23 A. I don't know all of the history. I haven't
24 had a long-term involvement with that, but my
25 understanding is that they were recognizing diminishing

1 numbers of these endangered fish or worried about their
2 continued existence and tried to make determinations
3 about how we would sustain that fish population, how we
4 get it to stabilize and increase and how we get these
5 fish de-listed on the river system. The Fish and
6 Wildlife Service looked at that very heavily. I know
7 the Division of Wildlife Resources and others were
8 looking at about what best can be done. That's what
9 pulled together the studies that were done and the
10 recommendations that were made in the biological
11 opinion to indicate that this was their best guess at
12 how they were going to recover these populations of
13 fish.

14 Q. Okay and are you aware that that process
15 really started because the Fish and Wildlife Service
16 issued a jeopardy opinion under the Endangered Species
17 Act, correct?

18 A. Yes. Yes.

19 Q. Okay and what does a jeopardy opinion do?

20 A. The jeopardy opinion, in my understanding,
21 would actually set some limitations on how water can be
22 used in a river system that may curtail diversions, may
23 require limitations of what water could be taken out in
24 order to try to meet those ideal river flow conditions
25 to help maintain the fishery there.

1 Q. Okay. When you try to characterize that, it
2 gives the federal government the ability to step in and
3 take control of, you know, water rights distribution
4 and use, which has, historically, been a state right,
5 correct?

6 A. Yeah. I think that's right. I think that
7 gives them, under the Endangered Species Act, the right
8 to be able to come in and do some things on that river
9 system that would appear to take that control away.

10 Q. Okay and wasn't this whole process that led to
11 the operating plan, the Flaming Gorge Operating Plan,
12 wasn't that, really, sort of, an agreed-to process to
13 avoid having this jeopardy opinion take effect?

14 A. I think it was. It was back even in 1988 that
15 the states pulled together to develop this recovery
16 implementation plan and recovery action plan process to
17 be able to do things that we needed to do, as states,
18 to be able to keep the system running so that we didn't
19 lose that control and have that jeopardy ruling.

20 Q. Okay and, so, if we don't meet these target
21 flows, for example, if we—I'm talking about the State
22 of Utah. If the State of Utah allows water users to
23 take too much water or to use the water in a way that
24 starts to diminish those target flows, we get, kind of,
25 back in the same place, don't we, with respect to

1 threatened jeopardy opinion?

2 A. I think it could cause some problems if we are
3 not doing anything. If we just ignored that and just
4 kept allocating water and didn't worry about what was
5 happening with the river system, I think that we could
6 end up back in that problem.

7 Q. Okay and, so, in effect, what this operating
8 plan has done is allow the State to maintain its
9 control over the waters in a reasonable manner,
10 correct? A responsible manner, I should say and,
11 thereby, allow us to continue to use our Colorado
12 allocation. Is that a fair statement?

13 A. Yes. I think that's a correct statement.

14 Q. Okay. So, when you look at the Colorado River
15 Compact—

16 [Inaudible discussion.]

17 Q. I apologize. I'm just looking for—maybe you
18 can tell me. I was looking for the section, in here,
19 where it talks about the operating plan and allowing
20 the State to use this water that you talked about
21 yesterday.

22 A. That would be in the natural stream
23 environments—

24 Q. Oh, that's right. Yeah. I'm looking in the
25 wrong place. Sorry. Thank you. Okay. So, I'm on

1 page 19 and it's just that top portion again and, so,
2 this is talking about the record of decision. This is
3 quoted from the record of decision from the operating
4 plan, correct?

5 A. Yes.

6 Q. And talking about the purpose of the action is
7 to operate the dam to protect and assist in recovery of
8 the fish and, etc., correct?

9 A. Yes.

10 Q. And, then, the second paragraph says this
11 action is limited to the proposition that avoiding
12 jeopardy and making progress toward the recovery of
13 listed fish facilitates the ability of the upper basin
14 states to continue utilizing and further develop their
15 Colorado River apportionment, correct? Do you see
16 where it says that?

17 A. Where were you reading from again?

18 Q. That's the second paragraph of the indented,
19 italicized text.

20 A. Okay, yes.

21 Q. Okay. So, that paragraph is, basically, what
22 we've just been talking about, correct? It's talking
23 about the same thing?

24 A. Yes.

25 Q. Okay. So, let's go back to the two water

1 rights, the Kane County and San Juan County water
2 rights that are underlying these change-out pages.
3 Neither of those rights have any right to storage in
4 Flaming Gorge Reservoir, correct?

5 A. That's correct.

6 Q. Okay. So, there's not, really, a right to be
7 able to call for releases in order to satisfy those
8 rights when the flows in the river are lower?

9 A. That's right. They are not tied to storage in
10 Flaming Gorge Reservoir.

11 Q. Okay and the State of Utah doesn't have any
12 call on storage on Flaming Gorge Reservoir, correct?

13 A. The State of Utah does not, no.

14 Q. Okay. We don't own any storage rights in that
15 reservoir as a state, okay. So, what we've seen is
16 that the flows of the river, there are, you know,
17 several periods where the flows in the river are below
18 1,300 second feet, correct?

19 A. Yes.

20 Q. Okay and, in fact, let me have you turn
21 quickly, just briefly, to Exhibit 58. Do you have it
22 there?

23 A. Yes.

24 Q. Okay and this is the Green River water rights
25 distribution model update, correct?

1 A. Yes.

2 Q. Okay and that was prepared by your office in
3 August of 2012, or at least that's the date on the
4 front?

5 A. That's correct.

6 Q. Okay. So, if you will go back to—I think it's
7 four pages from the back, from the end, the fourth page
8 from the end, and it's titled Green River Gauge Summary
9 of Predicted Mud Sim Results.

10 A. Okay, Green River Gauge Summary of Predicted
11 Mud Sim Results.

12 Q. Are you familiar with this table?

13 A. Yes.

14 Q. Okay. So, this table shows the days in which
15 the flows are lower than 1,300 second feet. I'm
16 looking at number of days, that second column. The
17 first column is the year and, then, that second column,
18 correct?

19 A. Yes.

20 Q. Okay and that shows the number of days, each
21 year, when the flows at the Green River Gauge are below
22 1,300 second feet, right?

23 A. That's right.

24 Q. Okay and, then, the next column is
25 quantification, and I assume—and, maybe, you know. Was

1 the acre foot number arrived at by taking how far below
2 1,300 second feet it was and, then, doing that
3 calculation and converting it to acre feet?

4 A. That's my understanding. We just looked at
5 where the flow was and what we needed to get up to the
6 1,300 and took the difference between the two for the
7 duration of that time and figured out how many acre
8 feet of water that would be.

9 Q. Okay. So, you get down to the bottom, the
10 last line, and it says that there's an average of 3,500
11 acre feet. The system is deficit during those years, I
12 assume, where the water is below 1,300 second feet. Is
13 that correct?

14 A. Yes. That's what it's saying.

15 Q. Okay. Okay and, then, what's—this table is
16 divided into two halves, basically. There's the green,
17 which we've been talking about and, then, there's the
18 blue, which is full potential, right?

19 A. Yes.

20 Q. Okay. What's the difference between those two
21 sections?

22 A. The full potential, then, would be putting—I
23 think what they did is put Utah's allocation, taking
24 that water out of the system, and I can't remember if
25 you took that all out of the Green River, or not, just

1 pulling Utah's allocation, everything fully developed
2 to be able to take water out of the river system for
3 the Green River.

4 Q. Okay. Let's go back to the green section. On
5 the top, it says 69,000. I'm assuming 69,000 acre feet
6 depletion?

7 A. Yes.

8 Q. Okay and what's that talking about? What's
9 included in that 69,000?

10 A. I'm not sure.

11 Q. That's okay. So, anyway, under the blue
12 scenario, that number, the deficit—and I'm looking at
13 the second column from the blue section—is 15,500 acre
14 feet deficit, correct? On average?

15 A. Yes.

16 Q. Okay. So, in the case of these applications,
17 in that scenario under the blue, in order to meet the
18 target flows of 1,300 CFS, you would need to have an
19 average of 15,500 acre feet additional water, correct?

20 A. I think that's what it's telling us under full
21 allocation of Utah's development of their allocation of
22 water.

23 Q. Okay and, then, on top of that, you would have
24 to have an additional 53,000 in the system in order to
25 satisfy the strike, correct?

1 A. I think that would include all of Utah's
2 allocation at that point. So, that would be included-

3 Q. Okay. Then, let's even go back to the green
4 scenario, okay? So, instead of doing the 15,500, we're
5 doing 3,500. So, we need 3,500 to really meet those
6 targets that the U.S. Fish and Wildlife has set,
7 correct?

8 A. Yes.

9 Q. Okay and, then, on top of that, we would have
10 to make sure that there was an additional 53,600 in the
11 system to be able to show that there's unappropriated
12 water in the source.

13 A. And let me just look. I don't know if he's
14 included the 53,600-

15 Q. In that number?

16 A. -in that number. I don't know.

17 Q. Well, but see? It only goes back-I mean, if
18 you look at the dates, it goes from '72 to 2004.

19 A. Okay.

20 Q. So, it wouldn't include it because that wasn't
21 part of that time frame, right?

22 A. Well, that's, probably, correct, yeah.

23 Q. I would assume, just because when you look at
24 the acre feet shortfall on each one of them, it's based
25 on the number of days of shortage in those particular

1 years.

2 A. Uh-huh [affirmative].

3 Q. Okay. So, does that create any concern for
4 you about whether there's unappropriated water in the
5 source?

6 A. It has created some concern because we know
7 there are days that it drops below 1,300. We know,
8 historically, even before Flaming Gorge dam went into
9 construction and in place, that there were days on the
10 river that, I mean, the flow was less than 500 second
11 feet in the river and, so, we had low flows all of that
12 time.

13 Fish seemed to be surviving under those kinds of
14 conditions, but in 1988, we came to the decision,
15 through this recovery implementation program and
16 recovery action plan, that something needed to be done
17 to get those flows up as much as we possibly can. As
18 I've spoken, with the Fish and Wildlife Service, they
19 realize there's going to be times when water may drop
20 below the 1,300. They're not overly concerned about
21 that as long as we're working to keep as close as we
22 can to that 1,300 as a minimum.

23 They realize it's going to drop below that, but
24 the very important thing to understand is we've been
25 working together on this between states and with the

1 Fish and Wildlife Service and with the Bureau of
2 Reclamation. When that re-operation plan, the record
3 of decision came out in 2006, it says that Flaming
4 Gorge Reservoir was going to be operated in such a
5 manner that these fish flows are going to be protected
6 and fish flows would be released and it said it also
7 would provide a way for the states to be able to
8 develop their rights under their compact allocations
9 and, so, it had two-fold purposes.

10 One, they were going to look at Utah's right to be
11 able to develop their full allocation of water to make
12 sure releases could be made to satisfy that and to
13 satisfy the fish flows and, so, there's two things that
14 are coming up and I said, yesterday, when we looked at
15 the records for the last couple of years, and these
16 really dry years on the Colorado River system, we've
17 had flows in the river somewhere between 1,100 and
18 1,500 second feet because of the way they are operating
19 the reservoir right now. Had they been doing it the
20 same way that they were doing it earlier, the flow rate
21 would have been a lot less than that. I mean, it would
22 drop down, but we're, essentially, okay in these last
23 two—I mean, it dropped, a little bit, below 1,300. It
24 came up to 1,500, but we were keeping pretty close and
25 it's a little bit difficult when you start having your

1 hands on the gauge at Flaming Gorge and turning water
2 and say, okay. I need to get 1,300 down to Green
3 River, to make sure you adjust those right, but they've
4 actually done an excellent job, from what I can see on
5 the records, to try to maintain that and that's with
6 the addition of 50,000 additional acre foot withdrawals
7 in the Green River area, above the gauge, for some
8 irrigation projects and some different things that have
9 developed as waters developed. So, we're working hard
10 with them.

11 We have submitted a work plan, and I think I
12 talked about this yesterday, in 2010, about how we're
13 going to do our part to make sure we do the very best
14 we can to keep those flows at 1,300, realizing there
15 might be some years that it dropped below and some
16 years that we're able to maintain it or even higher
17 flows than that and we've done some things to help
18 facilitate that. We sit on committees to help make
19 recommendations to the Bureau of Reclamation and to the
20 Fish and Wildlife Service about what flows need to be
21 released and we make those recommendations. They make
22 the decisions on how they're going to best do that and
23 we've committed to continue to do that.

24 This year, we had to submit an amendment to our
25 2010 work plan because we're not able to accomplish

1 everything. I think some of this is going to take some
2 legislative action and working between states, but we
3 saw this. This is not just a Utah problem. This is a
4 Utah, Colorado, Wyoming problem, all who have waters
5 that are tributary to the Green River that we're all
6 working together to try to get these flows in balance
7 because all of the states are going to be in trouble if
8 we can't keep these flows right.

9 So, the Bureau of Reclamation, we met with them
10 last week, again, and talked a little bit about what's
11 happening there and about the releases and what we're
12 trying to do. They seem to be in agreement that we're
13 all trying to work together to make this thing work.
14 Historically, that hasn't been—the communication hasn't
15 been there to do that, but it seems to be there and
16 everybody's effort is to make that work and to make
17 sure we try to maintain those flows at that 1,300,
18 realizing that, sometimes, it's going to go below and,
19 sometimes, it will be higher than that, but we're doing
20 the very best that we can, but that allows for Utah to
21 be able to develop its apportionment of water and the
22 Bureau of Reclamation and Fish and Wildlife Service are
23 not telling us that no. You can't develop any of your
24 Utah allocations in the Green River.

25 We realize that the Green River has to be a

1 critical portion of where we're going to get our water
2 development from and, again, we're using over a million
3 acre feet. We get to go up to 1.4. So, we have just a
4 smaller portion, now, of that water to be developed.
5 Some of that will have to happen in the Green River
6 area in order to be able to get Utah's allocation
7 developed and, so, we're in a cooperative effort,
8 trying to make that work, and everybody seems to be of
9 a mind of late to be able to try to do that and make
10 that work.

11 Q. And I appreciate that, you know, it's a
12 complicated process.

13 A. It is.

14 Q. It involves many parties and, you know,
15 there's a lot of variables that go into this, but
16 doesn't-won't diversions, under these two applications,
17 exacerbate the problems that you're facing or the
18 struggles that you're facing?

19 A. Yes. Yes, it will, but I think that's part of
20 the operation plan of Flaming Gorge, realizing that
21 additional development was going to happen in Utah. We
22 know that we've got an additional 400,000,
23 approximately, acre feet that we've got to develop and
24 it's going to happen and we're going to work together
25 to make sure that we can get our water and that the

1 fish flows are protected.

2 Q. Okay, but if these water rights were left in
3 their historical locations, the problems that we're
4 talking about couldn't be there or wouldn't be as
5 great, would they?

6 A. Well, the problems would still be there. If
7 you look at the chart, the numbers are still there.
8 There are still problems, there, okay?

9 Q. That's right.

10 A. But, by moving an additional 70 second feet
11 into that river system, there are—it will create
12 additional problems because there's an additional 70
13 second feet of water being withdrawn. If you start
14 looking at, for the most part—the gauge readings that
15 we looked at, there's approximately 4.4 million acre
16 feet of water that flow past the Green River Gauge, on
17 average, when you look at long-term averages of water.
18 Utah's allocation is only 1.4. If we took everything
19 out of the Green River, there's still going to be three
20 million acre feet of water flowing past that Green
21 River Gauge, going downstream, to help meet downstream—

22 Q. And that's what that additional water really
23 is, isn't it? It's water that flows down to meet the
24 obligations to the lower basin states?

25 A. It helps meet that water—

1 Q. Not all of it, but a lot of it, right?

2 A. Yeah.

3 Q. Okay, but you said something interesting. I
4 mean, you said, you know, the problems would still be
5 in the Green River even if these applications were
6 developed where they originally were approved, correct?

7 A. That's right.

8 Q. And, I guess, the thing I struggle with is it
9 seems, to me, that you're, now, moving this water up
10 here and creating—you're compounding the problem.
11 You're adding on to a problem. Isn't that true?

12 A. It is, but that's part of the agreement that
13 we've come up with is re-opera—I mean, we didn't come
14 up with the re-operation agreement. It was the Bureau
15 of Reclamation and Fish and Wildlife Service, but
16 that's their understanding is that there's an
17 entitlement to states to be able to use their portion
18 of the Colorado River drainage and they understand that
19 the re-operation is going to help facilitate fish flows
20 and it's going to help facilitate the states to be able
21 to develop their water resources in their states and
22 they didn't say, oh, but with the understanding you can
23 only take water out at the very bottom of the system.
24 They said we're going to help you develop your water
25 resources as you need them.

1 Q. Fish and Wildlife Service protested these
2 applications, though, did they not?

3 A. They did.

4 Q. And what was the tone of those protests?

5 A. They are very concerned about additional flow
6 withdrawals in the stretch of river in the Green River.

7 Q. Did they talk about the potential for a new
8 jeopardy opinion?

9 A. I can't remember their exact wording, but I'm
10 sure that would be part of their worry about what's
11 happening there and that's why we felt it very
12 important that they have to go through the Section 7
13 consultation with the Fish and Wildlife Service to be
14 able to meet the demands of the Fish and Wildlife
15 Service to make sure that we don't create a jeopardy
16 opinion with the development of this water.

17 Q. But there's no agreement yet with respect to,
18 you know, maintaining flows or any provision that would
19 allow Blue Castle to have additional water supply to
20 satisfy these rights, is there?

21 A. That's correct. I don't know of an agreement
22 there.

23 Q. Okay. The Bureau of Reclamation also
24 protested these applications, correct?

25 A. Yes.

1 Q. And they made it clear, in that protest, that
2 these water rights did not have any right to storage,
3 but if they wanted to call on storage, they would have
4 to enter into a contract with the Bureau for such
5 releases, correct?

6 A. Yes and they've taken that position. If
7 anybody wants to use their storage water or call on
8 that storage water, that they need to have contracts.

9 Q. Could these problems, that we're discussing,
10 that we've been talking about, have been eliminated or
11 at least alleviated, but I think eliminated if the
12 applicants had obtained storage rights, you know, so
13 that they could have releases made to them on call?

14 A. I think some concerns of the Bureau of
15 Reclamation might have been satisfied had they gone to
16 the Bureau of Reclamation and tied-up some reservoir
17 stores to be released, specifically, for these projects
18 to make sure there's water in the river, but I don't
19 know that it was an obligation.

20 Q. No, but it would have ended this discussion,
21 correct, had they done that?

22 A. You mean I wouldn't have to be here?

23 Q. Maybe not. You should have made them do it,
24 but isn't that true? I mean, if we had call-on
25 storage, you know, there wouldn't be much of an

1 argument there wasn't water available here, correct?

2 A. There is always going to be a concern about
3 low flows. I mean, even with the way they're operating
4 the reservoir now, there are still times when it's
5 dropping below 1,300. I mean, I saw it down to 1,100
6 and something. So, it's still dropping below, but they
7 are trying to work on that.

8 Q. Well, and that fluctuation is within the
9 range, also, right? There's a twenty-five percent,
10 sort of, you know, up and down on the range, correct?

11 A. Yeah. I think they realize there is going to
12 be a variation in range.

13 Q. Right. Okay. So, your opinion is still that
14 there is sufficient water, even though they could have
15 obtained storage rights, you know, contracts, to
16 release water from the storage, and even though the
17 flows show—the average flows show that there's a
18 deficit, you're still of the opinion that there's
19 sufficient water to support these applications as set
20 forth?

21 A. I think there is. When we met with the
22 Nuclear Regulatory Commission, talked to them a little
23 bit about it, I was concerned about some flows that
24 dropped down and possible jeopardy opinions being
25 issued about where water could be taken and when it

1 could be taken. Their explanation, to me, is that, oh,
2 if there isn't water available, they couldn't get
3 around that jeopardy opinion, that they would just have
4 to shut the plant down which caused my eyes to blink a
5 little bit. Well, you just shut those plants down?
6 That's what they told me. They have to have reserve
7 water to be able to set up to shut the plants down if
8 they couldn't actually divert the water and, so, that,
9 kind of, opened my eyes to—I mean, I don't understand
10 nuclear power and how that works all that well.

11 I understand just some basics, but they were
12 telling me that, you know, they can just not withdraw
13 water anymore, but I'm also of the opinion that an
14 industry, like this, would have, at their hands, the
15 ability to be able to go out and lease additional
16 waters on low flow times. You know, there are other
17 options that they may have to go out and actually
18 obtain the right to be able to use some additional
19 water to get through those low flow times or they have
20 the option to shut down. So—

21 Q. You know, and that creates a concern for me in
22 the sense that there are flaws in this application, and
23 I'm not talking, necessarily, about legal flaws now.
24 What I'm talking about are there are times where the
25 flows are low, where they may have to be curtailed, you

1 know? They may have to be cut on their diversions,
2 correct?

3 A. Unless some other way can be mitigated.

4 Q. Right, like acquiring some additional water
5 or, you know, temporary water or something like that,
6 right?

7 A. Well, and that depends, too, on the re-
8 operation agreement. If this application is in, we get
9 everything in balance, the states agree, the Bureau of
10 Reclamation agrees, the Fish and Wildlife Service
11 agrees. So that those flows, even with the use of this
12 water in the river, those flow rates can be maintained,
13 then, there might not be a problem having to shut
14 things down.

15 Q. You said you've had some discussions with the
16 NRC, correct?

17 A. Yes.

18 Q. Okay and, in those discussions, did you talk
19 about the limitations on these water rights?

20 A. We would have talked, a little bit, about
21 them, yes. I mean, I talked about flow supply to them
22 and my concern, as I've already explained.

23 Q. Okay. You raised kind of an interesting
24 point, though, in talking about your surprise, for
25 example, at them being able to, you know, shut down the

1 plant and I understand that, too, because, at the
2 beginning of this whole process, I thought how do you
3 do that, right? But it raises a question with regard
4 to how you look at these criteria that you're
5 evaluating, you know? And I think a lot of it's a part
6 of just how it's written, but it's compartmentalized in
7 your memorandum decisions, you know?

8 You talk about the issue we've just been talking
9 about, the availability of water supply, correct? And,
10 then, you talk about interference and, then, you talk
11 about public welfare, etc., right? But it seems, to
12 me, that those issues are often very inter-related. Do
13 you have that view or am I, kind of, wrong in looking
14 at it that way?

15 A. I think we specifically have to look at each
16 individual one, but I think there are some inter-tie
17 between those conditions.

18 Q. So, for example, if you look at—let's just
19 take, you know, 2002, for example. That's a dry year,
20 okay? Ninety-two days the flows were below 1,300
21 second feet. That would create a problem from the
22 standpoint of economic feasibility, would it not, if a
23 plant has to sit there for, you know, three months and
24 not be able to divert water and produce power, correct?

25 A. I think it would cause problems, but I also

1 think, if 2002 happened now and, maybe, we are in a
2 2002 river flow, I don't know, the way that the
3 reservoir is being operated, those days become a lot
4 less.

5 Q. Except for I thought I heard you say,
6 yesterday—maybe I'm wrong. Did you not say that we're
7 experiencing some of those flows that are well below
8 1,300 this year as well?

9 A. Not well below, just—

10 Q. Well, okay, below 1,300, I'm sorry.

11 A. They are below 1,300, but they are within the
12 range of operation.

13 Q. But there's no diversions being made for this
14 power plant, right now, either. I mean, you would have
15 an additional—

16 A. No, that's right. There would be an
17 additional 70 second feet. So, it might drop from
18 1,200 down to 1,130, or something, and actually still
19 may be within that range of operation.

20 Q. Sure, but we don't know exactly how that's
21 going to play out. I mean, all we can look at is what,
22 historically, has happened and, you know, try to factor
23 in what's happened since the operating plan took
24 effect, etc., right?

25 A. Yeah because things from 2002 to 2006 have

1 changed—

2 Q. Okay. Even if that number were shown to 60
3 days, or something, though, that's two months. You
4 know, that's one-sixth of the year that this plant
5 doesn't operate. Did you look, at all, how that
6 affected economic feasibility?

7 A. Only to the point where, if a plant is shut
8 down, then, they're not generating power. They're not
9 selling power and it would cause an impact and the
10 company is going to have to deal with that as to how
11 best they can keep their business going. So, also of
12 the opinion that they have options to be able to obtain
13 additional water or secure those additional flows.

14 Q. You know, we heard yesterday, and I think it
15 was Dr. George talking about the Milford wind
16 [inaudible], for example, and how that is economically
17 unviable in the sense—I mean, without these agreements,
18 you know? Do you recall him talking about that?

19 A. Yes.

20 Q. That it's economically unviable because there
21 is not the continuous power. You can't rely on the
22 base load, right?

23 A. For them, as a base load, that's not a good
24 base load unless—

25 Q. Right and wouldn't water shortages affect this

1 plant in a similar fashion? I mean, I would assume,
2 and it's only because I get notices from the power
3 company saying we're entering into a real heavy usage
4 period. Try to reduce your consumption and that's
5 always in the summer time, right? When people are
6 running their air conditioners and things like that.
7 That coincides with when these flows are the lowest,
8 correct?

9 A. There is a low flow time period during summer.
10 I know 2002, it was mostly during the summer. I know
11 the records on the gauging station show there are a lot
12 of low flow periods during the winter time, when it
13 drops below 1,300, but it's tied to a phenomena of the
14 river freezing. Ice, it just flows and freezes and the
15 record has actually dropped below 1,300, but a lot of
16 the times are during the summer seasons when the river
17 flows are down.

18 Q. Okay and did you consider that, at all, in
19 evaluating those factors, looking at the economic
20 feasibility coupled with what the flows are in the
21 river?

22 A. Only generally in that there would be
23 something they would need to do if they wanted to keep
24 in production that they would have to obtain the
25 ability to be able to continue to divert water, to have

1 water available.

2 Q. Okay. So, would it be fair to say that, when
3 you looked at this, you felt like this was a problem
4 they would have to resolve? You know, if it occurs,
5 that that's something they will have to deal with in
6 the future?

7 A. Right, but looking at the records for most of
8 the time, the water is there and the water is available
9 for them to operate, but yeah. There are some critical
10 years that would have to be looked at and addressed.

11 Q. Let me just clear something up, really
12 quickly, too. You know, we continually talked about 70
13 second feet as being the flow rate under these
14 applications. It's actually 74 second feet, is it not?

15 A. Well, Blue Castle has always talked 70 second
16 feet as the amount of water that they needed to run
17 their operation. As we looked at the application, they
18 asked for 53,600 acre feet. If we're going to take
19 that whole amount of water on a continuous flow, it
20 actually ended up about 74 second feet in order to get
21 all of that water out of the river, but I think I heard
22 a statement, earlier in the trial, that they were only
23 planning on taking 70 second feet.

24 Q. Because when I asked Mr. Olds the question
25 about how they arrived at the number, he, basically,

1 did that calculation, saying fifty-three six, you know?
2 And you take what the flow is, right? You divide that
3 by the 724, or whatever, to get the flow, correct? But
4 that actually comes out to be 74 CFS?

5 A. I think that's what our calculations were.

6 Q. Okay and, technically, that's what they're
7 approved to take, right?

8 A. Yes.

9 Q. Okay. Let's talk, a little bit, about
10 economic feasibility. Let me find the page for you.
11 Okay, this is beginning on page 9, the section on
12 economic feasibility.

13 A. John, just one comment, too. The actual
14 approval condition in the order allows them to take up
15 to 75 second feet. That was a condition that was
16 actually-

17 Q. A tiny bit higher?

18 A. Yeah, we'll get another second-

19 Q. Okay. So, in some ways, we ought to be
20 evaluating this on-you know, the unfortunate thing is I
21 think all the experts and everybody who has looked at
22 this has, kind of, assumed that 70 second foot level
23 and-

24 A. Yeah, but their explanation to us, and it has
25 always been consistently, they're only going to take 70

1 second feet of water which would mean, to me, that
2 they're not planning on--diverting at 70 second feet,
3 they would not be able to take the full amount of water
4 allocated under this application.

5 Q. So, turning to economic feasibility, and what
6 it appears to me, and I don't want to overly simplify
7 this, but what you primarily looked at on this criteria
8 was the demand, the power demand that exists, whether
9 this was feasible to do a project and be able to
10 actually market that product, correct?

11 A. I think that's what we looked at, that we had
12 the opportunity to look at projected demands for
13 future, which indicated that there were going to be
14 increased demands for power. Power is going to need to
15 be supplied and this was a proposal to actually
16 generate power to be able to supply power to those
17 times when additional power was needed.

18 Q. Okay and what did you look at in terms of
19 making an investigation under this criteria?

20 A. We just did a general look on their
21 explanation, through the hearing process, of their
22 explanations of how they were going to generate power.
23 There were some discussions that the power is a little
24 more expensive than current power, but by the time this
25 was developed, and depending on various conditions that

1 they thought that they would be able to market this
2 product and be able to sell the product and there's
3 definitely a need for power and we're pretty power
4 dependent and felt like that this was a reasonable
5 proposal.

6 Q. And I note that you put in here that you
7 reference certain things that—and I'm assuming they
8 were given to you by Blue Castle because they first
9 appear under the applicant's statement summarizing what
10 they said.

11 A. Yes.

12 Q. And they give you growth rates, for example,
13 of projecting 3.3 percent per year and the population
14 would increase by 56 percent by 2013, correct?

15 A. Okay.

16 Q. Did you do anything to independently verify
17 whether those figures were accurate?

18 A. No. I don't think we did. I think we took
19 those numbers and looked at that. I don't think we
20 did. We did not do our own additional population
21 projections, evaluations.

22 Q. And you were here, yesterday, when there was
23 testimony that those numbers are actually high,
24 correct? Did you hear that yesterday?

25 A. I might not have heard that.

1 Q. Okay. Well, then, we'll move on, but if those
2 numbers were lower, I mean, if they were half that,
3 would that have raised any sort of concern with respect
4 to how feasible this project is?

5 A. In my mind, even if they were half, there's
6 still a need for additional power and there's still a
7 need to be able to sell a product and people are
8 willing to buy product. There's several states who are
9 going away from fossil fuel-type power generation and
10 they're looking for other methods. It just seemed that
11 this type of a generation facility would make sense to
12 help meet some of those gaps, even if it was only half
13 of what they were projecting.

14 Q. Did you take into consideration, or do you
15 think, even, first, I guess, whether this was part of
16 this criteria, but did you take into consideration the
17 enormous cost of this project? And this may go also to
18 financial ability to meet those, kind of—overlap a
19 little bit, but did you take into consideration in
20 assessing whether this was economically feasible what
21 that power would cost and how attractive it would be on
22 the market? We've heard a lot of testimony about that
23 in these proceedings and I'm just curious whether you
24 took that into consideration.

25 A. I don't think we did a lot of study or

1 evaluation on that, just realizing it's going to be
2 expensive power and, depending on a lot of things that
3 could happen in the market, it may be very cost
4 effective. It may still be a little expensive, but
5 because of some of the interest in the states and the
6 types of power that they want to have and that they
7 want to use, it may still be economically viable, but
8 we ought to give them the opportunity to be able to
9 move ahead and see if they can make that work.

10 Q. Well, and we'll talk about this a little bit
11 more in a minute but, you know, it seems, to me, that
12 you've got—and I think you talked about this yesterday.
13 There's, really, kind of a couple of competing
14 interests here when you're evaluating these
15 applications. One is that you want to further water
16 development. That's been the long-standing policy of
17 the state, correct?

18 A. That's right.

19 Q. Is to encourage development of this resource
20 and I think part of that may be that we have to take
21 water a long way, sometimes, to be able to make it
22 worthwhile and, so, you want to encourage people to
23 develop that resource, right?

24 A. That's right.

25 Q. But that's also tempered with this concept of

1 we also want to make sure that it's actually being used
2 and there's a lot of laws and regulations that require
3 applicants to show diligence so that we can make sure
4 that the water is actually being put to use and not
5 just being held, right?

6 A. That's right. Yeah, we have a responsibility,
7 under statute, to periodically review everybody's
8 approved applications to make sure that they are being
9 diligent in trying to develop the water, that they have
10 a reasonable cause for delay and, if they cannot show
11 that they are being diligent or have a reasonable cause
12 for delay, the State Engineer is instructed, by
13 statute, to deny those extension requests and let
14 somebody else have the opportunity to use the water.

15 Q. Okay and we talked, earlier, about this.
16 These applications have been out there almost 50 years
17 with nothing having been done, correct? You heard
18 testimony, yesterday—well, let me ask you if you did
19 hear this testimony, about this idea of banking this
20 permit. I think Dr. George, in particular, talked
21 about that, that you can bank this permit, this early
22 site permit, for 40 years. You heard that, correct?

23 A. I did hear that.

24 Q. Does that cause you concern about what may
25 happen to these water rights? That it may be 90 years

1 before anything is done on them?

2 A. That's an interesting consideration under
3 existing statutes, right now, because to get extensions
4 beyond 50 years, a public water supplier can come back
5 and say I need—they don't have to use, but they just
6 say I need to have this water to meet a 40 year
7 projection and, if they can justify that 40 year plan
8 as they present to us, the statute obligates us to
9 grant those extensions through that 50 year time period
10 and would allow it to go up to an additional 40 years.

11 In the early 1980's, all water rights ended at 50
12 years. I mean, it was terminated and we started to
13 have cities come up to the end of that 50 year period
14 where they had not developed their water rights. It
15 took a matter of one legislative session and, all of a
16 sudden, we had options to go beyond the 50 years when
17 those kinds of things came up and they determined—the
18 Legislature determined that it was in the public good
19 to be able to move those public water supply or water
20 rights further into the future.

21 We've had some additional things that have
22 happened in 2008 and 2010 with the Legislature to give
23 benefits to these public water suppliers and the owners
24 of these water rights are public water suppliers who
25 are trying to use this water to the best benefit of

1 those constituents within their public water supply
2 system. They have power plant authorization with the
3 existing water rights right now. They haven't done
4 anything with them yet. They are seeing an
5 opportunity, now, to be able to use them in a power
6 plant, here, for some future benefit to the public
7 water suppliers.

8 So, going out into the future a ways, yeah. It
9 causes me some concern because people ought to be using
10 the water but, in the meantime, I think under their
11 agreements, these public waters suppliers can actually
12 use some of that water on temporary applications. I
13 mean, they could do things to actually put the water to
14 use, but even if they don't, the way the statute is
15 written, right now, the State Engineer has a
16 responsibility to look at those and look at the 40 year
17 plan and to grant those extensions. So, in essence,
18 it's pushing things out 90 years by legislative
19 directive. So, it causes me concern, but I don't know
20 that I have any ability to change that.

21 Q. Well, I guess that leads into—I'm skipping, a
22 tiny bit, but I think it's what I'm talking about; and
23 that is this idea of speculation, that if the
24 application is not filed for purposes of speculation
25 monopoly and, you know, what I took from the testimony

1 that I've heard is that this application may not be
2 developed and, I guess, the part that I would like to
3 ask you about, does it concern you when you hear
4 testimony that says, you know, we're putting together
5 these assets. We're going to get a permit. We're
6 going to get a water right that backs that permit.
7 We're going to have a lease agreement and some land
8 that backs it and we've got this package that's put
9 together that we can sit on for 40 years and decide
10 whether we want to develop that, or not. Isn't that
11 the essence of speculation?

12 A. Speculation, in my mind, though, has a cloud
13 of definite purpose that there is—we don't know what
14 they're going to use it for or where it's going to go
15 or what we're going to do. So, this follows more of a
16 clear area that there is a definite plan and how it's
17 going to be used, what the public needs, when the
18 demand is going to come into play. I mean, it seems,
19 to me, that there—even though it might have to be put
20 off a while, it seems to fit within a plan and,
21 therefore, not be speculative.

22 Q. Hasn't their testimony been, though, that they
23 don't have any intent in building this plant? I mean,
24 that, maybe, someone will, but they're not going to
25 build it and operate it.

1 A. Well, and I've heard that discussion, but I've
2 also heard them say that they are going to be involved
3 with this. That's their intent is to get this plant
4 going and that's their intent to be able to move this
5 project forward. So, that makes sense to me.

