

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.

~~~~~

TRANSCRIPT OF TRIAL - DAY ONE

~~~~~

BEFORE THE HONORABLE GEORGE M. HARMOND

SEPTEMBER 23, 2013

50 West Broadway, Suite 900, Salt Lake City, UT 84101
801-983-2180

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

APPEARANCES:

FOR THE PLAINTIFFS:

John S. Flitton, Jr.

Lara A. Swensen

FLITTON & SWENSEN, P.C.

1840 Sun Peak Drive, Suite B-102

Park City, Utah 84098

FOR THE DEFENDANTS:

Julie I. Valdes

UTAH ATTORNEY GENERAL'S OFFICE

Natural Resources Division

1594 West North Temple, Suite 300

Salt Lake City, Utah 84116

-and-

David C. Wright

John H. Mabey, Jr.

MABEY WRIGHT & JAMES, LLC

175 South Main Street, Suite 1330

Salt Lake City, Utah 84111

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

WITNESSES:

AARON JASON TILTON
Direct Examination by Mr. Wright
Cross-Examination by Mr. Flitton
Re-Direct Examination by Mr. Wright
Re-Cross-Examination by Mr. Flitton

JERRY D. OLDS
Direct Examination by Mr. Wright
Cross-Examination by Mr. Flitton
Re-Direct Examination by Mr. Wright

THOMAS BYRON HARDY, PH.D.
Direct Examination by Mr. Wright
Cross-Examination by Ms. Swensen
Re-Direct Examination by Mr. Wright
Re-Cross-Examination by Ms. Swensen

THOMAS RETSON
Direct Examination by Mr. Wright
Cross-Examination by Ms. Swensen
Re-Direct Examination by Mr. Wright
Re-Cross-Examination by Ms. Swensen



1 PRICE, UTAH; MONDAY, SEPTEMBER 23, 2013; 9:05 A.M.

2 BAILIFF: --Carbon County, State of Utah, now in
3 session, the Honorable George Harmond, Jr. presiding.

4 THE COURT: Please be seated, ladies and
5 gentlemen. Good morning and welcome to the Seventh
6 District Court. We're on the record in case 1207009.
7 This is an Emery County case being heard in Carbon
8 County. This is Heal Utah, et al. v. Kane County, et
9 al. The record will show that the parties are present.
10 If I could have the parties' counsel identify
11 themselves for the record, as I have not met them in
12 person, beginning with the plaintiffs.

13 MR. FLITTON: Yes, Your Honor. I am John Flitton
14 and this is my partner, Lara Swensen. We're counsel
15 for the plaintiffs.

16 THE COURT: Good morning. Thank you.

17 MR. WRIGHT: Your Honor, David Wright on behalf of
18 Kane County Water Conservancy District, San Juan County
19 Water Conservancy District and Blue Castle Holdings.

20 MR. MABEY: John Mabey with the firm of MABEY
21 WRIGHT & JAMES representing those same defendants.

22 THE COURT: Thank you, Sir.

23 MS. VALDES: Julie Valdes with the Utah Attorney
24 General's Office representing Kent Jones and the Utah
25 State Engineer.

1 THE COURT: Thank you, Ms. Valdes. Any
2 preliminary matters we need to discuss before we begin?

3 MR. WRIGHT: I don't think so, Your Honor. I
4 think we've stipulated to admissibility of exhibits.

5 THE COURT: Great.

6 MR. WRIGHT: Just a couple housekeeping things
7 before we get started. I've got witness copies of our
8 exhibits, which I'll have the witnesses refer to and
9 this is actually what will come into evidence.

10 THE COURT: Perfect.

11 MR. WRIGHT: We've got a bench courtesy copy.

12 THE COURT: Thank you very much. I appreciate
13 that. It's my understanding the parties have agreed
14 that the well prepared briefs that were submitted to
15 the Court will substitute for opening statements?

16 MR. WRIGHT: Correct.

17 THE COURT: Call you first--let's see, then, we'll
18 allow the defendants to call their first witness.

19 MR. WRIGHT: Thank you, Your Honor. I'll refer to
20 the group on our side as the Applicants--

21 THE COURT: Perfect. That would be easier.

22 MR. WRIGHT: --so that I don't have to repeat the
23 names.

24 THE COURT: I think that would be more clear in
25 the record as well.

1 MR. WRIGHT: Yes.

2 THE COURT: Thank you.

3 MR. WRIGHT: Thank you. Your Honor, Applicants
4 call Aaron Tilton.

5 THE COURT: Aaron Tilton, please come forward and
6 raise your right hand and be sworn, Sir. If you would
7 stand and raise your right hand, right there, if you
8 would.

9 AARON JASON TILTON called as a witness by the
10 Defendants, being first duly sworn, was examined and
11 testified on his oath as follows.

12 THE COURT: Please have a seat in the witness
13 chair, Mr. Tilton.

14 DIRECT EXAMINATION

15 BY MR. WRIGHT:

16 Q. Good morning, Aaron. Would you please tell
17 the Court your full name?

18 A. Aaron Jason Tilton.

19 Q. And what is your role at Blue Castle Holdings?

20 A. I am the President and CEO.

21 Q. And what does that mean? Day-to-day, what
22 does that mean?

23 A. That I'm involved in most of the activities
24 that go on. Understand the basic overall strategies of
25 the company and help guide those that are tasked with

1 carrying out specific activities and over-seeing the
2 operations of the company.

3 Q. And, for purposes of introduction, would you
4 tell the Court who else from the Blue Castle entity is
5 here and what their respective roles are? Let's start
6 with Tom Retson.

7 A. Tom Retson is the COO of the company and
8 effectively oversees the licensure activities in the
9 pre-application stage, collecting data and interfacing
10 as the first contact for our vendors and our prime
11 contractor.

12 Q. Okay and Dr. Nils Diaz, what's his role?

13 A. He is the CSO, or Chief Strategic Officer, and
14 advises the company on strategic management related to
15 licensing and various other issues related to the
16 company and strategic initiatives, whether it be joint
17 ventures or other things related to the nuclear power
18 industry.

19 Q. Okay and Rob Graber?

20 A. Rob Graber is the Chief Economist for the
21 company and Vice President and, essentially, looks at
22 the economics behind nuclear power and other power
23 sources in comparison and advises us on the optionality
24 of the project and takes care of any of the analysis
25 that we need to advise the Board or the officers of the

1 company.

2 Q. All right and, finally, Reed Searle?

3 A. Reed Searle is the Chief—or, the Senior V.P.
4 of Business Development and his prime activities
5 surround the interface with utilities and other
6 potential participants to the project and as well as an
7 industry advisor related to the power industry in the
8 marketplace, here, in Utah.

9 Q. Now, the water rights at issue in this case
10 are actually owned by the two conservancy districts and
11 they are leased to Blue Castle, correct?

12 A. That's correct.

13 Q. What is Blue Castle's role in the
14 applications, themselves, up to and including today,
15 for seeking approval?

16 A. Well, we have to, essentially, take our
17 proposed site, look at the feasibility and the
18 processes that we need to undertake to get the
19 necessary approvals from the Nuclear Regulatory
20 Commission to use that water in the operations of the
21 Nuclear Power Plant eventually.

22 Q. So, in effect, Blue Castle is, really, the one
23 pushing the applications with the assistance of the
24 districts?

25 A. Yes.

1 Q. And would you please tell the Court what is
2 the status of the project today actually down in Green
3 River?

4 A. We spent about five years, to date, working on
5 the project. We have about fifty percent completion in
6 what's called the application of an early site permit.
7 It's about fifty percent complete and we continue to
8 collect data, go through the process to have it
9 analyzed and work towards getting the licenses and
10 applying for licenses to the Nuclear Regulatory
11 Commission.

12 Q. And who is the primary contractor for the
13 early site permit?

14 MR. WRIGHT: And we'll refer to that, Your Honor,
15 as, often, ESP.

16 THE COURT: ESP.

17 A. Intercontin.

18 Q. Okay. Aaron, would you turn to Exhibit 9A,
19 please?

20 MR. WRIGHT: Just for clarity's sake, we have
21 stipulated to admissibility, Your Honor. So, we're
22 just going to dive right in and talk about exhibits—
23 they're in evidence—with the Court's permission.

24 THE COURT: I guess it will be in the binder.
25 Very good. Go ahead.

1 MR. WRIGHT: All right, thank you.

2 Q. Aaron, you have, in front of you, Exhibit 9A,
3 titled Water Right Lease Agreement. This is one of the
4 leases that allows Blue Castle to lease the water
5 rights for purposes of the project development. Is
6 that right?

7 A. That's right.

8 Q. And, as far as you are aware, is Blue Castle
9 in full compliance with the lease terms?

10 A. We are.

11 Q. For purposes of developing the project and,
12 specifically, with respect to the change applications,
13 who is paying the freight, including the attorneys fees
14 incurred so far, to pursue the applications?

15 A. Blue Castle Holdings.

16 Q. And how does that arrangement work with the
17 districts?

18 A. Essentially, in the process to prove-up the
19 change application and go through this, we are billed
20 from the county water conservancy districts. I believe
21 that the attorneys, your firm, bills them and, then,
22 they bill us.

23 Q. Okay and is that true for all other costs
24 associated with the applications?

25 A. For the most part. It just depends on who is

1 actually executing the activity. If it's something
2 that we do on our side, then, obviously, we don't run
3 the bills through the county. We just pay it
4 ourselves.

5 Q. All right. Okay. Now, under the lease terms,
6 in the eventuality, suppose, that the project was not
7 to progress. What happens to the water rights under
8 the lease terms if the project is determined to simply
9 be not feasible or some other reason that would prevent
10 its continued development?

11 A. The leases would terminate and the right to
12 use that water goes back to the conservancy districts.

13 Q. Okay. Would you take a look at Exhibit 9C?
14 Actually, you know what? We don't need to talk about
15 that one. That's, essentially, the same. Now, are the
16 two leases between Blue Castle and San Juan, on one
17 hand, and Kane, on the other, essentially the same?

18 A. Yeah. The terms are, essentially, the same.
19 A little variance, but essentially the same.

20 Q. And as to the San Juan lease, is Blue Castle
21 in compliance with its obligations under that lease?

22 A. Yes.

23 Q. Now, let's talk about property acquisition.
24 What has Blue Castle acquired, so far, in the way of
25 ground for the project?

1 A. The land that we own is, essentially, in
2 between or makes our property contiguous with the land
3 that's actually being leased. So, we have 120 acres
4 that we acquired, I think it was a year and a half ago
5 and, then, we have an escrow agreement to acquire
6 another little over 1,700 acres through a lease
7 agreement that Emery County has with state
8 institutional trust lands.

9 Q. Okay. Turn to Exhibit 10C. You'll see a real
10 estate purchase contract. Which document is this?
11 Which parcel of land is this contract referring to?

12 A. Let's see. I believe this is the land that we
13 purchased, 120 acres. If you see, right there, at the
14 top, after it says offer to purchase 120 acres of land
15 between lots 3 and 4 of the CITLA lease parcels and
16 certain easement.

17 Q. Okay and, just to be clear, that transaction
18 is actually closed?

19 A. Yes. We own that acreage now.

20 Q. Okay and flip to Exhibit 43, would you? Would
21 you tell the Court what we're looking at on Exhibit
22 43?

23 A. This looks like a satellite image that
24 highlights various infrastructure components that
25 surround the potential site. That dotted oval is

1 approximately the location of the land that we have
2 under lease, as well as the land that we've already
3 purchased.

4 Q. And what is it about this particular site,
5 near Green River, that makes it suitable at least to
6 begin the ESP process?

7 A. Well, there's significant work that went into
8 the selection of the site. I won't belabor the
9 process, but we spent quite a bit of time looking at
10 several different states, then, Utah and other
11 locations and we had criteria that we listed highest on
12 our priority list and one of which is water and, then,
13 access to transmission and, then, rail access and
14 interstate highway access. So, those components that
15 are listed there are very important for us in being
16 able to execute the plan that we have as a business.