6 Q. But haven't they also said that they look at
7 this as an investment? We heard a lot of testimony,
8 yesterday, for example, that this is an investment and
9 part of what they're going to realize a return on, if
10 they do, is the fact that they've got these water
11 rights here, but they're not ever going to put them to
12 use. I mean, that doesn't fall into the category of
13 speculation to you?

14 A. It doesn't, to me, because it's all tied to
15 the same project set up and the same beneficial use
16 established and the same push to get this project done.

17 Q. Yeah. Okay, but does it make any difference
18 whatsoever? Maybe I'm going down, you know, the wrong
19 path, but does it make any difference, whatsoever, that
20 they've declared their intent not to do those things at
21 the outset? Typically, you have an applicant go in and
22 say, I'm going to, you know—I bought this property. I
23 want these water rights, you know, approved under a
24 change or appropriation or whatever for it and the
25 assumption is that they're going to, you know, perfect

1 those water rights at some point, correct? And, then,
2 they sell the property before that ever happens.

3 Is that the same kind of situation we're in, here,
4 where you've got an application that comes in and says
5 we're going to tie these up. We're going to get an
6 approval. We're going to package it. We're going to
7 get a permit and, then, we're going to decide what we
8 want to do there. We're going to either sit on it. We
9 could go down one of the off ramps, as Dr. George said,
10 or we'll get investors to come in who, then, take over
11 and construct and operate the plant. Do you see any
12 distinction there or am I just off base?

13 A. I don't particularly have a concern. I mean,
14 I have a statutory responsibility to make sure that
15 people are being diligent or have reasonable cause for
16 delay and, so, we're going to ask questions about how
17 this fits in with the plan. If we start pushing out
18 close to the 40 years and we're still not having
19 anything done, the public water suppliers who own these
20 water rights, we may be having some discussions with
21 them saying, okay. Here's what the statute allows you
22 to do, but we're approaching limitations and they're
23 going to have to make some decisions about what has to
24 be done with their water rights.

25 Q. Let's talk about Western Wager again just a

1 little bit. Western Water has some similar facts, I
2 think, in terms of there was a pretty big plan of how
3 they were going to do all these things and make
4 exchanges and have these sources and do all these
5 things to make that water available under the
6 application. Is that right?

7 A. That's right.

8 Q. Okay and I think one of the findings of the
9 State Engineer in that case is, well, this was
10 speculative and you touched on that, a little bit, in
11 your testimony yesterday, but they really, you know,
12 they have this water available. They wanted to put all
13 this money in to develop these diversion facilities or
14 whatever and, then, find the uses for it after that,
15 correct?

16 A. Yes.

17 Q. Okay. So, the distinction between what we've
18 got here, just so that I can, sort of, narrow this
19 down, and the Western Water situation is—I thought I
20 heard you say one of your concerns was that they didn't
21 have any contracts, yet, with cities or whatever. I
22 mean, there wasn't a use for the water.

23 A. With Western Water, that's correct. I mean,
24 they didn't really explain or have a plan about what
25 they were going to do with the water. Plus, the

1 additional situation there was they were trying to
2 appropriate water that was already somebody else's
3 appropriated water. There was no water available for
4 appropriation.

5 Q. Did you investigate that, though? I mean, was
6 there—weren't those applications filed based on what
7 they said was the study and that show that there was
8 water available in those locations, right?

9 A. Yes. Yes, it was.

10 Q. And did you investigate that? Did you look at
11 whether or not their study was valid or not, I guess I
12 should say?

13 A. Well, we did look at the study and we could
14 see that there were times in the river when the river
15 flow—there seemed to be access flows flowing in the
16 river and out into the Great Salt Lake, but those water
17 rights were already covered by somebody's approved
18 water right that had not lapsed, that had not been
19 forfeited. They were covered by people's use and, some
20 years, they were using them. Some years, they were not
21 using them.

22 Q. Was that true for all of the sources or was
23 that for the ones further up the drainage?

24 A. That would have been true, generally, for the
25 whole points of diversion they were proposing.

1 Q. Okay. Let's go back and talk, a little bit,
2 about financial ability to complete the project. Okay.
3 So, this is page 12.

4 A. Okay.

5 Q. Okay. Let me just ask you what you took into
6 consideration? In your conclusion, you, rightfully,
7 point out that the applicant doesn't have to have all
8 the money right then to be able to [inaudible] project.
9 You know, it would be pretty tough to do anything if
10 you had to come in and show that you had whatever—in
11 this case, it would be extremely tough, but even for a
12 small water user, correct?

13 A. Yes.

14 Q. So, what you look at is, you know, I guess
15 individual factors with respect to the application. I
16 mean, small applications, I think you testified, you
17 don't look at it that much if someone's got a two acre
18 yard attached to their house. You know, you figure
19 it's pretty—you know, they have the financial ability,
20 correct?

21 A. We look at that, that most people would be
22 able to come in and do—we have had people file domestic
23 applications with two acre yards who, once they have
24 the application approved, they couldn't secure the
25 funding. They couldn't build the homes and they

1 actually couldn't develop and we had to lapse the
2 application because they couldn't perform. So, it was
3 that speculation that, probably, was on their part
4 because they just couldn't do what they needed to do,
5 but we looked at those kinds of said and said most
6 people in this situation should be able to-

7 Q. No, and I like that analogy. I mean, I like
8 what you said because you said, look. It, probably,
9 was speculation in that circumstance because they had
10 this property. They wanted to make something of it and
11 they couldn't afford—they couldn't complete it, right?

12 A. Right.

13 Q. Well, in your conclusion, what you say is the
14 applicant, through the lessee, and I'm reading, this
15 is, I guess, the third paragraph of the conclusion
16 section on page 13? What you say is the applicant—are
17 you following me? Do you see where I am?

18 A. On page 13? I'm not there yet.

19 Q. Under the section conclusions.

20 A. Okay, I've got it.

21 Q. Okay. So, it's the third sentence and it says
22 the applicant, through the lessee, has demonstrated, to
23 the satisfaction of the State Engineer, an ability to
24 secure funding as needed on a step-by-step basis and a
25 plan to continue to capitalize the project sufficient

1 to establish a reason to believe that the applicant has
2 the financial ability to complete the works.

3 Okay and, then, going back a page, you sort of set
4 forth a summary. Under the first paragraph of the
5 section, financial ability, you reference the ESP cost
6 of, approximately, a hundred million and, then, a
7 project cost of 12 to 18 and I think the testimony at
8 this trial has been that that range is actually 16 to
9 18 billion and, then, you go through the applicant's
10 statement and you talk about their sources for being
11 able to fund at least this permit stage of the process
12 and, so, you reference a term sheet for 50 million
13 dollars and, then, you represent commitments in
14 progress, negotiations with utilities representing
15 total commitments of 72 million or 72 percent of the
16 needed capital and, then, you referenced another 30
17 million from Lead Dog Capital, correct?

18 A. Yes.

19 Q. Okay and we've heard testimony, here, that
20 actually none of those funding sources exist, that the
21 only funding that has been put into this company is the
22 investment of the principals and they testified they
23 put in \$750,000, total, and, then, there was an
24 additional number of investors that put in about half a
25 million and, then, the money that's been contributed by

1 Willow Creek, correct? The seven to eight million a
2 year and I think they showed, on their balance sheet,
3 that it was about 17 million but, then, you would have
4 to subtract out the three million five that was paid
5 out in salaries.

6 So, does that change your conclusion at all? I
7 mean, you relied on the fact that they had commitments
8 for 72 million, that they had 50 million of investment
9 in the project with the private equity fund and, then,
10 30 million from this Lead Dog Capital, none of which
11 are actually there.

12 A. And I think my response to that, and we had
13 had some discussions or heard in the news about Lead
14 Dog and some problems that they had there and some
15 questions came up but, to me, when you look at these
16 major projects, I'm of the opinion that these things
17 would have to be built on a step-by-step basis. Again,
18 I talked, yesterday, I don't expect somebody to come
19 in—that would be a big suitcase of money in their
20 pocket to be looking to do a project like this and, so,
21 I'm thinking you're going to have to go a step-by-step
22 project.

23 In a normal business process, that would be to go
24 through a step and, then, get investors to come in and
25 obtain monies, get that completed and, kind of, keep

1 moving through the process whereby you obtain all of
2 the funds that you need to do to be able to do the
3 project and, so, what I was impressed with here was
4 they've got a plan laid out about how they are going to
5 do this.

6 Some suggestions were made to us that, maybe, some
7 of these things were happening. I don't know if we got
8 exact quotes about everything that was committed, but
9 our understanding was that they had some monies lined-
10 up, but even if those monies didn't line up, I was of
11 the opinion that there are other lending agencies out
12 there or other groups who may be willing to invest,
13 that they have to go through these step-by-step
14 processes in order to be able to accomplish that.

15 Now, if it gets to the point where they can't
16 accomplish that, then, I think the public water
17 suppliers, who own these water rights, are going to
18 have to make a decision. Is this viable or not and,
19 maybe, we need to go do something else with our water
20 but, to me, the financial ability, then, we looked at
21 what they were doing to that point. They had spent
22 several millions of dollars doing site investigations,
23 paying for valid engineering studies and paying
24 salaries of people to work toward this project. That
25 was pretty impressive that they had gone that far.

1 We have dealt with other applicants who say they
2 can do these large projects and we have complaints come
3 from people who are working for them. They're not even
4 getting pay checks and we've investigated that and
5 have, specifically, asked about financial ability,
6 then, in those ones where we've had concern and we've
7 even rejected applications because they could not show
8 that they could do it, but we felt like this plan was
9 reasonable, that they're going to have to go out and
10 demonstrate that they can get these things, these funds
11 secured, even though these might not be the funds that
12 they have right now. I think the plan is, there, that
13 they should be able to move ahead and be able to get
14 funding secured. If they can't, then, we can deal with
15 that through future extension requests.

16 Q. You said you felt good about it, including—I
17 don't want to put words in your mouth. So, let me make
18 sure I've got it correct. You said that you felt good
19 about this project or about what was going on here
20 because you had received this information from the
21 applicant, from Blue Castle, that they had these
22 funding sources in place. Isn't that correct?

23 A. Well, I don't know that it's critical that
24 they have these funds in place. What I felt good about
25 is that they had—here's the plan. Here's our business

1 plan about how we're going to go do this. We're going
2 to go out and secure these funds and we were of the
3 impression that they had funds secured but, even if
4 they didn't, they had a plan that this is how we're
5 going to do that and it just seemed reasonable, in a
6 large project like that, that that plan is what we felt
7 good about.

8 Q. Except for, as I read through this, I mean, it
9 seems, to me, that you are kind of relying on these
10 numbers that were given. If you look at the
11 conclusion, you say that they demonstrated the ability
12 to secure funding as needed.

13 A. Okay. Well, then, they have had some
14 demonstration. In order to be able to expend millions
15 of dollars, to this point, they have had funds secured.
16 They have been able to get monies into the project and
17 proceed to the point where they had proceeded. So,
18 commensurate with where they were in the project, they
19 had secured funds and that's what I was feeling good
20 about, that they've got money secured to do what they
21 needed to do, knowing that they're going to have to get
22 more. They're going to have to do additional funding.

23 Q. How do you feel, now that you—

24 MS. VALDES: Objection. He's talking over the
25 witness.

1 Q. How do you feel, now—

2 THE COURT: Let him finish his answer.

3 MR. FLITTON: Okay. I thought he was done.

4 Sorry.

5 Q. Did you have more to say?

6 A. Whatever words were flowing have dropped.

7 Q. Okay. I apologize. I really didn't mean to
8 cut you off. No, how do you feel, now, though,
9 recognizing that none of these sources are actually
10 there? Does that change your view?

11 A. No. It doesn't because my whole basis was
12 there is a plan. There's a business plan to be able to
13 go out and obtain money to be able to get investors to
14 come in and to be able to put money into this project
15 once they get the initial phases done. So, I mean,
16 it's helpful to have things secured.

17 It would make me feel better if there was money
18 there, but the plan is, really, what I was impressed
19 with, that they have the ability to be able to go out
20 and do this and they had a business plan in order to be
21 able to obtain monies. They were expending funds to a
22 significant amount to be able to get where they were at
23 the time of the hearing and, so, that gave me a lot of
24 confidence, that they ought to have the opportunity to
25 move ahead and see if they could secure that and I

1 think we have the ability, under our review of the
2 application, if things just can't go forward, they
3 can't do it, we will look for diligence and reasonable
4 cause for delay in this and, if they can't obtain these
5 things, then, I think the State Engineer, under
6 statute, has options to either lapse applications out
7 or revert, you know, have the water revert back to the
8 districts and they would have to decide what they're
9 going to do with their water, then, and take care of
10 that.

11 So, based on their business plan, it just seemed
12 reasonable to me.

13 Q. Let me ask you a more pointed question. Did
14 Blue Castle make these representations to your office?
15 Are they the ones that said that they had 50 million
16 dollars in private equity investment, that they had the
17 72 million dollars in commitments from utilities?

18 A. This information would have come in either
19 through the hearing process or through supplemental
20 records that came through our office.

21 Q. So, let me ask the question again. So, they
22 are the ones that made these representations to your
23 office, right?

24 A. Yes.

25 Q. And it doesn't concern you that these

1 representations were not, in fact, true?

2 A. I mean, it causes me concern. If somebody
3 said, well, I've got all this money and, then, the
4 money isn't there, I mean, that would be of some
5 concern but, again, the underlying issue that I was
6 dealing with is how can this happen? How can this
7 project move forward? And their explanation was that
8 they are going to have to do these initial phases, get
9 this early site permit and, then, go out and obtain
10 investors and I think that's the way a lot of big
11 business would have to do in order to do a project like
12 this. So, it causes me a little concern, but not that
13 great a concern.

14 Q. And am I correct in hearing what you're saying
15 is that—and I don't want to put it in a way that
16 impugns your review. Within the context of your
17 responsibilities, that there was, kind of, this driving
18 or underlying, sort of, policy to try to be able to
19 allow the applicants to make this project go forward.
20 Is that fair to say or am I just hearing something
21 that's not there?

22 A. I think they tried to prove their point, that
23 they had the ability to have the financial ability to
24 do the project as one of the criteria that we need to
25 review.

1 Q. Do you feel like you gave them the benefit of
2 the doubt on some of these issues because of the
3 State's policy to foster development of the water
4 resource?

5 A. I think that would, probably, be a correct
6 statement. I was not so focused on the exact numbers
7 of money that they had or the commitments that they
8 had, but was focused on what's the plan to be able to
9 do this? How are you going to actually accomplish
10 building an 18 million dollar power plant and their
11 explanation, to us, as to how they were going to raise
12 their money and how they were going to make contacts
13 and get people to invest seemed to be reasonable to me.

14 Q. Okay and, in that vein, it seems, to me, that--
15 and correct me if I'm wrong, but the focus seems to be
16 on, sort of, this first stage. I mean, you reference
17 stages and you've talked about that as well.

18 A. Yes.

19 Q. So, was your focus on just saying let's get
20 them to this first stage, where they get a permit and,
21 then, they can deal with how to get the funding after
22 that?

23 A. The monies that they had expended to date had
24 a big impact on the decision, I think, that was made;
25 that they had spent a lot of money in order to get

1 where they were at the time that the application was
2 heard and, so, yeah. It had a-

3 Q. Okay. You're much better at math than I am,
4 but what percentage of the total cost of this project
5 is the money that--and they've raised money since this
6 decision and, even using the 17 million--let's say 17
7 million that they've expended, and 17 billion, you
8 know, which is between 16 and 18, for the cost. What
9 percentage of the capital necessary for this project
10 have they raised?

11 A. Well, that would be a very small percent.

12 Q. It's, like, what? Point 01?

13 A. You must be better at math than me.

14 Q. Well, I don't know. I'm just trying to move
15 the decimal place over but, I mean, they haven't really
16 even raised one percent of the capital necessary for
17 this project. Does that concern you at all?

18 A. Not really. It really doesn't because, again,
19 the step-by-step process, if they're going through this
20 process to earn money, get money together to do phases
21 of the project, it just seemed like a responsible
22 reaction on their part to be able to get where they
23 were and I felt comfortable with that.

24 Q. Let me ask you a question; and that is do you
25 feel like there's, kind of, a back-stop here? That

1 because this project is pretty daunting, do you feel
2 like-

3 MR. WRIGHT: I'll object to that characterization.
4 I don't think anybody has testified to that.

5 MR. FLITTON: Well-

6 THE COURT: Re-phrase your question, please.

7 MR. FLITTON: Okay.

8 Q. This project expensive, correct? At
9 completion? We know it's 16 to 18 billion dollars.

10 A. It is, to me, yes.

11 Q. Okay. So, it's daunting to me. So, that's
12 why I used that word. So, you've got a project like
13 this. Is it your view that there's, kind of, a back-
14 slap here? That if the project fails, the project
15 fails and all this goes away? Is that any part of your
16 consideration?

17 A. Water rights are held by the public water
18 suppliers, the districts who are securing their water
19 right and have felt comfortable about trusting these
20 people with their water, to be able to move ahead to
21 benefit of the public in that public water supply
22 system and it seems, to me, if things don't happen, the
23 public water suppliers still, then, retain control of
24 that water. They still have that water in their
25 possession and can bring that back and do what they

1 need to do, but they were feeling comfortable with this
2 project and are optimistic about it moving forward and,
3 so, we were trying to give them the opportunity to be
4 able to let that happen.

5 Q. Was our consideration here, at all, then—
6 you're talking about these public water suppliers, the
7 conservancy districts. Was there a consideration,
8 here, that they got a little bit of a benefit of the
9 doubt in terms of—well, I don't want to say it that way
10 because I don't want to imply that there was anything
11 wrong. What I'm trying to get at is that, because
12 these were applications that these entities have been
13 holding, and there was a threat, too, that if something
14 doesn't happen, they may end up losing them, correct?
15 At least the Kane County is closer to being lost?

16 A. I don't know of a threat that's out there.
17 The statute is what it is and it gives them options to
18 get extensions fairly readily based on the statute,
19 based on their status as a public water supplier. So—

20 Q. Okay. So, did that have any—the fact that
21 this was putting water that had been sitting out there
22 for a long time, and it was putting that water,
23 potentially, to use, did that play into the
24 consideration at all?

25 A. Yes. It was an option they were proposing.

1 This is how we can get our water put to use to the
2 benefit of the public water supply system and,
3 certainly, we would be supportive of that, of trying to
4 get water put to use.

5 Q. Okay. Let me just ask a couple more questions
6 on this financial ability issue. Okay. So, you know,
7 what they raised is a very minute portion, you know,
8 .01 percent of the capital that's needed for this
9 project.

10 A. Okay.

11 Q. You know, the statute requires that they have
12 the ability to complete the proposed works and I just
13 want to make sure—and I know I might be treading back
14 where we've already been, but did you look at that
15 total picture? I mean, is it what you're saying, and I
16 don't want to put words in your mouth, but that you
17 looked at it in phases and, if you felt like they got
18 to one phase, then, they would be able to get to the
19 next phase and, then, to the next phase or however many
20 phases there were? I mean, is that the approach you
21 took on that?

22 A. That is. I felt comfortable that, moving
23 through this first phase, that they would be able to
24 generate revenue and demonstrate that they could get
25 funds in to be able to move through the additional

1 phases.

2 Q. Okay, thank you. Let me talk, a little bit,
3 about just the NRC and there's several places, in your
4 memorandum, where you talk about this NRC process
5 that's going to take place and one of those, the most
6 significant, I think, of which is the natural stream
7 environment and issue, right? That you feel like that
8 they're going to have to go through this whole process.
9 The Fish and Wildlife Service is going to get involved
10 with it and that that will, kind of, take care of
11 itself. Am I summarizing, correctly, that position?

12 A. Yes. We realize there's going to be, if the
13 project is constructed, there's going to be a diversion
14 works on the stream. There's going to be dams
15 constructed. We've looked at and stated that we have
16 the responsibility. We're going to come back and look
17 at that natural stream environment on our own review as
18 those things that are actually going to impact the
19 stream, okay?

20 As far as the amount of water being taken out of
21 the river and the natural stream environment, we felt
22 like, with our cooperative agreement and working
23 arrangements with Fish and Wildlife Service and the
24 Bureau of Reclamation, and having to go through the
25 Section 7 consultation, that we felt like things are

1 going to be very adequately addressed to help protect
2 endangered fish in the stream and to be able to protect
3 that stream environment.

4 Q. So, would it be fair to say that you defer
5 that decision to these other processes? That you
6 deferred your real—I'm not suggesting you didn't review
7 it but, sort of, the nitty-gritty of all this to these
8 later processes where these other parties are involved?

9 A. We did not ignore our responsibility, but felt
10 like, based on what we had obtained to the point we had
11 obtained it, that everything that we needed to have and
12 that was going to have to be covered would have to be
13 covered under that Section 7 consultation. We felt
14 like that would cover what we needed to do.

15 Q. Okay. What's your understanding of the NRC
16 process with respect to, for example, looking at, you
17 know, these natural stream fishery issues.

18 A. And I don't have a complete understanding of
19 all, but I know some of the staff have read through
20 some of those responsibilities, but it would be my
21 general understanding that they will go through a NEPA
22 process. They will have the Fish and Wildlife Service
23 involved. There will be comments, public input on
24 impacts to the river diversions, the amount of water
25 coming out of it. They will look at endangered fish.

1 I mean, they will look at all of that through that NEPA
2 process.

3 Q. Does it have any impact on the process,
4 though, that there are approved change applications
5 sitting out there where the State of Utah has already
6 said you have the right to divert water? I know there
7 are conditions, but does that not impact that process a
8 little bit?

9 A. Knowing how well the federal government
10 listens to edicts of the State of Utah, I would guess
11 they might not even care what's out there; though, I,
12 personally, think yes. If there's a water right there
13 approved, I think they would give that some
14 credibility, that there is a water right there, but I
15 think they would not change their review process. I
16 don't think they would vary, at all, in the processes
17 that they do, even if there was a water right. I mean,
18 that's why we go through the Section 7 consultations
19 and that's why they have their federal processes, to
20 make sure everything can be done according to their
21 standards. I don't think they change their standards
22 just because the State has taken an action.

23 Q. One of the things about this process is that
24 the parties are presenting evidence again, correct, on
25 all of these issues and we've heard from fishery

1 experts on behalf of Blue Castle and, you know, our
2 fishery and natural stream expert has yet to testify,
3 but would it have been helpful to you to have a little
4 bit more of that information at the time you made your
5 decision? I know that my guess is there will be a lot
6 that comes out in this proceeding that you didn't have
7 the ability to really even review.

8 A. I think there will be more information that
9 comes out and I hope that there would be more
10 information that comes out but, as far as our review on
11 the natural stream environment, I feel really
12 comfortable where we are with the decision.

13 Q. Well, I guess the question is would you
14 welcome that additional information at that point in
15 the proceeding?

16 A. We would not have turned that information
17 away. We, certainly, would have looked at that, but I
18 don't think it was necessary for us to make a decision.

19 Q. You think your decision would have been the
20 same?

21 A. Yes.

22 Q. Your finding?

23 A. I think so.

24 Q. Okay. All right. Let's—I just have a few
25 more. I'm sorry to keep you up there so long. There's

1 a couple more issues that I wanted to—

2 [Inaudible discussion.]

3 Q. Okay. I've just been handed a note. Before
4 we move on from the natural stream environment, you
5 know, you've acknowledged that there are endangered
6 species concerns. We have, you know, these four
7 endangered species and, beyond that, there's some
8 threatened species on the Colorado River that may be
9 listed. Are you aware of that?

10 A. Yes.

11 Q. Okay. Were there the same concerns about
12 endangered species at the original point of diversion?

13 A. The original point of diversion being down on
14 the San Juan River and on Wahweap Creek and Lake
15 Powell. The San Juan River, certainly, there are
16 endangered fish issues down there. Not so much in Lake
17 Powell or on Wahweap Creek. So, the same kinds of
18 issues in protecting these four particular fishes in
19 the Green River, I mean, it's not really the same
20 concern. It's a little bit different.

21 Q. Okay and has the Fish and Wildlife Service
22 expressed, in your discussions—I'm assuming you've had
23 discussions, correct?

24 A. Yes.

25 Q. Okay. Have they expressed any concerns or

1 suggestions about allowing diversions in certain areas
2 in these critical habitat areas?

3 A. They have expressed concern about moving into
4 areas to make sure that things happen in a way that
5 we're not going to have fish kill or different problems
6 with the stream. My--well, I won't even guess at what
7 they actually want, but they have expressed some
8 concern about that. They are very concerned that we
9 continue to work together as we develop Utah's
10 allocation of the Colorado River Compact to make sure
11 things are done in a proper way to help provide as much
12 protection as we can to re-establish the populations of
13 the endangered fish.

14 Q. Are there places on the system where
15 diversions could be made without causing a threat to
16 endangered species or critical species and still get
17 Utah's allocation?

18 A. I don't know the answer to that, John.

19 Q. Okay. All right. Let's move on and, under
20 public welfare, there were some protests that were
21 raised, some concerns raised and one of those was about
22 the effect of the nuclear plant on crops and natural
23 vegetation and the environment around that area.
24 You're familiar with that, correct?

25 A. Yes.

1 Q. Okay and what was it that you looked at with
2 respect to responding to that concern, or those
3 concerns?

4 A. I think our concern, there, was, you know, can
5 a nuclear power plant be built and not cause
6 contamination in an area and we have many nuclear power
7 plants built in the country that are operating that
8 don't seem to be causing that contamination. In
9 talking with the NRC, they've got such stringent
10 standards to go through for protection against that
11 type of thing that we just felt like, through that
12 process, that plant should be able to be constructed
13 safely so that that does not cause those problems.

14 Q. It's my understanding that Green River is a
15 fairly agricultural area—or, region, correct?

16 A. Yes.

17 Q. Okay and that's the melons, for example, that
18 are grown there?

19 A. Yes.

20 Q. And, so, that's important to the economy, is
21 it not?

22 A. It is.

23 Q. Okay. When you talked to the NRC, and when
24 you looked at this, did you ever explore the concept or
25 the issues relating to drift? Do you know what drift

1 is?

2 A. I don't.

3 Q. Okay and, maybe, you don't know anything about
4 it, but it's the, you know, it's what comes out of the
5 top of the cooling tower, okay? And it's the
6 evaporated off. Did you look at that issue at all?

7 A. No.

8 Q. Okay. So, you're not aware of whether or not
9 that will actually put some, you know, herbicides,
10 pesticides, fungicides, those kinds of things into the
11 air?

12 A. Only to the point that, as the NRC does their
13 review and goes through that process, that they have
14 the responsibility, by federal law, to be able to make
15 sure that those plants operate in a safe manner.

16 Q. Okay. Did you ever explore the operation of
17 the nuclear facility and, you know, for example, the
18 waste water issue with respect to waste water that's
19 generated in this facility that needs to be disposed of
20 or evaporated-off somehow?

21 A. I'm not familiar with the nuclear power plant
22 process and how they run the water through and how they
23 use that. I know that they are talking about recycling
24 and they're talking about storage ponds, to be able to
25 have that, but I did not look at-

1 Q. Okay. So, your assumption was just that this
2 water was, pretty much, in a closed system? Would that
3 be fair to say?

4 A. Well, I know they're talking an open storage
5 pond, that there would be water in the pond, but I
6 don't know if that's the waste water and my assumption
7 would be that that would be addressed through the NRC
8 process.

9 Q. NRC process, okay, and even though this is a
10 public welfare corollary; that is, you know, water
11 quality was one of the concerns that was raised in the
12 protests as well, correct? What did you look at with
13 respect to any impacts to water quality from the
14 nuclear plant?

15 A. And water quality, because the project was not
16 proposing to return water to the stream, they were only
17 withdrawing water from the stream, water quality issues
18 that we would look at, then, would only be that the
19 management of flow in the river and just felt like that
20 was not a significant factor to consider.

21 Q. Okay and, then, I know, in your approval for
22 the water right that we're looking at, the Kane County
23 Water Right, you, basically, subordinate this right,
24 now, under the change, to the rights of the Central
25 Utah Project, correct?

1 A. That's correct.

2 Q. Okay and why did you do that?

3 A. I was concerned that, by moving water up the
4 river where it hadn't been located before, if there was
5 anything to happen to cause a call of water on the
6 Central Utah Project, which actually has a junior
7 priority to the priority of the Kane County Water
8 Conservancy District, that I didn't want, because of
9 the location of the river and where it was [inaudible],
10 I didn't want to have any opportunity for them to
11 diminish Central Utah Project's ability to take water
12 into their system, where they've spent millions and
13 millions of dollars to get water over to the Wasatch
14 Front to be able to supply the significant population
15 that is there and, so, I just wanted to put a concern
16 in that application that, should that case ever arise,
17 that they should not have a call on the Central Utah
18 ability to divert water.

19 Q. Okay and, so, that's based on recognition that
20 there is the potential that there may be competition
21 between these water rights because of unavailability of
22 water to satisfy both, correct?

23 A. Right, but my personal opinion on that would
24 be, though, that, if we ever got to that point, water
25 supplies are going to be so diminished in the Basin

1 that Central Utah may actually have difficulties
2 getting water diverted into their system anyway, but I
3 wanted to be able to try to provide as much protection
4 as I could.

5 Q. Okay and with respect to safety concerns, I
6 know that—I guess that falls, generally, under this
7 public welfare. Did you look at that at all or was
8 that another issue that you felt like the NRC would
9 take care of?

10 A. Public safety under public welfare issues, we
11 would look, again, at the diversions out of the river,
12 piping to the plant to see what kinds of problems that
13 would cause, you know, be caused. We felt there were
14 no public welfare issues there. Anything to do with
15 the design of the plant and the operation and
16 construction of the plant is outside of the control of
17 the State Engineer and, therefore, is covered by
18 federal law and federal regulation in order to meet all
19 of those public welfare-type issues and public safety
20 issues and will have to be addressed through that
21 process.

22 Q. Okay and, then, just one last topic; and that
23 is—let's see. Where was I? Now, my thoughts have
24 dropped-out, too. Oh, public recreation. In making
25 your decision that you didn't think there would be—or,

1 your conclusion that there would not be a significant
2 effect on public recreation, did you rely upon the
3 information that was submitted by the parties or did
4 you go out and try to analyze, you know, the shape of
5 the stream channel, for example, or other conditions on
6 the river itself?

7 A. We did not spend a lot of time looking at
8 stream channel configurations. We looked at flows in
9 the water. We did rely on the evidence submitted at
10 the hearing and supplement records, but we did look at
11 the amounts of flow and we looked at the impacts that
12 we thought, taking 70 second feet of water out of the
13 river, the impact that it would have on the river and
14 determined that would be just a very small impact to
15 the river and should not have any impact on that at
16 that time and, also, of the opinion that, in working
17 with this cooperative group and the re-operation of the
18 Flaming Gorge, and working with the Fish and Wildlife
19 Services, that we actually saw that there would be some
20 times, when there were lower flows in the river, that
21 they would be enhanced by the additional flow in the
22 river to help meet these endangered species, that might
23 even be an enhancement to that based on this process,
24 when we get through this whole process but, even if
25 that didn't happen, the impact is such a small amount

1 compared to the flow that was in the river, even at low
2 flow times, that we just didn't see that as a
3 significant impact at all.

4 Q. Did you investigate, at all, like areas where
5 there's sand bar configurations in the river, what the
6 impacts would be in those locations, for example?

7 A. We didn't spend a lot of time on that, no.

8 Q. And did you rely on the morphology, then, of
9 the stream at the location of the gauging station? Is
10 that what you primarily relied on or did you look at
11 other areas?

12 A. In our review, I think, generally, we would
13 have looked at the flow in the river at the stream
14 gauge.

15 MR. FLITTON: Okay, perfect. I think that's all I
16 have. Thank you so much.

17 THE COURT: Thank you, Mr. Flitton. Re-direct?

18 MR. WRIGHT: Yes, Your Honor.

19 THE COURT: Or, excuse me. Ms. Valdes, do you
20 have questions or response?

21 MS. VALDES: Just a couple.

22 THE COURT: Go ahead. Thank you.

23 CROSS-EXAMINATION

24 BY MS. VALDES:

25 Q. Hi. Mr. Jones, how many applications, total,

1 would you say you decide in an approximate average
2 year?

3 A. In an average year, decisions we have to make
4 approach six thousand.

5 Q. Six thousand?

6 A. Yes.

7 Q. And, of those, how many would you say are
8 change applications?

9 A. Changes would be anywhere from—I don't know,
10 900 to 1,500 of those.

11 Q. Okay and would you say that you were able to
12 make this decision unencumbered by any influence from
13 any party?

14 A. Sorry. I didn't hear that.

15 Q. I'm sorry. Would you say that you were able
16 to make this decision on these applications, these two
17 applications before you, without any influence from any
18 parties? Aside from the hearing and what you normally
19 do as your investigation, do you have any interest in
20 either Blue Castle Holdings, Kane County Water
21 Conservancy District, San Juan County Conservancy
22 District?

23 A. No. I have no specific interest in any of
24 these entities involved and I think I mentioned,
25 yesterday, we just treat this as another application

1 and look at the criteria of the statute that we have to
2 review and would go through these set processes to the
3 best of our ability to be able to make the decision in
4 a fair manner, to protect the rights of others and to
5 promote the beneficial use of water in the State.

6 Q. So, is it your opinion that there is reason to
7 believe that these two applications can be granted or
8 that they meet the criteria of 73-3-8 and can be
9 granted?

10 A. As a review of the criteria, as we spent time
11 and we involved many staff in this who did excellent
12 jobs and made excellent recommendations through this,
13 that it would be of the opinion that we do have reason
14 to believe that it could be approved without impairing
15 the rights of others and by meeting the statute
16 requirements in 73-3-8.

17 MS. VALDES: Thank you. That's all.

18 THE COURT: Thank you, Ms. Valdes. Mr. Wright?

19 MR. WRIGHT: Yes. Thank you, Your Honor.

20 RE-DIRECT EXAMINATION

21 BY MR. WRIGHT:

22 Q. Mr. Jones, you took over as State Engineer
23 when?

24 A. In January of 2009.

25 Q. And Jerry Olds was your immediate predecessor?

1 A. He was.

2 Q. Did he leave the crystal ball in the drawer?

3 A. I haven't found it if he's left it. I haven't
4 opened that drawer yet.

5 Q. Well, you may need to. The fact is, you don't
6 have a crystal ball, right?

7 A. That's right.

8 Q. You make a decision based on the data that you
9 have and use your best to apply the statutory criteria?

10 A. That's exactly right under every application
11 that comes before us.

12 Q. Okay. Would you describe—probably covered it,
13 but let's just be very clear. Describe the difference
14 between a change application and an application to
15 appropriate.

16 A. A change application is taking an existing
17 water right, as approved, and proposing to move the
18 point of diversion, the place and nature of use. The
19 statute says that anyone entitled to the use of water
20 has the right to change the point of diversion, place
21 and nature of use of water and, so, the change would
22 allow some existing authorized users to be able to move
23 to other uses, other places, other points of diversion.

24 An application to appropriate, then, is a request
25 to use brand new water on the system for the proposals

1 that you would have in the application that have to
2 tell us how much water, where they were going to
3 divert, what they were going to use that water for, the
4 period of use and would, then, have to review that
5 based on all of the existing rights on the system and,
6 then, how it would impact the system as a whole, as
7 well as localized issues.

8 Q. So, what is it in an application to
9 appropriate new water, the applicant has to demonstrate
10 to you, first of all, that there actually is water
11 that's not already accounted for by someone else's
12 water right?

13 A. On the first criteria, in 73-3-8, is there
14 unappropriated water in the source?

15 Q. The Western Water application that you've been
16 asked about, was that an application to appropriate or
17 was that a change application?

18 A. It was an application to appropriate.

19 Q. And the Kane and San Juan applications before
20 this Court are what kind of application?

21 A. They are both change applications based on
22 existing rights.

23 Q. Exactly. Thank you. Now, from your
24 perspective, what is the importance of water being
25 beneficially used by any water right owner or water

1 right user? Where does beneficial use rank in the
2 hierarchy of concerns from your chair?