17 Q. Okay. Now, as to the other parcel of property
18 for the larger project, would you turn to Exhibit 61?
19 You'll see another real estate purchase contract. Tell
20 me the status, again, of these parcels. I may be
21 wrong, but is this the CITLA land or was the first
22 acquisition CITLA land?

23 A. The first acquisition was another organization
24 and this is the CITLA land, this Exhibit 61.

25 Q. Okay and status of that agreement?

1 A. It is currently in escrow. We opened escrow.
2 So, the purchase agreements have been executed and
3 the—we have a certain period of time to complete that
4 purchase. Essentially, as long as the lease is in
5 effect, this escrow agreement is open. There are a
6 couple of stipulations related to it that—there's some
7 financial approvals related to our board in this that,
8 as long as we approve it, as well as that the site
9 meets the criteria that we believe would satisfy the
10 intercity requirements for the site. So, we're in the
11 process of looking at those with our prime contractor
12 to adjudicate the suitability and feasibility for the
13 site.

14 Q. So, if it turns out that the ground isn't
15 suitable, you're not stuck with it?

16 A. That's right.

17 Q. Okay. Now, let's talk about the investment
18 made so far in the project. How much has Blue Castle
19 spent on the project as a whole since its inception?

20 A. About seventeen and a half million. It's
21 ongoing. There is some variation of that, yeah.

22 Q. Right and is any of that money borrowed?

23 A. No.

24 Q. Would you look at Exhibit 59 and could you
25 tell the Court what we're looking at on 59?

1 A. It looks to be a report of cash disbursement
2 by account that, effectively, segments our costs and,
3 then, sums those as a total, again, seventeen and a
4 half million.

5 Q. And I see an entry, under professional fees,
6 for engineering at a little over ten million. What
7 kind of engineering and where did that money go?

8 A. The majority of that went to Intercon, as our
9 prime contractor, for the application and preparation
10 for the ESP that would be submitted to the NRC. There
11 are, probably, some others in there associated with
12 some roads and a few other things that we've had to
13 build at the site but, for the most part, that's mostly
14 Intercon.

15 Q. And is Blue Castle current on all of its
16 accounts payable?

17 A. Yeah.

18 Q. We have some economists that are going to
19 testify, later, about Blue Castle's, sort of, business
20 model and business plan and how it's looking into the
21 future, in economic terms, but would you give the Court
22 at least just a brief summary of the Blue Castle model,
23 where we're headed and, sort of, the time horizon?

24 A. Okay. The genesis of the company is,
25 essentially, a very simple concept; that, as Blue

1 Castle, we see our primary job to de-risk the
2 deployment of a new nuclear power plant. Very common
3 in developing large major electrical infrastructure is
4 a high amount of risk associated with acquiring assets,
5 water rights, these types of things that utilities, in
6 a lot of cases, specifically regulated utilities, have
7 a difficult time with and spend an enormous amount of
8 money and a lot of time. It adds to their risk
9 profile.

10 So, in our business model, we see ourselves as the
11 company that de-risks that for existing utilities and,
12 then, we take the first ten years in the process of
13 acquiring assets and licensing a site and add value to
14 the project and, then, participants come into the
15 project on an as-needed basis or at least see some
16 strategic value to buying into the project. We started
17 the company in approximately 2007. So, we've been,
18 now, going almost six years into the process and
19 believe we have another four and a half to five years
20 before the licenses in ESP and COL could be issued, the
21 two of them that we would apply for in the near future,
22 and we'll continue to invest and de-risk the project as
23 we see meets our needs and the needs of potential
24 participants best.

25 Q. And let's assume that the applications before

1 the Court today are approved and an ESP, an early site
2 permit, is actually granted. What are Blue Castle's
3 options at that point?

4 A. Well, an ESP, essentially, characterizes the
5 site as suitable for an envelope of technologies. So,
6 we wouldn't, at that point, have chosen or selected a
7 technology unless a few other items happen, we do some
8 joint ventures or do something, but that allows us,
9 again, to have other utilities come participate on a
10 de-risk basis so they could come in and acquire either
11 percentages of the company or interest in the output of
12 the potential or future plant and, essentially,
13 participate on those two options.

14 Q. And, sort of, generally speaking, anyway, how
15 would you characterize the interest in either
16 participation in the project or purchasing power based
17 on the market research you've done so far?

18 A. It's significant. Over the last five years,
19 as we continually meet with utilities, update them on
20 our progress, we've had over eighteen utilities with
21 about 4,500 megawatts worth of interest. Obviously,
22 not all of those would materialize. We would only have
23 a maximum of 3,000 megawatts in output, but there's a
24 significant amount of uncertainty for utilities in
25 acquiring generating assets. So, they have to keep all

1 their options open as well and we end up being a good
2 option for them that's low risk.

3 Q. Okay.

4 MR. WRIGHT: No further questions, Your Honor.

5 THE COURT: Thank you, Mr. Wright. Mr. Flitton,
6 cross-examination?

7 MR. FLITTON: Yes. Thank you, Your Honor.

8 CROSS-EXAMINATION

9 BY MR. FLITTON:

10 Q. Good morning, Mr. Tilton.

11 A. Good morning.

12 Q. Let me ask you a few questions about Blue
13 Castle and just follow up, a little bit, on the
14 structure and organization. You said that Blue Castle
15 was founded in 2007. Is that correct?

16 A. Well, initially, the first company that we
17 started doing the development under was called
18 Transition Power Development and, so, that company was
19 started in 2007 and, in 2008, we formed Blue Castle
20 Holdings to hold the assets of our initial activities
21 and to allow us to issue securities for a capital
22 raise.

23 Q. Okay. With Transition Power Development, how
24 was that originally funded on a capital basis?

25 A. Internally, with the founding partners.

1 Q. Okay. So, each of the founding partners made
2 an investment into the company?

3 A. That's correct.

4 Q. Okay and, then, once it became Blue Castle
5 Holdings, was there an initial capital contribution
6 into the company?

7 A. We had some investors. So, we started issuing
8 securities. We had some investors on a various basis
9 but, primarily, I think, at that time, initially, maybe
10 five shareholders, I think, including the founders.

11 Q. Okay. So, were there other shareholders,
12 besides the founders, at that point?

13 A. Some, yes.

14 Q. Okay. How much was their contribution on a
15 percentage basis?

16 A. Oh, I don't know that percentage is, probably,
17 the accurate term. I would say it was, maybe, about a
18 half a million dollars.

19 Q. Of a total of how much?

20 A. For the capital-

21 Q. Yes.

22 A. -in the project? I think we had raised,
23 maybe, seven hundred and fifty thousand at that point.

24 Q. Okay. So, how many shareholders are there,
25 now, in the company?

1 A. Twenty-six.

2 Q. Are any of those major utilities?

3 A. No.

4 Q. Okay. So, they are all individual investors
5 or small corporate investors?

6 A. Yes. That's correct.

7 Q. Okay. You said, I think, that you, if I
8 recall correctly, that you expended approximately
9 seventeen and a half million dollars.

10 A. That's correct.

11 Q. Where does that money come from?

12 A. In 2010, we acquired a company called Willow
13 Creek that builds oil and gas-natural gas oil
14 pipelines, primarily, in North Dakota and Colorado.

15 Q. Okay and they have provided the capital?

16 A. Yeah. We own them.

17 Q. Okay. So, how did that transaction work in
18 terms of did you purchase the company?

19 A. We did.

20 Q. Okay and what were the terms of that purchase?

21 A. Essentially, it's an acquisition that we do
22 through stock. So, you do a stock swap. So, we
23 swapped a portion of our stock for a complete
24 acquisition of that company and, at that point, then,
25 we owned the company outright.

1 Q. Okay. So, the former owners of that company—
2 help me just understand this—they became shareholders
3 in Blue Castle Holdings?

4 A. That's correct.

5 Q. And, so, they're looking at it as a co-
6 investor in some respects. Is that correct?

7 A. That's correct.

8 Q. Okay and how much of the seventeen and a half
9 million has come from Willow Creek?

10 A. I would say about, what? Sixteen? I mean,
11 the large majority of that.

12 Q. Okay. So, I was just trying to track back. I
13 think you said the original investors, the original
14 partners in Blue Castle invested about seven hundred
15 and fifty thousand. The other five hundred thousand
16 came later, with these other investors. Is that right?
17 So, that would, kind of, make up the difference?

18 A. If I understand the question correctly, I
19 think so. There's, approximately, between eight to
20 nine hundred thousand for the first, maybe, two years,
21 or so, during the company and, then, the remaining
22 amounts came through later.

23 Q. Okay and how much is the annual contribution
24 by Willow Creek?

25 A. It depends, but it's, on average, about seven,

1 eight million a year.

2 Q. Okay and what percentage of that company's
3 revenue does that represent?

4 A. The first year that we acquired them, they did
5 thirty-three million. So, I guess, it would be what?
6 About twenty-five percent.

7 Q. Is that gross revenue or is that net revenue?

8 A. Thirty-three is gross. The thirty-three
9 million would be gross.

10 Q. Okay. So, what's the net revenue?

11 A. I think, for 2011, their earnings were about—
12 we were taxed on about twelve and a half million.

13 Q. Okay. So, would you say seven or eight or six
14 or seven went into the Blue Castle process of that?

15 A. Annually, from 2011 to 2012, we were putting
16 about seven to eight million into the company annually.

17 Q. And you said that you anticipate about four
18 and a half years left, four and a half, five years left
19 to get through the permitting process for the early
20 site permit? Is that correct?

21 A. Yeah. I think, if everything goes smoothly.
22 I think so.

23 Q. Okay and how much do you anticipate that that
24 will cost to get through that process?

25 A. The remaining amount would be, depending on

1 the phase process and if we do an ESP only or a COL, it
2 could be anywhere from about forty million to sixty
3 million.

4 Q. Okay. You mentioned the COL. I think that's
5 the first time we talked about it here. What does that
6 mean?

7 A. A COL is, essentially, a construction
8 operating license that would actually allow you to both
9 construct the plant and operate the plant.

10 Q. Okay and is that what you intended to go
11 after? Have you made that decision yet?

12 A. It is one of the options that we do have in
13 our business plan.

14 Q. Okay and how much do you anticipate it will
15 cost to get through that process, the permitting
16 process?

17 A. With just the COL or the ESP, or both?

18 Q. With the ESP or both?

19 A. A total projected budget, with contingency, is
20 about a hundred million.

21 Q. Okay and what is that based on, the budget?

22 A. Our research into the industry, our industry
23 partners that help us estimate what their costs are
24 going to be, you know? Essentially, we go through and
25 look at other ESP's and other contracts that have been

1 signed and our vendors help us determine those budgets.

2 Q. Okay. So, if we used five years as the
3 remaining time that it would take, and I would assume
4 we'd get to that hundred million dollar estimate by
5 that point, right? I mean, once we hit the five years,
6 you will have to spend, you know, whatever--

7 A. It's possible it could cost up to that, yeah.

8 Q. Okay. So, that leaves--and with Willow Creek,
9 you say what? Seven to eight million? Is that--

10 A. Yeah because the oil and gas business goes up
11 and down. It's fairly sporadic. Yeah, that's our--

12 Q. Okay. So, it seems like there's a fairly
13 large gap between a hundred million and, even if you
14 take eight million for five years, that's forty more.
15 You're at fifty-seven million. How do you anticipate
16 raising the additional money?

17 A. Well, in the business model, as I said before,
18 the way it usually works is you go through, de-risk the
19 project, put together the licenses, but during that
20 process, we have had expressed interest from other
21 utilities that say, hey, we'd like to come in during
22 this phase or that phase and they would be required to
23 contribute some additional funds, as well as we have
24 ongoing discussions with strategic joint venture
25 partners who may come in, depending on our desire to

1 either raise capital through that partner or to raise
2 it from our current sources.

3 So, we have some options related to what this best
4 fits our dilution model, as the current owners, and,
5 strategically, some money is more valuable when it has
6 a partner attached to it that may be a vendor. So, we
7 have a couple of different options open to us to do
8 that.

9 Q. Do you have any agreements with any of these
10 parties?

11 A. We have non-disclosure agreements and have, in
12 some cases, signed term sheets and other things that we
13 look at, but we don't execute those until we need that.

14 Q. Okay, but those agreements don't bind anybody,
15 at this point, together in terms of participation?

16 A. No. We wouldn't do that.

17 Q. Okay, but you talk about de-risking the
18 project. What are the risks that are involved with
19 building and funding a nuclear power plant?

20 A. Well, initially, the early risks are
21 availability of basic assets that you need, like land
22 and water. Once you have land and water, then, you
23 have political risks associated with it such as, you
24 know, support of communities or support of state or
25 legislature, political bodies that exist. Then, you

1 have to go through and make sure that what you've
2 acquired has the right characteristics to serve the
3 eventual operations of the plant: seismology,
4 hydrology, demographics of the location, those kind of
5 things.

6 Q. Okay. Will you further compare what you're
7 doing to someone who buys a parcel of land and obtains
8 entitlements for that property to have either someone
9 else come in and invest or to sell that property to a
10 developer once they had gone through the permitting
11 process?

12 A. I would say, maybe, the first phase is
13 comparable to the acquisition and development of
14 permitting entitlements to the property, but the second
15 part that you're discussing is not quite right,
16 through--maybe, an easier analogy of, like, a house or
17 something. You're talking about just regular
18 development or a shopping center. If they were to sell
19 it outright, then, they would have no more involvement
20 in the management of the operation or any of those
21 things of the plant.

22 In our process and our view of our business is
23 there's an amount of value that's developed and we
24 would sell a portion of that to participants and, then,
25 possibly retain a portion of that for ourselves for a

1 long-term participation, but we would not be the
2 operators of the plant.

3 Q. Okay. So, you would just retain an interest
4 in the revenue of the plant? Is that what you're
5 suggesting?

6 A. Yeah and eventual ownership because,
7 effectively, we develop the equity in the project and
8 that equity, then, can carry through the project. It's
9 called carried equity.

10 Q. Right. So, you, kind of, step aside from the
11 operations at that point and just be an investor with
12 whatever utilities or partners?

13 A. We would continue our role to de-risk the
14 project as a developer and as, obviously, having the
15 institutional knowledge for the project, but we're not
16 a nuclear plant operator.

17 Q. Okay. At any point during the process, before
18 you step aside on the operational side, would you be
19 putting any of this water to beneficial use?

20 A. The water would only go to use when the plant
21 is in operation.

22 Q. Okay. So, you already have stepped aside, by
23 that point, as the operator and just be an investor in
24 the company?

25 A. That's one potential outcome.

1 Q. Okay. Are there other potential outcomes? I
2 mean, is this something you've looked at in terms of
3 long-term strategic planning?

4 A. Typically, when you have a power plant, you
5 have an operational committee and whoever the
6 participants, depending on whether you have [inaudible]
7 agreements, power purchase agreements or an equity
8 stake and serve base load power or a load serving
9 center, you have a committee that determines the
10 budgetary process to operate, the profitability, the
11 maintenance, all these types of things and, for a
12 company, like ours, who may have a small percentage
13 that we carry forward into the future, we would have a
14 stake and a voting right in that process. So, it's not
15 as if you would step aside and be an absentee
16 participant. We'd be, you know, could be, potentially,
17 part of that operating committee.

18 Q. Let me—let's talk about budget just a little
19 bit. You gave me a list of items, in terms of what the
20 risk is, and I'm using your term, you know, your goal
21 in de-risking this project.

22 A. Uh-huh [affirmative].

23 Q. And you talked about acquiring assets and the
24 politics and, you know, the permitting process and
25 those kinds of things. One of the things I didn't hear

1 you mention was the financial risk of, ultimately,
2 being able to build one of these plants. Is that a
3 risk as well?

4 A. Yeah, it is. In the future and the process
5 that a lot of utilities are moving to, and have used in
6 the past, but primarily for nuclear power, is what's
7 called an options model, right? So, the licensure,
8 from the standpoint of a structure, allows you to
9 engage in the early site permit to de-risk it before
10 you have to commit the significant amounts of dollars
11 for construction. So, that process is, actually,
12 built-into the licensure, the structure of the license
13 or the permit from the Nuclear Regulatory Commission.
14 So, they've segregated the eventual cost or risk of
15 construction from the suitability determination of the
16 site.

17 So, the Nuclear Regulatory Commission actually
18 favors that process. It was developed over the last 20
19 years to ensure that a utility or developers didn't
20 have to commit to an eighteen or sixteen billion dollar
21 asset before they determine the feasibility or
22 suitability of the site and that, inherently, builds
23 the option value in a project and Florida Power & Light
24 is an example of that. They're doing the same thing
25 that we're doing.

1 Q. How many—I assume—let me ask you the question,
2 first. You've looked at the industry as a whole, I
3 think you said, correct?

4 A. Sure.

5 Q. Okay and, as part of your analysis and, I
6 guess, your economic and strategic analysis, you, kind
7 of, looked at feasibility and the cost. Have you also
8 looked at current projects that are being built or that
9 are in the permitting process? Are you aware of those
10 projects?

11 A. Yeah. We continually monitor the industry for
12 developments.

13 Q. And how many nuclear power plants are
14 currently being built?

15 A. Under new licenses in the United States, there
16 are four reactors under construction. In South
17 Carolina, there are two. In Georgia, there are two.
18 Under an existing license, there's one under
19 construction. The license was issued, previously,
20 under the old construct.

21 Q. And how many are in the permitting process at
22 this point?

23 A. You know, that ebbs and flows but, I think,
24 anywhere from 18 to 13, depending on some of their
25 applications may be going forth. Some of them, they've

1 slowed-down on with the economic down turn in the
2 economy. Some of those applications slowed down and
3 were suspended. So, I think there were some ranges,
4 depending on where the companies are in their process,
5 from 18 to 13, I think.

6 Q. Would that be active applications, then?

7 A. Yes and let me, maybe, say this. I'm,
8 probably, not the best person for that. That would,
9 probably, be Dr. Diaz, or somebody else, that's charged
10 with looking after that part of our project.

11 Q. Okay and are you aware of the concept of
12 advanced cost recovery statute?

13 A. Sure.

14 Q. Okay and what is that?

15 A. Essentially, when a regulated utility builds
16 an asset for their power delivery system, either in
17 generation or transmission, they have to have a way to
18 finance that process and, typically, they would go to
19 whatever governing body they have. In our case, in
20 Utah, we have a Public Service Commission and that
21 Public Service Commission has statutes that determine
22 how assets get built and paid for in a particular
23 service territory and, in some cases, a company can
24 request rate recovery or begin receiving money for an
25 asset that they are starting to build or will build in

1 the future so that they can lower the amount of capital
2 that they have to borrow and it makes the asset
3 cheaper.

4 Q. Does Utah have such a statute?

5 A. They do not. They, typically, have a used and
6 useful criteria that, essentially, says, if they build
7 something, they will begin to get rate recovery after
8 it goes into production.

9 Q. Okay and correct me if I'm wrong, but it's my
10 understanding that both Georgia and North Carolina have
11 such statutes. Is that right?

12 A. That's correct.

13 Q. Okay and is that a factor in why those plants
14 are being built there?

15 A. I'm sure it is.

16 Q. Okay, what about in the western states. Does
17 California have such a statute?

18 A. You know, I think that they—I'm not sure that
19 they have advanced rate recovery, but I wouldn't know
20 that. Rob Graber could, probably, answer that question
21 or somebody else on our team, but I'm not sure.

22 Q. But you said you've had discussions. I think—
23 let me just find the numbers. You talked to 18
24 utilities. You've had 18 utilities show interest in
25 forty-five hundred megawatts of power, right?

1 A. Sure.

2 Q. Is that correct?

3 A. Uh-huh [affirmative].

4 Q. Okay. What has been the nature of those
5 discussions?

6 A. Typically, we'll go to a utility, present the
7 status of a project, give an estimated time of when we
8 think something could be decided on a construction
9 basis, give them a date that we think the earliest it
10 could be constructed and, then, an in-service date and,
11 then, talk to them about the needs that meet up in the
12 timeline of the projections and what their load needs
13 are for, say, like 20-20, 20-25, those kind of window
14 and, then, discuss transmission, how to get the
15 electricity to the marketplace and determine what type
16 of portfolio they might have at that point and where
17 nuclear power would fit into that base load of
18 resources in their portfolio.

19 Q. So, in other words, you're initiating these
20 conversations with these utilities, telling them that-

21 A. Sometimes, they call us and, sometimes, we
22 call them.

23 Q. Okay. When they call you is it because
24 they've heard, from others, that you're out looking to-

25 A. Yeah.

1 Q. --shop the power, eventually? Okay and-

2 A. I would state that the participants in the
3 process, when you say shop the power, is a little bit
4 of a misnomer. They would be equity owners and, so,
5 we're not a merchant developer. We don't build a power
6 plant or look to build a power plant and, then, sell
7 what's called a power purchase agreement on the market.
8 That's not the basis of our model. The basis of the
9 model is to actually have equity participation from the
10 utilities.

11 Q. Okay. So, in other words, these other
12 utilities would come in. They would bear the burden of
13 building the plant and, then, you would realize return
14 of your investment as whatever percentage owner in that
15 plant ultimately. Is that right?

16 A. Yeah, very similar to Palo Verde or,
17 virtually, any large power plant in the western U.S.
18 has that similar structure where they have multiple
19 owners that come in. They have a sponsoring entity
20 that started the project and, in most cases, own all
21 the assets and, then, they divest of that as other
22 equity participants come in. So-

23 Q. Okay. So, I guess, in looking at this, how
24 many nuclear power plants have been built on the model
25 that you suggest? Are you the first in terms of this

1 de-risking concept of, kind of, trying to package
2 everything and, then, get investors later on?

3 A. No. Around the world, I'm sure there's been
4 multiple projects started. For example, in the U.K.,
5 there was the Horizon project that was very similar to
6 ours EON and RWE, essentially, went in and bought up
7 the assets, started a project, got some entitlements
8 going, got some of the basic water and land and, then,
9 sold, it off to another utility and, then, they are in
10 the process of doing that same thing, moving that
11 project further.

12 Florida Power and Light, as I said, are doing the
13 same thing. They are using the option or value basis
14 in the timeline that it takes that's unique to a
15 nuclear project is that it's spread out over, in longer
16 period of time, as compared to, say, like a natural gas
17 plant that takes, maybe, three or four years to
18 complete from inception to completion. Nuclear power
19 is somewhere in the order of 12 to 15 years, depending
20 on the time it takes to acquire the assets.

21 So, no, we're not the first and I don't think that
22 we'll be the last and it's very similar to Palo Verde
23 or these other projects that have been out there where
24 they have multiple owners.

25 Q. Okay. Do you have any agreements with any of

1 these utilities, that are in place now, that commit
2 anybody in terms of investing later on or, you know,
3 joining in on funding this huge project?

4 A. You know, we wouldn't sign early agreements
5 unless there was some strategic value to it because, as
6 a business, again, our model is to de-risk it and,
7 while we're in the process of de-risking the business,
8 unless it was a very good deal for us, we, probably,
9 wouldn't sign early agreements more beyond more like an
10 MOU or some type of letter of intent or those types of
11 things because it would, essentially, sell short the
12 value of our project. We have the ability to invest
13 our own capital, as you're seen, and we've been doing
14 and, every dollar that we put in, there's a return
15 associated with that dollar and we try to maximize
16 that. So, it's still a little too early for us to sell
17 off a large portion or some kind of equity
18 participation in it that didn't realize the eventual
19 value that we're looking for later on.

20 Q. What percentage return do you expect to get at
21 the end of the day if everything goes your way?

22 A. You know, that's a hard calculation to do
23 because it forecasts something into the future that
24 would be over a, you know, a decade or so and, so,
25 based on the time value of money, we would look to, you

1 know, over a ten-year period, hopefully, make a, you
2 know, maybe, a three hundred percent return, you know?
3 So, maybe thirty-three percent annualized return
4 depending on different structures with the capital and
5 the cash, most of it being equity and none of it being
6 debt. So, on an annualized basis, that's, probably,
7 accurate and, hopefully, more. So—

8 Q. Have you figured what kind of percentage
9 ownership in the ultimate project you would retain
10 then?

11 A. It would be a minority position.

12 Q. But do you have a percentage range?

13 A. I wouldn't say that it would be more than ten
14 percent or so. It could be less. It could be none.
15 You know, it just depends on what the deals are at that
16 time and in a five to ten year period.