3 A. Beneficial use is, actually, a critical
4 component in my estimation of water. I think it's how
5 we judge how our systems are operating, how water flows
6 are being kept in balance, how we make decisions about
7 whether there's additional water to be used. So,
8 people have water rights they're not beneficially
9 using, that there may still be water in a system that
10 we could allocate, but we watch, closely, for
11 beneficial use and the whole process is set up to
12 encourage people to get water rights, when they have a
13 need to use water, and to submit proof to the State
14 Engineer's Office that beneficial use has occurred and,
15 then, we issue a certificate saying you have put your
16 water to beneficial use and here's the certificate
17 authorizing you to do that and with the encouragement
18 that you should continue to put that water to
19 beneficial use because it may become jeopardy of
20 challenging corporate forfeiture if you don't continue
21 to beneficially use the water.

22 Q. So, what's more important, in your mind, that
23 water, under these applications, is actually,
24 eventually put to beneficial use to generate electric
25 power or that it's Blue Castle Holdings that actually

1 is the one putting the water to the beneficial use?

2 A. I think the important principal is that the
3 water is put to beneficial use.

4 Q. So, if a power plant gets built, it doesn't
5 really matter who owns it or operates it as long as the
6 water is being used.

7 A. That would be correct.

8 Q. You were asked a question about whether—
9 because Kane and San Juan Conservancy Districts are
10 public water suppliers, whether they were given the
11 benefit of the doubt. What is the lens that you look
12 through? What's the standard that has to be met for a
13 change application when you're applying the statutory
14 criteria?

15 A. The criteria that's standard for any change
16 application that comes before us is established through
17 Section 73-3-3 and 73-3-8 of the Code to determine the
18 criteria upon which we have to judge an application
19 and, so, regardless of who the applicant is, each
20 change application, we would go through each of those
21 criteria.

22 Q. Right. My question is what's the standard
23 they have to meet to satisfy you that a change can be
24 approved?

25 A. They would have to show us that it meets that

1 criteria, that there is an appropriated water that can
2 be done without impairing the rights of others.

3 Q. Maybe I'm not asking the question right but,
4 yesterday, we talked about the reason to believe
5 standard.

6 A. Okay.

7 Q. That's what I'm going at.

8 A. Okay.

9 Q. Is that what an applicant has to satisfy, in
10 your mind, under the statute in order to get a change
11 approved?

12 A. Okay. I understand. I mean, it's still the
13 criteria that we go through and each of those criteria
14 to look at. Things don't have to be conclusive. We do
15 make decisions based on a reason to believe standard
16 that what they are proposing is reasonable to meet that
17 criteria.

18 Q. And, so, it's not a benefit of the doubt
19 standard. It's reason to believe standard?

20 A. That's correct.

21 Q. You were also asked about what information had
22 been provided by the applicants at the administrative
23 hearing and whether the additional evidence provided in
24 this case would have been useful. Do you recall that
25 testimony on cross?

1 A. Uh-huh [affirmative].

2 Q. You're aware that Dr. Nils Diaz testified at
3 that administrative hearing?

4 A. I think there—I was not at the hearing.

5 Q. Right. Who was actually the hearing officer?

6 A. The hearing officer was John Mann and would
7 have been attended by our regional office and some
8 additional staff.

9 Q. Are you, generally, aware that the same
10 witnesses that have testified, so far, in this case
11 also testified at the administrative hearing; such as
12 Jerry Olds, Tom Hardy, Diaz, Retson, Evans?

13 A. I'm aware of that, yes.

14 MR. WRIGHT: Nothing further, Your Honor. Thank
15 you.

16 THE COURT: Re-direct, Mr. Flitton?

17 MR. FLITTON: Thank you.

18 THE COURT: Or, excuse me, re-cross?

19 MR. FLITTON: I think I said re-direct the other
20 day. So, that's okay.

21 RE-CROSS-EXAMINATION

22 BY MR. FLITTON:

23 Q. Mr. Jones, on this reason to believe standard,
24 you know, I think you stated that it's more than just
25 benefit of the doubt, but is there not a little bit of

1 difference in some of the criteria as well? And what I
2 mean by that, don't you have a duty to investigate
3 certain elements of an application approval? Do you
4 understand what I'm getting at?

5 A. Yeah. Well, I think we've been given a
6 responsibility, in all of the criteria that we review,
7 to come up with a reason to believe standard. We have
8 a reason to believe that this can be done, and meeting
9 to these criteria, then, it would be our obligation to
10 go ahead and approve the application.

11 Q. Okay and do you arrive at that reason to
12 believe standard based on your own investigation?

13 A. We couple our own investigation with
14 information presented to us by all parties concerned.
15 In fact, we even, through our own investigations, other
16 people will make comments and provide information to
17 us, but we try to gather as much information as we can
18 to make those decisions to see if we can get to that
19 point where it could be approved or, if we can't get
20 there, then, we would reject the application.

21 Q. Okay. You know, the Supreme Court was, I
22 think, careful in its language and it says that
23 somewhere between, you know, just a, you know—it
24 doesn't rise to the level of, you know, beyond a
25 reasonable doubt, for example, you know? And it's more

1 than a preponderance of the evidence, correct?

2 MR. WRIGHT: No. I'm going to object to that.

3 That's not--

4 MR. FLITTON: I'm sorry. I apologize. I
5 mischaracterized it. Sorry. Strike that.

6 Q. The question that I wanted to get at was that
7 there seems to be kind of a range. Do you view it that
8 way? In terms of, you know, you're in between, sort
9 of, two known standards? Let me ask you--

10 A. I'm not quite sure how to answer.

11 Q. Let me ask you a little better question. Are
12 there, for example, does the size of a change
13 application, or do some of the potential impacts of an
14 application cause you to look harder and to dig a
15 little bit deeper in terms of investigating or looking
16 at some of the criteria?

17 A. I think complexity of applications require us
18 to look at the complexities of that application. If
19 they're not very complex, we don't spend quite as much
20 time, but if they are more complex, then, we would look
21 more time, but we still--that standard is still the
22 reason to believe standard. So--

23 Q. Okay.

24 MR. FLITTON: I think that's all I have. Thank
25 you. Oh, okay.

1 Q. You were asked, on re-direct, about the
2 difference between a change and an application
3 appropriate, correct? Under the statute, you're
4 required to go through the same process for both. Is
5 that not right? In terms of review criteria?

6 A. That's right.

7 Q. Okay. So, in essence, for example in these
8 applications, what you're looking at on a change
9 application is, really, akin to a new appropriation
10 because it is being changed to a completely different
11 source of supply or different area, correct?

12 A. Well, any change application, regardless of
13 whether it was moved or not moved, we would look at
14 that criteria.

15 Q. But, with respect to that one criteria, what
16 you're looking at is the proposed source, correct?

17 A. Yes.

18 MR. FLITTON: Okay, thank you. That's all.

19 THE COURT: Ms. Valdes?

20 MS. VALDES: I have nothing further except to
21 invite Your Honor if you have any questions.

22 MR. WRIGHT: Nothing further.

23 THE COURT: Okay, Mr. Jones, looks like you're off
24 the hook now for a while. So, let's take a break until
25 20 minutes before 11:00 and let everybody stretch their

1 legs a little bit. Court will be in recess.

2 [Recess.]

3 THE COURT: Please be seated, ladies and
4 gentlemen. We'll be back on the record in Heal Utah,
5 et al. v. Kane County Water Conservancy District, et
6 al. This is Case 1207009 for Emery County. Counsel
7 for the parties are back in the Courtroom. Do you want
8 to call your next witness, Mr. Wright?

9 MR. WRIGHT: Yes, Your Honor. Thank you. The
10 applicants call Dr. Nils Diaz.

11 THE COURT: Dr. Diaz, if you would come forward,
12 Sir, and raise your right hand.

13 NILS J. DIAZ, Ph.D. called as a witness by the
14 defendants, being first duly sworn, was examined and
15 testified on his oath as follows.

16 THE COURT: Please have a seat, Sir.

17 DIRECT EXAMINATION

18 BY MR. WRIGHT:

19 Q. Good morning, Dr. Diaz.

20 A. Good morning, Sir.

21 Q. Would you tell us your full name, please?

22 A. Nils J. Diaz.

23 Q. Dr. Diaz, I would like to start with your
24 academic background, both as a student and as a
25 professor. Tell us where you went to school.

1 A. I have a bachelor of science in mechanical
2 engineering from University of Havana. I have a
3 master's of engineering, in this case nuclear
4 engineering, from the University of Florida and a Ph.D.
5 in nuclear engineering science from the University of
6 Florida. I also have a long academic life of about 31
7 years between the University of Florida, where I rose
8 to the rank of full professor, full tenured professor
9 and director and, also, as a dean of research for
10 California State Long Beach.

11 Q. What kind of research at Cal State Long Beach?

12 A. The research that I was doing at Cal State
13 Long Beach was mostly applied to advanced nuclear power
14 plants and especially those for the Department of the
15 Defense for security defense purposes.

16 Q. And what other certifications or
17 qualifications do you have in connection with nuclear
18 energy?

19 A. I actually have formal programs in health
20 physics, nuclear medicine and I actually underwent the
21 training for nuclear medicine health physicists and I
22 also held a senior reactor operator license from the
23 NRC for 15 years.

24 Q. You were a commissioner on the United States
25 Nuclear Regulatory Commission. Is that correct?

1 A. That's correct.

2 Q. How long?

3 A. Ten years.

4 Q. And you rose to the level of chair of that
5 commission?

6 A. That's correct.

7 Q. How long were you the chair?

8 A. Three years and four months.

9 Q. What was the time frame where you were the
10 Chairman of the NRC?

11 A. It was April 1996 to July the 1st—I'm sorry,
12 April 1st of 2003 to July the 1st of 2006.

13 Q. Would you, first as a commissioner and, then,
14 as chair, would you describe what a member of the NRC
15 does? What are the duties and responsibilities of the
16 NRC?

17 A. A commissioner is actually dedicated to
18 establishing the policy of the NRC. So, we actually do
19 rules, rule-making, create new propositions for the
20 Congress for new laws. We do adjudication, the actual
21 commissioners see the judges and adjudicate cases and,
22 in many ways, we impact the operation of budget. So,
23 the things that are not directly related to the
24 execution of pass, which actually belongs to the
25 chairman.

1 Q. And, then, as Chair, what's your job?

2 A. As Chair, you are the Chief Executive Officer
3 of the Commission. As Chair, you direct the staff to
4 execute the directives as being established by the
5 Commission. You are very much in charge of following
6 the law. We are really framed by the Atomic Energy Act
7 and, as long as we are within the constraints and
8 directives and requirements of the Atomic Energy Act,
9 the Commission has significant amount of power to
10 execute what the law has established.

11 Q. And who is it that appointed you to the Chair
12 position?

13 A. President Bush appointed me to the Chair.
14 President Clinton appointed me to the Commission.

15 Q. Now, I would like you to give me a little more
16 detail about your expertise in connection with the
17 actual operation and functioning of a nuclear reactor.
18 Would you describe your experience in that area,
19 please?

20 A. How much time do I have?

21 Q. Briefly.

22 A. I have over 45 years of experience with
23 nuclear power plants. That includes the design, the
24 evaluation of both the technical and financial
25 capabilities of nuclear power plants. I have worked in

1 the re-doing the technology once you have a design.
2 The technology has to actually match the designs. I
3 have worked in power plants. I took many years off
4 from the University and actually stayed in power
5 plants. For example, I stayed two years in California.
6 I worked with the SONGS plants and the Diablo Canyon
7 plants. I lived one year in the State of Washington
8 trying to take care of the Washington Power Supply
9 System quality assurance. I stayed one year in Miami
10 working for Florida Power and Light. I have actually
11 [inaudible] when they have been built. I have actually
12 been there when they were started off. I have actually
13 been there when they were operated. I have, in total,
14 been at least on 80 nuclear power plants here and in
15 the world. I am familiar with every possible single
16 technology that has been created by man, including the
17 space technology and the terrestrial technologies, a
18 little less with the submarines.

19 Q. Okay. What expertise background do you have
20 concerning the financing of nuclear power projects
21 starting with the early site permit process through
22 construction?

23 A. Well, I have two different types of experience
24 that complement each other. One is, for many years, I
25 was asked to consider, by financial institutions,

1 whether a particular type of power plant fitted in a
2 certain region, whether the type of plant, the
3 technology, the way they're going to use water, the way
4 they're going to be built, the contractors, whether
5 that makes a valuable plant from the standpoint of the
6 technology deployment, not the business end of it, the
7 technology deployment. I've done that for several of
8 the large companies of this country.

9 As a commissioner and chairman of the NRC, I was
10 exposed to the financial issues that were related to
11 the requirements of companies that apply for the
12 licenses and, after I left the commission, I have been
13 in multiple locations. Let's say in form and in issues
14 that relates to the economics and finances of nuclear
15 power, including not only in this country, but abroad.

16 Q. On whose behalf have you worked in connection
17 with the economics and financing of nuclear power
18 projects?

19 A. Recently or—

20 Q. Give us an overview.

21 A. Smith and Gillaspie Engineers were actually a
22 company that actually did a lot of work. I have worked
23 with several banking institutions. That includes
24 Chase, Merrill Lynch. It includes the Bank of Spain.
25 Actually, I review the issues related to the deployment

1 of nuclear power plants in Abu Dhabi. I was a member
2 of the board. I review the issues regarding the
3 economic impact of the United Kingdom deployment of
4 nuclear power plants and, in many cases, during the
5 last six years, I have been directly involved with the
6 nuclear recovery and the deployment of the new nuclear
7 power plants for Florida Power and Light. So, I work
8 as an expert policy advisor for Florida Power and
9 Light.

10 Q. What kind of experience do you have providing
11 testimony in connection with the development of nuclear
12 projects, starting, say, with public service
13 commissions all the way up to and including Congress?

14 A. Well, I have, probably, testified in Congress
15 more times than I would like to remember. I still have
16 scars, Your Honor, all over the place. So, I have
17 testified both to the Senate and to the House. I have
18 briefed chairman of both the House and the Senate I
19 would say a hundred times. I have—

20 Q. Briefed them on what? What kinds of—

21 A. Briefed them on issues that they deal either
22 with issues of safety of the plant, issues related to
23 the atomic energy—I'm sorry, the Energy Act of 2005,
24 issues regarding physical security, terrorism.
25 Actually, after 9-11, I have briefed both houses of

1 Congress under closed doors on the issues related to
2 the security of nuclear facilities. I have, of course,
3 briefed the White House and White House members in
4 multiple occasions on issues related to internal issues
5 that include nuclear security or safety. I, you know,
6 have briefed them on international issues that were
7 important to the country.

8 So, I have had to attain a very high profile in
9 the executive branch. I also have testified, on
10 multiple occasions, to the Public Service Commission,
11 to legislatures here.

12 Q. Which states' PSC's have you testified to?

13 A. The one that I have really testified,
14 practically the last few years, is the Florida Public
15 Service Commission. In years past, when I was in the
16 Commission, I was either invited as a guest to a
17 hearing or provide—issues are always very, very
18 concerned with fuel disposition. What are we going to
19 do with the used fuel? Are we going to keep paying for
20 it? The states don't want to keep paying for it and,
21 then, to legislatures. Both Utah and Florida
22 Legislatures, recently, I have testified to.

23 Q. Okay. Let's talk about your current
24 professional activities. What kinds of activities are
25 you involved in connection with the development of

1 nuclear power or, by development, let's use that
2 broadly: re-licensing or uprates and we'll talk about
3 what those mean, outside of Blue Castle? What kinds of
4 things are you involved in outside of Blue Castle?

5 A. I am the Managing Director of a small expert
6 advice international firm called the ND2 Group. This
7 very small firm, but has, you know, we're with computer
8 with people in different places. Actually provides
9 policy consultation. What we actually do is, if there
10 is a major issue, say in Japan, you know, the Japan
11 people say there is this major issue. I told them
12 whose consultants to contract and, once they contract
13 and the consultants do their work, I actually take the
14 results, analyze it and make them into decision-making.
15 Most of my job is taking things that have been
16 analyzed and making something out of it, something that
17 moves forward, something that is a decision, something
18 that gets there.

19 Q. Now, what do you do for Blue Castle?

20 A. I am the Chief Strategic Officer for Blue
21 Castle and that's a kind of a mouthful but, Your Honor,
22 what I do is try to direct Blue Castle to do the right
23 things at the right time. In other words, with the
24 experience that I have on the industry and my years in
25 government, I have a certain awareness of where are

1 points in time in which decisions need to be made and
2 points in time which you better hold off and wait until
3 the right moment and that's precisely what I do.

4 What I do is this is the time to move this
5 decision forward. This is the time to actually obtain
6 more information. It's a time to change the moment.
7 This is a time to change the approach.

8 For example, Your Honor, in the world, right now,
9 there is a change in the paradigm of how nuclear power
10 plants are actually financed. As everybody knows,
11 nuclear power plants have become very, very expensive
12 at the front end, because there are two factors here.
13 One is how much does it cost to make it, but how much
14 does it cost to operate it for 40, 60, 80 years
15 lifetime? This is where nuclear power plants have the
16 advantage of predictable, stable costs that people can
17 plan how much the electricity is going to cost them
18 because you know how much it's going to cost you.

19 At the front end, there is moral certainty and
20 very high cost. One of the key things that is
21 happening is very high cost. It's realigning the way
22 the business world works and that realignment implies
23 that the people that have loss of money and loss of
24 stakes in these plants, like the vendors and the
25 architect engineers, actually have to start putting

1 skin in the game. They're no longer I'm going to sell
2 you this and, then, I'm going to charge you for it.

3 All over the world, what is happening now, and I
4 believe it's going to happen in this country, is that
5 the big companies are saying, to make this happen, I am
6 going to put money in the game. Abu Dhabi, you know,
7 which people thinks has money coming out of our ears,
8 they have contract for four nuclear power plants.
9 Sarsaparilla is going to put two billion dollars of the
10 eight billion dollars of the project. So, twenty-five
11 percent.

12 If you look at Russia, Russia is financing and
13 even trying to operate nuclear power plants because
14 they think that is the real model. Right now, in the
15 United Kingdom, that's the way it is done.

16 Japan, from Mitsubishi to Hitachi, you know, they
17 are, now, saying we are going to be part of what is
18 happening.

19 Q. Mitsubishi and Hitachi actually build—or,
20 design and build reactors?

21 A. That's right. That's right. These are, now,
22 the main plants. Of course, Toshiba also is. Toshiba
23 actually bought Westinghouse. Toshiba invested
24 significant amount of money on developing the reactors
25 in Texas which actually have not been finished. They

1 stopped because of a series of problems that they
2 experienced with the marketplace in Texas. In other
3 words, the marketplace did not allow them to get the
4 recovery that they were expecting and these are
5 multitude of issues that are faced in every country, in
6 every area, and they have solutions.

7 One of the solutions is the realignment of who
8 actually works in the project, who actually directs the
9 project, who actually puts the money into the project,
10 you know? And, so, it changes the entire financial
11 paradigm of nuclear power plants.

12 Q. You are also a part owner of Blue Castle, a
13 stockholder?

14 A. That is correct.

15 Q. How did you acquire your ownership interest?

16 A. In two ways. I, actually, work on it. I'm a
17 member of the Board and I actually invested in Blue
18 Castle my own money.

19 Q. Okay. Now, you've been here throughout the
20 trial so far, correct?

21 A. That's correct.

22 Q. You heard Bob Evans testify?

23 A. Yes.

24 Q. And do you agree with Mr. Evans' testimony
25 concerning where the project is, right now, in terms of

1 the early site permit? Is all of that consistent with
2 your understanding of where Blue Castle is?

3 A. Yes. Yes. Yes, I do agree with this
4 evaluation.

5 Q. And, in your opinion so far, how is the
6 project proceeding?

7 A. The project is proceeding the way it should.
8 If you look at it from the outside, when I say it's a
9 little bit slow, right now, it is. It is a little bit
10 slow, but he has reasons for it because there are
11 decision points that need to be made that are depending
12 on a series of factors and what Blue Castle has is this
13 ability to actually make those decisions in the best
14 interest of the overall project, best interest of the
15 people of Utah because we don't have to produce power
16 tomorrow.

17 Q. Right.

18 A. We would like to produce power as soon as
19 possible, but we don't have to be online tomorrow. So,
20 we actually can concentrate in making the right
21 decisions at the right time.

22 Q. Let me ask you about that. Let's talk about
23 the Code of Federal Regulations. We've talked, in this
24 case, so far about Section 10 C.F.R. Part 52.

25 A. Yes.

1 Q. Would you describe, briefly, what that part of
2 the regulations is and how it applies to the Blue
3 Castle project?

4 A. Yes. I wish I had a blackboard. You know,
5 having been a teacher, I feel bad when I'm sitting
6 down, Your Honor. I know how you do, but I get
7 restless. To talk about Part 52, you have to
8 understand that is not a monolithic rule and
9 regulation. There are really three principal parts of
10 it and they're supposed to work, okay, in a manner that
11 minimizes the financial risk to the applicant or to the
12 owner-operator and, at the same time, you know,
13 fulfills all the requirements of the law.

14 There was an order established, okay, to actually
15 do Part 52 and its three parts. The first one that was
16 supposed to be done first was so-called design
17 certification. Design certification is a way to
18 standardize nuclear power plants. What the Congress of
19 the United States, when they actually published the
20 1992 Energy Act, they have come to the conclusion, and
21 it was very obvious, there was something wrong with the
22 way nuclear power plants are being built and one of the
23 things that were wrong is that you build your plant.
24 You spend billions of dollars and, then, you have to
25 apply for an operating license.

1 A lot of the issues were due to the fact that the
2 plans were not designed by the time the plant was
3 starting to be built and this has been a problem that
4 has plagued nuclear power for many years. You start
5 the plant. You have some, you know, ten or twenty
6 percent of the plant was designed, but the rest of it
7 was not and the rest of it was not approved. So, you
8 get a construction permit and here you are designing
9 the plant while you're building it.

10 Unfortunately, sometimes, you know, people don't
11 learn. That's the same problem that happened in
12 Finland. They started to build a power plant and they
13 say, gosh. We're masters of this. We know how to do
14 this and they started the plant and they didn't have
15 the design. So, they went into, you know, major cost
16 overruns.

17 The law in the United States establishes that you
18 can design your plant and you can certify it to the
19 point that, once that is done and a rulemaking is made,
20 that safety design is no longer contested. It cannot
21 be contested in the court. It's not adjudicated and
22 the obligation of the participants is very simple. You
23 have to build your plant in accordance to that design
24 and it's standard plans.

25 We joke, say, even the carpets are the same color.

1 Not true, but they are standardized. They are
2 standardized with the exception, very appropriate, of
3 what are intake structures, transmission lines, things
4 that are pertinent to the site, but the rest of it is
5 standardized and that standard design is certified via
6 rule-making, with public participation, but once it's
7 done, it's done.

8 Q. Let me stop you there and ask you are there
9 any of these standardized designed reactors either in
10 the licensing process or under construction right now?

11 A. Yeah. There are several that have been
12 certified, but we call them the older designs that were
13 done in the '90's. There is a modern design, one of
14 the most modern designs which is a so-called passive
15 reactor. Passive is because they don't need operator
16 action to shut the reactor down and cool it and all of
17 those things. It happened in Fukushima.

18 This is done automatically and the AP1000 reactor
19 that is being presently built in Georgia and South
20 Carolina and in China is that type of reactor. It has
21 a design certification that allows the reactor to be
22 built in accordance with those design specifications
23 which are safety design. There are particular issues
24 of the detailed design that have to be done later, but
25 it, essentially, tells an applicant, if you select this

1 glass, with that amount of water in it, you can build
2 it. You don't have to defend it because we have tested
3 it. We know it's safe.

4 The second part of the process is what is called
5 the early site permit and it's supposed to be done
6 either just after or before the design certification
7 and that is the idea that the most critical component
8 of this process, once you have a design certification
9 that says the reactor is safe, it's the environmental
10 concerns: everything that has to do with the direct
11 impact around the plant; everything that the people
12 that live around the plant, the environment, the water,
13 the fauna, the fish, you know; the demographic; all
14 those things are the critical components that actually
15 make the rest of the part of the obligation, whichever
16 way you follow-through and those result in the early
17 site permit, including emergency preparedness.

18 The issue with this, too, is that neither one of
19 those allows you to build anything, you know? The
20 design certification is a rule-making and you can say
21 I'm going to use that one and you got it. This is the
22 one.

23 The early site permit is, of course, specific to a
24 site and it will be a major federal action, which
25 license could be for ten years or it could be for 20

1 years, if you stand it, or you could apply for longer
2 periods of time, which nobody has.

3 The third stage, which is called the combined
4 operating license, is the only one that grants you
5 permission to construct and operate.

6 Q. Let me stop you there and ask you, in terms of
7 financial risk, how has Part 52 and this staged process
8 you just described, how has that affected financial
9 risk in developing nuclear power?

10 A. Part 52 is, really, designed to de-risk or
11 deminimize or reduce the risk of nuclear power plant
12 construction by allowing you the almost certainty that
13 you will be able to operate the plant if you build your
14 plant and operate it in accordance with your license.
15 So, what it does is you no longer have to start
16 building your plant and getting approvals and, in
17 between, investing the money without having a license.
18 What it does, it says, if you want to do a little bit
19 of work with the growth and with the water, that's
20 okay, but you don't have to get the money to build the
21 plant. You don't have to, you know, go and find 16
22 billion dollars.

23 While you are doing the process of de-risking your
24 operation, you are, really, obtaining all the necessary
25 approvals, not only federal, but state, local approvals

1 to be able to say I am going to be able to do this
2 project and, then, once I make sure that I'm going to
3 be able to do it, then, I can decide I'm going to do it
4 this year or I'm going to wait six months until the
5 price of gas goes up or the clouds change, you know?

6 I am not forced to a scale that says, you know,
7 I'm going to have to spend a billion dollars this year.
8 It allows the applicant to set a schedule and a cost
9 that actually fits their business model and allows the
10 deployment of these very, very expensive assets in an
11 orderly manner.

12 Q. Are there other projects around the country
13 that are following the same Part 52 process or that
14 have done it?

15 A. Yeah. With the exception of one in the
16 Tennessee Valley Authority, Watts Bar, which is
17 following the old Part 50 because they already have a
18 license, which tells you the value of a license, Your
19 Honor. You know, this is a lone reactor that was,
20 essentially, you know, abandoned, but because they had
21 the federal license, they were able to re-open it and
22 they are, now, finishing it.

23 The same thing happens with the Browns Ferry
24 reactor. Browns Ferry reactor was closed down for 20
25 years and it was not operated and they decided the

1 assent at tremendous value. They had the license. So,
2 they went back and spent \$1.7 billion in getting this
3 asset back on track and it is operating perfectly well,
4 at full power, right now.

5 Q. When did that happen?

6 A. That happened in 2006.

7 Q. Okay. I would like to ask you about the NEPA
8 process, just briefly, because it's all codified and
9 it's in the regulations, but the NEPA process, what
10 role does that play in the early site permit
11 application process?

12 A. Well, the NRC is charged with the
13 responsibility to conduct the NEPA process for nuclear
14 power plants. That responsibility includes the fact
15 that the applicant will have to provide sufficient
16 information of all the characteristics of the site that
17 could impact human welfare, on fisheries on water and,
18 eventually, that process, which is kind of lengthy,
19 provides the NRC staff with a complete record in which
20 they actually, then, they write a draft environmental
21 impact statement.

22 That draft environmental impact statement is,
23 then, shared with all the corresponding agencies. It
24 actually goes to the state engineer and the state
25 engineer will be able to look at what the NRC has

1 analyzed, concluded and put for public comment on the
2 plant. They will have the details of how the plant
3 intends to use water, all of the issues of waste water
4 discharges, all of the issues that make the NRC and
5 nuclear power plants a good neighbor in this country.
6 I don't hear any complaints from the communities
7 regarding the power because they are really held to a
8 very high environmental standard.

9 The plants are charged with environmental
10 stewardship that is second to none and, in between that
11 draft statement and the final statement, there is this
12 open, you know, public comment and the ability for the
13 State of Utah and the ability for the world, in
14 general, to comment on it but, eventually, when all
15 those comments are incorporated and made consistent
16 with NEPA, then, a final environmental impact statement
17 is written.

18 Q. And who prepares the EIS?

19 A. The NRC staff.

20 Q. Would you describe, mechanically, I guess is
21 the right way to say it. How is water—well, let me
22 start this. Has Blue Castle selected a technology that
23 could be deployed, or that it would want to deploy, at
24 the site?

25 A. We have not selected a technology. However,

1 we have had major discussions with all the pertinent
2 vendors of technology. We have been briefed and had
3 discussions with them. Most of those discussions are,
4 of course, private and confidential because there's
5 proprietary information from the vendors involved.

6 We have, say, narrowed down our possible reactor
7 technologies and those are the ones that are being
8 covered by the so-called plan parameter envelope that
9 was described for the early site permit. We'll
10 actually have a group of reactor technologies that will
11 be able to fit the requirements of the federal
12 government if any one of those is selected.

13 Q. Of the technologies that are at least
14 forefront, that are being considered, would you
15 describe how is water used in those reactors?

16 A. Water is used practically the same way in all
17 of those reactors. The water use in a nuclear power
18 plant is not different than a coal plant or a gas steam
19 plant. There are some differences in the way we handle
20 water. Handle water, you know, with additional care.
21 Nuclear power plants use a little bit more water than a
22 coal plant. Those differences are there and the reason
23 is that we operate at a slightly smaller temperature,
24 lower temperature, because of safety considerations.

25 So, numbers, you know, you take a modern coal

1 plant that is, you know, being built, now, with all the
2 scrubbers and it uses a lot of water and everything
3 else. So, you can say that, on the average, they're
4 using about 716 gallons per—let's see. I have the
5 numbers in here. I brought things that I could cheat
6 with, Your Honor, because I'm getting old. A coal
7 plant has advance pollution controls, cooling towers
8 with scrubbing uses about 714 gallons per megawatt
9 hour. A nuclear power plant, very modern, very
10 efficient, uses about 720 gallons. So, this is a
11 little tiny more, but the reality is that most of the
12 nuclear power plants use more. They use about 760
13 gallons for megawatt hour which is, you know, almost
14 ten percent more.

15 Q. Okay.

16 MR. FLITTON: Your Honor, I'm wondering if we
17 could get an identification of the documents that he's
18 referring to so we have some understanding.

19 MR. WRIGHT: I told him that whatever he took up
20 there is subject to your review. So, you're welcome to
21 it.

22 THE COURT: Dr. Diaz, if you could just tell us to
23 what you're referring to refresh your memory?

24 A. Well, I, actually, make notes in here. You're
25 welcome to my notes.

1 MR. FLITTON: Okay.

2 A. These are all from reference citing, but
3 they're, roughly, my notes, but you're most welcome to
4 my notes.

5 MR. FLITTON: And the notes are the only documents
6 you have, are just your notes?

7 MR. WRIGHT: No. I think he's got a couple of
8 others.

9 A. Well, you can have them.

10 MR. FLITTON: And what are the other documents?

11 MR. WRIGHT: Just identify them. What are they?

12 A. Let's see. This one actually shows, by the
13 NRC, the present history of the nuclear power plants—

14 MR. WRIGHT: I think I can—

15 THE COURT: One second. Before you do any of
16 that, if we're going to start identifying specific
17 documents, I'm going to have to have them marked so we
18 know what we're talking about. He has notes and
19 documents from which he has refreshed his memory which
20 can be provided for you.

21 MR. FLITTON: Right.

22 THE COURT: Do you wish to have them marked so
23 they become exhibits?

24 MS. SWENSEN: I don't think we had [inaudible]

25 MR. FLITTON: Yeah. I mean, that's the problem.

1 I don't know what they are. Why don't we—

2 MR. WRIGHT: And that's what I was going to try to
3 help you is just identify them.

4 THE COURT: Well, before we identify them, Dr.
5 Diaz, do you have any problem if Mr. Flitton looks at
6 those for a few moments?

7 A. No. No.

8 THE COURT: Should we do it that way?

9 MR. WRIGHT: Is that okay?

10 THE COURT: And, then, Mr. Flitton, if there's
11 something you want to refer to, we can have it marked
12 as an exhibit.

13 MR. FLITTON: Sure. I think that would be good.
14 Thank you.

15 THE COURT: Because, believe me, when you go back
16 and listen to the record and say, well, this is—I have
17 no idea what exhibit.

18 MR. WRIGHT: This is the exhibit.

19 A. Your Honor, do you mind if I stand up? My
20 back is getting—

21 THE COURT: That is fine. You're welcome to.

22 A. Okay.

23 [Inaudible discussion.]

24 MR. WRIGHT: Here's what I want you to do. Any
25 time you use one of these to refresh your memory, if

1 you need to, identify what it is and, then, we can mark
2 it.

3 MR. FLITTON: Okay.

4 MR. WRIGHT: Okay? And, if we come back to it, we
5 know what we're talking about.

6 MR. FLITTON: Okay.

7 MR. WRIGHT: Is that okay?

8 MR. FLITTON: Thank you.

9 THE COURT: Thank you, Dr. Diaz.

10 MR. WRIGHT: Actually, I've got—is there stickers
11 in case we mark any of those?

12 THE COURT: What we'll do is the Clerk will have
13 to mark those simply because we have it marked a
14 certain way for appeal purposes.

15 MR. WRIGHT: Yeah. Well, yeah, and all of mine
16 that I've pre-marked have the case number and, so, it
17 doesn't matter which one we use.

18 DIRECT EXAMINATION OF DR. DIAZ CONTINUED

19 BY MR. WRIGHT:

20 A. Re-direct me, please.

21 Q. Sorry?

22 A. Re-direct me. I don't know where—

23 Q. Okay. Okay. I want you to specifically
24 describe—you said that water use in a nuclear reactor
25 is essentially the same as in any other sort of thermal

1 process. I just wanted to know exactly, physically,
2 once the water is sucked out of the river and pulled
3 into the plant, how is it used inside the plant?

4 A. It's not exactly the same because there's
5 always differences, but it is very, very similar. So,
6 you take water from the river, lake, a pond, you may
7 need to actually, you know, take water and dump it
8 back, the ocean, whatever source of water you use. You
9 actually take it. You actually take it to a structure
10 that, most of the time, if it's a river or a lake, is
11 trying to prevent entrapment of fish, or minimizing it
12 and, then, you know, you actually bring that water in.

13 That water is going to be used, a majority of it,
14 is going to be used for cooling the condenser or the
15 heat that needs to be rejected to the environment
16 whenever you have any one of these steam plants and
17 they all use the same type of cycle, you know? The
18 steam plants use a ranking cycle and this ranking cycle
19 is very well established. You actually have heat to
20 reject. You take, you know, a cooling source and you
21 take that heat that is going to be rejected and, then,
22 that main water that is in a closed circuit, then,
23 returns back to do its job of cooling whatever the
24 power source is.

25 The reason is that water is very expensive. That

1 water is being treated, has a specific, you know, is
2 worth, sometimes, up to \$3.00 a pound and there are
3 millions of gallons of it inside of the plant, in many
4 vessels with, you know, many, many types of ponds.
5 Many different. So, you have water treatment plants.
6 You have tanks that do water for human service, for
7 bathrooms and for drinking water. You have all sorts
8 of waters and these are, practically, very common to
9 everything.

10 There is a section of the plant that's nuclear
11 which is a little different control because of the
12 potential presence of radioactivity and, then, that has
13 more strict controls than the other plants but,
14 eventually, you know, that water that comes into the
15 plant has to go someplace. It used to be that, you
16 know, until the EPA decided it could no longer be, that
17 some people could take the water, run it to the
18 condenser and dump it down back into the river, if that
19 was allowed, or the lake or the manmade pond or the
20 ocean and that was, you know, those are called once
21 through and you go back and—but, really, that's no
22 longer possible in the United States. You have to
23 have, you know, some type of secondary devices, you
24 know, cooling towers, to actually dispose of the waste
25 heat and that's what we're going to do.

1 What we're going to do is use the most modern
2 technology, use mechanical draft towers, hopefully
3 using a minimal amount of water and minimizing the
4 impact on the environment.

5 Q. Okay. I'd like you to talk a little bit
6 further about the ESP process. You have the exhibit
7 binder in front of you.

8 A. Yes.

9 Q. Would you turn to Exhibit 51? Now, before I
10 talk about that, I want to ask a general question
11 first; which is there has been some statements about
12 this case, publicly made, that this is Utah's--this
13 case, the use of this water is the State of Utah's last
14 opportunity to be involved in whether a nuclear power
15 plant actually gets built in Green River. I'd like you
16 to comment on that, respond to that. Is that accurate?

17 A. No.

18 Q. Okay. We're going to talk, in further detail,
19 about that involvement and that's where we're going to
20 go next.

21 A. Counsel, I know you're in charge of this, but
22 I was explaining something to the Judge.

23 MR. WRIGHT: I'm not. He is.

24 A. Judge, would you allow me to finish with the
25 Part 52? I think you--

1 THE COURT: You went to Part 2 and just touched on
2 Part 3, the third segment of that.

3 A. That's right.

4 MR. WRIGHT: Sure.

5 THE COURT: Do you mind if I hear the rest of
6 that?

7 MR. WRIGHT: Of course and we're going to get to
8 some exhibits that will illustrate that, but-

9 A. But there is one important thing. There was a
10 process. It used to be one, two, three. That process
11 was design certification and, then, you knew what-you
12 know, you select what plan you are going to use. You
13 already knew that was approved and you knew your early
14 site permit, you do the environment. Now, you have the
15 reactor and you have the environment done and, then,
16 the third part was the easy part. It is doing the
17 combined operating license which allowed you to
18 operate.

19 So, all the years that I was in the NRC, we tried
20 to make this thing better, each one of them, but in
21 sequence, okay? That sequence went out the window when
22 nuclear power plants decided, in late 2005, that they
23 were going to build nuclear power plants because
24 there's going to be a need for it and there was going
25 to be all these nuclear power plants built, and instead

1 of following this orderly process, for which I have
2 gray hairs on, they decided to ignore it and, so, they
3 went and applied for sea oil before the design
4 certification was finished and many of them did not do
5 the early site permit.

6 So, then, in the sea oil, they actually were doing
7 practically everything. Design certification was
8 ongoing that complicated life. They didn't have the
9 environmental issues that complicated life.

10 So, instead of simplifying their life, they were
11 actually, by trying to short-circuit the process that
12 we have established for an orderly, organized,
13 comprehensive approach to plant deployment, they
14 actually went to here and that's why some of the
15 problems happened.

16 What Blue Castle is trying to do is to follow the
17 law, follow the law the way it was intended to be done
18 and that's what I do for Blue Castle is make sure that
19 every one of those steps is in order.

20 THE COURT: Thank you.

21 MR. WRIGHT: Thank you.

22 Q. Dr. Diaz, look at Exhibit 51 and the first
23 question is do you recognize that and what is it?

24 A. Yes. This is new reg 1555. It's in Section 5
25 of the Environmental Standard Review Plan that will be

1 used to judge whether the applicant is supplying the
2 correct and complete information for the environmental
3 assessment of the plant.

4 Q. And the first heading on the page is 5.2.1
5 Hydrologic Alterations and Plant Water Supply.

6 A. Correct.

7 Q. So, this is the piece of this puzzle that's
8 specifically talking about the withdrawal of water into
9 the plant?

10 A. Correct.

11 Q. Okay. It's somewhat lengthy. I don't want to
12 have you read the whole thing, but I'd like to talk
13 about some of the elements that are covered. If you'll
14 turn to page 5.2.1-6.

15 A. Got it.

16 Q. It's under the heading that begins on the
17 previous page, Review Procedures and, then, it
18 continues on to this page. It begins the reviewer's
19 identification of plant operational activities that
20 could result in hydrologic alterations—hydrologic
21 meaning water—will require knowledge of the site and
22 vicinity, physiography, hydrology and water uses. In
23 addition, the reviewer should be familiar with federal,
24 state, regional, local and Native American tribal
25 regulations with respect to hydrology and water use.

1 My first question is who is the reviewer that this
2 regulation is referring to? Who is doing this review?

3 A. The review is, first, done by the NRC staff
4 and, then, that review, eventually, comes in front of
5 the Commission, which the Commission, then, makes a
6 decision, an executive staff decision.

7 Q. Okay. The first item under the list—well, the
8 next sentence is, when evaluating hydrologic
9 alterations resulting from plant operation and the
10 adequacy of the water sources proposed to supply plant
11 water needs, the reviewer should take the following
12 steps and, then, it has a lengthy list there, but the
13 first one is consider appropriate plant operations,
14 operating conditions including periods of maximum plant
15 water use, minimum water availability, average plant
16 operation by month and during shut-down, and hydrologic
17 variations affecting water use.

18 My question to you is: in your experience with
19 the NRC, how would you characterize the depth or scope
20 of this kind of review?

21 A. Well, this is one of the principal reviews
22 because it deals with the availability of the plant to
23 operate safely and reliable during all types of
24 conditions. Nuclear power plants have to be designed
25 to deal with seismic conditions. We need to deal with

1 hurricanes, tornados, you know, according to the area
2 and, then, water availability becomes a critical issue
3 and, so, we have to be able to analyze and actually
4 make, you know, decisions on which type of system, how
5 we're going to use it, what type of conditions are we
6 going to be operating under. Every one of those things
7 becomes a part of the record.

8 Q. If you'll skip down to number 7, it reads in
9 consultation with the reviewer for ESRP 231, establish
10 the physical availability of the proposed water
11 sources, including consideration of the drought of
12 record for the region and the seven day once-in-ten-
13 years low flow.

14 A. Correct.

15 Q. Translate.

16 A. Translate is that they are going to look not
17 only at normal conditions or conditions of high flow,
18 but they're going to be looking at delineating
19 conditions that could affect the safety of the plant or
20 the operability of the plant. This is, then, put into
21 a staff review that considers the type of the plant,
22 the proposed water intake, the records that exist on
23 the plant and, then, the potential impact of shutting
24 the plant down, if necessary.

25 I faced, as Chairman of the NRC, dozens of these

1 decisions with nuclear power plants across the country.
2 This is nothing new to Utah or to the Green River. We
3 have actually to make decisions, in multiple locations,
4 where the plant continues operating at a hundred
5 percent power or it drops down to eighty percent power
6 or it drops down to fifty percent power or just down.
7 We shut down power plants. Every time the Hurricane
8 comes close to Florida, we shut the power plants down.

9 When the power plants are shut down, that doesn't
10 mean the time is wasted. These people are very, very,
11 very good at what they do. So, when the plant is shut
12 down, then, they do maintenance. They do things that
13 save them time or they can change the re-fueling if the
14 re-fueling is not exact on the specific time. A
15 nuclear power plant can be scheduled to operate for one
16 year and re-fuel and, then, all of a sudden, you know,
17 because of economic conditions or conditions that the
18 state or governor might come and say I have three coal
19 plants down. We need you to continue operating, pretty
20 please and, then, they actually look and they close
21 down. They come from and slowly close down in power
22 and they go from a hundred percent and slowly down to
23 ninety and the amount of water that they use keeps
24 going down.

25 They can shut down and, you know, in two or three

1 days, they only need one or two percent of their amount
2 of water. So, it's not that it's not a big deal. It's
3 a big deal to shut that asset down, but we deal with it
4 all the time. We keep doing it. We know how to do it.
5 It's perfectly, you know, within our engineering
6 parameters and I think it's something that doesn't
7 impact the operation of the plant.

8 Q. Item 9 refers to plant needs for the following
9 plant operating conditions: maximum water consumption,
10 minimum water availability, average operation by month
11 and plant shut-down. Now, you talked about shut-down.
12 Would you describe the process and how much water is
13 involved during the shut-down process and how fast shut
14 down can occur?

15 A. Well, there are two types of shut-downs. One
16 is when the operator slowly shuts the plant down, okay?
17 And that's a very orderly process that should take on
18 the order of hours, okay? When the plant is finally
19 shut down, the plant is using about five percent of the
20 water used. So, they're down, you know, ninety-five
21 percent.

22 There's another type of shut down; and that is the
23 plant shuts down because of an electrical malfunction.
24 There's lightning that hit a transformer and, then,
25 all of a sudden, you separate it from the load. The

1 turbine has to trip. The plant trips and the plant,
2 boom, quickly goes down.

3 So, it goes down a factor of ten in power in a
4 matter of ten seconds. It just goes, very quickly,
5 down and, then, of course, the power needs are less.
6 Not only the power needs are less, if the systems
7 decide that the plant needs to operate on its—let's
8 call it re-fueling water or emergency water, the plant
9 has enough water to separate itself from the river or
10 the lake or whatever the source of water was and it
11 operates internally with its own water that has been
12 stored for those purposes.

13 If we shut down, like would be in the case of, you
14 know, we're shutting down because the State of Utah
15 decides that it would be in the best interest of the
16 State of Utah to get the power plant down, a decision
17 that could be made, you know, in case of need, we will
18 be, probably, using—three days after, we will be using
19 two or three percent of the water.

20 Q. Okay. So, the upshot, then, from Exhibit 51,
21 is the question of water availability and general
22 hydrology questions. Still a lot of that analysis to
23 come as part of the NEPA and early site permit process.

24 A. There is a very rigorous process that will be
25 done. There will be hearings conducted, here, in Utah.

1 There will be participation and, specifically, they
2 will look to the State Water Engineer for assurance
3 that the proposed use of the applicant conforms with
4 the permit, conforms with the criteria that needs to be
5 utilized and there will be no license issued until all
6 those issues are actually resolved.

7 Q. Okay. Turn to Exhibit 52, please.

8 A. Sure.

9 Q. What is 52?

10 A. Fifty-two is a reg guide, Reg Guide 4.7. It's
11 published to indicate the general size suitability
12 criteria, meaning that this is what we, the staff,
13 believe fits what the safety criteria that will be
14 imposed is. It is a guide. You could do better. If
15 you do a little less, you have to justify it, but if
16 you do it just like this, then, the staff is following
17 a plan. They are more able to review it in a timely
18 manner. So, it is a guide in what you should do.

19 Q. Turn to page 4.7-6 of Exhibit 52. You'll see
20 a heading, there, again, a reference to water
21 availability.

22 A. Correct.

23 Q. That's part of the site selection and
24 suitability analysis.

25 A. Correct.

1 Q. Okay. Turn, now, to Exhibit 53, please.
2 Would you identify, briefly, what this is?

3 A. Yes. This is a publication of the United
4 States Nuclear Regulatory Commission describing, very,
5 very briefly, but with the right amount of information,
6 what the new nuclear power plant licensing process is,
7 Your Honor, that we were discussing earlier. So, this
8 is a very short, condensed version of it, but it's very
9 good.

10 Q. Okay and I've got a larger exhibit coming to
11 assist in this, but describe, generally, the public
12 input throughout the NRC licensing process, public
13 meetings, public comment.

14 A. The NRC, it's predicated on the fact that they
15 exist for the public welfare. That's the main
16 foundation that appears in the Atomic Energy Act, very
17 consistent with the, you know, requirements of the
18 state engineer that look at public welfare. So does
19 the Atomic Energy Act.

20 So, in order to assure that the public interest is
21 being completely served, the NRC provides
22 opportunities—

23 MR. WRIGHT: Sorry. Just a second.

24 [Inaudible discussion.]

25 MR. WRIGHT: Okay. Sorry. Go ahead. We were

1 talking about public input.

2 A. Right. There are points in all of these
3 processes for public input. For example, the design
4 certification. Design certification ends in rule-
5 making. So, it's not a licensing issue. That rule-
6 making goes through a public participation process.
7 The proposed rule, which is the design certification,
8 is published. It goes through, you know, comments from
9 stakeholders, the public and it's processed through a
10 series of years, sometimes as many as five years and,
11 then, eventually, once the staff reconcile those
12 comments and put them into a manner in which the
13 Commission could actually rule, the Commission rules on
14 the admissibility of the rule. Once the rule is done,
15 then, that finishes that process. Now, that, now, is a
16 rule-making. It is no longer adjudicated.

17 Q. And that rule-making is project specific.

18 A. Project specific. It's Westinghouse AP1000 is
19 the GE, Hitachi, ESPWR. Every reactor has a specific
20 rule and they're designated and you can say I want
21 reactor so-and-so and it's just like you're putting it
22 off the shelf and that's what you will get. You will
23 get a certified design that has already been approved.
24 It's safety approved.

25 Q. Okay. Would you turn to Exhibit 54?

1 A. Sure.

2 Q. Would you tell the Court what that is, please?

3 A. Yeah. It represents the three, at the left
4 side, it represents the three major processes that—
5 well, on the left side, it's only talking about two of
6 them, but the other one is implied. Talks about the
7 design certification, at the very bottom, which is what
8 I was talking by rule-making. Then, it talks about,
9 and I discussed already, the participation of the
10 public in that.

11 In the early site permit, the phase that we're now
12 conducting, just the first phase of the project, not
13 the final phase of the project, then, there will be
14 public participation in several ways. There are going
15 to be hearings that are going to be conducted in here.
16 There might be contestation and there will be
17 contested hearings and, at the end of the process,
18 there is a mandated hearing that will take place.

19 The same thing happens for the combined operating
20 license. The combined operating license will have 60
21 days, after publication of the staff acceptance of the
22 applications, that contested hearings that can start
23 and we have—the NRC has its own atomic safety licensing
24 board that actually conducts those hearings. So, the
25 public stakeholders can actually—states, you know, EPA

1 can actually come in and intervene in those processes.
2 Then, the plant it goes through the process of being
3 built and, while it is built, there is a verification
4 that the plant is being built as it was established in
5 the license [inaudible]

6 Q. Let me stop you there and ask you if you'll
7 look at the phase identified with the large blue arrow,
8 NRC Review/Approval of Application. Do you see that?

9 A. Yes.

10 Q. And, then, below that, there are two red
11 boxes: one pointing to the left, one pointing to the
12 right.

13 A. Right.

14 Q. The one pointing to the right says NRC license
15 issued. Which license are we talking about at that
16 stage?

17 A. The way that this reads, they're talking about
18 the COL license, okay? But if you actually, you know,
19 read it in general, it could very well apply, also, to
20 the early site permit, except there will be no plant
21 construction and verification because the early site
22 permit does not allow you to build anything. It just
23 says you build the plant in this site, you comply with
24 our requirements that have been prescribed.

25 Q. Okay and, then, during the phase of plant

1 construction/verification, public comment, public
2 involvement during that phase as well.

3 A. Contested hearings and, then, at the end,
4 there is a mandated hearing that has to be held.

5 Q. Now, turn to Exhibit 55, please. What is
6 this?

7 A. It's very simply trying to replicate what we
8 talked about. There are three major components of Part
9 52: the signed certification, the early site permit
10 and the combined construction and operating license.
11 What it is representing is that any one of those
12 processes, the first thing that happens is you submit
13 an application to the NRC staff and, then, the staff
14 reviews that application and, if it complies, pretty
15 well, with the staff guidelines and expectations, new
16 Reg Guidelines, everything that you're supposed to
17 have, then, the staff actually accepts the document.
18 They have 60 days to do that. Once a document is
19 accepted, then, it's docketed and it becomes a public
20 document.

21 From that point on, okay, every one of these three
22 major parts of Part 52, the design certification, the
23 early site permit and the COL, the combined license
24 application, have exactly the same type of process.
25 Every one of them ends up with the safety evaluation

1 report.

2 Q. That's what I wanted to ask. Let me stop you
3 there and ask you that. What is a safety evaluation
4 report?

5 A. Okay. Safety evaluation report, let's take
6 the case of the early site permit. In the case of the
7 early site permit, which we're dealing with, is this
8 plan good for this place? Does it really fit where it
9 should be? Is it going to be good for the people? Is
10 it going to cause no harm? Then, the safety evaluation
11 report evaluates the site safety with respect to the
12 environment and with respect to the people around the
13 site.

14 So, it's not a safety evaluation of the
15 technology, although it does include important
16 parameters from those technologies. You actually can
17 see there's the potential radiological releases. It
18 considers emergency preparedness. It considers, you
19 know, security issues.

20 So, all of those things that could impact on the
21 population, on the environment, on the water, on the
22 animals, on the fish, everything that you could think
23 of, including potential for sociological impacts. All
24 those things are considered at that time and that's
25 what the safety evaluation report for the ESP is.

1 The safety evaluation report for the COL is
2 completely different.

3 Q. That's a whole different stage?

4 A. That's a whole different stage. It's all re-
5 done, again, okay? Including reviewing the
6 environmental impact but, in this particular case, the
7 safety evaluation report considers the technology that
8 is being used and looks whether that technology can
9 satisfy the requirements of the license.

10 Q. Okay. I'd like to jump to the subject of
11 nuclear fuel. In terms of efficiency, let's start
12 there, how would you compare the productive capacity of
13 the fuel used in a nuclear reactor, say, to coal?

14 A. Well, it-gosh. I have to stop being a nuclear
15 physicist for a minute and bring myself to a courtroom.
16 Fission is one of the most, if not the most, energetic
17 processes known to man. There's more energy per
18 fission process than anything else that we know. There
19 might be some that we don't know, but people talk about
20 fusion. Fusion doesn't have as much energy per
21 interaction as fission.

22 Q. What's the difference between fission and
23 fusion, briefly?

24 A. Okay. In fission, you-fission is a very
25 natural process. It exists in nature. It's very, very

1 easy to do. You actually take one neutron and you hit
2 a heavy atom that, kind of, accepts neutrons. It, kind
3 of, likes neutrons and, when it takes it in, it splits.
4 When it splits into two or three parts, a certain
5 amount of the energy that was mass gets converted into
6 energy and that energy ends up like all processes, ends
7 up as heat and that's what we use in the fission
8 process.

9 In fusion, you take two light elements. You
10 combine it and significant amount of energy comes out,
11 again, because there is too much mass when they combine
12 nucleuses just like there was too much mass in the
13 heavy isotope that you hit for fission and, then, you
14 know, with fusion, you have to have very special
15 conditions, very-many, many reactions to actually be
16 [inaudible] Of course, the SONG is a fusion source and
17 we know-

18 Q. Compare the energy producing capability of
19 fission reaction to, say, burning coal.

20 A. Yeah. Per unit weight, the fission reactor is
21 so intense. It's about 60 million times more energy
22 per unit weight than coal.

23 Q. And how does that affect the financial
24 feasibility of a nuclear power plant with that kind of
25 energy efficiency?

1 A. Well, it's the fact that uranium, which is the
2 primary fuel that you start with, is very economical
3 and it has—it's very compact and, so, you can move a
4 core. You can use it for 18 months to three years and
5 all you have is one truck and, then, every 18 months to
6 three years, you bring another truck and you take this
7 out and put it in a pool and re-fuel. So, it's very
8 intense energy with very small amount of volumes coming
9 in and very small amount of volumes that are waste.

10 People talk about waste. Yes, there is waste and
11 they're dangerous and we handle them well, but they are
12 very small volumes of it and they're easy to handle,
13 you know, because we have the tools to handle, you
14 know, extreme radioactive physical configurations and
15 we do it all the time.

16 Q. What is the expected life span of the new
17 reactor designs?

18 A. The new reactor designs are, now, designed for
19 60 years. The regional reactors were designed, not
20 that there was a lifetime, were designed for 40 years
21 and the reason was that, when the Atomic Energy Act was
22 written, there was no experience with major
23 technological buildings or industries that were more
24 than 40 years. Nobody knew what 40 years was. So, the
25 first design and the first licensing were for 40 years.

1 The licenses are still for 40 years. You get one
2 license, first, for 40 years and, then, that license
3 can be renewed for another 20 years and that's what
4 many of our existing reactors are doing, the majority
5 of them.

6 Q. There was previous testimony using the word
7 banking to describe what can be done once an early site
8 permit is granted. What does that mean, banking the
9 site, and how does that factor-in, if at all, for the
10 Blue Castle plan?

11 A. Yeah. It's a term that is actually coming
12 from the Energy Act of 1992 as part of the statements
13 of considerations that were added into the regulations.
14 It is the idea that, because one of the issues was to
15 allow the owner-operator to make decisions when they
16 were appropriate for the conditions of the time,
17 appropriate for the technology that they were going to
18 use, appropriate for financing conditions, that you
19 could receive a license, like an early site permit, and
20 you could apply for it for ten years or you could apply
21 for it for 20 years, okay? And, then, you didn't have
22 to make the decision to go to the construction or go to
23 the next step, right there, that you can say I have
24 resolved the site suitability issues and this is a
25 major, major step and a major impact, but I don't have

1 to make the decision right away.

2 However, having said that, practically everybody,
3 but especially Blue Castle, okay? We are conducting
4 the early site permit because it is the step that fits
5 better into what we already know. We can select, okay,
6 a design certification. We can actually, you know, use
7 the early site permit and this has always been our
8 intention to proceed with the project as long as we are
9 making the right decisions at the right time as early
10 as possible. The fact is, Your Honor, I'm getting to
11 be an old man. I want to see this built before I go.

12 Q. How is Blue Castle evaluating the economic
13 feasibility of the project? How are we looking into
14 the future and you've heard testimony about de-risking
15 and all of that. How is the model being applied?

16 A. Well, in all these evaluations, there are
17 always two components. One is the component in which,
18 actually, you heard testimony. Our experts are
19 conducting modeling and looking and comparing with the
20 present marketplace and with all of the things that
21 actually contribute to make the financial or economic
22 picture, because there's a little bit of a difference
23 in there. People don't deal with the financial major
24 issues, the 12 or 14 billion dollars, until very late
25 in the process. You want to deal with it because you

1 don't want to start an interest rate or obligations.
2 You want to do all of the steps. You don't want to
3 deal with that.

4 You want to do everything to get your project to
5 the point that you can make those decisions without
6 having to be, you know, looking at, gosh, how do I make
7 those interest payments? That would be like somebody
8 that decides to build his house ten years from now, but
9 he goes to the bank and borrows the money now and,
10 then, he has to say, my gosh, I have to, now, start
11 paying this.

12 So, I don't know of anybody, anybody, in the
13 industry that actually, you know, is considering
14 borrowing money because they know there are multiple
15 mechanisms to deal with that will come into play. This
16 is a great country. This is a country where still
17 private industry is prime and the opportunity to do
18 great projects is always there. People that see a good
19 project would actually come and there will be financing
20 mechanisms to do it.

21 So, to answer your question, there are models.
22 There are comparisons. There are great, great, work
23 done in trying to establish what the option value is,
24 but there's also, on the side of that, there are real
25 numbers, okay? One of the-my problem is that I am in

1 contact with most of the real numbers. I see what
2 people are doing and what people are paying and what
3 people are contracting and, therefore, I can advise
4 Blue Castle, considering all the models, that this is
5 the time to move this step. This is the step to move
6 in this direction.

7 I don't have to say how I know, but I think, at
8 least half of the time, they believe me and I said
9 there is no reason to hurry right now. Let's learn
10 from all the people that are building these. Let them
11 learn from their successes and their mistakes. Let the
12 waters settle down and, then, you know, because we have
13 such a great opportunity in this great state, then, we
14 can move and we will move at the right time with the
15 right price.

16 Q. In terms of cost of production, we've talked
17 about the expense of building a nuclear power plant.
18 Obviously, it's extraordinary, but once a plant is
19 built, how does a nuclear power production of
20 electricity compare in terms of the O and M costs and
21 ongoing operations of a plant compared to, say, a gas-
22 fired plant or a coal-fired plant, other sources of
23 base load power?

24 A. Well, from the thermal plants.

25 Q. Yes. Yes.

1 A. Okay, from the thermal plants. You know,
2 hydroelectric is still, you know, very, very low cost,
3 but production cost, but there's no more hydro to be
4 had. So, that's out of the picture for new plants, but
5 even historically, okay? Since the late 1990's, the
6 production costs of nuclear power plants, which is the
7 other part of the financial picture, because there's
8 two costs: the initial costs and the costs of
9 operating the plant and generating electricity. It,
10 first, was very competitive with coal and, then, it
11 became a little cheaper than coal and, now, it is a
12 little cheaper than coal and gas, even today.

13 So, the production cost is still, you know, an
14 advantage for nuclear power plants. Of course, that's
15 not the only cost. There is the high cost at the
16 beginning and this cost. The thing is that nuclear
17 power has an advantage that no other source has. It is
18 the predictability that that cost will remain.

19 So, if you have a nuclear power plant and are
20 producing, you know, a thousand megawatts, 1,200
21 megawatts, you can enter into long-term contracts and
22 the business people can count on the dependability of
23 that cost. There might be some small adjustment, but
24 they can look at it and say I'm going to pay ten cents
25 per kilowatt hour for the next three years.

1 That's the value of nuclear power to the business
2 community, to the rate payers. It is the
3 predictability of the cost going forward. It keeps
4 very stable year-after-year. Allows people to make
5 plans and allows people to actually know what they're
6 going to be paying.

7 Q. There was some testimony, previously,
8 concerning cost overruns at the—I think it was the
9 Georgia facility, the Vogtle plants. Are you familiar
10 with those?

11 A. Yes, I am.

12 Q. And tell me what you know about the references
13 to cost overruns at Vogtle.

14 A. Well, I think a reference was made that the
15 Public Service Commission of Georgia had stated that,
16 if it were today, the plant would not be built. I
17 believe that to be completely correct.

18 Q. And what is the source of that statement?

19 The source of that statement is you can go and,
20 like I did. I went to the Vogtle plant and Googled it
21 and the statement is from a consultant, to the Public
22 Service Commission, who made a study which is partially
23 restrained and, if you read the heading only, and don't
24 read more than the heading, then, you could be
25 confused. It says commission and, then, it's got—but

1 the Commission had nothing to do with the statement.
2 The statement was not from the Public Service
3 Commission. It was from a consultant. His name is
4 Phillip Hyatt and the other statement was that a
5 retired commissioner commented, not serving, that yeah.
6 That gives him some pause to think about it, but it's
7 not a Public Service Commission.

8 Q. I also need to ask you about the anticipated
9 purpose for use of the proposed reservoir that will be
10 at the plant site, approximately 2,000 acre foot
11 reservoir. It's part of the application process that
12 we're involved in. What's the use or purpose of that?

13 A. Well, the principal use and purpose of that
14 was to be a good neighbor. The reality is that, for
15 the purpose of safety, we don't need, you know, a
16 reservoir. Your Honor, since I was allowed to have
17 these cheating pieces, can I read this?

18 Q. What is it you want to [inaudible] You may be
19 getting ahead of me. Oh, sure.

20 THE COURT: Should we mark that so we know what
21 he's reading from?

22 MR. WRIGHT: Yeah.

23 MR. FLITTON: Yes.

24 THE COURT: If you don't mind and let Mr. Flitton
25 know which one that is.

1 A. Your Honor, while they're doing that, the
2 wording is from the NRC. I just shortened it.

3 THE COURT: Are you sure which one that is, Mr.
4 Flitton?

5 MR. WRIGHT: Oh, sorry.

6 MR. FLITTON: Yeah, which one is it?

7 A. It's Reg Guide 1.27. This is the—

8 THE COURT: This is Exhibit Number 74. Thank you.

9 Q. Identify what it is, the source of the stuff
10 on the page?

11 A. Yeah. The source is the United States NRC
12 Regulatory Guide 1.27 and I took the liberty of taking
13 pieces from it and just transposing it and I think I'm
14 just going to, first, read the bottom of it. It says a
15 sample of sinks that have been found acceptable by the
16 staff are as follows. A large river. Is Green River a
17 large river? It is a large river. It is a very large
18 river.

19 Q. Four million acre feet.

20 A. A large lake; an ocean; two spray ponds; a
21 spray pond and a reservoir; one spray pond and a river;
22 two mechanical draft towers with basin, which is what
23 we're going to have; and one mechanical draft tower
24 with basin and a river, which we have; a mechanical
25 draft tower with basin and a lake. We don't have a

1 lake; cooling lake with a pond; or two wet dry force
2 draft towers.

3 So, fundamentally, to satisfy the conditions for
4 safety, we do not need a 2,000 acre reservoir, but we
5 can use it if we want to, but we cannot take credit for
6 it in the safety analysis. It doesn't have to be
7 seismically, you know, reinforced. It could be a
8 reservoir and the main reason that we suggested this
9 was in the case of low flows, okay? And in the case
10 there is a need for power in the region that we might,
11 we might, be able to maintain a certain amount of power
12 by using water from the reservoir.

13 Now, we're using water from the reservoir, our own
14 power, there's no credit for safety reasons, but we
15 don't need it because we have the two mechanical tower
16 with bases and we have the river.

17 Q. Okay. Let me stop you there.

18 MR. WRIGHT: Your Honor, I've, probably, got
19 another, maybe, 20 minutes or so, give or take.

20 THE COURT: Is everybody ready for a break?

21 MR. WRIGHT: I was just wondering, now would be a
22 good time to break and, then, I can finish.

23 A. I'm just getting warmed-up.

24 THE COURT: Dr. Diaz, you'll have plenty of time
25 this afternoon. Want to come back at 1:15?

1 MR. WRIGHT: Okay.

2 THE COURT: Give everybody about an hour break?
3 Court will be in recess until 1:15. Thank you.

4 BAILIFF: Please rise.

5 [Recess.]

6 BAILIFF: --the Honorable Judge George M. Harmond,
7 Jr. presiding.

8 THE COURT: Please be seated ladies and gentlemen.
9 We're back on the record in Emery County Case 1207009,
10 Heal Utah, et al. v. Kane County Water Conservancy
11 District, et al. Counsel for all parties is present.
12 Dr. Diaz was on the stand. If you would come back up,
13 please, Sir.

14 DIRECT EXAMINATION OF DR. DIAZ CONTINUED

15 BY MR. WRIGHT:

16 Q. Dr. Diaz, when we left off, we had covered a
17 little bit about water use. I would like to ask a last
18 question on that issue. Will there be, or is it likely
19 there would be a difference between water use at a
20 nuclear power plant between the winter and summer
21 months?

22 A. Yes. All power plants that are subjected to
23 seasonal conditions see changes in the water use
24 because, when the water is hotter, then, the plant uses
25 a little bit more water. When the temperature of the

1 water is cool, it uses less water. So, in the case of
2 Blue Castle, we will expect to have the maximum use
3 will be around 70 cubic feet per second, but in the
4 winter, it will, probably, be lower than that.

5 Q. Okay. Now, I would like to ask you about
6 ongoing activity in the nuclear industry in the United
7 States. Currently, are there reactor licensing and
8 construction permits and activity ongoing?

9 A. Yes. There are ongoing activities, although
10 final issuance of license has been suspended until
11 September, October of 1914. So, a long, involved
12 discussion. There is a-

13 Q. 2014?

14 A. 2014.

15 Q. Yes. You said 1914.

16 A. Oh. That's because I'm old.

17 Q. Okay. How many pending new applications are
18 there at the NRC?

19 A. There are 14 active applications for a
20 combined operating license at the NRC.

21 Q. Okay. How many are--there may have been prior
22 testimony on this. I think there was. How many
23 reactors are currently under construction?

24 A. Well, there are four on their Part 52 and one
25 on Part 50. So, five total.

1 Q. Would you describe, briefly, how a reactor
2 license renewal works?

3 A. Yes. After a reactor has been operating for
4 many years, and three years, at least, before the
5 license expires, the applicant can apply for a so-
6 called license renewal which gives them the right to
7 apply and, then to obtain the license for an additional
8 20 years of operation.

9 Q. And what are the requirements for a renewal?

10 A. The requirements are that you comply with a
11 so-called life cycle management program. In other
12 words, there is a well-established process that tries
13 to, in every possible aspect of safety, covers the
14 aging of components, especially those components that
15 are either hidden or they are static, that they don't
16 receive every day maintenance like the rotating pumps
17 and turbines and generators and you have to have a
18 complete life cycle management program that assures the
19 NRC that the safety of the plant is the same ten years
20 after as it is when you started the plant.

21 Q. What kind of expense is involved in license
22 renewal?

23 A. Well, there are significant expenses. Most of
24 the plants, when they apply, there are a few years
25 before the 40 years and, so, there is a significant

1 enhancement of the plan. In fact, I would say, the
2 plants become more reliable because there are
3 components that are aging that are replaced. That
4 includes transformers, grates and turbine generators,
5 pumps. Many plants do steam generator, which are one
6 of the largest components of the plant, and many of the
7 plants couple the life extension that gives you 20
8 years of license with a power upgrade, meaning they're
9 going to increase the reactor power. Because they're
10 going to get 20 years of license, that becomes an
11 investment that is now going to be used for 20 years.

12 Q. How many license renewals have been granted in
13 the United States as of-to date.

14 A. There are 66 reactors that have received a
15 license. Sixteen units are in the process of getting
16 the license and nine have given their intention to
17 renew.

18 Q. Okay and would you tell the Court what an
19 uprate, power uprate is?

20 A. Yeah. An uprate is the increase in the amount
21 of thermal and electrical power that a nuclear reactor
22 actually is allowed to generate and it, normally,
23 consists of changes to the secondary side of the plant,
24 you know, the turbine, generator, condenser, everything
25 that is tied-on to the steam cycle and that is a major

1 investment that many plants couple with the license
2 renewal.

3 Q. And, to date, how many power up rates have
4 been granted in the United States?

5 A. A hundred and forty-eight as of today.
6 Sometimes, I've done two. Even some of them have done
7 three. The maximum that they can do is twenty percent.
8 Some have done it at one time. Others have done it a
9 different time. We are talking of investment of
10 billions of dollars to maintain these plants in top
11 operating condition and to generate additional power.

12 Q. Are there any current uprate requests pending?

13 A. Yes. There are several pending right now.
14 There are some that have just been finished. Just
15 recently, I was involved in the power upgrades of
16 Florida Power and Light. They actually uprated the
17 power of their four units: St. Lucie 1 and 2, Turkey
18 Point 3 and 4 and they spent over, say, a five year
19 period \$3.128 billion to uprate those plants.

20 Q. And how does this ongoing activity in the
21 United States, nuclear power activity, how does that
22 inform or affect your opinion as to whether the Blue
23 Castle project is economically feasible?

24 A. Well, it's a tremendous amount of good
25 information. The infrastructure is being maintained.

1 Essentially, the majority of the power plants have or
2 are renewing their license. Half upgraded their power.
3 They may investments to actually continue safe and
4 reliable operation. So, it's an indication that this
5 country, which has the largest amount of nuclear power
6 in the world, is capable of continuing to maintain that
7 infrastructure at a level that is profitable, that is
8 good to the economy of the country that provides a
9 diversified portfolio. So, it's a really important
10 aspect of the energetics of this country.

11 MR. WRIGHT: That's it, Your Honor. Thank you.

12 THE COURT: Thank you, Mr. Wright. Mr. Flitton,
13 cross-examination?

14 MR. FLITTON: Yes. Thank you.

15 CROSS-EXAMINATION

16 BY MR. FLITTON:

17 Q. Good afternoon, Dr. Diaz.

18 A. Good afternoon.

19 Q. You're quite the advocate for nuclear power,
20 are you not? You're quite an advocate for nuclear
21 power?

22 A. I have never been called an advocate for
23 nuclear power, Sir. I have been called an expert. I
24 have been accused by the nuclear industry of being very
25 strict. I have been—but I've never been called an

1 advocate. I am actually an expert that sees that
2 nuclear power fits this country and I express my
3 opinion on it.

4 Q. What's your opinion of nuclear power?

5 A. My opinion of nuclear power is that nuclear
6 power that is safe and reliable should be a component
7 of the energy portfolio of this country.

8 Q. And nuclear power is the only industry, power
9 industry or energy industry, you worked in?

10 A. Mostly it is, yes, Sir.

11 Q. Okay. You said your tenure at the NRC was ten
12 years, correct?

13 A. That's correct.

14 Q. Okay and you left on, I guess, the first day
15 of you being gone was July 1st, or is that the last day
16 that you worked of 2000-

17 A. The last day, I worked until midnight on June
18 30, 2006.

19 Q. Okay and what did you do immediately following
20 that date?

21 A. Wow. That's a good question. I went home,
22 relaxed. I actually took a train with my wife back to
23 Florida. Went to my beach house and relaxed with my
24 family for several months.