17 Q. Okay. You said, earlier, that you wouldn't
18 want to enter into these binding agreements and get
19 funding. I guess I don't quite understand that
20 because, it seems, to me, that that would minimize the
21 risk to you as well if you had a major utility, at this
22 point, who is willing to say we're committed to this
23 project. Even with contingencies, or something else,
24 saying, you know, given—if the permitting goes through,
25 then, we're committed to this project. Why don't you

1 think that's a good business model to pursue?

2 A. It would just all depend on the deal that they
3 would like to strike and, for example, if we bring in a
4 utility or a technologic partner or somebody on the
5 industry side, that they would bring funding along with
6 that. There are other risks that they bring. For
7 example, somebody may want to use the specific
8 technology, specific reactor that another utility might
9 not like and, so, they would have a harder time
10 bringing in another utility if the selection was
11 already made on a technology.

12 So, there are trade-offs to that. The capital is
13 always necessary, but the structure, the form and the
14 strings that come along with that capital, sometimes,
15 give us some higher risk in other areas that we don't
16 have right now.

17 Q. I apologize if—I'm not in the industry and,
18 so, my knowledge is, probably, a little more limited
19 than yours, but the thing I'm having a hard time
20 getting my brain around, a little bit, is that you've
21 got a project that is estimated to sixteen to eighteen
22 billion dollars to complete and you've spent seventeen
23 and a half million at this point in time.

24 A. Uh-huh [affirmative].

25 Q. There's a huge gap there, isn't there, between

1 what you've invested and what the total cost of this
2 project is going to be?

3 A. Well, when you say, in the terms of an overall
4 construction, yes, but when compared to other
5 utilities that are in the same process that we're
6 doing, they're spending right on the same dollar
7 amounts that they would have if they were developing it
8 on their own or with us. You know, there's a process
9 that we're allowed to follow and prescribed to follow
10 that has the advantage of determining suitability and
11 feasibility for the site without spending the billions
12 of dollars.

13 The construction of the process will be spread out
14 across the balance sheets of the eventual participants
15 and, so, there isn't a utility in the world that, when
16 they start a project and go through the early stages,
17 it goes out and raises their, you know, ten billion or
18 eighteen billion dollars and holds it in the bank for
19 ten years. They would be paying interest on that or,
20 you know, that's not a very smart business model.

21 Q. Well, given that huge gap, though, between
22 where this project is now, in terms of funding, you
23 know? If I heard you correctly, you know, we're up
24 around fifty-seven million dollars total through the
25 next five years of an eighteen billion dollar plant.

1 Doesn't that strike you as a little bit risky and
2 speculative? I mean, just because of that huge gap
3 between where you are and where you need to be?

4 A. No. I wouldn't be in the business if I
5 thought it was unrealistic.

6 Q. Well, what happens if these utilities decide
7 that the cost of nuclear energy, for example, is too
8 high or the cost of this particular project is too
9 high? How do you get from where you will be in five
10 years, or where you are now, to the point where you can
11 actually have a plant sitting on the ground that is
12 using this water to beneficial use?

13 A. We'd just keep doing the same things that
14 we're doing now as, year-by-year, we continue to invest
15 and de-risk the project and develop the assets on a
16 schedule that is consistent with the rest of the
17 industry.

18 Q. Let me step back for one second. I wanted to
19 talk to you, a little bit, about your experience just
20 to give a little more perspective to your testimony.
21 Tell me about your educational experience.

22 A. All right. I graduated from high school.
23 Attended a few classes for college after that.

24 Q. Okay and, then, I assume you started working
25 at that point?

1 A. Yeah.

2 Q. Okay and what industry were you working in?

3 A. Initially, it was in corporate sales for the
4 hospitality industry, then, for an ISP in the high-tech
5 industry. I worked in regulatory space for another
6 five years with the pharmacy industry.

7 Q. Okay and how did you get into the power
8 industry, then?

9 A. Early on, you know, probably 13 years ago or
10 so, I had a choice to make about what I was going to do
11 with my career and what industry to get into and spent
12 some time researching the current industry that I was
13 in, which was pharmaceuticals, and I thought it had a
14 lot of growth potential and, then, my father had
15 actually been in the construction side of the business
16 for power plants for the last 25 years and he and I
17 spoke and discussed what he thought was going to go on
18 with electricity and energy and power and, so, I took,
19 kind of, a parallel path in both of those and,
20 eventually, the power industry was the one that
21 developed, in my particular case, to work out better.

22 Q. Okay and how long were you involved, before
23 Blue Castle and Transition Power Development, how long
24 were you involved in the power industry?

25 A. Oh, probably, about five years.

1 Q. Okay and what kind of things did you do?

2 A. So, I consulted for two companies that were
3 developing power plants: one in Wyoming, which is
4 currently still trying to produce that plant for a
5 company called North American Power Group and my job
6 was to sell power purchase agreements or pick up
7 participation with utilities in that project; and,
8 then, also, I was a consultant for a company called
9 Nevco and they had a 280 megawatt circulating fluid
10 [inaudible] coal fire project in Utah and I brokered,
11 essentially, the same thing, participation on the
12 project on a little different basis.

13 The one in Wyoming was on a power purchase
14 agreement basis. The one here, in Utah, was on an
15 equity purchase. So, essentially, they were doing the
16 same thing. They invested about six million dollars
17 into an air permit, water and other things that they
18 had acquired and, then, were determining whether they
19 were going to build and operate that plant or whether
20 they were going to sell it off and, so, my job was to
21 determine the market feasibility and interest of some
22 other utilities in the area, Public Service of New
23 Mexico, Black Hills of North Dakota and, so, I
24 conducted a process to sell the assets to those
25 utilities and received the term sheets and the

1 agreements, the negotiations for that process and
2 successfully got both of those to make offers to the
3 company.

4 Q. And what was the total cost of that project?

5 A. You mean on the feasibility or when they were
6 developing it or the total cost to build it?

7 Q. Well, you said—I'm talking about the 280
8 megawatt plant, correct?

9 A. Uh-huh [affirmative].

10 Q. And I'm talking about—let me make sure I
11 understood you correctly. What you're telling me is
12 you went to New Mexico and Dakota or whatever to get
13 them to participate in building that plant and, then,
14 being joint owners of the plant, correct?

15 A. A little different. They were wanting to buy
16 the project, outright, as it sat. They had an air
17 permit. They had their water. They had the assets,
18 the land, those type of things and were ready to either
19 move forward to construction or sell the equity.

20 Q. So, that scenario was a little more like the
21 developer entitlement scenario I gave you earlier,
22 correct?

23 A. Very similar, yeah.

24 Q. Okay and, so, do you know what the total cost,
25 at that point, was to construct?

1 A. About—at the time of the estimates, this was,
2 again, 2003. So, this was ten years ago. The
3 estimates ranged anywhere from about seven hundred
4 fifty million to, maybe, a billion dollars depending on
5 what technology they used and what the eventual project
6 looked like.

7 Q. Okay and have you done any analysis to compare
8 what the cost of that per kilowatt hour is, for
9 example, as opposed to what you project the cost to be
10 per kilowatt hour for this nuclear plant?

11 A. Yeah. Rob Graber does that on a consistent
12 basis for us, what's called the levelized cost of
13 electricity. I think what they had calculated at that
14 time was something on the order of about eight cents a
15 kilowatt hour. That was ten years ago.

16 Q. And you're talking about the coal fire plant,
17 right?

18 A. That's correct.

19 Q. Okay and what's the projected cost for the
20 Blue Castle plant?

21 A. Rob would be a better person to ask that, but
22 I think our range is anywhere from about eight to ten
23 cents, something along those lines.

24 Q. Okay. Did you have any other experience in
25 the power industry besides those—

1 A. Those two projects?

2 Q. Right.

3 A. That was pretty much it. I did sit on the
4 committee with the State Legislature. I sat on the
5 Public Utilities and Technology Committee for four
6 years.

7 Q. Okay and you haven't had prior experience in
8 the nuclear industry, correct?

9 A. No.

10 Q. Okay. Let me ask you a little bit about these
11 water rights. How did you come to acquire the leases
12 for these two water rights? I mean, what led you to
13 Kane County, for example, or to San Juan County Water
14 Conservancy Districts?

15 A. Yeah. So, the Kane County Water was pretty
16 interesting. In 2005, and I'll try to be quick, but
17 give a little context. In 2005, the State actually
18 passed some legislation that required the study of
19 nuclear power in its energy act and that was an
20 amendment made on the floor by Representative Daw and,
21 up to that time, my experience was primarily limited to
22 natural gas and coal fire projects that I had been
23 working on, as we had discussed before, and I think Tom
24 Retson read something in a newspaper in North Carolina
25 that we were doing something like that and he contacted

1 the chairman of the committee, which happened to Mike
2 Noel, and Mike Noel was also the general manager, or is
3 the general manager, of the Kane County Water
4 Conservancy District.

5 So, Tom contacted him about coming out and helping
6 testify or provide testimony, as he was a former
7 executive from GE Nuclear, and in a conversation that
8 Mike and I had had, he knew that I had helped develop
9 coal fired projects before and he said, hey. We've
10 gotten water from a defunct coal fire project and
11 Andalex said, I guess, either donated the water rights
12 or, somehow, they came into possession of these water
13 rights that were scheduled to be used for a coal fired
14 power plant, but that President Clinton had made a
15 national monument out of the location where they were
16 going to get their coal from so that that water, now,
17 could not be used for accelerating approved purpose
18 and, so, as we talked, he said, hey. If you ever think
19 about doing another project somewhere, we've got water
20 for a coal fired project and I, kind of, logged that
21 away and, later, Tom came into town and talked to Mike
22 Noel and myself and we had dinner and Tom said, hey.
23 We ought to do a nuclear project. If you've got water,
24 I've got the nuclear background and [inaudible] has got
25 the local experience in the development of the other

1 power projects. It could be a good fit and that's,
2 kind of, the genesis of it.

3 Q. Let me ask you a little bit about the water
4 lease agreements. Remind me, again, of when you signed
5 those lease agreements.

6 A. I think—I'd have to, maybe, refer you to the
7 exhibit. It's been five years ago, or something like
8 that.

9 Q. Okay. That's good enough. Did you pay money
10 to acquire the lease initially? Did you pay an up-
11 front fee to acquire that lease?

12 A. Yeah, we did.

13 Q. How much was that?

14 A. I think it was ten thousand dollars.

15 Q. For each or in total?

16 A. Yeah, for each.

17 Q. Okay and what has been the annual cost since
18 that time?

19 A. It ranged because Blue Castle is responsible
20 for all the expenses associated to the adjudication of
21 the water rights. So—

22 Q. But that's, kind of, part of your permitting
23 process, isn't it? That's something you need to
24 acquire in order to move this project forward, correct?

25 A. Yeah, that's correct.

1 Q. Okay. I'm talking about what the cost of the
2 water is. What have you paid to have the right to use
3 that water or to hold that water since you entered into
4 the lease agreements?

5 A. Well, specifically, in the contract, it spells
6 out until the water can be used and, without a change
7 application approval, we can't use it. So, we're not
8 paying to use it, but are paying to get that approval
9 to go through and, then, once the change applications
10 are approved and unappealable, then, we have to start
11 paying for the water, to hold that.

12 Q. So, that's when those payments kick in?

13 A. That's correct.

14 Q. And how much are those?

15 A. I, again, refer you to the contracts, but I
16 believe it's eighty thousand a year to San Juan County
17 and, maybe, a hundred thousand a year to Kane County
18 and, then, after--that's for a five year period. After
19 the first five years, then, it escalates to as much as,
20 I believe, five hundred thousand dollars a year and,
21 then, when the plant is in operation, it's, I believe,
22 a million for Kane County and eight hundred thousand
23 for San Juan County.