25 Q. Okay and, then, at that point, professionally,

1 what did you do?

2 A. Gosh. I think that—I don't remember. There
3 was nothing directly involved. I spent quite a bit of
4 time just readjusting to my new life and, then, after
5 that, I believe I was engaged by Hitachi, one of the
6 Japanese companies, to look at the potential deployment
7 of Hitachi units in the United States and the rest of
8 the world.

9 Q. Okay. When did you start your association
10 with Blue Castle or, I guess, it's predecessor, maybe,
11 Transition Power?

12 A. I think it was in the fall of 2007.

13 Q. Okay and how did you come to be in contact
14 with Blue Castle?

15 A. Sure. I was actually at a meeting of the—it's
16 called the Utilities Workshop for the American Nuclear
17 Society and the utilities and the NRC actually go to
18 that meeting. I was in that meeting and, then, the
19 Blue Castle folks approached me and said they wanted to
20 talk to me about potential involvement and we sat down
21 and we talked and, then, after that, we started doing
22 some things together and that's how the relationship
23 began.

24 Q. And you said you were a shareholder in the
25 company, correct?

1 A. I am a shareholder of the company. That's
2 correct.

3 Q. What percentage of the company shares do you
4 own?

5 A. I think it's about eight percent.

6 Q. Eight percent and you said that you've made a
7 capital investment in the company?

8 A. That is correct.

9 Q. And how much was that?

10 A . I think, if I look at all the gift to my
11 family and to buy shares and myself, I think it was
12 \$53,000, around there.

13 Q. Okay. So, you have other family members that
14 are shareholders as well?

15 A. Uh-huh [affirmative].

16 Q. How many?

17 A. Four. I'm sorry, three. Three.

18 Q. Okay. So, that would be who? Your wife?

19 A. Well, actually, my wife is with me. There are
20 my three children and, I think, one of my, I think, my
21 daughter-in-law's.

22 Q. So, taken altogether, is the percentage of
23 ownership higher than eight percent, or does that
24 include them?

25 A. No. That includes them.

1 Q. Okay and, then, you also sit on the board of
2 directors?

3 A. Correct.

4 Q. Okay and you're the strategic—what is it? The
5 strategic planning officer? Is that what it's called?

6 A. I think it's called Chief Strategic Officer.

7 Q. Chief Strategic Officer and what, exactly,
8 does that job entail?

9 A. It, as I discussed or informed the Court this
10 morning, it involves trying to make or influence to
11 make the right decisions for the continued development
12 of the Blue Castle project, both on the regulatory
13 side, as well as the commercial decisions that are
14 being made, relationships. So, it is, in a certain
15 way, providing guidance on the direction of the
16 company, at first, to deploy two reactors in Green
17 River, Utah.

18 Q. And how do you provide that guidance? I mean,
19 do you—

20 A. How do I provide that guidance?

21 Q. Yeah.

22 A. Well, I provide that guidance by interacting,
23 all the time, with the other officers of the company.
24 We have a minimum of two conferences every week and
25 that's—when I say a minimum, it's, normally, there.

1 There are three or four. I come to Utah. We attend
2 conferences together. I go to conferences and meetings
3 representing the company. So, I try to maintain a
4 complete awareness of the issues that are important to
5 the company.

6 Q. So, you would characterize your job or your
7 management as pretty hands-on?

8 A. I don't know that I will say—I don't know what
9 hands-on means, but I would say that I am cognizant of
10 the issues and I provide expert opinions on the
11 direction of issues, but I don't dig holes in the
12 ground. I don't build things. I don't do, you know, I
13 don't do any—drive anybody around or do any of those
14 things.

15 Q. What about the NRC? Do you interact on the
16 NRC—

17 A. Yes, I do.

18 Q. -on the permit application? Are you the point
19 person for that?

20 A. No.

21 Q. Who is?

22 A. Tom Retson is.

23 Q. Okay, but you're involved in the discussions
24 with the NRC?

25 A. I minimize my interaction with the NRC because

1 I'm very conscious that the staffers and the people in
2 the NRC would appreciate it if I don't get directly
3 involved on the issues since I was with them for so
4 many years. So, I avoid the day-to-day involvement,
5 but I have, for example, taken my partners to see the
6 commission officials and visit them. So, I do maintain
7 a certain distance with the NRC.

8 Q. Okay. Let me--what is the NEI? Do you know?

9 A. The NEI?

10 Q. Yes.

11 A. Yeah, the Nuclear Energy Institute.

12 Q. Okay and what is that?

13 A. The NEI is the levying arm of the nuclear
14 power industry. They also have the responsibility to
15 deal with the regulatory issues. So, there is a
16 mixture of functions. The main function is to interact
17 with the NRC on behalf of the industry, inform the
18 industry what the NRC is doing, attend the NRC
19 meetings, provide reports to both the industry and the
20 NRC and, then, they actually also levy Congress on
21 behalf of the industry.

22 Q. What role do they play in the selection of NRC
23 commissioners?

24 A. What role do they play?

25 Q. Uh-huh [affirmative].

1 A. The role of a stakeholder.

2 Q. Okay. I mean, are they involved in the
3 vetting process and approval process?

4 A. Of the commissioners?

5 Q. Yes.

6 A. I don't know that they are involved. I'm sure
7 that, you know, senators or congressmen will ask them,
8 like they are free to do, of the opinion of this and
9 that, but the vetting process is a very, very serious
10 process and people in Washington take it very
11 seriously.

12 Q. Just help me understand, exactly, how often
13 the commissioners are seated, how often they are
14 chosen, and how that whole process works. I assume
15 they, sort of, rotate through the Commission?

16 A. Sure. There are five commissioners. All of
17 them have to be, essentially, selected and, then, the
18 President provides their nomination to the Senate. The
19 Senate, then, when it reviews the case and [inaudible]
20 and, then, eventually, the Senate will actually approve
21 or not approve a nominee and, if he's approved, then,
22 the President appoints them. He's appointed for five
23 years. So, every commissioner serves for a term of
24 five years if they start at the beginning of the term,
25 or a little bit less if they start sometime later and,

1 then, one comes every year. One of the commissioners
2 is selected as chairman.

3 Q. Okay. So, during your tenure, and even after,
4 if you're aware, was there anybody that was selected
5 that ended up not being appointed?

6 A. Yes. Yes, there are. I believe there are two
7 persons that were nominated, through the years, that
8 were never confirmed and there were, oh, I would say,
9 to my knowledge, approximately ten individuals that
10 started in the vetting process that never were
11 nominated.

12 Q. So, the two that were never confirmed, what
13 was the reasons for that?

14 A. I don't know. That's before my time, but I
15 believe, like other nominees for other offices in any
16 of the independent agencies, there were probably
17 conflicts with one of the things they have done or a
18 senator was just—didn't like what somebody had done or
19 said and, then, therefore, they opposed the nomination.

20 Q. Were there any of these individuals, that
21 didn't make it through the process, that started or
22 that weren't confirmed? Was it because of conflicts
23 with the industry itself?

24 MR. WRIGHT: Your Honor, objection. I don't see
25 the relevance.

1 THE COURT: This is way beyond the scope of direct
2 examination. Why do we need to talk about this?

3 MR. FLITTON: Well, because they brought up his
4 experience as Commissioner. I mean, they put that into
5 play and I just want to see what that experience.

6 MR. WRIGHT: Well, you haven't asked about-

7 THE COURT: Well, then, talk to him about his
8 experience as Commissioner, not about [inaudible]

9 MR. FLITTON: I am. I'm getting there. I just
10 want to understand how the process works. Well--

11 THE COURT: There's no proof that he was
12 commissioner, but nobody asked him about the political
13 underpinnings of becoming a commissioner and I don't
14 think we need to get into that in this-

15 MR. FLITTON: Well, I think it's relevant. I
16 think what's relevant about this is-

17 THE COURT: How is it relevant? How does it make
18 any fact at issue more or less probable?

19 MR. FLITTON: Because I think, if the Nuclear
20 Regulatory Commission is pro-nuclear in terms of
21 looking at industry, then it does cover all the things
22 that go on.

23 THE COURT: How does that help me make a water
24 decision?

25 MR. FLITTON: Because it goes to the study. It

1 goes to NEPA. It goes to the process that we're
2 talking about here. They put him on the stand to
3 provide evidence that says, look. All these things are
4 going to be taken care of because the NRC is concerned
5 about all these things. I'm not so sure that that's
6 true.

7 THE COURT: Well, the objection is sustained.

8 MR. FLITTON: Okay. Let's move on, then.

9 Q. Okay, talking about your professional
10 activities, you said that you've done some consulting
11 work. I actually couldn't hear you, when you were
12 testifying, what the name of your small consulting
13 company or your-

14 A. The ND2 Group.

15 Q. ND2?

16 A. Uh-huh [affirmative].

17 Q. Okay and when was that formed?

18 A. I believe it was late 2008.

19 Q. Okay and are there other members of that firm?

20 A. It's solely owned.

21 Q. It's just you?

22 A. Just I own it.

23 Q. Okay.

24 A. Only I own it.

25 Q. And, then, you said you, primarily, do policy

1 consultation or advice?

2 A. That's right. I do policy consultation for
3 governments, although I do some works. I've done some
4 work, recently, for the Department of Energy. Two
5 years ago, I was hired to look at the nuclear weapons
6 complex. So, there are multiple issues that I deal
7 with and, each one of those, I try to attain the level
8 of policy advice. In other words, I no longer get
9 hands-on or drive spikes in the ground or do any of
10 those things, but I maintain myself at a level where
11 decisions are going to be made. I provide expert
12 advice in those—

13 Q. Okay. So, what areas fall within this policy
14 advice you give? I mean, are you talking about the
15 whole spectrum or are they—I don't understand exactly
16 what that means.

17 A. Well, let me give you examples. I give expert
18 advice on the deployment of nuclear power plants where
19 there is, you know, pertinent, appropriate, convenient,
20 the size, the technology, the amount of power. I have
21 worked as analyzing the portfolios and look at how
22 nuclear power actually fits. I have done work for the
23 Department of Energy looking at different options that
24 they have in their programs. I have done some work in
25 the nuclear weapons complex. I have done work on the

1 decommissioning side both for the United States and for
2 the United Kingdom. I looked, extensively, at the
3 issue of waste from weapons and waste from nuclear
4 power plants. I provide advice to Chile on what type
5 and when was it appropriate to develop a program,
6 because they don't have any indigenous resources.

7 So, it's a series of issues that actually are
8 mostly in the top area of expert advice and decision-
9 making. I don't look at the details of the power plant
10 anymore. I look at what type of power plants. How
11 does it fit in the regulatory process? How does it fit
12 in the deployment process? How does it fit in the
13 economic? What are the experiences or what are the
14 expected experiences? Is it easy to operate? Is it
15 not? Those type of issues.

16 Q. Okay. So, I guess, in terms of using the term
17 policy, what you're really saying is you're a
18 consultant on a broad range of issues for a variety of
19 clients, right?

20 A. [inaudible] issues, but not downing what I
21 would call pole-digging. It's at the higher level.

22 Q. Okay and have you—since you left the NRC, have
23 you advised clients with respect to the permitting
24 process? Have you been involved with clients in the
25 permitting process for a nuclear power plant?

1 A. Yes.

2 Q. How many?

3 A. Four.

4 Q. Four? And which plants are those?

5 A. Do I need to answer the details of who I work
6 with?

7 MR. WRIGHT: Your Honor, I think what Dr. Diaz is
8 concerned about is, perhaps, some proprietary
9 information that's, probably, not relevant. Perhaps he
10 could speak in broad terms about what he's done.

11 MR. FLITTON: Well, what I intend to ask him is
12 where those are in the process and what's happening
13 with those and I'd like to be able to know what permits
14 there are.

15 A. I can tell you one, but it's general, that
16 it's going very well. It's Abu Dhabi. I participated
17 in the formation of the Arab Emirates and, especially,
18 advise them on the issue of [inaudible], advise them on
19 the issues of what technologies were appropriate and
20 advise them on the issues of the schedule of deployment
21 and, so, I took them through the very first steps for
22 the first two years and, then, I decided that that was
23 as appropriate as it was for me and, then, I left.

24 Q. Well, what I asked you was the permitting
25 process.

1 A. Well, this includes the permitting process.

2 Q. But that plant is being permitted by, I would
3 assume, Abu Dhabi.

4 A. Right. Right.

5 Q. Okay. I should have been more careful. I
6 want to know how many clients that you've been working
7 on this permitting process through the NRC with.

8 A. You mean after I left the NRC?

9 Q. Yes.

10 A. After I left the NRC, the only plants that I
11 have worked on the permitting process was for Blue
12 Castle. Nobody else.

13 Q. Okay. So, when you say there were four, I
14 assume—and you mentioned the Abu Dhabi plant, those are
15 all outside the United States?

16 A. That's right.

17 Q. Okay.

18 A. Well, actually, let me re-phrase that. I have
19 been working with Florida Power and Light on multiple
20 aspects that, you know, includes the water issues.
21 That was a complete, separate issue, but it mostly
22 includes what is called the need determination and
23 nuclear cost recovery, but in a certain way, and it
24 normally happens in these things, you get into
25 discussions of permitting, but my charge was not the

1 licensing of those plants. I contributed to the
2 overall perspective that the company has on it, but it
3 was not my job. So, I don't consider that as one, but
4 it, probably, should be, Florida Power and Light.

5 Q. How involved, as a commissioner, are you in
6 the NRC, going back to the NRC? How involved, as a
7 commissioner, are you or were you in, sort of, the NEPA
8 review process and all those things? I mean, is that
9 stuff that's done by staff below you? When does the
10 Commission get involved in the process?

11 A. The Commission gets involved whenever they
12 want to, but the Commission actually makes the
13 decisions. So, if the plant is under the licensing
14 process, we don't get involved practically in the pre-
15 application, which is where, for example, Blue Castle
16 is. So, the Commission just is informed that this is
17 in the fee application process. Once the application
18 is submitted, then, the staff does a review and,
19 practically, we don't see that, but once it is
20 docketed, then, the staff off the Commissioner receives
21 the report and the staff of the Commissioner makes an
22 analysis, takes the most important aspects that have
23 been docketed and, then, the Commissioner is briefed.
24 According to the particular interest in the case, you
25 can go very deep into it or you can go very light on

1 it, yes. It's your choice.

2 Q. How many applications were approved during
3 your tenure as the Commissioner?

4 A. How many—

5 Q. Licenses?

6 A. -applications? Licenses?

7 Q. Well, let's break it up so that it's not
8 confusing. How many Part 52, you know, ESP's were
9 approved when you were Commissioner?

10 A. Well, there were many on the review. In other
11 words, the ESP's, I directly worked, extensively, with
12 the ESP for Dominion because there were, precisely,
13 some water issues involved in there and there was the
14 issue of continuity between the federal regulator and
15 the state regulator. I was less involved with the
16 other ESP's because they didn't seem to have any
17 particular issues. Normally, when there is an issue
18 and there's a problem, you actually, you know, zero-in
19 on it to try to see if you can help solve it.

20 There were several applications that came in, but
21 I was—I already left the NRC when the applications were
22 granted. When the licenses, only the first licenses,
23 were granted in 2012. So, that was almost six years
24 after I left.

25 Q. How many licenses under Part 50 were granted

1 while you were there?

2 A. Under Part 50? Well, there were, essentially,
3 one license under Part 50 that actually was renewed
4 because it was idle. That was Brown's Ferry and
5 Brown's Ferry just was under Part 50 and the reactor
6 was shut down and, so, we actually processed that
7 application. I went to Brown's Ferry, myself, a couple
8 of times to see what the plans were, what the issues
9 were. So, at the time was when the so-called nuclear
10 renaissance—a term that I never liked—started. The
11 issue at the time was how do we make the federal
12 process of licensing plants more efficient and
13 effective, at the same time maintaining it open and
14 [inaudible] to the public. Those were the issues that
15 dominated during the years that I was there.

16 Q. Okay. So, just to make sure that I
17 understand, during your tenure as a commissioner, there
18 was only one license that was granted and that was the
19 renewal of the Brown's Ferry?

20 A. It was not granted. It was re-started.

21 Q. Okay, re-started.

22 A. Right.

23 Q. And that was it? Everything else came after?
24 I mean, things that were in the pipeline came after
25 you left?

1 A. Well, I don't—you know, the way you're
2 expressing doesn't do honor to the NRC. Work continues
3 and we work very hard, sometimes seven days a week.
4 There were--every license amendment that comes to the
5 NRC, every time something changed in a nuclear power
6 plant, that required a license amendment. That
7 requires the staff accepts it, adopts it. The
8 commissioner needs to look at it. So, we are
9 constantly being made aware of issues.

10 So, how many license amendments? Four thousand.
11 Okay, you want numbers, but the process to do Part 52,
12 that was under my tenure. We actually re-worked it,
13 re-do it, upgraded it and made it better.

14 Q. Well, and I want to be clear. I'm not saying
15 that the NRC was not doing its job or doing anything
16 else. What I just am trying to figure out is how—you
17 know, what the market looks like. How many
18 applications were in the process? How many licenses
19 were granted and I think you've answered that. So, I
20 appreciate that.

21 Okay, let's talk, a little bit, about the Blue
22 Castle process. You said that, in your view, the
23 process right now—and I assume you were talking about
24 the NRC application process, that that's been moving a
25 little bit slow, right?

1 A. Right.

2 Q. And why is it moving slow?

3 A. I'm looking at it.

4 Q. The lawsuit? Is that what you're implying?

5 A. Absolutely.

6 Q. And how does that effect the work on
7 processing the application, collecting the information
8 for this application?

9 A. Well, if we do not have the water permit, I
10 mean fundamentally, we cannot do the real work of
11 completing the early site permit as I think the Utah
12 State Engineer--this is why all power plants--not only
13 all power plants, all industrial complexes, everybody
14 that needs or uses water for beneficial uses, okay,
15 does that first because that is a condition for you to
16 be able to do all the other things.

17 So, we needed to concentrate our efforts, you
18 know, all the efforts into making sure we provide the
19 best answers, we provide the best documentation, we
20 dedicate our intellectual efforts and resources to this
21 process and that's what we're doing.

22 Q. Are you saying it's this litigation that's
23 causing this and, yet, Intercon has been doing work
24 throughout the whole time that this case has been out
25 there.

1 A. Well, that's correct, but as you heard from
2 Intercon, the process has slowed down, a little bit,
3 and the reason it's slowed down because we needed to
4 put our efforts into this. It's just we're no
5 different than anybody else. If we—you know, we are
6 putting our resources where they do the most benefit
7 and that's what everybody does. We are putting our
8 resources in resolving this issue because this is a
9 primary consideration. We think that deployment of
10 these reactors in Utah is a very good thing. We also
11 realize that the water is essential for us to continue
12 with the process and there is no reason to continue
13 doing everything else in the world unless we have made
14 our best effort to obtain the water permit and make it
15 permanent.

16 Q. Do financial considerations have—

17 A. Excuse me?

18 Q. Do financial considerations have a part in the
19 slowing-down of the process?

20 A. I think so. I think financial considerations,
21 whether we are going to invest money on an issue that
22 might not be going anywhere, is, certainly, an
23 important consideration. So, we are, just like any
24 other business people, putting our best foot forward,
25 putting our resources where we need to be.

1 Q. What is the company's current financial
2 situation?

3 A. I don't understand the question.

4 Q. What I mean is does the company have funds
5 available—

6 A. Yes.

7 Q. If it chose to go forward, it would be able to
8 do so immediately?

9 A. We have funds available to continue with the
10 ESP and we continue with the process of developing our
11 resources.

12 Q. So, lack of funds is not part of the reason
13 for the slow down?

14 A. Lack of funds—

15 Q. Present lack of funds?

16 A. Lack of funds for continuing accelerating the
17 process might be, but it's not the determinate. The
18 determinate is that businesses put their resources
19 where they think they are and businesses slow down or
20 accelerate in accordance with advantageous or
21 disadvantageous, you know, conditions. We are making
22 business decisions that anybody in his right mind will
23 do and that's what we're doing.

24 Q. But, I mean, Intercon bills you, every month,
25 when they are working on this project, correct?

1 A. Yes, they do and they get [inaudible]

2 Q. Okay. So, that's a pretty immediate decision,
3 is it not? Do we have the money to be able to satisfy
4 those bills?

5 A. They get paid. They bill us and they get
6 paid.

7 Q. Okay and, so, let me ask it one more time. Is
8 that a consideration, that you don't want to have to
9 pay that money, right now, that you slowed-down the
10 process?

11 A. I don't know. I haven't even discussed that
12 with my partners. I think we are considering that this
13 is the most important thing that we have to do and the
14 decision on the water impacts on everything else.

15 Q. When was the decision made to slow-down the
16 process, then?

17 A. I don't know that there was a point in time
18 where we made a decision to slow down. We just
19 continued doing the amount of work that we thought was
20 necessary and, then, we started to put our focus into
21 this arena.

22 Q. Okay. I don't exactly understand what you're
23 saying.

24 A. I don't understand what you mean.

25 Q. I mean, it seems like it was a decision

1 process, right? That you said-

2 A. I don't think there was a decision process
3 where somebody, like the board, got together and said
4 we're going to do this. I think there was multiple
5 decision paths that is guiding the company and doing
6 the right thing at the right time. I think we have the
7 right to do that.

8 Q. Okay. So, let me just see if I understand
9 what you're saying. That there wasn't an actual
10 decision to slow down; just that you started focusing
11 your efforts somewhere else and it naturally slowed-
12 down on the application side?

13 A. It's a combination of things. I cannot put my
14 finger on any one of those.

15 Q. Let me ask you a question about—since you say
16 that you've advised Blue Castle on a lot of these
17 issues, I have a question about how the quantity of
18 water that's necessary for this plant was determined?
19 Were you involved in that process?

20 A. Sure. If I'm not involved, I check on it. We
21 have a range of powers that describe the possible
22 technologies; that is 2,200 megawatts electrical to
23 3,000 megawatts electrical. That's the largest that we
24 do. We have not only looked at published tables of
25 what is used or what experts—we actually consulted with

1 experts on the field what would be the best ways of
2 providing cooling using water more effectively. We
3 look at actual plants, like Palo Verde, how much water
4 they use. They are in similar climates and, then, we
5 look at what are the new technologies. What are
6 improvements that are being made? And, so, we have a
7 range of power levels and a range of technologies and a
8 range of cooling and we make sure that whatever we need
9 is below the level that this permit would approve.

10 Q. How much water—or, how big is Palo Verde in
11 terms of megawatts?

12 A. I think Palo Verde is 3,600 megawatts.

13 Q. Okay and how much is—is it 3,600, then? How
14 much water does it use?

15 A. I don't know. I think—I don't know.

16 Q. Well, didn't you review that in looking at it?
17 I thought you said—

18 A. Yeah, but I don't remember everything that I
19 look at.

20 Q. Okay and what type of reactor is Palo Verde?

21 A. It's a pressurized water reactor.

22 Q. Okay. So, when you calculated that you would
23 need 70 second feet, that was what you calculated to
24 be—

25 A. I did not calculate that.

1 Q. Who did?

2 A. The experts in the field. I did check the
3 number against compatible numbers and it is compatible.

4 Q. So, you, basically approved it?

5 A. I re-checked it by myself, right.

6 Q. Right, okay, and, so, in your view, that's
7 sufficient water for a 3,000 megawatt power plant?

8 A. It is sufficient water for 3,000 megawatts
9 using mechanical towers with, you know, a series of
10 modern technologies. It's more than sufficient for
11 anything that is less than 3,000 megawatts.

12 Q. And the fact that that closely matches-up to
13 these water rights is just a coincidence?

14 A. It's just a coincidence. We actually did not-
15 could not get bigger power, although they are bigger
16 reactors. You can get two 1,800 megawatts reactors,
17 but they would not fit the other water use. So, in a
18 certain way, the amount of water available guides us in
19 the selection of the reactor technology.

20 Q. Okay and, frankly, throughout the trial, we've
21 heard that this is going to be a 3,000 megawatt, but
22 what I'm hearing from you, today, is it may be as small
23 as a 2,200 megawatt. Is that right?

24 A. I think, from the very beginning, if you look
25 at what we have said, and you look at what we have

1 discussed, and you look at our website, we have always
2 said it was from 2,200 up to 3,000 maximum. Twenty-two
3 hundred megawatts is 2AP one thousand and the 1,500 at
4 80 [inaudible] reactor. So, we are within that range.

5 Q. Okay, let's talk about the NEPA process a
6 little bit. You said—I think—I'm just confused because
7 I've heard both things. I've heard environmental
8 assessment and I've heard environmental impact
9 statement. Is it one or the other?

10 A. No. It's both.

11 Q. You have both an environmental assessment
12 under NEPA and an environmental impact statement?

13 A. No. No. No. The applicant, okay, in this
14 case Blue Castle, conducts or Intercon conducts an
15 environmental assessment. They actually put everything
16 together that has to do with what is important for the
17 NEPA process, what is important for the environmental
18 impact statement, every consideration. During that
19 process, they are in the pre-application process. They
20 consult with the NRC whether things are being done, you
21 know? They have multiple new regs, guidelines. They
22 prepare that environmental assessment of the site
23 suitability and, then, eventually, that becomes part of
24 the application.

25 So, now, the application goes to the NRC. The NRC

1 looks at the application. They have 60 days and says
2 you don't have it. You're missing something. So, you
3 know, I'm not going to accept it, okay? And, so, you
4 go back and you work on whatever is it that you missed,
5 whether it's the hospital that's going to have to be
6 able to be open to treat people or whether it's the
7 water, you know, intake.

8 Whatever it is but, eventually, you go and you
9 work it out and, eventually, everybody gets, you know,
10 if they do it—I know people took months or years, but
11 they eventually get their application docketed. That
12 means the NRC staff accepts the application as
13 containing the essential elements of what an
14 application should have.

15 At that time, the NRC, essentially, owns that
16 application. At that moment, they start to ask
17 questions. Why did you do it this way? Do you have a
18 permit for the water? You say I don't have a permit
19 for the water, they will never accept the application.
20 If you don't have to way to cool this plant, you
21 know, you're not going to do it.

22 So, the process of actually obtaining all of the
23 details for the staff and the staff to write a draft
24 environmental impact statement goes on. It goes on for
25 a year, a year and a half. They actually go back and

1 forth with the applicant, consultants and, then, the
2 staff actually writes the draft environmental impact
3 statement.

4 Now, when the staff writes that, they send it to
5 all corresponding agencies. They send it for public
6 review. People comment. Especially, they will send it
7 to the state, to the state water engineer, to Fish and
8 Wildlife, to EPA and they have received all these
9 comments. When they receive these comments, they
10 interact with the comments. There actually are
11 decisions made and, after the issues are resolved with
12 all of the agencies, then, the staff publishes a final
13 environmental impact statement which, then, the staff
14 now owns. It is their statement and they are the ones
15 that are going to adjudicate it.

16 Q. Okay. What I was actually asking you is you
17 understand, underneath, that they are actually two
18 different things and they are defined terms. One is an
19 environmental impact statement that has its own set of
20 requirements and regulations. The other is an
21 environmental assessment which is a little bit less
22 strict and it has different rules. Under the CEQ
23 guidelines, for example, an engineering firm can be
24 involved in preparing an environmental assessment;
25 whereas, an EIS has to be prepared by the agency. Are

1 you aware of those differences?

2 A. Yeah, but I misunderstood you. I apologize.
3 I thought you were talking about the fact that we will
4 actually prepare, you know, the documents for the
5 application, but the staff would actually do the
6 environmental impact statement.

7 Q. No, and it's my fault because—I mean, I
8 appreciate you going through the whole process again,
9 but it's my fault because I assumed that, maybe, there
10 was two sets of things underneath; whereas, it's the
11 same term just used for the Intercon process.

12 A. Absolutely.

13 Q. Okay. Let me ask you a little bit about the
14 Intercon process. So, as I understand it, Intercon is
15 in the process, now, of collecting all the data for all
16 of these different categories of review that need to be
17 done, correct? And we've talked about that from
18 exhibits. There's that list that, I think, was twenty-
19 something pages long, or something, with the
20 individuals' items that they are collecting and that's
21 part of that process, right?

22 A. Right.

23 Q. And, then, Intercon takes that information and
24 it puts it in, you know, it analyzes it and, then, it
25 writes a report on each thing or incorporates that

1 together? Is that right?

2 A. Yeah. They put the contents together
3 conforming to the requirements of an application, in
4 this case, the early site permit.

5 Q. Well, and actually, you know, maybe that's
6 part of the confusion on this environmental assessment
7 because that actually sounds a lot like the
8 environmental assessment process. They take the first
9 cut of all these things and, then, the NRC looks at it,
10 right?

11 A. Yeah. It's a pretty good first cut.

12 Q. Okay and you talked about, for example, the
13 water use. We looked at Exhibit—sorry about my
14 writing, but I think it's 51 in the book there, which
15 is reg 1055.

16 A. Sure.

17 Q. And I think I heard what you said on that is
18 that what the NRC looks at is the physical availability
19 of water, correct?

20 A. Would you please say that again?

21 Q. Yeah. I thought what I heard you say is,
22 under that regulation 1055, what the NRC is looking at
23 is the physical availability of water.

24 A. That's one of the things that they look at.

25 Q. Okay and do they take into consideration water

1 rights and conditions on water rights and restrictions
2 on water rights?

3 A. No. What they consider is whether the
4 applicant has actually secured water rights in
5 accordance with the requirements of the state in
6 question.

7 Q. Okay. So, the memorandum decisions, in this
8 case for example, the orders of the state engineer,
9 those would be the prima facie evidence of-

10 A. The ordinance of the state engineer would say
11 that they have a right to the water. Then, they will
12 re-start the entire analysis process and they will look
13 at every issue that relates to that water use. They
14 will look at every environmental impact or every issue
15 and, then, they will make, you know, a new
16 determination independent of what the state water
17 engineer, but counting with the fact that, if
18 everything is satisfied, then, that water will be
19 available.

20 Q. Okay. So, what you're telling me is that they
21 actually go through a water right sort of evaluation
22 process?

23 A. Water rights evaluation process, no. They go
24 to the environmental impact of that water being
25 withdrawn from the river at that point of diversion and

1 every issue that has to deal with it, whether it's
2 fish, whether it's drought, whatever it is. They will
3 not infringe on the authority of the Water Engineer for
4 the State of Utah. That determination of where the
5 applicant takes the water or not is being made by the
6 State Engineer, not by the NRC. The NRC will maintain
7 the State Engineer as part of the environmental impact
8 process. They will consult on issues of point of
9 diversion, the structures, all of the issues of the
10 environmental impact, but they will not contest a
11 decision of the State Engineer. That's done. That's
12 the state rights. They don't mess with state rights.

13 Q. So, for example, will they look at priority
14 issues? We've heard a lot of testimony about priority.

15 A. As I'm telling you, they will look at the
16 State Engineer decision and say it is the right of the
17 State of Utah to make that decision. They will look at
18 the impact of that. They will not contest—

19 Q. Well, but what I'm suggesting is will they
20 take into account that there may be priority problems
21 as the NRC in saying there is adequate water supply or
22 there is not?

23 A. They will look at drought conditions. They
24 will look at availability of water, but they will not
25 contest the decision of the State Engineer.

1 Q. But that's not the question I asked. What I
2 asked is—

3 MR. WRIGHT: Your Honor, I think this is getting a
4 little bit argumentative and asked and answered.

5 THE COURT: It is argumentative because I think
6 what you're asking, I think you're not asking the
7 question you think you're asking because aren't you
8 asking, actually, whether or not the State Engineer
9 will—the NRC will take into account the affect or the
10 impact of the—what's the word I want—priority system.

11 MR. FLITTON: Yeah, the priority date on these
12 rights on the system. That's right.

13 THE COURT: Right and I think, if you were to ask
14 that question, that might be more appropriate.

15 MR. FLITTON: Well, I'm not trying to be
16 argumentative.

17 THE COURT: No. No. I don't think you are. I
18 think that, maybe, it's just a misunderstanding.

19 MR. FLITTON: Yeah.

20 Q. So, do you understand, from that dialogue—do
21 you want me to repeat? What I want to know is these
22 memorandum decisions are several pages long, twenty-
23 something pages long, right? And what I'm trying to
24 figure out is how deep the NRC will get into some of
25 the issues that are still present in those memorandum

1 decisions.

2 So, for example, the priority issue. You know,
3 there's a priority system and a lot of the discussion
4 in the memorandum decision, for example, talks about
5 that the priority system will take care of certain
6 problems. Is that something that the NRC will
7 evaluate?

8 A. Can I look at this a minute?

9 Q. Oh, sure.

10 A. Because, like I say, I'm getting old. I'm a
11 simple old man.

12 MR. WRIGHT: Your Honor, this might be an
13 appropriate to interpose, sort of, an objection at
14 least seeking a rather important clarification point,
15 which is this: Mr. Flitton is referring to the
16 memorandum decisions issued by the State Engineer as
17 though they are going to be the controlling document
18 that the NRC or the staff under NEPA would look at.
19 That's really not accurate.

20 The decision issued by this Court, assuming the
21 applications are approved, would be the controlling
22 document because this Court is being asked, de novo, to
23 approve or reject the applications.

24 THE COURT: But I think the question is valid that
25 Mr. Flitton asks, is that whatever I do is still

1 subject to prior appropriation-

2 MR. WRIGHT: Correct.

3 THE COURT: --and priority dates on the river-

4 MR. WRIGHT: Yes.

5 THE COURT: And I think his question, really, is a
6 good question. Does the NRC look at that because it
7 seems, to me, that that may have an impact on the
8 operation of the plant and I'm assuming they would take
9 a look at that, but I think it's a good question.

10 MR. WRIGHT: And all I was doing is making sure I
11 understand whose ruling controls. It's no longer going
12 to be Kent Jones. If they are approved, it would be
13 yours.

14 THE COURT: However, mine is still subject to the
15 priority rights on the river.

16 MR. WRIGHT: Correct.

17 MR. FLITTON: And I agree with your point. It's
18 just hard to-it's easy to talk about memo decisions.

19 THE COURT: Sometimes, it's hard to focus that
20 kind of question.

21 MR. WRIGHT: Okay.

22 MR. FLITTON: Okay.

23 THE COURT: Thank you both. I appreciate that.

24 A. So, the NRC will look at the decision of the
25 State Engineer. They will consider that the water

1 permit has been granted and they will look at
2 availability of water. I do not know, don't have the
3 experience to know whether they go and check with every
4 owner to see whether how much everybody is using. They
5 would actually re-check the data on the river and make
6 sure that, historically, you know, that water is
7 available. They will, I'm sure, contact the State
8 Engineer, Wildlife and re-check all of the issues that
9 say, hey. There is reasonable evidence to say that the
10 water will be available. Beyond that, I cannot tell
11 you.

12 Q. Well and, you know, you and I had a
13 discussion, by way of deposition back in March, at your
14 beautiful home in Florida. We had a discussion about
15 this and I just wanted to read back from the transcript
16 what was asked and what you answered at the time.

17 So, we've been talking about some of these very
18 things and you had gone through a lot of the same stuff
19 and I asked you the question: So, for example, the NRC
20 would not look at issues regarding the priority of the
21 water rights, for example, and what impacts that may
22 have on the river system and your answer was I don't
23 believe so. I said okay and, then, you continued I
24 have never heard of that. Anything that is, impacts
25 the environment from the standpoint of use of the

1 water, they will look at it, but they will not look at,
2 you know, do you own the ocean or not? Do you own the
3 lake or not? You say you own the lake, you've proven
4 you own the lake, you have, you know? You know, the
5 plants that are cooled from rivers and plants that are
6 cooled from lakes, when you use it, how much do you use
7 it? If you discharge it, what's the temperature of the
8 discharge? All the environmental issues associated
9 with the use of water, every single one of them.

10 Do you still agree with those answers that you
11 gave there?

12 A. Yeah. I think that's the same thing that I
13 just said. It is that their focus is on is the water
14 available? They first look at the fact that you have a
15 permit. If you don't have a permit, you don't get
16 through the door.

17 Now, once they go into the water availability,
18 they will check that, historically, the data is in
19 there, that the water is in there, but I don't think
20 they go door-to-door and ask are you using the water.
21 You know, I don't think they question the records.

22 Now, if somebody questions it, let's assume
23 somebody comes back and, say, you know, somebody in the
24 State of Utah, we want you to re-check the water
25 rights, then, they will.

1 Q. Let me ask you a question. You're talking
2 about this public involvement in the process. In your
3 tenure at the NRC, or even in your experience
4 professionally, if it goes beyond that, have you ever
5 had occasion to be involved or to know of a situation
6 where an application was rejected based on public
7 comments alone?

8 A. Application rejected based on public comments
9 alone. I know of application changes based on public
10 comments alone, but the NRC is chartered to license and
11 conduct oversight. If you can prove that you meet the
12 safety requirements, the NRC has no way of denying an
13 application. It is not possible.

14 Q. Have there been legal challenges to the NEPA
15 documents [inaudible] at the NRC?

16 A. Yes, Sir.

17 Q. How many?

18 A. I have no idea. No, I don't—

19 Q. Do you know how many there were at the time
20 that you were the Commissioner?

21 A. No. I didn't keep track of it. We have
22 challenges all the time and, once they run into the
23 Atomic Energy Act, the Supreme Court, if the decision
24 was made within the Atomic Energy Act, then, it,
25 normally, goes in favor of the Act.

1 Q. Okay. So, it's pretty difficult to challenge
2 these environmental impact statements?

3 A. No. It's not pretty difficult. I just said
4 that it's challenged. It can go through many levels.
5 My knowledge is that, once they are, then elevated—and
6 there have been a few—to the Supreme Court, if the
7 Supreme Court determines that the decision was made in
8 accordance with the Atomic Energy Act, they will always
9 be decided in favor of the Act because they cannot do
10 anything else. It's the law.

11 If you follow the law, then, you are within, you
12 know, let's call it the envelope that the law covers
13 and, as long as you are in there, you'll be right.

14 Q. So, does the Atomic Energy Act trump the
15 National Environmental Policy Act?

16 A. No. The Atomic Energy Act has to be
17 consistent with NEPA. We won't do anything that is not
18 consistent with NEPA or the responsibility for NEPA.
19 So, therefore, we will be consistent with NEPA.

20 Q. Okay, but the challenges that I was asking
21 about were NEPA challenges.

22 A. NEPA challenges, you know, can go all the way
23 and there have been many. Recently, there was a
24 challenge on the waste confidence and went to court and
25 the NRC was ordered to re-do their environmental impact

1 statement. I think that's excellent. That shows that
2 our system of law is working.

3 Q. Okay. Let me jump down to this reservoir
4 issue and some of the comments you made relating to the
5 requirements for storage, emergency storage and others,
6 and what you stated—let me make sure I understand.
7 Your viewpoint is that, because this plant is in
8 proximity to the Green River, that no pond is required.
9 Is that what I heard you say? I mean, is that
10 correct?

11 A. That is correct. The guidelines—now, that
12 doesn't mean that we will not build one. What I'm
13 saying is that an acceptable alternative for the
14 ultimate heat sync is to have a large body of water, a
15 river, a lake, the ocean, okay? That's one
16 alternative. Another alternative is to have a large
17 river and, you know, one coolant tower or two coolant
18 towers with basins that provides enough storage of
19 water that you can provide safety-related components
20 with the amount of cooling that they need and, then,
21 you know a reservoir.

22 You know, the idea of the reservoir was always to
23 do something more than what is required because we want
24 to be part of this community. We're not—you know, this
25 plant is going to be here for a long time.

1 Q. Explain that to me. How does building a
2 reservoir at an industrial nuclear facility benefit the
3 community?

4 A. In case of drought, or very low water levels,
5 there are many things that we can do. We can drop the
6 power level down. We can shut the plant down. We can
7 actually operate at whatever power level we think we
8 can and withdraw water from a reservoir where we put
9 water when we were not using the plant. The plant will
10 be down, you know, on the average, you know, 36 days of
11 the year. That's the good plants are shut down,
12 normally, on the average, 36 days of the year. So, in
13 those 36 days, the consumption of water is one or two
14 percent of the full power.

15 So, during that period of time, we can take water,
16 okay, if the water is available in the river, and store
17 it for a time of need, a time when the water level
18 could be low and where we, you know, the state or the
19 region might need the power, and instead of shutting
20 the power plant down, like we do, and we do it all the
21 time without any consequences—I mean, there are several
22 power plants, nuclear power plants shut down now. They
23 require to be shut down for many reasons, but they,
24 normally, shut down for maintenance, re-fueling and so
25 forth and, during those period of times, there is, you

1 know, 36 days, on the average, in the year.

2 We can take that water and instead of, you know,
3 letting it go, we can take some of it and store it in a
4 reservoir so in case we need to operate the plant
5 because electricity is a very important commodity.
6 Water is more important, but I think electricity is
7 very important. If you don't have electricity, you
8 might not be able to consume water. You might not be
9 able to irrigate and, therefore, there might be a need
10 for operating the plant at twenty percent power or
11 forty percent power.

12 So, we can use the reservoir for that in addition.
13 In addition. It, now, doesn't need seismic
14 requirements or anything. If you want to have or use
15 that water to re-fill one of the cooling towers, you
16 could. There is nothing in the regulations that says
17 you cannot use water for more than one purpose. On the
18 contrary. It, clearly, says, clearly states in the
19 regulation that you can use water that you withdraw for
20 more than one purpose. The priority is to the safety-
21 related systems.

22 Q. But—and let's talk about this seismic
23 engineered requirement a little bit. In effect, what
24 you're saying is, by building this reservoir, you
25 recognize that there are times where there may not be

1 water available in the river, correct?

2 A. I recognize that there might be times where it
3 will be a very good thing for the plant to not withdraw
4 water if, in any way, you know, will be difficult for
5 the river flow, but we can do that and, therefore, we
6 are able to accommodate variations in river flow that
7 otherwise we will be pushing, you know, the limits of
8 what people consider the 1,300, you know, cubic feet
9 per second.

10 Q. But, in fact, there are times when the river
11 is below 1,300 also.

12 A. Very few times. Yes, that's correct, but that
13 the impact, as I heard the expert—I'm not an expert on
14 this one, okay? What I heard the expert say is there's
15 twenty-five percent variability. So, if it's down to
16 one thousand, that might be perfectly all right to
17 continue providing electricity to the region and
18 maintaining stable, you know, electricity supply.

19 That might be all right, but these decisions, I
20 have seen dozens of them, dozens of times, when I was a
21 commissioner or chairman. I have been faced with the
22 decision that there is, you know, a lower amount of
23 water in the river or the lake, okay, or the pond that
24 we think, you know, it's time to either curtail the
25 power or bring water from other places and it's always

1 done in consultation with the state. This is not going
2 to be a, you know, oh, these power hungry people are
3 going to keep producing power. Absolutely not.

4 Nuclear power plants, a hundred of them operate in
5 this country in excellent relations with the state and
6 with its neighbor because we are always considering
7 what is the public welfare.

8 Q. How many of those dozens and dozens of cases
9 that you worked on dealt with western water rights that
10 had priorities and were under the prior appropriation
11 doctrine?

12 A. None.

13 Q. Okay. So, you never dealt with the priority
14 issue?

15 A. I never dealt with the priority issue.

16 Q. Okay, but we've talked about priorities in
17 this proceeding at great length, right?

18 A. Yeah, but, you know, that is an issue that, as
19 far as I'm concerned, the state engineer, who has the
20 authority to decide when those cases have analyzed it,
21 looked at it and actually done the independent analysis
22 that requires for the state engineer to make a
23 decision. I've done dozens of decisions, and some of
24 them have been questioned, but they're all within the
25 authority that I have.

1 So, I'm not going to be concerned, at this moment,
2 with something that is established and is going to be
3 right. If it needs to be dealt with, it will be dealt
4 with. There's no doubt about it.

5 Q. Let me bring this down to a more concrete
6 level, then. You said that you don't think—your
7 opinion is that this pond does not have to be
8 seismically engineered, correct?

9 A. If it's not considered the ultimate heat sync,
10 that's correct.

11 Q. Okay. Let's start there. What does it mean?
12 If you're considering the Green River as the heat
13 sync, what does that mean?

14 A. No. I'm not considering the Green River—

15 Q. Well, you said—

16 A. I think we could, but I don't think we will.
17 There's a difference. I'm, you know, very clear in my
18 language. We could because the guidance in the
19 regulations allows you, if you have a very good river,
20 okay? Then, you could seismically qualify structure to
21 withdraw the water from the river, seismically qualify
22 piping system to make sure that the water can get to
23 the plant where it's [inaudible] That's acceptable in
24 our case.

25 We are going to use mechanical draft towers that

1 will have a basin. If we design those basins with
2 sufficient capacity, we don't need to count on the
3 river. We don't need to count on the pond.

4 Those decisions will be made like in all business,
5 okay, with two things. Number one, they will be
6 designed for safety. Number two, they will be designed
7 for reliability and, number three, they will be
8 designed in the manner of the cost, okay? It will be
9 acceptable to the rate payers of the people of Utah.
10 So, we are not going to spend money on things that are
11 unnecessary, but we are going to spend the money on
12 things that will be supportive of the community in
13 Utah, including putting a pond that will alleviate the
14 removal of water from the river in extreme cases.

15 Q. So, what I'm hearing is that you plan on
16 building reservoirs within these cooling towers,
17 correct? You said—I mean, those were your words,
18 right?

19 A. I didn't say that.

20 Q. They would have sufficient storage within the
21 reservoirs in the cooling towers. Isn't that what you
22 said?

23 A. I haven't even said that. I used the
24 possibility. We have not designed a system yet. The
25 systems will be designed when we are ready to make a

1 decision on what is the technology and what are the
2 things. We know where the alternatives and the
3 possibilities are and we will make the right decision
4 and be conforming with the State Engineer permit and
5 we'll be conforming with the NRC.

6 Q. All right. Let's go back to what we were
7 talking about before, though; and that is that your
8 determination is that, with these other alternatives,
9 you don't have to build this reservoir, correct? And,
10 yet, you also say, at the same time, that you're
11 building the reservoir because there are times where
12 you won't withdraw water from the river.

13 A. We could. Could.

14 Q. But there are also times when you won't be
15 able to, right?

16 A. There could be times where we would not be
17 able to. At those times, shut the plant down.

18 Q. Okay. So, under that scenario, doesn't the
19 reservoir, then, become the back-up emergency water
20 supply?

21 A. No.

22 Q. Why not?

23 A. No. Let me say this by memory. So, please,
24 don't get every word. You want me, every word, I look
25 it up. The main requirement, okay, the normal

1 requirement is that you have, you know, 30 days of
2 water for the safety-related loads, okay? That's it.
3 However, in the regulations, it also tells you that, if
4 the applicant can justify, okay, a lower number of days
5 because they have alternative sources of water, they
6 can do that.

7 For example, there are people that say I only need
8 ten days, okay? Because I have another river on the
9 other side, or a lake, and in case of a lack of water
10 for safety-related purposes of a nuclear power plant,
11 this country is ready and I can tell you, for a fact,
12 that it's ready to provide water to any nuclear
13 facility with a very short period of time, definitely
14 within days.

15 So, even the 30 days, it's just customary. If you
16 can prove that you can do it in ten days, and that
17 you're going to have a water truck coming in, that's
18 right. If you, you know—these are guidelines and the
19 regulations will be sure that you can cool that plant.
20 So, we don't need the water pond, but we could decide
21 that that's a great alternative.

22 Q. So, under your scenario, though—I mean, say
23 you go in and, instead of having to build this 100 acre
24 pond, you say we don't need 30 days. We need ten.
25 Doesn't that pond still have to be seismically

1 engineered?

2 A. No.

3 Q. Why not?

4 A. Because I will not rely on that pond for the
5 ultimate heat sync.

6 Q. You'll rely on the river?

7 A. No. I rely on the storage of the mechanical
8 cooling towers, of the basins, okay? And that will be
9 sufficient. If I want to have additional water for
10 operation, then, that's what I do with the pond.

11 Q. Well, but that was what I asked you before,
12 about the storage within the cooling towers and I said,
13 so, your plan is to design to, ultimately, have storage
14 in the cooling towers.

15 A. I am telling you I am not designing the plant
16 in this Court. I am providing alternatives. When that
17 design is done by the proper engineers, the proper, you
18 know, time, looking at all the factors, a decision will
19 be made. We will use two mechanical cooling towers
20 without basin and a basin, or two mechanical cooling
21 towers with basins. We could use one mechanical
22 cooling tower reliable and the river.

23 The decision will be made and it will be all
24 right. It will comply with all possible regulations.
25 The pond is an added feature that we put in here just

1 in the case that people of Utah, you know, say, hey.
2 Could you bring the power down or do you have some
3 other way of operating, you know, where we've got seven
4 days or ten days or twenty days or low water level and,
5 then, we'll say, yeah. You know, we thought about that
6 and, here, we have, you know, a pond that we can use
7 and we can cool the reactor or we can de-ray the
8 reactor, put it at lower power level.

9 Actually, that decision has been made many times.
10 It's made, you know, every time there is a drought or
11 an issue and it's not a big deal. The State and the
12 plant owners and the NRC will make the right decision.

13 Q. Okay, but when is that decision made? That's
14 made—

15 MR. WRIGHT: Your Honor, I think we have beaten
16 this horse—no offense to my colleague, but we have gone
17 over this. The question has been asked and answered to
18 about the fifth power.

19 MR. FLITTON: Well, I don't think it has, Your
20 Honor. What I'm hearing is, kind of, you know, I feel
21 like I'm playing a shell game here, trying to nail down
22 where this water supply is coming from and, you know,
23 the next question I have is, when, in the process, is
24 this made? Because my understanding of what I've
25 heard, his testimony, it comes long after the early

1 site permit is issued. This is a decision that's made
2 that's part of the COL.

3 THE COURT: Well, rather than saying that, why
4 don't you ask him the question as to when they have to
5 firm-up their design.

6 Q. When would you have to firm-up y our design?

7 A. We have to firm-up our design when we select
8 the reactor technology, okay, and apply for the
9 combined operating license. The early site permit
10 resolved the environmental issues. It does not—it's
11 not defined, the reactor or every aspect of it. It is
12 we're following the law. The law says you can actually
13 obtain an early site permit that does not allow you to
14 construct the plant, but it's a major, you know,
15 federal action in being licensed that will certify that
16 this plant can be built on this site because it
17 complies with NEPA and all other environmental and, you
18 know, emergency requirements and everything else that a
19 nuclear site needs to have and, then, when the time
20 comes that we have the right type of reactor with the
21 right type of cooling systems, it would all be designed
22 and it will go another review. It will go a complete
23 review that will encompass everything that was on the
24 early site permit, plus additional requirements that
25 will bring in the final details.

1 So, there are two, you know, that go one after the
2 other and nothing will be built, no water will be
3 extracted, until both of those are completed and done.

4 Q. Okay, but the point is, isn't it, that that
5 happens after the NEPA process? You touted the NEPA
6 process is looking at all these things and that happens
7 after that.

8 A. Yeah, but the NEPA process doesn't require
9 that you design your facilities. It just requires to
10 prove that you're going to be in conformance with the
11 NEPA and we will be in conformance with the NEPA.

12 Q. But these are issues that relate to the
13 environment. For example, let's shift to the blow-
14 down, dispose of the blow-down in the reactor.

15 A. Uh-huh [affirmative].

16 Q. How are you going to do that?

17 A. The same way that every nuclear power, every
18 coal or gas plant in Utah that is a steam cyclable. No
19 different. You can go ten miles from here. You can
20 look at the blow-down. It's going to be just the same.
21 We might just do it a little bit better because we're
22 always of additional effluence constraint, but it's
23 going to be exactly the same. If we want to, I'll go
24 with you and we'll walk around a plant, you know, right
25 here, and it will be just exactly like that. No

1 difference.

2 Q. Well, I guess, you have to help me because I
3 don't know how everybody else does it. So, does how
4 everybody else? How does the plant, right over here,
5 do it?

6 A. Well, they will use, you know, cooling towers
7 because they don't, you know, especially if they're
8 newer, they don't discharge back to the river. So,
9 they use cooling towers. They bring water from the
10 river. They pass it through the condenser. It goes
11 back to these cooling towers. In these cooling towers,
12 okay, there is a process of evaporation. So, you see
13 this plume rise, you know, which everybody sees from
14 cooling towers. Our cooling towers are going to be
15 low, efficient, modern. They're not going to be these
16 enormous towers with tremendous amount of visual
17 effects and, probably, going to be small and compact,
18 effective and, then, you know, the plume that you see
19 is steam. It's practically pure.

20 That is a problem because it's pure steam, okay?
21 Ninety-nine percent of it is pure steam. The rest of
22 it that is left behind has all of the salts and
23 everything that came from the river and, so, it's
24 getting concentrated and, so—

25 Q. I'm sorry to interrupt. Are there other

1 things in that concentration as well?

2 A. Other things?

3 Q. Are there, for example, algaecides, and things
4 like, that that you put in?

5 A. They would eventually be added, okay? Just
6 like any other. It's no different. If you put them
7 side-by-side, and you didn't know what was the power
8 source, you will not be able to tell this is a nuclear
9 power plant or this—they're the same. It is the
10 approved way that the United States of America have of
11 rejecting heat to the environment from, you know, steam
12 generating power plants and that is exactly the same.
13 So—

14 Q. So, then, what happens to this—

15 A. -a little bit of the so-called drift—drift is
16 when it splashes around—that little drift, which is
17 less than one percent, that contains some particulates
18 and, so, there are equipment that actually minimizes
19 the impact on that. You know, then, the rest of it is
20 trying to minimize the amount of accumulation of salt
21 it is taking out. There are many ways of dealing with
22 it. You either put it on a pond. You evaporate it.
23 You treat it. You know, it's just no different than
24 anybody else. We're the same.

25 Q. Except for isn't it true that how you take

1 care of that matters? You said there's heavy
2 concentrations of salt. There's pesticides,
3 fungicides, algaecides, whatever else is in there.

4 A. There are small amounts of them.

5 Q. If you're putting those on and evaporating
6 that out, isn't there a risk that that is going to
7 leach down into the ground when rain falls?

8 A. The same risk as in every place else. The
9 risk is minimized by good design engineering and
10 monitoring. You have thousands of steam, you know,
11 driven plants in this country, thousands that use the
12 same way that we do. They're all operating. They all
13 comply with the State, EPA and, if they are nuclear
14 power plants, with the NRC. They're no different.
15 They're absolutely the same.

16 I mean, please, take my offer. I'll take you to a
17 nuclear power plant and take you to a coal plant and
18 show you the difference. See if you can tell me which
19 one is what.

20 Q. But how does the public, that has an interest
21 in this and concerns—there were protests raised in this
22 state in [inaudible] process, for example. That was
23 passed on to the NRC. What I'm hearing you say is that
24 you haven't designed any of these things yet and, so,
25 we don't know what your process is going to be, right?

1 A. But have you known of an architect that
2 proposes, you know, a design and tries to get the
3 permit, he has to design everything before he gets
4 there? What do you want us to do different than
5 everybody else?

6 Q. Because what I think has to happen here, given
7 the way that this process moves through, okay?

8 A. Yeah.

9 Q. Is there—this is something that needs to be
10 examined because it goes beyond NEPA. NEPA doesn't
11 take care of this because—

12 A. NEPA takes care of this.

13 Q. If you don't have a design, how does it?

14 A. NEPA takes care of this because the
15 environmental process is not finalized until you get
16 the permit to construct and operate. So, there are two
17 processes: early site permit and COL. Whatever you
18 did in the early site permit passes on, but that's not
19 complete because, as you very smartly said, it does not
20 contain the design and, now, the design is
21 incorporated. The whole thing is reviewed again and,
22 then, and only then, if you comply with NEPA and
23 everything else, then, you get a license.

24 That is the license that allows you to build, the
25 license that allows you to take the water. That will

1 not happen with the early site permit.

2 Q. Let me ask you just two questions about a this
3 drift that you talked about. You said it's about one
4 percent pollutant in the drift, right?

5 A. I think that's about right.

6 Q. Okay. So, what is one percent of 53,600 acre
7 feet?

8 A. It's 534 or whatever it is.

9 Q. Acre feet?

10 A. Yeah.

11 Q. So, that means that there's 534 acre feet of
12 this stuff being released into the atmosphere?

13 A. No. No.

14 MR. WRIGHT: Objection. That mischaracterizes the
15 testimony.

16 A. I'm not going to say that.

17 MR. WRIGHT: The question has been asked and
18 answered.

19 THE COURT: Ask a different question. I don't
20 think that's what he said.

21 Q. Okay. So, drift is these particles that come
22 out of the cooling tower, correct?

23 A. That could come out. Drift is part of what
24 does not go with the plume. Then, other cooling towers
25 have a way of minimizing drift. They're recapturing

1 drift steam. So, according to the wind, you know, the
2 design of the plant, there could be a little bit of it
3 but, believe me, the NRC will actually make sure that
4 no impact is on the welfare of the people of this state
5 or of this county. It will not happen. That's what
6 they're in charge of. They will not do it. I'm no
7 longer there, but I'm sure of it.

8 Q. So, but when you gave me this one percent
9 number, what does that one percent number mean?

10 A. One percent is what does not go out with the
11 clean plume. It doesn't mean it goes out. You can—you
12 have screen. You have ways of recapturing and some of
13 it might escape, but all of these things, you know,
14 modern technology. You go, now, and drive a Maserati
15 or drive a Model T Ford, there is a difference. Well,
16 there's a difference in cooling towers. We are more
17 aware, every day, of how important it is that we
18 minimize waste of water, we minimize impacts and all of
19 those things will be done. The early site permit will
20 provide a platform that will guarantee you compliance
21 with NEPA but, then, you still have another
22 opportunity. The COL will come. All of that will be
23 incorporated and an additional environmental impact
24 statement will be done at that time that includes all
25 of the details of the design.

1 Q. But regardless of the amount, I think that's
2 what the objection was about, there will be
3 contaminants that will be released from that cooling
4 tower, correct?

5 A. Gosh. Let me see how I can answer this. You
6 see me, here, speaking? I got a bad cold or
7 bronchitis. I have contaminants coming out into this
8 room, right now. There is no such thing as zero
9 contaminants in any way in any body.

10 Q. So, the answer is yes, then?

11 A. Well, the answer is it is as permitted and
12 it's as conforming to environmental protection and to
13 the welfare of the people as any other power plant in
14 this state.

15 MR. FLITTON: That's all I have. Thanks.

16 THE COURT: Thank you, Mr. Flitton. Ms. Valdes,
17 any questions?

18 MS. VALDES: Nothing, Your Honor.

19 THE COURT: Mr. Wright, any re-direct?

20 MR. WRIGHT: Nothing, Your Honor.

21 THE COURT: Dr. Diaz, thank you very much.

22 DR. DIAZ: Thank you, Sir.

23 THE COURT: Do we want to take a break before we
24 get to our next witness?

25 MR. WRIGHT: Yes. I'm out of witnesses unless-I

1 just want to, kind of, caucus for a moment, see if I
2 need to put anyone else back on. Otherwise, I'm,
3 probably, ready to rest.

4 THE COURT: Why don't we take a, maybe, a ten
5 minute break and come back at 5 to 3:00. That would
6 give you a chance and give everybody else a chance to
7 recover. Court will be in recess.

8 BAILIFF: Please rise.

9 [Recess.]

10 THE COURT: Please be seated, ladies and
11 gentlemen. We're back on the record in Emery County
12 Case Number 1207009, Heal Utah, et al. v. Kane County
13 Water Conservancy District, et al. Counsel for all
14 parties are present. Mr. Wright?

15 MR. WRIGHT: Your Honor, the applicants rest
16 subject, of course, to rebuttal.

17 THE COURT: Thank you, Sir. Mr. Flitton, do you
18 wish to call your first witness?

19 MR. FLITTON: Yes.

20 THE COURT: Ms. Swensen?

21 MS. SWENSEN: Plaintiffs call Arnold Gundersen to
22 the stand, please.

23 THE COURT: Arnold Gundersen, please come forward,
24 Sir, and raise your right hand and be sworn.

25 ARNOLD GUNDERSEN called as a witness by the

1 Plaintiffs, being first duly sworn, was examined and
2 testified on his oath as follows.

3 THE COURT: Please have a seat in the witness
4 chair, please, Mr. Gundersen.

5 MS. SWENSEN: Please, go ahead.

6 DIRECT EXAMINATION

7 BY MS. SWENSEN:

8 Q. All right, Mr. Gundersen. Why don't you start
9 by telling me a bit about your educational background?

10 A. Yeah. For the record, it's Gundersen, S-E-N.
11 I graduated from Rensselaer in 1971. First in the
12 class. Atomic Energy Commission Scholar in '72. Both
13 degrees were in nuclear engineering. While I was at
14 Rensselaer, I got a reactor operator's license on a
15 research reactor that used bomb grade uranium, ninety-
16 three percent enriched, and then, I moved into industry
17 after getting a master's. I had a-

18 Q. What was your master's in?

19 A. Both were in nuclear engineering. I had one
20 of 20 Atomic Energy Commission Fellowships nationwide.
21 I moved into industry, first, at Northeast Utilities
22 and, then, at New York State Electric and Gas where I
23 bought the last nuclear reactor that was built in the
24 first renaissance. That's important. It was a
25 combustion system 80 reactor, which is identical to

1 Palo Verde, and that was in 1978. That project was
2 cancelled. The one good thing that happened is that's
3 where I met my wife and we've been married ever since.

4 I moved into a company, a licensee of the NRC,
5 called Nuclear Energy Services, where I worked my way
6 up to be a senior vice president.

7 Along the way, I ran divisions that wrote
8 procedures at power plants, that did in-service
9 inspection at nuclear power plants, that built nuclear
10 fuel racks and had a patent on a safety device called
11 an energy absorbing turbine missile shield.

12 In 1990, we were a licensee. I was a member of
13 the Radiation Safety Committee and I found some license
14 violations. I told the president of the company about
15 the violations and I was fired. I contacted the NRC
16 and they deliberately botched the inspection and took
17 bribes from my employer.

18 I, then, went to Congress and met with John Glenn.
19 Congressional hearings exonerated me. There were two
20 Inspector General Reports: one that confirmed that all
21 the violations I had found were, in fact, present, plus
22 a few others that I was not aware about; and the second
23 one confirmed that bribery was occurring. In that
24 process, I was approached by an influential attorney in
25 the nuclear industry who told me, Arnie, in this

1 business, you're either for us or against us and you
2 just crossed the line.

3 So, I went into academia and continued to write
4 expert reports. Presently, I'm on a sabbatical from
5 the university system in Vermont and I am an expert
6 witness and have been for, essentially, 20 years.

7 Q. Let me back-up just a little bit. With your
8 masters, what was your area of study?

9 A. My thesis was on cooling tower plume
10 visibility.

11 Q. Okay and have you, in your experience,
12 testified before the NRC?

13 A. Yes. Repeatedly. In the last two years,
14 I've, personally, met with the Chairman, Chairman
15 Jaczko, twice, and his staff on issues relating to San
16 Onofre. I testified to the Atomic Safety Licensing
17 Board on AP1000 issues and I've testified to a—I'm
18 sorry, I've testified to the ACRS Advisory Committee on
19 Reactor Safeguards on AP1000 issues and I've testified
20 to the Atomic Safety and Licensing Board on issues
21 relating to the San Onofre plant.

22 Next month, I testify to a different ASLB on the
23 Firney COL license.

24 Q. And we'll likely come back to this, but can
25 you tell us a little bit about your involvement or

1 about the subject matter of your testimony regarding
2 the San Onofre plant that you mentioned recently?

3 A. Yeah. I was hired by Friends of the Earth to
4 determine what caused the steam generators to fail at
5 San Onofre and I wrote four expert reports that were
6 published--a fifth one was not published--that
7 highlighted the fact that Edison, the owner of the
8 plant, had changed the design dramatically and had not
9 used the regulatory process of something called 10
10 C.F.R. 50, 59, properly. They had tried to do an end-
11 run around the regulatory process and they tried to
12 have the NRC not evaluate the license. So, that's the
13 50, 59 process and I identified that and, ultimately,
14 18 months later, my reports did not say shut the plant
15 down. My report said that you can't fix this problem
16 by plugging the tubes. You need to do a more extensive
17 repair.

18 Edison chose not to do those repairs and, 18
19 months later, shut it down. In the process, I was
20 briefing Barbara Boxer and--Senator Barbara Boxer and
21 Senator Bernie Sanders and others about the progress of
22 the investigation.

23 Q. And, to your knowledge, the decision--if you do
24 not know, please do not speculate, but the decision by
25 Edison not to make the recommended repairs, was that

1 because of the cost of the repairs?

2 A. I believe it was, yeah.

3 Q. Let's walk through—we heard a little testimony
4 and a bit of abstract about the basics of cooling a
5 nuclear plant. That's a process you're familiar with,
6 correct?

7 A. Yes. Absolutely.

8 MS. SWENSEN: If I may approach?

9 THE COURT: Sure.

10 Q. Mr. Gundersen, I'm showing you what's been
11 marked as Exhibit 75. It's been previously produced in
12 a smaller form to the opposing counsel.

13 MS. SWENSEN: Can everyone see all right? Oh.

14 A. Yes.

15 Q. Using the pointer, if it's appropriate, could
16 you just walk us through, and I understand that Dr.
17 Diaz gave some, but I'm a very visual person and I
18 think [inaudible] without getting into too many
19 details. This is a very basic outline of cooling a
20 reactor, correct?

21 A. Correct.

22 Q. And the means of cooling it is how? Please
23 explain?

24 A. Okay. Dr. Diaz' explanation was pretty good.
25 This is a pressurized water reactor similar, in a lot

1 of respects, to the AP1000, whose name has been
2 mentioned here. The nuclear reactor is here. Cold
3 water comes in at the bottom. Cold is under 500
4 degrees and, at the top, it's, maybe, 570 degrees. So,
5 it's heated about 70 degrees in the core and runs
6 around a loop and comes back.

7 In the process, it runs through something called a
8 steam generator. This is solid water. This is at
9 2,000 pounds per square inch and never, ever turns to
10 steam. This vessel, here, is called a steam generator
11 and the top of which is filled with steam. The bottom
12 of which is filled with water. So, the hot water from
13 the nuclear reactor goes through tubes and it gets
14 converted. The heat gets transferred through the
15 tubes. Not the radiation, Your Honor, just the heat.

16 So, the heat gets transferred through the tubes
17 and creates steam that goes through a pipe and turns a
18 turbine. Now, this piece, here, could be replaced with
19 a coal boiler, a gas boiler, an oil boiler.
20 Essentially, the remainder of the slide is the exactly
21 the same in any power plant. The hot steam—

22 Q. That's consistent with the testimony you just
23 heard from Dr. Diaz to the extent, when you say it's
24 similar or, I think you said the same, to coal or other
25 thermal generation facilities. Is that accurate?

1 A. Right. Right. Now, so, this would be called
2 the nuclear boiler and it could be just as soon a coal
3 boiler, for that matter, or an oil boiler or a gas
4 boiler. That hot steam turns a turbine. At the bottom
5 of the turbine, in the design proposed for this plant,
6 is something called a condenser. The condenser would
7 take water from the cooling towers and they are,
8 actually, on the next slide, but cold water runs in a
9 different set of tubes and is heated and goes back out
10 to the cooling tower and that causes the steam to
11 condense to water which, then, gets pumped and we go
12 around again.

13 So, this loop is solid water at high pressure.
14 This loop is water at the bottom, turning to the steam
15 at the top, at lower pressures around a thousand pounds
16 per square inch and this loop, over here, is very low
17 pressure, 30 pounds or less and, so, there's a barrier
18 to radiation between the radioactive water and the hot
19 steam and there's a second barrier to radiation in the
20 condenser. There's another set of tubes in there.

21 Q. To make one distinction, there was reference
22 in, I believe, Dr. Diaz' testimony, but at least in
23 testimony earlier today, about earlier forms of plans
24 to use a pass-through or once-through means of cooling.
25 How would that differ from what's related here?

1 A. There is a different design called a boiling
2 water reactor. In that, the water boils inside the
3 nuclear reactor and that boiling water goes directly to
4 the turbine. So, in that case, the radioactive
5 contamination leaves this building called a containment
6 and enters the turbine. There was a mention of
7 something called the APWI, the Advance-ABWR, Advance
8 Boiling Water Reactor. S, both technologies are
9 available. I chose this one because almost all the new
10 nuclear reactors in this latest renaissance are of the
11 AP1000 design and this closely represents it.

12 Q. And to clarify, the AP1000 design and this
13 general lay-out is consistent with what you've seen the
14 applicants, Blue Castle, having presented to the State
15 Engineer. Is that correct?

16 A. Yes. Well, they haven't locked-in on
17 application, as you know. Dr. Diaz said that they're
18 looking at AP1000's, but they're also looking at the
19 advanced boiling water reactor as well. AP1000's are
20 around 1,100. The advance boiling water reactor can be
21 1,600 to 1,800 megawatts. May I say one more thing?

22 Q. Of course.

23 A. The output of the plant is in electric
24 megawatts, but more than two-thirds of the heat-more
25 than two-thirds of the power in the nuclear reactor is

1 discharged as waste heat.

2 Q. And we'll talk a little bit more about that
3 later—

4 A. We'll talk about that later, okay.

5 Q. -in terms of efficiency, but we may refer back
6 to that for help with that. So, I'm clear, it's the
7 turbine turning that actually generates electricity as
8 it's transmitted out of the plant. Is that accurate?

9 A. Correct.

10 Q. And that would be similar to any of the other
11 thermal generation facilities that you mentioned, like
12 coal or gas, something that makes the turbine turn that
13 generates the electricity. Is that accurate?

14 A. Yes, that's right.

15 Q. What happens if there is insufficient or
16 interrupted cooling in this design?

17 A. If the cooling system were to fail, the back
18 pressure on the turbine increases and it has to shut
19 down. So, no cooling will almost immediately shut down
20 the turbine because it needs condensation below it. As
21 it's cooling, if the water gets too warm, that
22 adversely affects the back pressure on the turbine as
23 well and that slows down the output and, eventually,
24 can cause damage to the turbine blades, which is what
25 my patent is all about, and you want to avoid that.

1 So, when the back pressure on the turbine gets too
2 high, because the cooling side gets too hot, you wind-
3 up shutting down to avoid damage to the turbine.

4 Q. And what happens in—I mean, let's take the
5 example you just said where if the cooling system
6 failed, and we can lump that as a technical problem or
7 water, for whatever reason, is completely cut off. You
8 said the turbine would, almost immediately, stop,
9 correct?

10 A. Yes.

11 Q. And, then, what happens to the rest of the
12 plant?

13 A. Well, in a nuclear reactor, this is where
14 things are different because the chain reaction creates
15 92 percent of the heat that gets to the turbine. So,
16 the splitting of the uranium atoms creates 92 percent
17 of the heat, but even—so, the reactor would immediately
18 scram, which means that the control rods would drop
19 into it and stop the chain reaction and that would
20 occur in a second or two.

21 So, the nuclear fissions would stop. Ninety-two
22 percent of the heat would stop immediately, but eight
23 percent of the heat remains, gradually working its way
24 down, over a day or two, down to one percent of the
25 heat remains because the nuclear—they're called fission

1 products that have the pieces, are still radioactive
2 and still give off heat. So, as we learned at
3 Fukushima Daiichi, shutting down a nuclear plant
4 doesn't stop the heat. You have to be able to continue
5 to cool it after it's shut down.

6 Q. And even though that heat is—if it's on the
7 magnitude, as you said, of eight percent of the heat,
8 that that can still lead to significant problems with
9 insufficient cooling?

10 A. Well, eight percent sounds like a small
11 number, but let's say the electrical output is 1,500
12 for an easy number. Eight percent of that is a 120
13 megawatts of heat. So, that's a huge amount of heat
14 that still has to be dumped to an ultimate heat sync.

15 Q. Okay.

16 [Inaudible discussion.]

17 Q. I'm showing you what's been marked as Exhibit
18 76. You mentioned, previously, that the element not
19 contained on the previous slide would be the cooling
20 tower itself, correct?