24 Q. Okay. So, up to this point, and I'm not
25 talking about the legal fees or the, you know,

1 application fees or anything like that, what you spent
2 on both of these leases is approximately ten thousand
3 dollars each, correct?

4 A. To sign the lease.

5 Q. Okay, but you haven't made any payments for
6 the water itself. You just paid bills relating to the
7 process that you're taking these rights through now,
8 correct?

9 A. Yeah. The only payments that we have made
10 related to the water is what it has cost us so far to
11 adjudicate it, which is, probably, in the range of—
12 again, guessing, but we're going to be close to a
13 hundred and fifty thousand, maybe two hundred thousand
14 by the time it's all said and done.

15 Q. Okay and, so, just trying to—have you
16 calculated what the cost per acre foot is for those
17 first five years after you have final approval of the
18 water and change applications?

19 A. I haven't looked at the cost per acre foot.

20 Q. I guess, what I'm looking at is, I think you
21 said a total of about a hundred and eighty thousand a
22 year to the two conservancy districts once that
23 happens, correct?

24 A. For the first five years.

25 Q. Okay. So, basically, you would be dividing

1 fifty-three thousand six hundred by a hundred and
2 eighty thousand, right?

3 A. Yeah, but we wouldn't be using any water at
4 that time.

5 Q. Okay and have you calculated the total cost of
6 the water once the project becomes operational, what
7 the annual cost of the water is per acre foot?

8 A. Not per acre foot, but the annual cost would
9 be a million eight per year and, then, there's a CPI
10 index where it escalates by a CPI.

11 Q. Okay. Let me ask you about the assets that
12 you've acquired so far. How much was the purchase of
13 the 180 acres, 120 acres of land?

14 A. Hundred and twenty acres?

15 Q. Yeah, how much did you purchase that for?

16 A. Without looking at the agreement, I think it
17 was a hundred and thirty-three thousand, something on
18 that order, something like that.

19 Q. Okay and what's the purchase price for the
20 seventeen hundred?

21 A. It's—it has a little bit of an index in that
22 one as well. Initially, when we signed that escrow
23 agreement, I think the calculation was to appoint two
24 million for that.

25 Q. And how much have you spent, so far, in terms

1 of this lease agreement for that property?

2 A. Annually, we have to pay about ten thousand a
3 year. Then, we have to pay extensions on the escrow
4 agreements about every six months. So, we're,
5 probably, into that about thirteen thousand a year to
6 maintain that escrow and lease.

7 Q. And how many years have you had that
8 obligation?

9 A. I would say going on four, maybe.

10 Q. Okay. So, you spent about fifty-two thousand,
11 fifty thousand on that property so far already?

12 A. Well, we also have costs associated with
13 actually getting that together. There was another—I
14 think we paid about another twenty-five thousand on
15 what was called the State Historical Preservation Study
16 that we did and archaeological and paleontological
17 study on the site to make sure that it could be
18 disposed of by the State. We've had to build roads
19 there and build certain things for access, have it
20 surveyed, you know? All the things that you have to do
21 in order to get that ready to go to be purchased.

22 Q. Okay. Are there any other assets, besides
23 your lease agreement for the land, the purchased
24 property and the water rights that you've acquired?

25 A. The largest asset that will be associated with

1 the project will be the permits and, so, the pre-
2 application data that we're collecting and acquiring,
3 and the eventual applications and licenses, those are,
4 by far, the most significant in terms of the value of
5 doing something with the water.

6 Q. Okay. So, just to put that in perspective,
7 because I know you spent seventeen and a half million.
8 Using the numbers that you've given me, in terms of,
9 you know, what you spent on just these physical assets,
10 you know, it's two hundred and twenty-five thousand or
11 so, so far, correct?

12 A. Without doing a more accurate calculation, I
13 would say that's right. Typically, with power
14 development, that is the case because you take an asset
15 that is, typically, located in a place where nobody
16 really wants to live and the value of the land and the
17 other things is very low and, at that point, it's far
18 more risky and has a higher risk associated with it
19 and, so, our job in de-risking that makes it more
20 valuable as you go along. So, I think that would be
21 accurate, but the real value in the project is built as
22 we go through the process of licensing for its intended
23 purpose.

24 Q. Okay. So, because based on what we've heard,
25 it doesn't sound like it would have been difficult for

1 a utility, for example, to come in and acquire these
2 same assets, right? There was no special expertise you
3 had in being able to put these assets together that a
4 utility company does, right?

5 A. Actually, it's very difficult for them to do
6 that.

7 Q. Why?

8 A. They're not allowed to spend a dollar before
9 they get approval from the Public Service Commission,
10 or I will say this, they won't spend a dollar until
11 they get approval to get a return on their investment
12 and, so, during the process of building a nuclear power
13 plant, or any asset, for that matter, they go through a
14 competitive bid process that takes about two years to
15 complete the competitive bid process. Then, they would
16 have design engineering and go through that stuff.

17 So, before they can even acquire an asset, they
18 have to go through this process that takes three years
19 and that, as part of what we do as a company, in that
20 we're preparing these assets for them so that, when
21 they go to the Public Service Commission for
22 participation, they have reduced the rate to the rate
23 bearers in the process.

24 Q. Okay and that brings up an interesting point
25 because, later on down the road, if you get utilities

1 to come in and buy into this project, correct? Don't
2 they have to go through that same process, still,
3 though, of having their respective public service
4 commissions look at what this investment is, look at
5 what the cost of the ultimate rate payers are going to
6 be and okay that investment in terms of at least
7 okaying a return on whatever investment the utility
8 wants to make?

9 A. Absolutely and, for example, if you look at
10 the PacifiCorp. IRP, nuclear power didn't appear in
11 their IRP in 2003. So, ten years ago, they weren't
12 even considering the nuclear because of the integrated
13 risks that they have listed in the IRP and it was
14 acquisition, all the things that we were just talking
15 about, those risks and, then, in 2007, nuclear started
16 to appear in the IRP and, then, about 2011, nuclear was
17 an option in the IRP, specifically, and, maybe, it was
18 the 2012 IRP, but it cites our project, the Blue Castle
19 site, and it associates our site with an AP1000.

20 So, for exactly the reasons you've discussed, you
21 can see that they went from nuclear not even being
22 feasible, now, to citing our project in their IRP,
23 which is their planning document. So, when they look
24 at going forward, sometime in the future, with nuclear,
25 they will have already introduced the Public Service

1 Commission to that concept through the IRP, the public,
2 and gone through this process so that it will be
3 something that they can go to the Commission to get
4 approval for in a rate recovery or go through an RFP
5 process.

6 So, anybody else that could provide a new nuclear
7 power plant would go into an RFP or request for
8 proposal and, during that process, then, they would
9 select the best one.

10 Q. Okay. What other power sources are there in
11 that IRP?

12 A. Virtually, they have demand side management,
13 which is actually not a source. It's a reduction of
14 use and they consider natural gas. They don't consider
15 coal viable anymore, from what I've seen in the IFP.
16 Again, our expert is Rob Graber on the IRP's involved
17 in that process. He meets with them at their regular
18 meetings. I think they have some solar assets,
19 geothermal, you know? It just, kind of, runs the gamut
20 of what's available in the marketplace.

21 Q. Just so there's no confusion, though, you
22 know, the IRP does not simply look at your project. It
23 looks at the range of different types of power.

24 A. Anything that they might plan for in the
25 future on a ten-year basis and, then, a twenty-year

1 basis and, then, what they build is based on that IRP
2 on the next two to four years.

3 Q. Okay and, in 2003, when they put the last IRP,
4 right? I mean, the initial that we talked about, the
5 2003, is that right? That's when you said nuclear
6 power was not in there.

7 A. That's correct.

8 Q. What was the State's position with respect to
9 nuclear power at that point?

10 A. You know, I'm not sure.

11 Q. Have there been any changes, in terms of state
12 policy, since 2003 related to nuclear power?

13 A. The ones that I could talk about. I couldn't
14 talk about what was before 2003, but I can tell you
15 what's happened recently or, maybe, the last eight
16 years or so.

17 Q. Okay.

18 A. It's the official policy of the state, now, to
19 incent new nuclear development. They provide a tax
20 credit for the development of nuclear power and its
21 eventual operations. During the construction, they
22 exempt all of the inputs to new nuclear power, like
23 concrete, rebar, you know, those, kind of, durable,
24 kind of, hard goods that are actually steel that go
25 into the plant. The constructors would not pay sales

1 tax on that, the state's portion of the sales tax.

2 The State Legislature also issued a resolution
3 supporting or calling for the investment of new nuclear
4 in Utah.

5 Q. When was that resolution adopted?

6 A. 2009.

7 Q. Okay.

8 A. And, let's see. What else have they done? I
9 think that in the energy plan, the Governor's energy
10 plan, it calls for the development of base load
11 resources which she says, eventually, and he believed
12 that it would either be coal or nuclear and, since it's
13 becoming more difficult to develop coal, I think it's
14 more likely that it will be nuclear.

15 Q. What about natural gas?

16 A. You know, natural gas is definitely going to
17 be in the mix. It's a very good resource for shaping
18 loads. As its historical past has indicated, natural
19 gas is a commodity that's very volatile.

20 So, the cost can escalate, without warning, in
21 some cases and, so, it becomes a difficult resource to
22 determine a cost much longer than, maybe, five or seven
23 years out into the future. Recently, in 2000, 2001,
24 there were several utilities, including California, and
25 local utilities here, in Utah, that were bankrupted

1 because of the cost of natural gas escalated,
2 sometimes, on the market at three hundred percent
3 increase and, because natural gas generation is so
4 sensitive to the cost of fuel, it's about seventy-five
5 percent sensitive.

6 So, what that means, essentially, that seventy-
7 five percent of the electricity generated in a natural
8 gas plant is determined, the cost of that is determined
9 by the price of the natural gas. Nuclear power is far
10 more less sensitive to that. So, it has a better
11 profile, long-term, and is more stable. It looks much
12 more like a coal plant when looking at the economics.

13 Q. So, given your testimony and that background,
14 wouldn't it be prudent for any utility to look at all
15 of the options and, then, consider the factors in terms
16 of price and everything else?

17 A. Yes and they do.

18 Q. I mean, that's, kind of, the process, right?

19 A. Absolutely.

20 Q. Okay. Let me ask you a question, a little bit
21 about the life of a nuclear plant. What is the
22 expected life for a nuclear power plant?

23 A. Well, there's design life and licensure, which
24 are two separate things but, essentially, a plant is
25 licensed, initially, for 40 years and, then, can apply

1 for an extension for another 20 and, then, beyond that,
2 I would refer you to Dr. Diaz for the details and
3 specifics related to the licensure. The design life of
4 a plant, depending on which one you select, can be,
5 again, anywhere from a low of, I would think, about 60
6 years to up to 80 years in the design and the
7 engineering that goes in and, then, while they operate
8 it, they actually have a basis or a maintenance basis
9 where they replace equipment to maintain what they call
10 a life cycle for the asset and they want to maintain
11 those at five to eight years. So, the [inaudible] is
12 never, physically, older than eight or so years,
13 depending on pumps. So, they might replace the pump
14 every eight years or replace some steel or different
15 types of things, those components as affiliated to the
16 plant and its operation.

17 Q. So, your permit would be for 40 years. Is
18 that right?

19 A. Initially, the COL, the construction operating
20 license, that would be correct.

21 Q. Because I've read, recently, that—I don't know
22 if you're familiar with the San Onofrio plant, for
23 example.

24 A. I am.

25 Q. Isn't that about 40 years old, now, too?

1 A. I don't know, but I would assume that's
2 correct.

3 Q. Was that, maybe, built in the early '70's?

4 A. Something along those lines, uh-huh
5 [affirmative].

6 Q. And my understanding is that that plant is,
7 now, being decommissioned, right?

8 A. Yes, it is.

9 Q. And, also, that the Vermont Yankee is another
10 plant?

11 A. Yeah, there's a few. I think, over the last
12 couple of years, there were about four that were
13 scheduled to be commissioned or taken out of service or
14 retired for whatever reason.