21 A. Correct.

22 Q. Does this represent a type of cooling tower?

23 A. Yeah. This is a hyperbolic cooling tower.
24 The Blue Castle proposal, now, says that they will use
25 fans. It will be a lower profile cooling tower.

1 Q. That's the mechanical draft cooling-

2 A. The mechanical draft cooling towers are lower
3 profile and, above the drift eliminators are fans that
4 would pull the air out of this. The shape of a
5 hyperbolic tower does it without fans. So, hyperbolic
6 towers cost more, but there's no electricity used to
7 spin the fans; whereas, the Blue Castle approach costs
8 less, but there's what we call hotel load. There's a
9 lot of fans that run and each fan is, easily, a
10 megawatt.

11 So, the Blue Castle design is slightly different
12 here in that, up here--this piece isn't here. Up here,
13 there are fans that would pull the air through.

14 Q. And before we get into detail, with respect
15 to--so, we assume a fan is here and a much shorter
16 profile?

17 A. Correct.

18 Q. With respect to--I want you to walk us through
19 the intake and the outtake. Would that part be
20 relatively similar to what's shown here?

21 A. Yeah. They're, essentially, the same.

22 Q. Okay. Now, if you could explain how, since
23 the type is a little difficult. We've got the Green
24 River here. Explain how [inaudible], assuming whatever
25 intake structure ultimately is chosen, what is the

1 general theory of how-

2 A. Right. Well, on the previous line, we had
3 water leaving the condenser, and that's hot, and that
4 would go into the cooling tower. At the top, there are
5 slats in the tower called fill and large amounts of
6 water, in bulk, are put in at the top of the water and,
7 as it cascades down the fill, become smaller and
8 smaller pellets. So, the water falls from the top to
9 the bottom, becoming smaller and smaller pellets. It's
10 like a rain farce inside the cooling tower.

11 At the same time, air is coming in through the
12 side. So, that air contacts the falling water and
13 evaporates it. So, what you see at the top of a
14 cooling tower, we call it smoke, is actually steam and
15 it's pure water and carries over no contamination.
16 Originally, Dr. Diaz said about 99 percent. The actual
17 number is about 99.9 percent is pure water being
18 carried over as steam.

19 Q. This would be the plume has also been a
20 reference.

21 A. Yes.

22 Q. I know you said it's called smoke at times.

23 A. Yes, the plume, or what most of the
24 commentary, oh, look at the smoke coming out of the
25 cooling tower. It's really a cloud. It's vaporous H₂O

1 mixed with air and it creates that cloud that you see
2 coming out, the plume, which is what my thesis was
3 about, where this is visible and where it's not.

4 Okay, but the other part of it is that, as the
5 water is cascading down, and as the air is moving up,
6 it entrains small particles of the water and that's
7 called drift and those particles don't evaporate. Now,
8 I'm going to hold the drift comment for one minute.

9 So, what happens, here, is, now, water falls down.
10 Air comes in. Evaporation goes up and the material
11 that's in the water gradually concentrates in this
12 basin at the bottom of the cooling tower, just like the
13 Great Salt Lake concentrates salt. Pure water falls in
14 the mountains. It runs to the Salt Lake. It
15 evaporates off and salts remain behind. Well, that
16 water, then, gets pumped back into the condenser where
17 it repeats the cycle many, many times.

18 The remainder of water that's left in this basin,
19 and this basin isn't really discussed in the engineer's
20 report, gradually increases with contamination called
21 TDS, total dissolved solids, but, basically, what comes
22 in from the Green River to make up for what's steaming
23 out the top has salts in it, has dirt in it, has a lot
24 of things in it.

25 Q. Whatever's in the river.

1 A. Whatever is in the river winds up in the
2 bottom of this tower and gets concentrated over time,
3 just like in the Great Salt Lake. Whatever is in the
4 mountains, gets concentrated over time.

5 In addition, though, in order to keep this fill
6 from turning to moss, basically, in addition to
7 concentrating salts and solids that are in the river,
8 the chemicals are either biocides, fungicides,
9 algaecides, to kill the moss on the racks and, in order
10 to maintain this at an acceptable level, periodically,
11 all the time, but a fraction is pulled off and that's
12 called cooling tower blow-down. It's like if you take
13 a pot on your stove and you add water to it and keep
14 adding water to it and add water to it, you'll,
15 gradually, build-up a film on the bottom of whatever's
16 in the water, but if you add water in and take a
17 fraction out, add water in and take a fraction out, you
18 control the amount of contamination that's in that
19 water and it doesn't build-up.

20 So, cooling tower blow-down has the total
21 dissolved solids, the salts and everything that's in
22 the Green River in a concentrated form, plus it's got
23 the biocides, algaecides, fungicides that are added to
24 prevent this thing from turning to moss.

25 Q. Okay. So, let's deal, first, with drift. How

1 does it appear, from your reading of the information
2 that's been put forward in this case, how does it
3 appear that Blue Castle will deal with their cooling
4 tower drift?

5 A. It's not addressed in the application. The
6 application said that there's—nothing will be released
7 back to the river. Zero will be released back to the
8 river. In fact, drift is releasing material back into
9 the plant surroundings and into the Green River water
10 table because it carries with it the biocides,
11 algaecides, fungicides and total dissolved solids that
12 are in that bottom basin.

13 Q. Let's be clear. How does drift exit the
14 cooling tower?

15 A. It's in that plume. It's in the smoke, but
16 unlike the smoke, which is pure water vapor, it's a
17 small particle that contains water plus the chemical
18 contaminants that are in the bottom of that basin.

19 Q. In your experience, is it typical of nuclear
20 plants to address drift in some way?

21 A. All plants have, at the top, coal or nuclear,
22 something called drift eliminators, but a good drift
23 eliminator, properly maintained over the life of a
24 plant, will capture 99.9% of the water. So, that
25 sounds pretty good, but a tenth of a percent of the

1 withdrawal from the Green River, the Green River's
2 withdrawal will be 53,600–53,400? Fifty-three thousand
3 and change acre feet. So, if you kick the decimal
4 place over three, because it's a tenth of a percent,
5 you're talking about 53 acre feet of particles that,
6 over the course of a year, rain down on the Green River
7 Basin and those particles are not pure water. They are
8 whatever is in the Green River, concentrated, and they
9 are also the biocides, algaecides and fungicides that
10 are in that basin.

11 Q. In your experience, is the environmental
12 effect of drift something the NRC will consider when it
13 evaluates any application from Blue Castle?

14 A. No. I was involved in a cooling tower
15 application issue in Vermont and no. It was a state
16 issue and what happens is the drift settles on
17 vegetation and does a couple of things. First, it's a
18 little bubble and it acts like a magnifying glass and
19 it will actually burn the leaf of whatever the
20 vegetation it lands on. Secondly, it's got
21 contaminants within it that, as it burns the leaf,
22 then, those contaminants are left behind on the leaf
23 and, then, thirdly, eventually, those contaminants
24 wind-up with rain moving downgrade and wind-up back in
25 the river.

1 Q. Let's move to the other aspect of water that
2 might—or concentrate that would be leaving the tower.
3 You referred to blow-down before, which is separate
4 from the drift, correct?

5 A. Uh-huh [affirmative].

6 Q. And you were testifying that blow-down needs
7 to be periodically removed at some point to prevent
8 total build-up, correct?

9 A. Yes.

10 Q. So, what sort of chemicals are present in the
11 blow-down?

12 A. The same chemicals that are—the same chemicals
13 and chemical concentrations that are carried upward
14 with the drift are carried out as liquid with the blow-
15 down. It's the same material. One is just a small
16 particle. One is bulk, but it's the same material.

17 Q. Approximately how much blow-down is generated
18 by a nuclear plant?

19 A. It's around a quarter of what you take in.
20 So—

21 Q. What you take in meaning the water that you
22 take in?

23 A. Normally, I'm thinking of a COL application I
24 was involved in at Belden. Belden took in 64 CFS,
25 cubic feet per second and, in that case, they dumped

1 back into the river 23 CFS of blow-down. In this case,
2 there's no release to the river. So, something around
3 between 20 and 30 percent—let's use 25 percent of the
4 74 cubic feet per second that this plant is sucking in,
5 about a quarter to a third of it will be released onto
6 the land as blow-down.

7 Q. You heard Dr. Diaz testify that, although they
8 haven't specified yet the exact means of dealing with
9 this, that it's exactly the same as other thermal
10 generation facilities. Did you hear that testimony?

11 A. Yes.

12 Q. Do you agree with that?

13 A. The materials used, the biocides, algaecides
14 and fungicides, are the same, but a nuclear plant has a
15 lower thermo-dynamic efficiency. So, on a per megawatt
16 basis, the contamination is greater from a nuclear
17 blow-down than it is from a coal blow-down. Basically,
18 we had two coal plants that total, together, the 53,000
19 acre feet. Those two coal plants actually would have
20 generated more electricity for those 53,000 acre feet
21 than the Blue Castle proposal for a nuclear plant
22 because the nuclear plants are not as thermodynamically
23 efficient.

24 Q. And, in terms of the volume of the blow-down
25 that would be generated, would it, using your example

1 of the two coal plants, would the volume of a blow-down
2 per megawatt be similar to the volume of blow-down per
3 megawatt for the nuclear plant?

4 A. No. A nuclear plant would have a higher
5 volume of blow-down per megawatt because it's
6 thermodynamic efficiency is much, much worse.

7 Q. And, so we're clear, it's a continual process
8 of having to remove blow-down, correct? It's not just
9 you do it once and you're done.

10 A. Right. It's like—we call it feed and bleed.
11 The 74 CFS is coming in all the time and, then, out is
12 going 20 to 25 CFS of blow-down once the equilibrium
13 gets established, which is like a day or two. So,
14 essentially, yeah. It's a continuous withdrawal of a
15 quarter to a third of the material you're putting in.

16 So, the other recorders to 66 percent goes up as
17 vapor. So, a small amount, one-tenth of one percent,
18 comes out as drops. Sixty to seventy percent goes up
19 as vapor and, then, 30 percent, roughly, goes out as
20 blow-down.

21 Q. Blow-down. So, assuming the blow-down leaves
22 the cooling tower and is placed somewhere in a holding
23 pond, and [inaudible] the technical term, what happens
24 to the blow-down?

25 A. Well, there's only one plant on the desert.

1 Of the 100 nuclear plants presently operating, there's
2 only one three-unit plant that's on a desert that's a
3 good example and that's Palo Verde.

4 Q. For the Court's information, where is Palo
5 Verde located?

6 A. Palo Verde is in Arizona and it uses treated
7 sewage from Phoenix, which is 50 miles away, and it's
8 price for that sewage in 2024 for will be \$300.00 an
9 acre foot. So, it's treated sewage that goes from the
10 City of Phoenix to the cooling towers at Palo Verde.

11 Q. So, other than Palo Verde, let's set it aside
12 for a moment and we'll come back to it, where is blow-
13 down, typically, released by the other nuclear
14 facilities?

15 A. Most plants release it back into the river
16 with a special permit.

17 Q. Or the lake or wherever they're drawing from.

18 A. Or the lake, yeah.

19 Q. But have you seen any indication that Blue
20 Castle intends to do that?

21 A. No. The application said they had no
22 intention of releasing anything back into the river.

23 Q. And have you heard any testimony that
24 contradicted that in the last few days?

25 A. No. I have not.

1 Q. So, let's take Palo Verde. They take their
2 blow down out of the cooling tower, do not return it to
3 a river, because it's sewage, essentially, correct?
4 Then, what do they do with their blow-down?

5 A. Palo Verde has a series of 80-acre ponds where
6 they dump the blow-down and, when the blow-down waste
7 reaches a certain height, they stop filling that pond
8 and, then, they just let mother nature evaporate that
9 water off leaving behind the biocides, algaecides,
10 fungicides and the total dissolved solids. While that
11 particular basin is drying, other basins are being
12 filled and, then, when that basin is dry, they go in
13 with a front-end loader and literally scrape it off the
14 floor of that basin and put it in trucks and ship it
15 and I'm not sure where they ship it to. So, we've got
16 one tank that's—one basin, and these are 80 to 100 acre
17 basins. One is being filled. One is evaporating off
18 and one is being dry and being emptied and, as it's
19 evaporating off, we're going to have wind and
20 turbulence. You're also getting some contaminants
21 getting thrown up and being deposited on site as well.

22 Q. Is blow-down generally cool in temperature?

23 A. When it—

24 Q. Let's say compared to its initial temperature.
25 I should give you a context for that.

1 A. Oh, yeah. When it leaves--the 20 to 30
2 percent that leaves the basin, it's at the temperature
3 of the basin, which would be 110, 120 degrees. It,
4 then, travels from this basin, and this basin is not
5 addressed in any engineer's report, to the settling
6 basins--

7 Q. When you say the basins--

8 A. Sorry.

9 Q. Sorry, but when you say this basin, you mean
10 the basin at the base of the cooling towers?

11 A. Yes.

12 Q. Please continue.

13 A. The basin at the base of the cooling tower has
14 water in it that's on the order of--depending on the
15 time of year, it could be 80 to 110 degrees or
16 thereabouts and that gets pumped to these holding
17 ponds. So, initially, the temperature in the holding
18 pond is whatever the temperature is in the basin. When
19 the holding pond is no longer filled and is just
20 allowed to evaporate off, it gradually cools to
21 whatever the air temperature is.

22 Q. Have you calculated, approximately, how much
23 waste, how much--after the blow-down evaporates, you
24 testified that it leaves behind the concentration of
25 solids, essentially, that has not evaporated, correct?

1 A. Correct.

2 Q. Have you calculated approximately how many
3 pounds we're talking about with respect to the Blue
4 Castle plant and their planned withdrawal?

5 A. It was in my report. It's—I'm sorry. I don't
6 remember the exact number. It's in the report.

7 Q. Does it refresh your recollection if I mention
8 150 million pounds?

9 A. Yeah. It could be 150 million pounds a year
10 of total dissolved solids from the river, plus whatever
11 gets added in as chemicals, right.

12 Q. Let's talk about some of the other—you
13 mentioned, just a moment ago, that the basin at the
14 base of the cooling tower is not specifically
15 identified or addressed in what you saw submitted by
16 Blue Castle to the State Engineer. Is that correct?

17 A. Right and it's not addressed in the State
18 Engineer's report as well, correct.

19 Q. When you say the State Engineer's report, you
20 mean his decision on the change applications?

21 A. Yes. Correct.

22 Q. Okay. How much water is generally contained
23 in the cooling tower basin? Is there a standard?

24 A. Yeah. On the order of—it serves as a surge
25 volume. So, you don't want to put in a quarter of a

1 million gallons and pull out a quarter of a million
2 gallons and have on mass left in there for surge. So,
3 it can easily be six to twelve hours' worth of
4 operating water. So, you know, tens of millions of
5 gallons of water is in those basins, routinely.

6 Q. And that's water that's for the normal
7 operation of a plant, correct?

8 A. Correct.

9 Q. Is that water also used for emergency shut-
10 downs at the plant?

11 A. No. The towers that cool the plant are not
12 seismically designed. They're just too expensive. So,
13 the emergency towers are separate and are seismically
14 designed. In fact, for my Yankee—I refer to it as
15 mine, Your Honor, because that's where I'm from. For
16 my Yankee, we have 22 cells, 21 or which are standard
17 construction wood, actually, and the 22nd is a special
18 seismic cell which was very, very costly to build. So,
19 you just don't want to spend the money building a
20 massive cooling tower to cool the whole plant when, in
21 fact, you only need to cool, in the case of an
22 emergency, eight percent of the heat, dropping down to
23 one percent over the course of a day or two.

24 Q. You've seen reference and heard testimony,
25 today, about possibly 2,000 acre-foot storage reservoir

1 in Blue Castle's applications, right? Yes?

2 A. Yes. Correct.

3 Q. And that is, to your understanding, completely
4 separate from a storage tower basin, correct?

5 A. There's more than one storage tower basin. I
6 mean, at Palo Verde, each unit has three sets of
7 mechanical draft towers. So, each unit has three
8 basins at the bottom of the cooling towers and, then,
9 in addition, Palo Verde has got two or three settling
10 basins for each plant and, then—but the basin we're
11 talking about, now, are the 30-foot impoundment with
12 2,000 acre feet of water in it is a separate basin from
13 all of those that I've discussed and it's the only one
14 discussed in the engineer's report.

15 Q. What do you understand the purpose of that
16 2,000 acre-foot storage reservoir to be?

17 A. It served two purposes. According to the
18 engineer's report, it served the purpose of making-up
19 for water when the river water was low so that the
20 plant could continue to operate and, according to the
21 engineer's report, it also served to provide water to
22 shut the plant down in the event that there was some
23 operational occurrence that caused the plant to go
24 offline.

25 So, it was the, according to the engineer's

1 report, it was what we would call the ultimate heat
2 sync. The engineer doesn't use that term, but the
3 engineer's report is pretty clear that it has two
4 functions: one, to make-up for low flow conditions
5 until the low flow conditions go away; and, separately,
6 to provide water to cool the plant.

7 Q. I think you heard Dr. Diaz testify, earlier
8 today, that safety was not a purpose of the 2000 acre-
9 foot storage reservoir. That it was just part of being
10 a good neighbor. Is that consistent with your reading
11 of the State Engineer's decision?

12 A. No. The State Engineer's decision clearly
13 says that it has two purposes: safety and to mitigate
14 for flow.

15 Q. Okay and, in your experience, is it typical to
16 use a storage reservoir for both normal operation and
17 emergency cooling?

18 A. No. You really can't. This is a huge storage
19 reservoir. It's—I think the number was 30-foot with
20 100 acres of exposed surface and the safety-related
21 source of cooling water has to be seismically qualified
22 and that would be a huge engineering undertaking to
23 seismically qualify something of that size. If you
24 think about it, you know, it's moving up and down, it's
25 twisting side-to-side and it's incredibly massive, with

1 2,000 acre feet of water in it. I had structural
2 engineers working for me and I don't think you could
3 design it to do that.

4 Traditionally, at power plants, there's a separate
5 system that contains enough water, another basin, if
6 you will, that contains enough water to provide for
7 safe shut-down.

8 Q. In your review of the Blue Castle
9 applications, and the State Engineer decision based on
10 those, have you seen reference to any other reservoirs
11 or basins described?

12 A. No, I have not.

13 Q. Is it possible to evaluate the safety of this
14 unknown third pond, or I should say reservoir or basin,
15 without knowing the specifications for it?

16 A. I count about a five or six ponds that are not
17 accounted for in the State Engineer's decision and, to
18 me, it's impossible to evaluate whether or not Blue
19 Castle should move forward unless we've got all these
20 sources of water and all these sources of contaminants
21 in the environment accounted for.

22 Q. Say, excepting for a moment that the 2,000
23 acre-foot storage reservoir that's been proposed is
24 purely being used to help account for seasonal
25 fluctuations in the river flow, all right? I

1 understand you just testified it's very clear that
2 there are dual purposes, but let's just look at the
3 one. Do you perceive any problems with that?

4 A. It will work for short-term fluctuations in
5 the river. You know, obviously, if it were a longer
6 term situation, 2,000 acre-feet is less than a month's
7 worth of make-up for the plant. So, if the-

8 Q. Make-up at full power?

9 A. Make-up at full power for the plant, right.
10 So, if the plant decided not to shut down and could
11 only withdraw, say, 35 acre-feet from the plant, it
12 could run a month and continue to operate and, then, it
13 would deplete that reservoir.

14 Q. Did you see, anywhere in the information
15 you've reviewed, where Blue Castle took into account
16 the potential evaporative loss from a storage pond like
17 the 2,000 acre-foot one proposed?

18 A. I heard it in-I was here on Monday and one of
19 the Blue Castle presenters said that the evaporative
20 loss would be on the order of three feet per year and
21 it's 100 acres on the top. So, it's around 300 acre
22 feet. I had calculated, in my report, five feet per
23 year and I had actually thought it was a little wider,
24 which would mean more evaporative losses. So,
25 something on the order of 300 to 600 acre feet of

1 evaporation from that pond would be expected. So, of
2 the 2,000 acre feet in the pond, between 300 and 600
3 acre feet, over time, would evaporate off.

4 Q. And what you just said, I think, indicates
5 that, depending on the exact technical specifications
6 of the pond, could impact the amount of water that's
7 necessary to maintain that level, correct?

8 A. Yes, that's correct.

9 Q. We mentioned Palo Verde, briefly, at the
10 beginning of your testimony and you have heard
11 testimony comparing the proposed nuclear plant to the
12 existing Palo Verde facility. You agree that it is in
13 the desert, similar to here, correct?

14 A. Uh-huh [affirmative].

15 Q. But, in your opinion, is that a valid
16 comparison between the Blue Castle proposed plant and
17 the existing one in Palo Verde?

18 A. Well, there's two things that came to my
19 attention. One is Blue Castle is—to the north, they've
20 got the Book Cliffs and Utah is known for winter
21 inversions. So, especially with low cooling tower
22 design, like this one, it's very hard to punch through
23 an inversion, which means to get the plume above the
24 inversion. So, in winter conditions, the drift from
25 that tower will settle in, locally, much more readily

1 than it would at Palo Verde because Palo Verde is,
2 essentially, flat land for an awfully long, far, time
3 away.

4 The other thing I looked at—and I actually
5 compared three plants. I compared Blue Castle to Palo
6 Verde and to Belden. Belden is an advanced boiling
7 water reactor and Dr. Diaz mentioned that one of the
8 things we were looking at is the advanced boiling water
9 reactor and it's sixteen—Belden is 1,600 megawatts
10 electric and its withdrawal from the Susquehanna River
11 is 64 standard cubic feet per second and that didn't
12 make sense to me when I saw the Blue Castle numbers.

13 The Blue Castle numbers show that it's between two
14 and three thousand megawatts and they're withdrawing 74
15 cubic feet per second. Well, Belden is, essentially,
16 half that and is 64 standard cubic feet a second. So,
17 the ratios didn't work out at Belden.

18 So, then, I went back and I looked at it and said,
19 well Belden is in Pennsylvania. Maybe it's atmospheric
20 and I went back and I looked at Palo Verde. Palo Verde
21 is bigger. Dr. Diaz said 36 and I think, with an
22 upgrade, it's 39.

23 Q. Thirty-nine hundred megawatts?

24 A. Thirty-nine hundred megawatts and it, just
25 recently, re-negotiated its blow-down deal—I'm sorry,

1 its make-up deal with the City of Phoenix and has
2 committed to 80,000 acre feet per year for a 3,900
3 megawatt plant. Well, 80,000 acre feet for 3,900
4 megawatts is not the same ratio as 54,000 for the Blue
5 Castle plan at 3,000. Ratio into megawatts, Palo Verde
6 is thirty percent bigger, thirty-three percent bigger,
7 but ratio showing the amount of water they need, Palo
8 Verde needs fifty percent more water.

9 So, when I looked at both Belden and Palo Verde, I
10 came to the conclusion that you can't build a 3,000
11 megawatt plant at the Green River site that's proposed.

12 Q. Well, and let's clarify. Blue Castle has been
13 adamant that they will use the most current—they have
14 not completely decided on which reactor technology they
15 will use, correct?

16 A. Uh-huh [affirmative].

17 Q. And it's possible that the reactor technology
18 they use may be different than Palo Verde's, correct?

19 A. Correct.

20 Q. But what about the cooling tower design?

21 A. Really, cooling tower design has gone through
22 evolutions as well but, really, at the end of the day,
23 it boils down to Carnot's law, which says you've got to
24 get rid of so much evaporative losses and the only way
25 to do that is to turn a water molecule into a piece of

1 steam. So, when I look—and the other piece of that is
2 Belden is a modern plant with a modern tower and it's
3 ratios of 1,600 megawatts to 64 cubic feet were quite
4 comparable to the 3,900 at Palo Verde and 110 cubic
5 feet. I used the State Engineer's calculator to use
6 those calculations, by the way. So, if I'm wrong,
7 blame the State Engineer's calculator.

8 Q. To be clear, not the State Engineer, just his
9 piece of machinery.

10 A. Right, just that calculator on the website,
11 right. So, if you take the ratio of water into that
12 cooling tower which, in this case, would be the green
13 line on the right side for this plant, put in the
14 denominator and you put Palo Verde's number on top, you
15 get 1.49, essentially 50 percent more water for Palo
16 Verde, but if you put Palo Verde's electricity output
17 in the numerator, and you put this plant in the top,
18 you get thirty-three percent more electricity.

19 So, it told me that the blow-down—I'm sorry, that
20 the withdrawal rate from the Green River is what it is.
21 It's all they could buy, but for that withdrawal rate
22 from the river, I couldn't determine that they could
23 ever get a 3,000 megawatt plant on that site.

24 Q. Okay and, as an engineer, you've had the
25 opportunity to compare the efficiency of various means

1 of generating electricity over your career, correct?

2 A. Uh-huh [affirmative].

3 Q. And why is efficiency important in the energy
4 sector? I mean, let's look, specifically, at—the
5 examples that you were just giving, comparing the
6 numbers, one question that comes to into mind, of
7 course, is whether it's even possible, but you stated
8 that it all comes down to the Carnot's Cycle.

9 A. Uh-huh [affirmative].

10 Q. Could you explain the Carnot's Cycle as it
11 relates to efficiency in this context?

12 A. Sure. Yeah. This is a law. This isn't a
13 theory here.

14 Q. Sorry.

15 A. Carnot was a Frenchman who, a couple hundred
16 years ago, figured that the best a heat engine can do
17 is related to the difference between the hot sync and
18 the cold sync. So, the hotter the steam starts out at,
19 the better the efficiency is given a constant cold
20 temperature to dump the heat to. Basically, Carnot
21 says you can't ever get to a hundred percent efficiency
22 with any kind of a steam cycle.

23 So, what that means in the power business is that
24 the most efficient plants are gas and they can be as
25 much as sixty percent, or higher, efficiency, which

1 means that almost all of the heat goes to turning a
2 turbine and making electricity and less than half of
3 that heat gets blown out through heat exchangers.

4 Then, the next most efficient plants are coal and
5 oil and, oddly enough, the most modern plant, the
6 nuclear plant, is the least efficient and Dr. Diaz
7 alluded to that in his testimony. The nuclear fuel
8 pellet is just about the size of the size of my pinky
9 and it's clad in a zircaloy pipe and on the outside of
10 that is water. The water can't get much over about 570
11 degrees in normal conditions because, in the event the
12 plant shuts down, that little fuel pellet can't go over
13 about 2,000 degrees because it will melt.

14 So, in order to avoid a melt-down, the nuclear
15 plants are restricted to 570, 580 degrees. They could
16 easily get higher temperature, but the event that the
17 water source stopped, and the pellet was no longer
18 cool, then, that pellet would melt-down, unless it
19 starts at a low enough temperature so, as it heats up,
20 it can't melt.

21 So, it's—we think of nuclear as the latest
22 technology but, in fact, it's the least efficient,
23 thermodynamically, not because of its ability to
24 produce steam but, because in the event you have an
25 emergency shut-down, that pellet can't melt and you've

1 got to start it cooling off so that, as its temperature
2 rises, it stays cool.

3 Q. And, so, the maximum efficiency, in the
4 thermodynamic sense—we're not talking cost efficiency.
5 We're talking thermodynamic efficiency, right—is
6 capped by the difference between the hottest it can get
7 and the heat sync, I think was the term you used, the
8 coolest of the cool-down, right?

9 A. Right.

10 Q. And it's the difference between those two?

11 A. And pretty much all plants have the same
12 bottom number, you know? It's going to be the
13 temperature at the basin of that cooling tower and they
14 will all use a cooling tower or air. You can also use
15 air, directly. So, the bottom number is locked-in, but
16 the fact that gas can have a higher top number, and
17 coal and oil are not too far behind that, mean that per
18 megawatt of electricity, nuclear plants produce a lot
19 more thermal pollution.

20 Q. That's the heat waste, essentially?

21 A. Waste heat, yeah.

22 Q. That's not able to be converted into
23 electricity but, essentially, is wasted by having to
24 just be cooled back down by the water.

25 A. Correct.

1 Q. Am I capturing that correctly?

2 A. Correct.

3 Q. Are you aware of any proposals to improve
4 water use efficiency in the energy industry?

5 A. Yeah. The Colorado Basin Commission had
6 recommendations to—not to improve efficiency, but to
7 reduce the amount of water that is pulled from the
8 Colorado River to cool thermal electric power plants
9 that are along the Green River. Apparently, there's 15
10 of them. They recommended removing water cooling from
11 those.

12 One of the options that they put on the table to
13 be considered by policy people, moving forward, is to
14 not cool any of those plants with water, but to cool
15 them with something called an air condenser. You don't
16 need water to cool a condenser.

17 Q. Explain how it would work without water.

18 A. Okay. Instead of this design, you would,
19 essentially, take the steam directly from below the
20 turbine and run it into a radiator, a car radiator.
21 So, steam would go in. Airflows over that steam
22 condenses it to water that, then, runs back into the
23 cycle. So, replacing an evaporative loss is that steam
24 runs through tubes and gets cooled, just like it does
25 in your car radiator, and gets pushed back in as water.

1 Where water is expensive, or where water is
2 sparse, these are called air cooled condensers and
3 they're becoming more and more common as the price of
4 water goes up and as the importance of water for other
5 uses goes up as well. There's one up in Wyoming.

6 Q. I was just going to ask you, are you aware of
7 any examples of plants that have removed the
8 evaporative cooling or the water used for cooling?

9 A. Yeah. One of the first ones was in 1979, I
10 think, at a plant called Wyodak, and that's a
11 combination of Wyoming and Dakota. It's on the border.
12 It's in Wyoming and it uses—it's purely air cooled.
13 There's no river nearby. There's no water being pumped
14 in to cool the condenser. There's—it's near a mine
15 and, so, the economics of being right near the mine
16 were important and they said, well, we don't need
17 water. We can do it without.

18 There's also a large plant down in Dallas,
19 Midlosian, I think it's pronounced, and there's one in
20 Astoria, which is right on the East River in New York.
21 It's a tiny site. It's only 33 acres, 500 megawatts,
22 and it's right next to where Steinway tunes their
23 pianos and one of the reasons they chose this
24 technology was it was quiet and it wouldn't upset the
25 piano tuners and there's—

1 As I was flying into Newark Airport three weeks
2 ago, I looked out the window and there was one. So,
3 they're popping-up all over the place. They were not
4 in the first renaissance because water was cheap and
5 the technology was—the first nuclear renaissance, those
6 100 plants that got built, they were unavailable for
7 consideration then.

8 Q. But how long has it been available as an
9 alternative technology?

10 A. Well, the Wyodak plant was the first, you know,
11 and that's '79.

12 Q. Seventy-nine.

13 A. So, just about the time Palo Verde was coming
14 on, Wyodak was coming on and Wyodak has been very
15 successful.

16 Q. Other than Palo Verde, are you aware of any
17 other nuclear facilities in the U.S. that are located
18 in a desert?

19 A. No.

20 Q. You heard, as we're talking about heat syncs
21 and the Carnot cycle, you heard testimony today, I
22 believe, from Dr. Diaz that the guidelines allow the
23 use of the Green River as a potential heat sync. Do
24 you recall that testimony?

25 A. Uh-huh [affirmative].

1 Q. Is that consistent with any of the Blue Castle
2 plans that were submitted to the engineer, the State
3 Engineer?

4 A. No. I didn't see any discussion of that in
5 the State Engineer's analysis of what Blue Castle
6 provided him.

7 Q. And, if the Green River were being used,
8 hypothetically, as the heat sync, would that, then, be
9 more consistent with the once-through cooling that we
10 discussed earlier?

11 A. No. I think Dr. Diaz was discussing, after a
12 nuclear plant shuts down, you get that eight percent
13 heat that's got to be gotten rid of and that's
14 something called emergency service water and I think he
15 was suggesting that it's possible that they could
16 connect to the Green River with a seismically qualified
17 intake structure, with seismically qualified plants
18 back to the plant, to provide cooling to the plant with
19 emergency service water from the Green River.

20 Q. And is that anything that you saw described in
21 the information relied on by the State Engineer?

22 A. No. I didn't see any of that described.

23 Q. You gave some testimony, earlier, that you
24 have some questions as to whether the withdrawal rate,
25 or the total water authorized, will be sufficient for

1 the amount of power being discussed at Blue Castle,
2 correct?

3 A. Uh-huh [affirmative].

4 Q. Have you done any quantification of how much
5 additional water you think they may need?

6 A. I think it would be, to get to 3,000
7 megawatts, I thought it would require another 15
8 standard cubic feet per second. So, instead of 74,
9 somewhere in the high 80's.

10 Q. Okay and have you quantified how much that is
11 per year?

12 A. No. I could go up on the Engineer's site and
13 punch that number in acre feet.

14 Q. That's all right.

15 A. No. I can't.

16 Q. Besides possibly needing additional make-up
17 water, do you see any other harm in the inefficiencies
18 in the design as proposed?

19 A. Well, the air quality on days when there's
20 inversions with the cooling towers running, you know,
21 they're going to be throwing up the algaecides,
22 biocides and total dissolved solids. So, in my
23 opinion, because of that, the Book Cliffs and winter
24 inversion is pretty common, I think there's an air
25 quality issue in that river basin area because these

1 cooling towers are going to be throwing up that drift
2 24/7, 365.

3 Q. Are you aware of testimony from Blue Castle
4 that, in the event of a water shortage, they could
5 simply shut down to respect water rights with more
6 senior priority?

7 A. Yes, I am.

8 Q. In your experience, is that realistic with a
9 nuclear plant?

10 A. There's two parts. One, it's incredibly
11 expensive to the owners to do that. I mean, they're
12 losing millions of dollars a day and the one example
13 I'm aware of was in Pennsylvania.

14 Q. The Lower Susquehanna?

15 A. Say again?

16 Q. In Susquehanna.

17 A. The Susquehanna River in Pennsylvania was
18 under water restrictions. There was severe drought.
19 Interesting. It was 2002, just when the Utah drought
20 was as well. Sixty-six out of the 67 counties in
21 Pennsylvania had lower than average rain fall and there
22 was mandatory rationing along the Susquehanna River,
23 but the two units at Susquehanna—Susquehanna steam
24 electric station unit one, and Susquehanna electric
25 station number two, were both nuclear, were exempted

1 from any water restrictions and were allowed to
2 continue to operate at full power.

3 You know, in a drought, people like their
4 electricity and air conditioning on. So, there were
5 competing needs and the plants continued to run despite
6 the fact that it had a negative impact on the river.

7 MS. SWENSEN: I think that's all I have at this
8 time. Thank you.

9 THE COURT: Cross-examination, Mr. Wright?

10 MR. WRIGHT: Yes, Your Honor.

11 CROSS-EXAMINATION

12 BY MR. WRIGHT:

13 Q. Mr. Gundersen, you have a binder of exhibits
14 in front of you. Do you see that?

15 A. Yes.

16 Q. Would you turn to Exhibit 1, please?

17 A. Okay.

18 Q. Have you ever seen that before?

19 A. Yes.

20 Q. You're welcome to flip through. It's got a
21 few pages.

22 A. Yeah. I believe it was given to me as part of
23 my—

24 Q. What do you understand it to be?

25 A. It's the application provided from Blue Castle

1 to the State of Utah.

2 Q. Actually, it's the change application
3 submitted by San Juan County Water Conservancy
4 District.

5 A. Oh, okay.

6 Q. Okay? Would you turn to the page of Exhibit 2
7 where the reactor design is identified?

8 A. Okay. I'm on Exhibit 2?

9 Q. Yes.

10 A. Will you give me a page number?

11 Q. I thought you would know because you've been
12 talking about a Blue Castle reactor design. Is there
13 nothing in there?

14 A. I'm sure there is. I could read it and find
15 it.

16 Q. I'll represent to you that there's not, okay?

17 A. Okay.

18 Q. Do you understand that the State Engineer, in
19 evaluating these change applications, and this Court,
20 which is being asked to do the same thing, does not
21 have a plant design in front of it?

22 A. Yes. I understood that and I thought I said
23 that before.

24 Q. Okay.

25 A. Based on the testimony from your witnesses,

1 that's clear.