15 Q. Okay and do you know the age of the Vermont
16 Yankee plant?

17 A. I don't.

18 Q. Okay. So, tell me a little bit about this
19 process. Once the permit expires or, you know, the
20 plant reaches its end of life, so to speak, what's the
21 process for reclaiming the site and decommissioning
22 those plants?

23 A. You know, I'm not an expert on that. It would
24 be better for Dr. Diaz or one of our other experts—

25 Q. Well, from an economic standpoint, though,

1 have you looked at that in terms of what the cost would
2 be?

3 A. We have and, during the process of running the
4 plant, they put money into a decommissioning fund and I
5 know that Rob Graber has that number and can, probably,
6 educate you a little more on it than I could, but there
7 is a fund, that's ongoing, that pays for that
8 decommission at the end of the life of the plant.

9 Q. And are there regulations with respect to that
10 fund?

11 A. Sure.

12 Q. I mean, is it a state mandated thing? Is it-
13 do you know what it-

14 A. You would have to talk to Dr. Diaz about that,
15 about the specifics.

16 Q. Okay and what is the current cost for
17 decommissioning a nuclear power plant?

18 A. Again, Rob Graber or Dr. Diaz would be the
19 ones you would ask. I wouldn't know.

20 Q. Okay. Let me ask you a little bit. Why did
21 you choose-why did Blue Castle choose to a nuclear-I
22 mean, I know you haven't chosen your ultimate design,
23 but it seems, to me-and, maybe, I should ask this
24 question, first. It seems, to me, that your current
25 plan is to consume all of the water that you divert

1 under these applications in the power plant. Is that
2 correct?

3 A. That's correct. It's flow and industrial
4 water. [inaudible]

5 Q. Okay, because my understanding is there's,
6 really, two types of water—or, of nuclear power plants
7 with respect to water usage: one is a pass-through,
8 where you just pass the water through once, correct?
9 And, then, there's one where you contain the water and
10 it's recirculated and used. Is that right?

11 A. Generally, that's correct.

12 Q. Okay and, the latter is what you've chosen to
13 pursue?

14 A. We've chosen the mechanical draft cooling
15 that, essentially, has a cycle that goes through a
16 process where they would use that water over and over
17 and over until it's fully evaporated.

18 Q. Okay. So, tell me about how it ends up being
19 fully evaporated?

20 MR. WRIGHT: Your Honor, I need to object. We're
21 way beyond the scope of direct.

22 THE COURT: Yes, we are.

23 MR. WRIGHT: We've got Ph.D.'s lined up that are
24 going to talk about this stuff.

25 MR. FLITTON: Okay.

1 THE COURT: I think and it may be more valuable to
2 have the mechanical issues sorted out by persons who
3 are—

4 MR. FLITTON: No, and I apologize, Your Honor.
5 What I'm trying to do is just set some foundation for
6 some questions about the water use. I'm not trying to
7 have him be the expert on these issues.

8 THE COURT: Thank you, Mr. Flitton.

9 Q. Okay. So, getting back to that. You have,
10 kind of, a general plan with respect to, as a company,
11 of what water rights you need, how much water you're
12 going to use and you've, kind of, pursued these
13 applications on that basis, correct?

14 A. Yes.

15 Q. Okay. With respect to the site, the ultimate
16 site, will Blue Castle be making any kind of
17 improvements on that site? Are you going to build
18 ponds, for example? Are you going to do any of that
19 kind of preliminary site work, as part of your
20 permitting process, or will that be part of the
21 construction phase of this project?

22 A. That's part of the construction operating
23 process.

24 Q. Okay. So, how long do you anticipate before
25 any real significant ground is even broken on

1 construction on that site?

2 A. I think the earliest that that could occur
3 would be sometime after 2017. That would be the
4 earliest.

5 Q. What's a realistic date? I mean, is that
6 realistic to you or is there a more realistic date?

7 A. It really has to do with the option value that
8 the utility participation partners see in the project
9 and when they have to serve load. So, we develop it,
10 put it together, get it ready and, then, as they need
11 the power for it, they come up with their own schedule
12 on construction. So-

13 Q. When is the earliest that you would foresee
14 diverting and placing water under these applications to
15 beneficial use, then?

16 A. When the plant is operating and I think the
17 earliest would be sometime after 2023, maybe, 2024,
18 something along those lines.

19 Q. So, we're ten years out before any water is
20 even used under these applications?

21 A. That's correct.

22 Q. Okay. All right.

23 MR. FLITTON: I think that's all I have. Thank
24 you.

25 THE COURT: Thank you, Mr. Flitton. Ms. Valdes,

1 do you have any questions you wish to ask?

2 MS. VALDES: Nothing here.

3 THE COURT: Thank you.

4 MR. WRIGHT: Brief re-direct, Your Honor.

5 THE COURT: Go ahead, Mr. Wright.

6 RE-DIRECT EXAMINATION

7 BY MR. WRIGHT:

8 Q. Aaron, would you turn to Exhibit 9A and,
9 specifically, page 6?

10 A. Okay.

11 Q. Are you there?

12 A. Yep.

13 Q. Paragraph 13. Would you just read the first
14 two sentences, please?

15 A. Requirements, contract and use of water right.
16 This agreement is a requirements contract in that
17 lessee has the right to use up to the flow of 24,000
18 acre feet in any given year, as required. During the
19 pre-operation payment period, lessor shall be entitled
20 to use or lease all or a portion of the lease water not
21 required by lessee on a short-term basis at no cost to
22 lessor for so long as the lease water is not actually
23 required for the diversion and use by lessee.

24 MR. WRIGHT: And, Your Honor, for purposes of
25 speeding things up, I can tell you that the Kane

1 Conservancy District Lease has the same provision, at
2 paragraph 15.

3 Q. So, in other words, the districts have the
4 ability to use this water as they see fit, on a short-
5 term basis, until we're actually diverting it—until
6 Blue Castle is actually diverting it?

7 A. That's correct.

8 MR. WRIGHT: Nothing further. Thank you.

9 MR. FLITTON: May I re-direct, Your Honor?

10 THE COURT: Go ahead, Mr. Flitton.

11 RE-CROSS-EXAMINATION

12 BY MR. FLITTON:

13 Q. Let me ask you, a little bit, about the water
14 rights. You testified, earlier, for example on the
15 Kane County Water rights, that was part of the power
16 facility, correct, originally, the original water
17 right?

18 A. What I know about that is that I believe an
19 [inaudible] of the water, as far as what project,
20 specifically, I don't know any details about that.

21 Q. Okay, but the place of use, prior to the
22 change applications, is within the Grand Staircase
23 Escalante, correct?

24 A. I believe so.

25 Q. So, Kane County really couldn't use the water

1 without going through a process and getting new change
2 applications approved. Is that right?

3 A. If that's where the process works, I guess,
4 we're-

5 Q. I'm referring back to the paragraph in the
6 lease that we just read. So, basically, at this point,
7 there's not the ability of Kane County to use that
8 water unless they go through a similar process to get a
9 new change-

10 MR. WRIGHT: Objection, foundation.

11 THE COURT: Well, it's unclear that he would know
12 the answer to that question.

13 MR. FLITTON: Okay. All right.

14 THE COURT: So, I think that would be a
15 foundational objection that's sustained.

16 Q. Do you know the historically, you said the San
17 Juan County water right?

18 A. No.

19 Q. Okay, but any respect, if either of those
20 entities were to use the water right, it would not be
21 on the property that you're acquiring or you have under
22 lease or property acquisition. Is that right?

23 A. We wouldn't foresee any use of that water on
24 our site unless we were using it. So, I don't believe
25 anybody else would lease our land to use water for our

1 use.

2 Q. Okay.

3 MR. FLITTON: All right. No more questions. Oh,
4 wait. Just one more question.

5 Q. Do you know of any plans by Kane County Water
6 Conservancy District to use water, in the short-term,
7 pursuant to that paragraph?

8 A. No, but it's been discussed and I think that,
9 in the discussions we've had, they would have to wait
10 and see if this was approved, our change application
11 was approved before using that, I guess, because we
12 would, then, want to know the timing and the structure
13 of that use in relation to when we could use it when
14 the plants are in operation.

15 Q. And what about with respect to San Juan Water
16 Conservancy District?

17 A. I think it would be the same thing.

18 Q. Okay.

19 MR. FLITTON: All right, no more questions.

20 THE COURT: Thank you, Mr. Flitton. Ms. Valdes,
21 any questions?

22 MS. VALDES: No.

23 THE COURT: Mr. Wright?

24 MR. WRIGHT: Nothing, Your Honor.

25 THE COURT: You may step down. Thank you, Mr.

1 Tilton. Next witness?

2 MR. WRIGHT: Yes, Your Honor, applicants call
3 Jerry Olds.

4 THE COURT: Mr. Olds, if you would please come
5 forward, Sir, raise your right hand and be sworn.

6 JERRY D. OLDS called as a witness by the
7 defendants, being first duly sworn, was examined and
8 testified on his oath as follows.

9 THE COURT: If you would have a seat [inaudible]

10 DIRECT EXAMINATION

11 BY MR. WRIGHT:

12 Q. Jerry, full name, please?

13 A. Jerry D. Olds.

14 Q. And what are you currently doing for a living?

15 A. I am an engineering consultant.

16 Q. What did you do before that?

17 A. I worked for the State Engineer's Office for
18 36 years.

19 Q. You were actually the State Engineer?

20 A. I served as State Engineer from January 2002
21 to December 2008.

22 Q. Would you describe, for the Court, sort of
23 beyond what the statute says your job is; which is to
24 administer the waters of the State of Utah. Describe,
25 for the Court, what that job really means.

1 A. As I reflect back on the decisions that I was
2 required to make as State Engineer, I think, under
3 Utah's water loss system, their appropriation system is
4 to protect existing water rights but, at the same time,
5 promote the beneficial, the maximum beneficial use of
6 our resources. As I served as State Engineer, I became
7 very aware that water use was tied to economic
8 development and, as you used water, there were great
9 benefits that resulted to the local economy, as well as
10 the state economy, as a result of putting that water to
11 use and, so, I think that was one of the big challenges
12 was to protect existing water rights but, at the same
13 time, promote the maximum development of that resource.

14 Q. Tough job.

15 A. It is.

16 Q. Would you tell the Court what you have been
17 asked to do, retained to do by Blue Castle for purposes
18 of pursuing these change applications?

19 A. I was asked to look at the issue of whether
20 there was unappropriated water, whether there was a
21 potential for impairment of other water rights in the
22 vicinity of the diversions and other issues related to
23 stream alterations, dam safety.

24 Q. All right and would you describe the
25 analytical process? How did you start your work?

1 Where did it take you? Sources you looked at?

2 A. First of all, you have to make a determination
3 of whether there's water available to Utah under its
4 compact entitlement.

5 Q. When you say compact, you're talking about the
6 Colorado River Compact?

7 A. Colorado River Compact of 1922, then, the
8 Upper Colorado River Basin Compact of 1948, whether
9 there is water available under the compacts. After
10 that, then, I looked at the hydrology of the Green
11 River near the plant site. There is a U.S. Geological
12 Survey Gauging Station that is located just upstream
13 from the proposed points of diversion. I analyzed the
14 historical flow related to that gauge to determine
15 whether there was adequate water in the river to
16 satisfy the needs of the power plant.

17 Q. All right.

18 A. After that, then, I looked at the water rights
19 in the vicinity of the Town of Green River and analyzed
20 whether there was a potential there for impairment of
21 other water rights as this water would be diverted.

22 Q. And, when we're talking about impairment, what
23 we mean is one person's or one entity's use of its
24 particular water rights and the impact it has or might
25 have on nearby uses as well?

1 A. Yes, basically looking at, as a result of
2 diverting the water under these two change
3 applications, would it impact adversely other water
4 rights in the area, make it either impossible or
5 difficult for them to obtain their water supply.

6 Q. Okay and you also testified at the change
7 application hearing that was held in Green River a
8 couple of years or so ago. Well, actually, it's longer
9 than that, four years ago. Is that right?

10 A. January of 2010, yes, I did.

11 Q. 2010, right. Okay and the change applications
12 we're dealing with are A35874 and A35402. Does that
13 sound right?

14 A. I believe that is correct, uh-huh
15 [affirmative].

16 Q. As part of your analysis, did you look at the
17 particulars of the water rights involved in their
18 heretofore status? In other words, prior to Kent
19 Jones' approval, did you take a look at, sort of, the
20 history of those water rights and how they came to be
21 where they are today?

22 A. Yes, I did.

23 Q. Could you take a look at Exhibit 11 in the
24 binder in front of you, please? Would you tell the
25 Court what we're looking at, please?

1 A. This is a map of the State of Utah
2 highlighting the Colorado River system in Utah and,
3 then, on it, it denotes where the Kane County Water
4 Conservancy District change application was originally
5 proposed to be used or the heretofore and along with
6 the San Juan County Water Conservancy District water
7 right on the San Juan River and the proposed diversion
8 point there. Then, just below the Price River, where
9 it comes into the Green River, there's an asterisk and
10 that is the proposed diversion point for the Blue
11 Castle project.

12 Q. Okay. So, originally, the Kane right comes
13 out of Lake Powell and the San Juan right is off the
14 San Juan River?

15 A. The Kane County water right showed points of
16 diversion from Lake Powell and, I think, Wahweap,
17 correct.

18 Q. Okay and, so, the new point of diversion
19 simply takes them upstream just below the Price River.

20 A. Yes. It moves water from the heretofore point
21 of diversions up to the Green River area near the town
22 of Green River.

23 Q. Okay. Take a look, if you would, sort of
24 simultaneously look at Exhibits 3 and 7 and, as part of
25 the work, do you recall being asked to take a look at

1 summaries that have been prepared of the water rights
2 at issue in order to, sort of, summarize their history
3 and how they came to be in their current approved uses
4 and as part of the change application?

5 A. Yes.

6 Q. And did you actually make some corrections or
7 changes to those summaries as you reviewed them?

8 A. Yes, I did.

9 Q. And Exhibits 3 and 7, are these the summaries
10 that we asked you to assist in and review?

11 A. Yes, they are.

12 MR. WRIGHT: Your Honor, the water right files on
13 these particular water rights are extremely voluminous.

14 THE COURT: I'm sure, yeah.

15 MR. WRIGHT: And, so, what we did, and with
16 cooperation of the other side, was to provide these
17 summaries. We had Mr. Olds look them over for
18 accuracy. There's a few of the key documents from the
19 history of these water rights, but we didn't want to
20 bring in boxes of water right files. So, that's what
21 this represents.

22 THE COURT: I appreciate that very much.

23 Q. Okay and the water rights at issue were most
24 recently approved for what use?

25 A. Which water rights are you referring to? The

1 heretofore of the underlying water rights for the
2 change applications?

3 Q. Yes.

4 A. Okay. In both cases, for the Kane County
5 water right and the San Juan County water rights, both
6 of those were approved applications to appropriate
7 water to be used in power production in a coal-fired
8 power plant.

9 Q. And that coal plant never got built?

10 A. No, it did not and all of that water was
11 intended to be depleted or consumptively used in that
12 process.

13 Q. Just as they are in this—in these change
14 applications?

15 A. Yes.

16 Q. All right. Let's talk about water
17 requirements for the project. What is the anticipated
18 water use at the proposed power plant as things stand
19 right now?

20 A. There are two units that are planned for the
21 Blue Castle project. The engineers have indicated that
22 each unit will require 25,000 acre feet per year for
23 cooling and, so, with the two units, that is 50,000
24 acre feet per year.

25 Q. And the applications actually seek the

1 withdrawal and use of how much?

2 A. Fifty-three thousand six hundred combined.

3 Q. So, there's a cushion there that allows in
4 case they are higher?

5 A. Yes.

6 Q. In case actual use is higher? Suppose the
7 project is actually built. The plant is producing
8 power and it doesn't need or use up to the full 53,600
9 under the applications? What could or would,
10 typically, be done with any of that excess?

11 A. I would assume that, as you look at the
12 agreements with the conservancy districts, that would
13 revert back to the districts; that they could, then,
14 utilize that within their area of need.

15 Q. Okay and what is your understanding of the
16 flow rate that will be required by the project?

17 A. The project, as I indicated, would need 50,000
18 acre feet a year as the quantity. As far as the flow
19 rate that would be diverted from the Green River, that
20 would be about 70 CFS on a constant basis and the
21 reason for that is nuclear power is, basically, a base
22 load plan so that water requirements are fairly
23 constant.

24 Q. Right. In other words, the plant is operating
25 24/7.

1 A. Yes.

2 Q. And let's do the math, if you wouldn't mind,
3 for the Court to convert flow rate to acre feet. At a
4 constant rate of 70 CFS, would you explain that
5 calculation, how you end up with a total volume?

6 A. Okay. If you look at converting the flow rate
7 of CFS, which is cubic feet per second, then, you have
8 to times it, in essence, to get a volume of flow over a
9 full year period. The actual conversion factor is 724,
10 approximately, just barely under that. So, if you take
11 the flow rate of 70 times 724, that will give you the
12 volume over a one year period.

13 Q. Okay. Pretty standard calculation in the
14 State Engineer's Office?

15 A. Yes.

16 Q. Now, you understand that part of the project
17 includes a reservoir site?

18 A. That is true.

19 Q. What is your understanding about the nature
20 and size of that reservoir?

21 A. The applications propose the construction of a
22 storage reservoir on the site. It will have 2,000 acre
23 feet of storage capacity. Will inundate approximately
24 100 acres and would be used on the plant site for plant
25 needs as far as cooling, if there was a shutdown,

1 interruption in the diversion works, that type of
2 thing.

3 Q. All right. Now, there is evaporation loss
4 from a reservoir. Is that right?

5 A. Yes, there is.

6 Q. How do you calculate evaporation loss?

7 A. You would take the total surface area of the
8 reservoir and, then, times it by the evaporation loss
9 for the location in which it is located. In this
10 particular case, the State Engineer uses a study by Dr.
11 Hill, from Utah State University, that estimates the
12 evaporation rate for open water at Green River, Utah,
13 to be about 3.3 acre feet per acre per year. So, in
14 doing the math, that would end up being about 330 acre
15 feet per year.

16 Q. That's evaporated off the reservoir?

17 A. Yes.

18 Q. And, so, if you add the expected depletion of
19 the 70 CFS constant and evaporation, where does that
20 put us in total consumptive use, annually, in terms of
21 acre feet?

22 A. That would put you at 50,330 acre feet, well
23 below the 53,600 that's allowed under the two change
24 applications.

25 Q. Now, once an application is approved, what

1 sort of oversight does the State Engineer have in
2 connection with actual water use and diversion?

3 A. In this particular case, the applications were
4 approved under an order of the State Engineer. Those
5 were conditioned approvals and, so, the applicant is
6 required to measure any and all diversions that are
7 made of that water, plus there's some environmental
8 concerns with regards to the endangered fish in the
9 Colorado River and, then, the State engineer also
10 grants the applications for a period of time to give
11 the applicant an opportunity to go out and develop the
12 project and place the water to beneficial use. They,
13 then, have to come back and either file proof that they
14 put the water to beneficial use, or request an
15 extension of time in which to put that water to use.

16 Q. All right. Let's talk about unappropriated
17 water and whether there is such water sufficient for
18 the project. First of all, the term unappropriated
19 water, in connection with a change application, given
20 that a change isn't seeking to appropriate new water
21 that isn't already approved. A change is seeking to
22 move approved water, simply, from one place to another
23 or, perhaps, change its use from, say, agricultural
24 through municipal, or something like that. How do you
25 evaluate the requirement of unappropriated water in

1 connection with a change application?

2 A. In these two particular cases, the San Juan
3 water right had—the heretofore had proposed to divert
4 the water out of the San Juan River, which is a
5 tributary to the Colorado and, then, the Kane County
6 one proposed to take the water out of Lake Powell, on
7 the west side of Lake Powell, and use it. These change
8 applications proposed to change the point of diversion
9 upstream and, so, that demand was being moved upstream
10 to the Green River near the town of Green River and,
11 so, as a result of that water being moved upstream, and
12 with the existing rights that are already there, you
13 had to evaluate the flow in the Green River and
14 determine whether there were periods of time when there
15 was unappropriated water that could supply the 70 CFS
16 for this project.

17 Q. When you talk about available water, for
18 purposes of this diversion, is the Colorado River
19 Compact our starting point?

20 A. Yes.

21 Q. All right. Would you tell the Court, briefly,
22 what the compact is?

23 A. If you look at the Colorado River Compact, it
24 divides the water between the lower basin states, which
25 are Nevada, California and Arizona, and the upper basin

1 states, which are Wyoming, Colorado, New Mexico and
2 Utah. Then, in 1948, the upper basin states, then,
3 entered into a compact to divide the water that is
4 available to the upper basin and, based upon the
5 hydrology of the river, so forth, you can make a
6 determination of how much water is available to Utah on
7 an annual basis.

8 Q. What is Utah's allocation under the compact?

9 A. The State Engineer's Office and the Division
10 of Water Resources currently uses a figure of
11 approximately 1.4 million acre feet per year as Utah's
12 entitlement to the waters of the Colorado.

13 Q. And that represents what percentage of the
14 total available for the upper basin states?

15 A. Utah is entitled to use twenty-three percent
16 of the water available to the upper basin after 50,000
17 acre feet is subtracted off for the State of Arizona to
18 be used in the area around Page, Arizona.

19 Q. Is that because there's a little piece of
20 Arizona that's, sort of, considered in the upper basin,
21 in effect, above Lee Ferry?

22 A. Yes. There's a small portion of the State of
23 Arizona that drains into the Colorado above Lee Ferry.

24 Q. I believe, Your Honor, this is in your binder
25 at Exhibit 67. Yes, a small version of it. Mr. Olds,

1 will you tell the Court what Exhibit 67 is? And
2 you're welcome to refer to the blow-up.

3 A. Okay. This is a map of the Colorado River
4 system showing the upper and lower basins and where the
5 various tributaries are and—Your Honor, could I
6 approach the map to show you?

7 THE COURT: Absolutely. Go ahead, Mr. Olds.
8 Thank you.

9 A. This is the outline, here, of the Colorado
10 River system and, again, that covers seven basin
11 states. The Colorado River Compact of 1922 divided the
12 system into the lower basin and the upper basin. The
13 dividing point is just below Lake Powell at what they
14 call Lee Ferry. In addition to measuring the flow,
15 here, at Lee's Ferry, the Pariah River comes in just
16 below that and it's added back into it. Under the
17 Colorado River Compact, it allocates seventy-five
18 million acre feet in any ten consecutive years for the
19 use of the lower basin and it requires the upper basin
20 states to deliver that water here, at Lee's Ferry. So,
21 in any ten consecutive years, the upper basin states
22 gets obligated to deliver seventy-five million acre
23 feet to those lower basin states.

24 In addition, in 1944, and you can see the Colorado
25 goes down into Mexico and, in 1944, the United States

1 and Mexico entered into a treaty that required the
2 delivery of 1.5 million acre feet to the Country of
3 Mexico by the United States. Under the Colorado River
4 Compact, that 1.5 million acre feet to Mexico is to be
5 first supplied from the surplus, as far as the water
6 that's allocated under the compact, and, then, if
7 there's not enough to satisfy that, the lower basin is
8 obligated to deliver half of that and the upper basin
9 is obligated to deliver half of that as well.

10 Based upon those requirements—so, as you take the
11 flow at Lee's Ferry, there's an obligation to deliver
12 the seventy-five million in any ten years. I'll refer
13 to it as seven and a half million per year and, then,
14 you have the obligation to Mexico. If the upper basin
15 is required to deliver half of that, that's 750,000.

16 Those two figures are, then, subtracted out from
17 what the flow or the natural flow of the Colorado River
18 would be at Lee's Ferry. That is how you, then,
19 determine what is available to be beneficially used,
20 here, in the upper basin.