2 Q. Blue Castle has no plant design.

3 A. That's correct.

4 Q. We're not even close to having a plant design
5 requirement under the NRC process, are we?

6 A. That's correct.

7 Q. There are about 100, you said, operating
8 reactors in the country?

9 A. Yeah, there's 100 exactly.

10 Q. And they all, to one degree or another, have
11 these drift and blow-down issues that you're
12 describing?

13 A. No. Most were built back in the '60's, '70's,
14 '80's when [inaudible] cooling was common.

15 Q. Okay, right. It's the thermal reaction that
16 causes this blow-down and drift phenomenon you're
17 describing? In other words, you get the same thing in
18 a coal-fired plant and a gas-fired plant?

19 A. You get the same thermal reaction.

20 Q. What I'm talking about is you have blow-down
21 in a coal plant and you have blow-down in a gas-fired
22 power plant.

23 A. Hang on here. There's—you mean cooling tower
24 blow-down?

25 Q. Yes.

1 A. Because there's also blow-down, a different
2 blow-down in other plants. Okay.

3 Q. Yes.

4 A. So, those plants with cooling towers have—now,
5 we're only talking, perhaps, 30 of the 100 plants.
6 Those plants with cooling towers do have blow-down.

7 Q. Right, but I'm talking about coal-fired plants
8 have the same thing, cooling towers.

9 A. Yes, they do.

10 Q. Gas-fired plants have the same thing?

11 A. Yes, they do.

12 Q. How are they—those coal plants, you realize
13 you're in the middle of coal country in the State of
14 Utah?

15 A. Uh-huh [affirmative]. Yes, I do.

16 Q. Okay. How are those coal plants dealing with
17 their blow-down issues?

18 A. Either settling ponds or releasing it directly
19 to rivers. I'm not sure which. The point I was trying
20 to make is that the application said that there was
21 zero discharge and—

22 Q. To the river?

23 A. Yeah, to the river and, between blow-down and
24 drift, there will be contamination released into the
25 river.

1 Q. Okay. Well, now, you're, kind of, changing
2 the way you're using the word released, aren't you?
3 The plant is not going to push anything into the river.

4 A. It's going to push it up into the atmosphere
5 and it's going to come down on the river.

6 Q. Okay. That's your definition of a release
7 into the river?

8 A. Well, it's significant. If we go, you know, a
9 tenth of a percent is 54 acre feet of contaminated
10 water that's going to go into that water shed and, so,
11 I think that should have been accounted for as a line
12 item there.

13 Q. A line item where?

14 A. In the application where it said there was
15 zero releases. It's in my report. I have the-

16 Q. I know that. Your report's not in evidence.
17 Your testimony is and this application is, right?

18 A. Uh-huh [affirmative].

19 Q. Have you ever filed or been involved with the
20 filing of a change application to change the place or
21 nature or use of water in the State of Utah?

22 A. No. I have not.

23 Q. Have you ever followed the process from
24 beginning to end on a given water right in the State of
25 Utah?

1 A. No. I have not.

2 Q. Do you understand what the statutory criteria
3 are for the approval of a change application in the
4 State of Utah?

5 A. I've read the criteria as applied by the
6 State's Engineer, repeatedly. So, I don't understand
7 it as well as the State's Engineer, but I have read it
8 repeatedly, yes.

9 Q. Thank you. Do you think that, with a new
10 plant coming online, say, in 10 years, 15 years,
11 whenever it might happen, that the State of Utah is
12 just going to stand by while contamination—not even
13 address the issue of what to do with the blow-down and
14 the drift that you're describing?

15 MS. SWENSEN: Objection. Calls for speculation.
16 That's not what he testified at all.

17 MR. WRIGHT: This is an expert witness. This is
18 exactly—

19 THE COURT: Let's not talk over each other.

20 MR. WRIGHT: Sorry.

21 MS. SWENSEN: I'm just saying that is not—I can
22 also say mischaracterizes his testimony. That's not
23 what he's testified as to anything the State of Utah
24 might do.

25 THE COURT: I think it's a fair question as to his

1 understanding of the process that will be gone through
2 both in terms of what the State Engineer has to do and
3 NEPA and anything else. He indicated that it's not
4 NEPA-

5 MS. SWENSEN: Okay, if it's-

6 THE COURT: --but it would be addressed by the
7 State. So, I think, maybe, his understanding of that
8 is important.

9 MS. SWENSEN: I misunderstood. It's with respect
10 to the process. I withdraw my objection.

11 THE COURT: I'm assuming. I don't want to put
12 words in Mr. Wright's mouth.

13 MR. WRIGHT: No. He's the one who said it's dealt
14 with by the State.

15 THE COURT: Yeah.

16 A. You have to repeat your question. I'm sorry.

17 MR. WRIGHT: Okay.

18 Q. Do you think the State of Utah, if this plant
19 is to come online and go into production and go through
20 the NEPA and EPA and EIS process, you understand all
21 those application processes still to come, right?

22 A. Uh-huh [affirmative].

23 Q. Do you think the State of Utah is going to
24 have anything to say about what happens to this blow-
25 down and this drift you're describing?

1 A. Well, I guess, by putting a blank in the box
2 that there was no releases to the river, now, the horse
3 is already out of the barn then and that the
4 opportunity for the State's Engineer to really evaluate
5 releases to the river is, now, not four, five, six
6 years in the future, as I see.

7 Q. You've been here for this entire trial, right?

8 A. Yeah.

9 Q. You understand the EIS and NEPA process does
10 not leave out the State of Utah from this point
11 forward, do you?

12 A. That's correct.

13 Q. So, the State of Utah is going to have a say
14 in what happens to this contamination that you're
15 describing.

16 A. The State's Engineer had an opportunity to
17 have a say, now, and based on information provided by
18 Blue Castle, believed that there was no releases to the
19 river. In my opinion, there's-

20 Q. That's not my question, okay? My question to
21 you is, in the process, going forward, you're not
22 testifying, are you, that the State of Utah is going to
23 have no say in what happens to this contamination that
24 you're describing?

25 A. That's correct. There will be opportunities,

1 in the future, to address drift, if it's not addressed
2 today, moving forward.

3 Q. That's right and the amount and nature of this
4 drift that you're describing depends, to some degree,
5 on plant design, on reactor design, technology choice,
6 correct?

7 A. I think my numbers were pretty middle of the
8 road. So, I can see it going higher or lower and I
9 really try to come in in the middle of this analysis.

10 Q. Right. Higher or lower depending on plant
11 design.

12 A. Yeah.

13 Q. That's going to make that determination.

14 A. The problem, here, it's been like wrestling
15 with a bowl of Jell-O. You know, it's hard to get your
16 hands on this application because, every time you try
17 to pin something down, it seems to squirt out of your
18 hands in a different direction and that's a problem I
19 encounter here when, now, we don't know if it's 2,000
20 megawatts or 3,000 megawatts. We don't know if they're
21 going to take water out of the river, in the event of
22 an accident, or have a cooling pond. We don't know how
23 many cooling ponds are on the site.

24 Q. Right and my point is those determinations are
25 yet to be made.

1 A. I think, based on what I read in the
2 engineer's report, he thought he had adequate
3 information from Blue Castle and the report's
4 inadequate. It doesn't address all these other basins
5 and all these other—

6 Q. The State Engineer's decision, you think, is
7 inadequate.

8 A. The State Engineer's decision, yes.

9 Q. Coal—I'm going to struggle with the
10 terminology, but coal is more efficient than nuclear
11 how, again?

12 A. It has better Carnot efficiency. The
13 temperature inside a coal boiler can be much higher
14 than 570 degrees.

15 Q. I see. Okay. Okay. I assume you're just
16 doing that for purposes of comparison. You're not
17 suggesting we can build coal-fired power plants in the
18 State of Utah?

19 A. That's true, yeah. I said gas, coal and oil
20 and, then, nuclear.

21 Q. Yeah.

22 A. Yeah.

23 Q. And, probably, not much chance of any new coal
24 anywhere in this country under current air quality
25 issues, correct?

1 MS. SWENSEN: Objection. Beyond the scope of his
2 expertise or testimony.

3 MR. WRIGHT: He's the guy talking about emissions
4 and efficiency of coal versus nuclear.

5 THE COURT: Tell me the question one more time.

6 MR. WRIGHT: I asked him, simply, whether he
7 thinks there's going to be new coal plants approved
8 anywhere in this country under the current air
9 emissions regime.

10 MS. SWENSEN: I don't think there's been any
11 testimony about the nation-wide air emissions regime or
12 the possibility of building plants outside of Utah. I
13 allowed the question, but—

14 MR. WRIGHT: Let's stick with Utah.

15 THE COURT: I think there's been lots of testimony
16 about an air quality regime in terms of the EPA.
17 There's, probably, no new coal plants, but I'm not sure
18 that he's qualified, at this point, to address that
19 question and, really, it's beyond the scope of the
20 direct.

21 MR. WRIGHT: Okay.

22 THE COURT: So, it's sustained.

23 Q. Are you familiar with the Lakeside 2 gas-fired
24 power plant owned and operated by PacifiCorp in Utah?

25 A. No.

1 Q. That is a gas-fired power plant, here, in
2 Utah. Approved water rights for that plant were
3 approved about two years ago. I would like you to
4 assume those facts, okay? Is it your opinion, in that
5 situation, that the State Engineer is obligated to
6 understand and be involved in the selection of the
7 technology to be used at such a plant when the water
8 rights are the only issue before him?

9 MS. SWENSEN: Objection. Incomplete and
10 hypothetical. All he said is that there was a year in
11 which this was approved and I think he said the amount.
12 That's not nearly the information that would be before
13 the State Engineer.

14 THE COURT: I think it's a fair question because
15 what he's asking him about is his understanding of the
16 role of the State Engineer in this process. It's
17 unclear to the Court that this witness understands that
18 and, so, I think he—

19 MS. SWENSEN: Perhaps I misunderstood the
20 question, again. It's being directed at the process.
21 I apologize. I'll withdraw that.

22 THE COURT: At least I think it's addressed—

23 MR. WRIGHT: Yes. I'm trying to get my arms
24 around what Mr. Gundersen thinks the role of the State
25 Engineer and the role of this Court on the issues

1 before it; which are the two applications for the use
2 of water to generate electricity.

3 Q. Can you answer?

4 A. Now, your question was about a power plant two
5 years ago.

6 Q. Yes. My question is is the State Engineer, in
7 your opinion or your understanding of the role, given
8 that you've been critical of the State Engineer, as you
9 call the report. It's actually a decision. Is the
10 State Engineer part of the selection of the technology
11 for a gas-fired power plant?

12 A. I think the State Engineer, in this case,
13 took, at face value, the withdrawal rate from the river
14 and the fact that there was nothing deposited back into
15 the river without any analysis on his part.

16 Q. Without any analysis?

17 A. And I think the due diligence by a state
18 engineer, whether it was on a gas plant, two years ago,
19 or a nuclear plant, right now, I don't think it's
20 appropriate for a state engineer to take, at face
21 value, what the Blue Castle, or whoever that applicant
22 is, without doing some sort of a comparative analysis,
23 like I did.

24 Q. Like you did? You're a nuclear engineer, Mr.
25 Gundersen. Do you expect the State Engineer or this

1 Court to have the same expertise concerning plant
2 design and technology that you do?

3 A. The State Engineer raved about a large staff
4 of very competent engineers and what we're doing is
5 doing some comparisons through the literature. Given
6 the size of his staff, I don't have any problem with
7 his staff being as competent as I am.

8 Q. Oh. Would you like to fund that?

9 MS. SWENSEN: Objection. Badgering the witness.

10 THE COURT: It's a little argumentative.
11 Sustained.

12 Q. You've admitted you've never been involved in
13 a change application--

14 A. Yes. Correct.

15 Q. -concerning water rights in the State of Utah.

16 A. Correct.

17 Q. What is your understanding of the standard
18 that the State Engineer and, then, this Court applies
19 in connection with reviewing these change applications?

20 A. I guess, I understand that the standard for a
21 change application is a lower bar than the standard for
22 a new use from a new source and--

23 Q. Well, let me stop you there. Where did you
24 get that idea?

25 A. From the testimony over the last several days.

1 Q. You heard, from the witnesses who have
2 testified so far, that there's a different standard
3 applied when you're appropriating new water versus
4 changing the use of existing water? What I mean, now-
5 let's be clear. The standard I'm talking about is the
6 level of proof or the burden of proof on the applicant,
7 okay? I want to understand where you are on that.

8 A. I'm not a lawyer. I'm sorry. I really can't
9 answer that, yeah.

10 Q. Okay. That little demonstration you did with
11 your finger about the pellet of fuel for a nuclear
12 power plant, compare that in terms of energy output to
13 coal. How much coal do I need to get the same amount
14 of power that I'm going to get out of that pellet?

15 A. I think the numbers Dr. Diaz had said earlier
16 were comparable. You know, millions of times more per
17 unit weight out of a pellet of uranium than out of a
18 comparable weight in coal.

19 Q. I think the figure was something like 60
20 million times more? Is that about right?

21 A. Dr. Diaz is a smart man. I believe his number
22 is close, yeah.

23 Q. Okay. So, nuclear fuel, in terms of its
24 thermal properties, isn't as efficient as, say, coal or
25 gas but, in terms of its use of the fuel needed to

1 create the energy, it's extraordinarily efficient,
2 isn't it?

3 A. Once it's enriched, that's true.

4 Q. Yeah. Sure, once it gets to the plume.

5 A. You have to go back down through the mining
6 cycle.

7 MS. SWENSEN: Objection. Talking over the
8 witness. Sorry. Please let him finish.

9 Q. Sorry.

10 A. No. I don't really think I testified anything
11 about that, but raw uranium has many, many steps in the
12 process; whereas, coal gets dumped on a unit train and
13 shipped somewhere. So-but once it's enriched, uranium
14 is incredibly energy intensive compared to coal.

15 Q. You testified about air condenser cooling.
16 What kind of impact on the expense, just the cost of a
17 plant, does that have?

18 A. Well, it really depends on the cost of water.
19 Here's water at Palo Verde at \$300.00 an acre foot.
20 Had they been faced with \$300.00 an acre foot back when
21 they built the plant in the '70's, it's likely they
22 would have considered something other than
23 evaporatively blowing that water into the sky. That
24 equates to about a \$20 million a year loss. So, it,
25 really, depends on the price of water and the scarcity

1 of water.

2 So, the economic considerations are that, when
3 it's hot, the turbine back-pressure is a little higher,
4 which means it's not as efficient, but when it's cold,
5 it's extraordinarily efficient because the air
6 temperature is much lower and you get better thermal
7 dynamic efficiency with an air condenser than you do
8 with cooling water.

9 The capital cost for an air condenser is on the
10 order of five to seven percent higher, but the risk--
11 you've taken out the risk of having to shut-down during
12 a drought. So, when you weigh all those factors
13 together, essentially, in the west, especially, air
14 condensers are, certainly, worthy of consideration.

15 Q. Worthy of consideration?

16 A. That's what the Colorado Basin Commission
17 suggested, where the elimination of cooling systems
18 using evaporative methods and replacement with air
19 condensers.

20 Q. So, you're recommending that Blue Castle
21 consider air-condensed cooling? I mean, you want Blue
22 Castle--

23 A. Yeah. That should be an option on the table,
24 yes.

25 Q. Okay. You mentioned air quality during your

1 testimony. Do you recall that?

2 A. Yes.

3 Q. You understand air quality is kind of an issue
4 here in Utah?

5 A. Yes.

6 Q. Have you ever been to Salt Lake City in
7 January, February?

8 A. Yes.

9 Q. You know what I'm talking about, right?

10 A. Yes.

11 Q. Nuclear has no emissions of the kind that
12 we're dealing with from coal and gas, right?

13 A. Correct.

14 Q. So, if we're trying to clean-up the air.
15 Nuclear at least has that going for it, doesn't it?

16 A. And it's less carbon dioxide than, you know,
17 coal or gas or oil and less sulphur dioxide, etc.,
18 yeah.

19 Q. Less?

20 A. A nuclear plant emits less, yes.

21 Q. Right. I thought you said what comes out of a
22 nuclear plant is almost pure water.

23 A. Yeah. We're talking about two different
24 things. The releases from a coal plant are—that I
25 think you're talking about, that are affecting winter

1 inversions in Salt Lake or winter inversions at the
2 Green River site, are the releases that come out of the
3 stack and those are, essentially, unburned hydrocarbons
4 from burning the coal, or burned hydrocarbons, like
5 carbon dioxide and things like that.

6 The additional pollutants on a per megawatt basis,
7 what comes out of the cooling towers at a nuc or a coal
8 plant or a gas plant, per megawatt, a nuclear plant
9 emits more of the algaecides, fungicides and total
10 dissolved solids because it's got a lower thermodynamic
11 efficiency.

12 Q. The State Engineer's office—well, never mind.
13 Do you understand the—let me ask you this. Have you
14 read the record of decision, dated 2006, for the re-
15 operation of Flaming Gorge Dam?

16 A. No. I have not.

17 Q. Do you have any understanding as to how
18 Flaming Gorge Dam has operated since 2006?

19 A. Only the understanding I gleaned in the last
20 two days from your witnesses, but no. I wouldn't claim
21 to understand Flaming Gorge Dam.

22 Q. You're not disputing, are you, that the use of
23 water in the State of Utah for the generation of
24 electric power, you're not disputing that it's a
25 beneficial use, are you?

1 A. I think the engineer's report said, first,
2 it's domestic, second is agriculture and, then, third
3 would be electricity.

4 Q. No. I didn't ask you to rank them. My
5 question is, simply, do you dispute that using water to
6 generate power is a beneficial use of water in Utah?

7 A. I don't think you need to use water to
8 generate power.

9 Q. Let me start again. I'm not asking whether
10 there are alternatives. I'm simply asking you--you're
11 the one who is saying we shouldn't be using the water.
12 I'm asking you is it your opinion that, in the State
13 of Utah, using water to generate power is not a
14 beneficial use of that water?

15 A. If I rank it, it's number three on the list.
16 I think it's domestic, agriculture and, then, using it
17 to generate power.

18 Q. It's a beneficial use of water, isn't it?

19 A. It's number 3 behind the other two, yes.

20 Q. In your opinion?

21 A. Yes. You asked me for my opinion.

22 Q. Okay and you understand that nuclear is part
23 of base-load power. Do you agree with that?

24 A. Yes.

25 Q. The other two standard base-load sources being

1 coal and gas?

2 A. I think I would add hydro, but—

3 Q. Okay. Some debate about that, but I'll give
4 you that one. Have you ever read the Colorado River
5 Compact?

6 A. No. I have not.

7 Q. How about the Upper Basin Compact?

8 A. No. I have not.

9 Q. Do you know what Utah's diversion rights are
10 from the Colorado River Basin?

11 A. No. I do not.

12 MS. SWENSEN: Objection. We're way beyond the
13 scope. I'm giving it a little, but this is way beyond
14 what he testified as to today.

15 THE COURT: I think it's important that he
16 [inaudible] because he has based an opinion as to
17 whether or not, during a shut-down, there's water
18 available and he opined about water availability. So,
19 I think he can answer that question.

20 MS. SWENSEN: He has opined as to the needs of the
21 nuclear plant compared to what they requested. I don't
22 believe there's been any testimony from this witness as
23 to whether that water is or is not available beyond the
24 scope of what's requested under the change application
25 and I think that's where Mr. Wright is going with

1 respect to--

2 THE COURT: Maybe, but I'm going to let him ask
3 the question because I think it--again, I need to know
4 how much Mr. Gundersen understands about Utah water--

5 MS. SWENSEN: Okay.

6 THE COURT: --as a basis for his opinion because
7 that's what I'm dealing with here.

8 MS. SWENSEN: Okay.

9 Q. Do you know what Utah's share of Colorado
10 River water is?

11 A. 1.4 million cubic feet?

12 Q. Not bad. Acre feet.

13 A. Acre feet, yeah, sorry. I was going to change
14 it, but you caught me first.

15 Q. All right. I assume you've learned that from
16 attending the trial?

17 A. I actually read that before, but I, certainly,
18 had it pounded into me in the last two days, yes.

19 Q. Good. That's good and have you also had it,
20 to use your words, pounded into you that Utah is not
21 using all of its Colorado River water?

22 A. Yes. That's correct.

23 Q. Oh. I was curious. I read in your report, as
24 well, you talked about the Carnot Cycle. Is that used
25 in existing technology, say in a nuclear plant or--

1 A. The thermodynamic efficiency of a power plant
2 is frequently re-assessed. I mean, I can remember
3 walking through power plants trying to find 5 BTU's
4 because that would allow you to not blow that heat, but
5 to make electricity. So, the concept of constantly
6 trying to improve the overall efficiency of a power
7 plant is a never-ending process.

8 Carnot sets the maximum—tells you the maximum you
9 can achieve. In fact, plants—I don't know of any plant
10 who actually hits its Carnot efficiency.

11 Q. Okay. So, it's a theory in the sense that
12 it's not actually being applied anywhere.

13 A. It is because that's why you can burn coal at
14 570 degrees and make steam, but it pays to burn the
15 coal at 1,000 degrees because you make higher quality
16 steam. Therefore, you make a more efficient plant.

17 Q. Okay, I see. You're approaching that Carnot
18 efficiency. That's, sort of, your target. You want to
19 get as close to that as you can.

20 MS. SWENSEN: Objection. Mischaracterizes.

21 A. No. The Carnot efficiency is—

22 THE COURT: I'll let him answer.

23 A. A plant engineer's goal is to get the highest
24 efficiency out of the plant. Now, you don't want to
25 send heat to the cooling tower. You want to turn the

1 turbine and make electricity. So, plant engineers, if
2 they are in a coal plant, will try to make the boiler
3 hotter or the cool sync cooler or look for leaks and,
4 in the process, improve what's turning the turbine as
5 opposed to what's being wasted. Same in a nuclear
6 plant and the underpinnings of that are the Carnot
7 efficiency.

8 Q. Okay.

9 MR. WRIGHT: That's it, Your Honor. Thank you.

10 THE COURT: Thank you. Ms. Valdes?

11 MS. VALDES: Just a couple of questions.

12 CROSS-EXAMINATION

13 BY MS. VALDES:

14 A. Now, I have hearing aids and you're going to
15 have to speak up.

16 Q. Okay. I will try.

17 A. Okay. That's great. Thank you.

18 Q. Just to clarify one single point. I believe
19 that you testified that you don't actually have a
20 detailed knowledge of the State Engineer's authority in
21 this case.

22 A. Yes. That's true.

23 Q. Okay and, then, you have no basis for a
24 decision that the State Engineer has any authority over
25 any type of water, except water volumes that are

1 returned to the river as return flow?

2 A. I guess, when I read the State Engineer's—I'm
3 going to call it report. I'm sorry—the decision, I
4 just found numerous errors because the State Engineer
5 relied on what Blue Castle provided him.

6 Q. But that's, I guess, my point. You don't know
7 that they are errors because you're not—you don't know
8 what his authority is and is not.

9 A. I know they are errors, as an engineer who has
10 done this for a long time. When I looked at his
11 report, it was obvious—it obviously contained technical
12 errors: the basin issues, the withdrawal rates. There
13 were numerous errors that I highlighted in my pre-
14 submitted testimony.

15 Q. Well, you have no pre-submitted testimony, as
16 far as I know.

17 A. Yeah. I didn't realize that until a minute
18 ago. I provided counsel with a report and I assumed it
19 was shared.

20 Q. All right. If I represent to you that the
21 State Engineer's authority is over water volumes for
22 Utah, rather than water quality, as a distinction, what
23 are the errors in water volume that you can identify in
24 the State Engineer's orders?

25 A. Well, it looked like the cart was before the

1 horse on the 70 cubic feet per second. The 70 cubic
2 feet was derived from what was available from these two
3 coal plants that were cancelled and, yet, there was the
4 assumption—and that's a good number. I'm not denying
5 the 70 cubic foot number is an accurate number. You
6 can use the calculator on your website and find it, but
7 the two coal plants from which it came actually would
8 have created more electricity for those 70 cubic feet
9 than the Blue Castle one and the other assumption is
10 that you can get 3,000 megawatts out of 70 cubic feet
11 and, when I did comparisons with the other plants I was
12 familiar with, I couldn't get to 3,000 megawatts.

13 Q. Okay.

14 MS. VALDES: I think I'll just leave it there,
15 Your Honor. Thank you.

16 THE COURT: Thank you, Ms. Valdes. Re-direct, Ms.
17 Swensen?

18 MS. SWENSEN: Just briefly, Your Honor.

19 THE COURT: Take your time.

20 RE-DIRECT EXAMINATION

21 BY MS. SWENSEN:

22 Q. Mr. Gundersen, I just wanted to clarify a few
23 things about, particularly, your understanding has been
24 raised of the State Engineer's authority. Can you hear
25 me all right?

1 A. Yes.

2 Q. Okay. When you stated, just now, that you
3 know that there are errors based on your reading of the
4 decision because some of the facts were inaccurate, am
5 I right in saying that when you say the State Engineer
6 made errors, you mean you have identified facts
7 underpinning his decision that were not accurate?

8 A. The State Engineer relied on the
9 representations of Blue Castle and didn't check to see
10 if those representations were, in fact, accurate.

11 Q. So, your opinion is two-fold, then, as I
12 understand it. One, that there were factual errors;
13 and, two, that the State Engineer should have engaged
14 in increased scrutiny of the representations. Is that
15 accurate?

16 A. Yes. That's true.

17 Q. Ms. Valdes raised the issue of the State
18 Engineer's authority over more than the volume of
19 water. As you read the State Engineer's decision, did
20 he address, under the statutory criteria, anything
21 beyond the volume of water being withdrawn?

22 A. Yeah. There was a clause in there about Blue
23 Castle stated they're not going to be returning
24 anything to the river.

25 Q. That's true, but you testified, earlier, that

1 you have read and listened to a discussion of the
2 statutory criteria for approval of a change
3 application, correct?

4 A. Yes.

5 Q. And those criteria involve analysis of, among
6 other things, the natural stream environment, public
7 welfare, the financial and economic feasibility and
8 other statutory criteria. Is that consistent with your
9 understanding?

10 A. Yes. I think the cooling tower drift, for
11 instance, during inversion conditions is going to
12 adversely affect public welfare because they're going
13 to be breathing the algacides, fungicides and total
14 dissolved solids. It will also affect the crops that
15 are grown there as well.

16 Q. And, potentially, the natural stream
17 environment?

18 A. Yes.

19 Q. So, as you understand it, then, based on the
20 statutory criteria that you've been presented—and I
21 understand you're not a legal expert—the State
22 Engineer's decision had to do with more than just the
23 sheer volume of water that was proposed to be
24 withdrawn, correct?

25 A. Yes. It should have included human health and

1 welfare.

2 Q. Okay. Now, Mr. Wright indicated that the
3 State of Utah will not be left out of the process
4 should this Court or an appeal court approve the
5 decision for the change application and we go forward
6 with NEPA, correct?

7 A. Correct.

8 Q. And you have some familiarity with the process
9 as it would proceed before the NRC after this point,
10 correct?

11 A. Yes, I do.

12 Q. At any point from after the water rights have
13 been approved, will the State of Utah have a
14 controlling voice in the NEPA process? In other words,
15 I don't mean to throw in—I'm not trying to be unduly
16 technical. I understand that—you heard the testimony,
17 and Mr. Wright made reference to, that they will
18 receive notices and have opportunity to comment,
19 correct?

20 A. That's true.

21 Q. But, at any point, will the State of Utah be
22 able, for example, to veto the NRC staff decision on an
23 EIS?

24 MR. WRIGHT: Objection. I think that's a little
25 speculative.

1 MS. SWENSEN: I think it goes to the same process
2 that Mr. Wright was raising in cross.

3 THE COURT: I think it should be what he knows.

4 MS. SWENSEN: If I didn't limit it to that, I
5 apologize.

6 Q. To your knowledge—

7 THE COURT: If he knows.

8 MS. SWENSEN: Yes.

9 Q. To your knowledge, if you know, will the State
10 of Utah have the opportunity to, for example, veto the
11 NRC staff decision on an EIS?

12 A. No. My experience is, at the end of the day,
13 the NRC will win.

14 MR. WRIGHT: I'm sorry, will what?

15 A. Will win. You cannot override—the State of
16 Utah cannot veto an NRC decision.

17 THE COURT: I'm not sure that's responsive. Maybe
18 I misunderstood the question.

19 MS. SWENSEN: Actually, that's precisely what I
20 was asking.

21 Q. Specific to the environmental process, going
22 forward with the NRC, you understand that there will be
23 a NEPA analysis, as has been described by witnesses.

24 A. Yeah.

25 Q. And, in that process, I understand the State

1 of Utah will have the opportunity at least to comment.

2

3 MS. SWENSEN: I just want to make sure I'm
4 clarifying. If I'm re-hashing it, you can stop me.

5 THE COURT: No, that's okay.

6 Q. You will have the opportunity to comment in
7 the process, correct?

8 A. Yes, I will.

9 Q. And my question, then, was, but will the State
10 of Utah, at any point, after these proceedings, have
11 the opportunity to put their foot down—you can say
12 veto. You can say overrule—the NRC's decision on the
13 environmental impact statement?

14 A. My experience has been no. They will not.

15 Q. Okay. In your review of the information
16 submitted to the State Engineer and in his decisions,
17 you're aware that the protestants to the initial
18 administrative decision raised some of the same issues
19 that are being discussed here today, correct?

20 A. Yes.

21 Q. Specifically with respect to environmental
22 concerns and questions about the reservoir's impact,
23 correct?

24 A. Yes.

25 Q. And it's your understanding, as I understand

1 it, that the State Engineer could have requested
2 additional information regarding those protests before
3 making a decision, correct?

4 A. I believe he had the right to do that, yes.

5 Q. With respect to the—you've heard Blue Castle
6 state, throughout these proceedings and in Mr. Wright's
7 cross, that a lot of the numbers that you've submitted
8 today would depend on the technical design, correct?

9 A. Yes. I've heard that represented, yes.

10 Q. Is there any technical design you're aware of
11 that eliminate blow-down if the plant uses water
12 cooling?

13 A. No. No. The water—blow-down and drift, there
14 is no zero blow-down and there is no zero drift.

15 Q. So, when you stated, in response on cross to
16 Mr. Wright, that your numbers were middle of the road.
17 They could be lower. They could be higher. They
18 couldn't be as low as zero, correct?

19 A. That's correct.

20 Q. And, in your opinion, in fact, they won't be
21 approaching zero either.

22 MR. WRIGHT: Objection. That's a little too
23 leading. This is her witness.

24 THE COURT: That is a leading question.

25 MS. SWENSEN: All right.

1 Q. In your opinion, when you state middle of the
2 road numbers, could be higher, could be lower, do you
3 believe that they could approach zero? You just
4 testified they wouldn't be zero. Could they approach
5 zero so much so as to be insignificant?

6 A. No. I think cooling tower drift in poorly
7 maintained towers is much higher than a tenth of a
8 percent. In a brand new tower, it would be lower than
9 a tenth of a percent, perhaps half that. The blow-down
10 is what the blow-down is, though. It will not change
11 because the contamination from the river and the
12 algaecides and fungicides added to prevent the cooling
13 towers from turning into a jungle, to moss,
14 essentially, are driven by biology and not technology.

15 Q. I'd like to clarify. You were discussing with
16 Mr. Wright the Colorado River Compact and Utah's
17 allocation under the Colorado River Compact, correct?

18 A. Correct.

19 Q. I want you to clarify this if I misstate at
20 all. Is it your opinion that the amount of water
21 requested by Blue Castle under the change application
22 is insufficient for the plant as you understand it?

23 A. The amount of water that Blue Castle is
24 requesting, I don't believe, can produce 3,000
25 megawatts.

1 Q. And I just need to clarify on that. When you
2 say that the water is insufficient, are you opining on
3 whether it's available to be taken in the river or
4 merely whether the amount they requested would be
5 sufficient to generate that amount of power?

6 A. The water is available by right. So, it's
7 there. The 53,000 acre feet is there. I'm not opining
8 on that, but I can't get to 3,000 megawatts with 53,000
9 acre feet.

10 Q. That first part is what I wanted to clarify.
11 You're not opining--when you say the 53,600 acre feet
12 is there, you mean you are assuming that it is there
13 under the water right, correct?

14 A. Yes. That's true.

15 Q. You are not doing any independent analysis of
16 whether that water is physically there and available to
17 them in the Green River, correct?

18 A. That's correct. I assume that to be a fact.

19 Q. And, similarly, your opinions that the water
20 and the structures that they have disclosed are
21 insufficient for safety issues are not related to
22 questions of whether there's adequate water available
23 in the Green River, but merely with respect to what
24 they have requested under the applications?

25 A. I'm sorry. You'll have to say that again.

1 Q. What we just walked through with respect to
2 the amount being sufficient. I think you just told me
3 that your opinion didn't have to do with whether the
4 water was available in the green river, but whether the
5 amount they had requested, the 53,600 acre feet was
6 adequate for the amount of power they said they were
7 going to generate, correct?

8 A. Fifty-three thousand acre feet will cool the
9 plant at full power. So, in the event of an accident
10 and it were to shut down, only eight percent of that,
11 at maximum, and, then, dropping to one percent of that
12 is all you would need, from a safety standpoint, to
13 cool the plant after it's shut down.

14 My issue was that the State's Engineer suggested
15 it was coming from that reserve pond and that's a
16 physical impossibility and an error in the State
17 Engineer's statement.

18 Q. Okay.

19 MS. SWENSEN: I think that's all I have at this
20 time. Thank you, Mr. Gundersen.

21 THE COURT: Any re-direct-or, re-cross, excuse me?

22 RE-CROSS EXAMINATION

23 BY MR. WRIGHT:

24 Q. Mr. Gundersen, you're aware that these
25 applications were approved by the State Engineer?

1 A. Yes.

2 Q. And you're, obviously, critical of that
3 approval, correct?

4 A. Yes.

5 Q. Are you aware that the applications were
6 decided after, among other things, an administrative
7 hearing, an informal hearing? Are you aware of that?

8 A. Yes and I am aware that--yes, I am.

9 Q. Did you testify at that?

10 A. No. I did not.

11 Q. Is it your understanding that issues of blow-
12 down and drift were presented to the State Engineer at
13 that hearing?

14 A. In the State Engineer's decision, he did not
15 address issues of blow-down and drift.

16 Q. That's not my question, though. I agree with
17 you. It's not in there. My question is is it your
18 understanding that those matters, those issues, were
19 presented at the hearing?

20 A. I don't know what was presented at the hearing
21 because I wasn't there.

22 Q. Did you look at the issue of the cost of the
23 air condensed--per acre foot cost of the condensed air
24 cooling--let me make sure I'm getting this right. No,
25 withdrawn. Never mind.

1 MR. WRIGHT: That's it, Your Honor. Thank you.

2 THE COURT: Thank you. Ms. Valdes, any further
3 questions?

4 MS. VALDES: No further questions. Thank you.

5 THE COURT: Anything further, then?

6 MS. SWENSEN: No, thank you, Your Honor.

7 THE COURT: Mr. Gundersen, thank you for your help
8 today. I appreciate it.

9 MR. GUNDERSEN: Thank you very much.

10 THE COURT: I hate to quit ten minutes early, but
11 I don't think we can get started very well on another
12 witness. So, I'm sorry, Sir. Someone was getting
13 ready to come up and testify. Sorry.

14 GENTLEMAN: I'll be back.

15 THE COURT: All right. See you in the morning,
16 first thing. Anything we need to touch base or sort
17 out this afternoon before we go?

18 MR. WRIGHT: I need to give you my list, still.
19 So, I'm going to do that, now, before I leave so I
20 don't-

21 THE COURT: Everybody, we'll see you at 8:30 in
22 the morning, then. Thank you. Court will be in
23 recess.

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C E R T I F I C A T E

I, Ruby Rudisill, do hereby certify that the foregoing pages contain a true and accurate transcript of the electronically recorded proceedings and was transcribed by me to the best of my ability.

Ruby Rudisill

I, Kelly Thacker, do certify this transcription was prepared under my supervision and direction.

Kelly Thacker