21 With regards to the allocation of water within the
22 Colorado River System, it is based on depletion, not
23 diversion. So, you could divert a hundred acre feet,
24 but if you only consumed fifty of that, fifty is what
25 you're charged against the compacts and, in the case of

1 Blue Castle, those are fully consumptive and, so, they
2 would count entirely against Utah's allocation.

3 Q. Okay. Jerry, you used the figure of
4 approximately 1.4 million acre feet available to Utah
5 under its allotment from the compact. Is that the same
6 figure that Kent Jones, the current State Engineer,
7 relied on in approving these change applications?

8 A. Yes. The State Engineer's order referenced
9 that number, yes.

10 Q. Do you consider that based on your analysis of
11 what Utah gets and the compact, as a whole, do you
12 consider that to be a reasonable figure?

13 A. I think it is. I think it's a conservative
14 number. I think Utah could utilize a little bit more
15 water, but I think it's a very reasonable number to use
16 as far as administering Utah's use of the Colorado.

17 Q. Of Utah's allotment, how much of that water
18 has actually been developed?

19 A. At the time of the hearing, the numbers that I
20 used were from 2005 and I don't think they've changed
21 that much, but Utah was using just over one million
22 acre feet a year.

23 Q. The difference being, then, approximately what
24 between what's developed and what isn't?

25 A. About—yeah, and the amount of water that is

1 not developed is somewhere between 350 and 400,000 acre
2 feet.

3 Q. What is the Colorado River Storage Project?

4 A. In 1956, I believe it is, Congress passed a
5 law which authorized the Colorado River Storage
6 Project. Excuse me. If you look at the Colorado River
7 System, there are years of extremely high flows and
8 years of very low flows and the purpose of the Colorado
9 River Project, the major purpose of it was the
10 development of large storage reservoirs such as Lake
11 Powell, Flaming Gorge and the Blue Mesa System in
12 Colorado to store adequate water during high flow years
13 to allow the upper basin states to continue to utilize
14 water and meet downstream obligations to the lower
15 basin and to Mexico.

16 Q. So, the storage is used in times of low flow
17 to make sure the State's below those reservoirs get
18 their water?

19 A. Yes, to make sure those delivery obligations
20 are met.

21 Q. Recently, the Bureau of Reclamation did a
22 Colorado River supply and demand study. Are you
23 familiar with that?

24 A. Yes, I am.

25 Q. And do you recall that that study included

1 some Utah growth scenarios?

2 A. Yes, it did.

3 Q. And speaking in terms of what Utah's
4 anticipated use of its Colorado River might be out into
5 the future?

6 A. Yes.

7 Q. What were the different growth scenarios that
8 that study considered?

9 A. Basically, it looked at continued growth on
10 the trend we've seen over the last 30, 40 years. It
11 also looked at rapid growth and a couple of scenarios
12 there and, then, it looked at more of a slower growth
13 that might occur going forward.

14 Q. All right and, under the—let's start with the
15 rapid growth scenario. First of all, how far out does
16 the study project?

17 A. It projects out to 2060.

18 Q. All right and, under the rapid growth
19 scenario, what does the study project Utah may be using
20 out in 2060?

21 A. In 2060, it was indicating that Utah would be
22 using about 1.3—I think it was eight million acre feet
23 and that includes Utah's portion of the evaporation on
24 the Colorado River storage projects that are built to
25 ensure the delivery to the lower basin.

1 Q. All right and, under the slower growth
2 projections, where is Utah expected or possibly going
3 to be in 2060?

4 A. I don't recall the slow growth. I looked very
5 closely at what they would project for the current
6 trend and I think that is the more realistic approach
7 to it and, in 2060, they are looking at 1.28 million
8 acre feet as actually being used and depleted.

9 Q. So, even just doing the math, even under
10 Utah's rapid growth scenario, it's not going to use up
11 all of its Colorado River allotment as far out as 2060,
12 at least in this study's estimation?

13 A. That is correct.

14 Q. In terms of appropriation, would you describe,
15 for the Court, the difference between paper water and
16 wet water and how those terms are, sort of, used when
17 you talk about a basin or a drainage being fully
18 appropriated or over appropriated. What does that
19 mean?

20 A. As we've indicated, Utah is entitled to use
21 about 1.4 million acre feet per year within the Upper
22 Colorado River Basin. The State Engineer approves
23 water rights and it's kind of like a hunting permit.
24 You have the permission to go out and develop the
25 project and put the water to beneficial use.

1 Over the years, a number of water rights have been
2 approved that have never been developed and, so, they
3 are out there, on the books, and, so, there is a lot of
4 paper water that is sitting out there. Some of it may
5 be developed. Some of it may not be.

6 Q. So, on paper, how does the Green River look?

7 A. On paper, the Green River—well, the Colorado
8 River system—

9 Q. Okay, the system—

10 A. -is over-appropriated on paper.

11 Q. But not all of that appropriated water has
12 been actually developed and is not being used?

13 A. No and even the projections into 2060
14 indicates Utah is going to struggle to put that water
15 to beneficial use.

16 Q. Okay. Jerry, turn to Exhibit 12, please.
17 Would you tell the Court what that chart means to say?

18 A. This is a chart of approved, yet undeveloped,
19 applications to appropriate water in the Upper Colorado
20 River Basin of Utah.

21 Q. And I noticed that there's a reference to San
22 Juan Conservancy District and Kane. Those water rights
23 at issue here are included in this total. Is that
24 right?

25 A. That is correct. The San Juan number of

1 30,000 includes the 24,000 acre feet covered by their
2 change application and, then, the 30,000 for Kane
3 County covers the 29,600 covered by their change
4 application.

5 Q. Okay. So, this would be an example of paper
6 water, approved uses not yet developed?

7 A. Yes.

8 Q. Turn to Exhibit 13, please. Would you tell
9 the Court what that graph represents?

10 A. This is a hydrograph of the Colorado River
11 flows at Lee Ferry, Arizona.

12 Q. And based on your analysis of what the river
13 is yielding, and what the upper and lower states are
14 doing, have the upper states ever failed to meet their
15 delivery obligations to the lower basin states?

16 A. No. There has never been a time that the
17 Upper Basin did not deliver all of its obligation to
18 the Lower Basin and Mexico.

19 Q. Now, when you did your analysis to determine
20 whether there was sufficient water available to satisfy
21 these change applications, I assume you took the river
22 and looked at its historic flows, low flows, high
23 flows, average flows and, then, tried to evaluate the
24 impact of a constant 70 CFS diversion as against those
25 different scenarios? Is that accurate?

1 A. Are you referring to the Green River, itself?

2 Q. Yes, sorry. Yes.

3 A. Yes.

4 Q. Okay. Take a look at Exhibit 14.

5 A. Can I just point out a couple of things, here,
6 on Exhibit 13?

7 Q. Yes, please.

8 A. This hydrograph that goes from 1896 up through
9 2012, and just a couple of things that I think are
10 important to denote on this graph is, as you look at
11 the virgin flow of the Colorado, at Lee's Ferry, and
12 that would be the red bar that's shown on this graph,
13 the dark portion is the actual flow and, then, they add
14 in what the Upper Basin states are already depleting to
15 get the virgin flow but, as you look at those flows,
16 you can see that they range from about twenty-five
17 million acre feet a year down to the range of about
18 five million acre feet a year and, again, this is a
19 record of about 115 years and you can see that there's
20 very wet years, very dry years, average years in there
21 and, so, over time, the Colorado River has seen
22 significant high flows and low flows in that system
23 and, overall, the red line indicates the average long-
24 term flow there, which is 14.7 million acre feet a
25 year.

1 As people discuss the impact of climate change and
2 what's going to happen, there's a lot of uncertainties
3 there. It's hard to predict what we're going to see in
4 the future, but I, personally, believe it is very
5 important that we have a system, a water rights
6 administration system, that can deal with extreme
7 droughts and I think Utah's water law, the prior
8 appropriation system, can deal with shortages and
9 distribute the water based on the priority in order to
10 protect existing water rights and regulate the new
11 water rights that are coming online.

12 Q. Let's talk about that. In the event—when you
13 say administer water rights based on priority, what you
14 mean is, in time of shortage, senior rights get served
15 first and, then, it's kind of a pecking order, after
16 that, based on available water?

17 A. Yes. Utah water law is based on prior
18 appropriation. So, first in time, first in right and
19 they get all of their water before the next priority
20 would get theirs.

21 Q. And let's talk about, specifically, Blue
22 Castle. In the event, say, of a severe shortage where
23 the water rights had to be administered on priority, or
24 based on priority, what would be Blue Castle's options
25 in the event, say, one of its less senior rights, more

1 junior rights, had to be curtailed? What can Blue
2 Castle do to make up the difference?

3 A. Blue Castle could go out and enter into an
4 agreement with an existing water right holder that
5 would, then, forego the use of that water in that
6 particular year, file a temporary change application to
7 move that over to satisfy their needs if, in fact,
8 their water right got to the point where it might be
9 cut based on priority.

10 Q. So, the prior appropriation system is, sort
11 of, designed to deal with shortage? That's how it
12 works?

13 A. That's one of the reasons the western states
14 adopted that system as they realized that they would
15 have to deal with shortages on a regular basis.

16 Q. Okay and, just back on Exhibit 13, I just want
17 to finish with that, the 14.7 million acre feet, the
18 average flow, correct?

19 A. That is the long-term average flow from 1896 up
20 through 2012.

21 Q. And it's from that figure that the lower
22 basin/upper basin states divide the water between
23 themselves or among themselves?

24 A. Yes, but in looking at the water supply that
25 is available to the upper basin, you have to look at

1 the dry periods, the consecutive ten-year dry period,
2 and factoring in the storage in the Colorado River
3 Storage Project and that's how the calculation is done
4 to arrive at what is available to the Upper Basin
5 states to use.

6 Q. Okay. Let's take a look at Exhibit 14. Would
7 you explain to the Court this graph and what it shows?
8 I notice, in the legend, it includes a pre-Flaming
9 Gorge and post-Flaming Gorge. Explain the impact of
10 Flaming Gorge on the Green River.

11 A. This is what they call a flow duration curve
12 and this is for the Green River near the Town of Green
13 River and, in the red, we have taken the flow values of
14 that gauge prior to Flaming Gorge diverting water,
15 which was November-December of 1962 it started to
16 withhold water. The green line is the flow duration
17 curve after Flaming Gorge came online.

18 A couple of things I want to point out, Your
19 Honor, is, on the X axis, you see a percentage of time.
20 So, if you come over to ten percent and go up to the
21 green line, it's telling you that, ten percent of the
22 time, the flow in the Green River, after Flaming Gorge
23 Reservoir, is about 12,000 CFS, or higher, ten percent
24 of the time and, as you look at this graph, there's a
25 couple things that it tells you.

1 First of all, we have high flows on the Green
2 River--and this is for the period of record--generally,
3 for about ten to fifteen percent of the time and, then,
4 we have extremely low flows for somewhere around five
5 percent of the time or less.

6 A couple of other things to point out here. The
7 red line shows pre-Flaming Gorge and you'll notice
8 that, on the flow duration curve, it shows the flows
9 higher than post-Flaming Gorge and, then, as you get
10 into the low flow out past seventy percent of the time,
11 then, the flows have been higher than they were before
12 Flaming Gorge.

13 Q. In other words, Flaming Gorge is augmenting
14 what the Green River can do on its own.

15 A. Yes. It is regulating the stream flow. So,
16 taking off the high flows, keeping it in the reservoir,
17 releasing it later and, historically, that was for
18 power production, hydro power production.

19 Q. Now, you can, kind of, use exhibits. Look at
20 Exhibit 15. Exhibits 14 and 15, kind of, go together.

21 A. Okay.

22 Q. Would you explain how this percent exceedence
23 notion works in connection with the flows on the Green
24 pre- and post-Flaming Gorge?

25 A. This table, here, shows the values that were

1 used to construct the previous graph and, so, if you go
2 over to ten percent exceedence value, you see that,
3 prior to Flaming Gorge Reservoir, ten percent of the
4 time, the flow was 16,700 CFS or more ten percent of
5 the time. When Flaming Gorge came online, then, that
6 value is, now, 11,900 or, ten percent of the time, now,
7 the flow is 11,900 or higher.

8 I think it's very important, as you look at the
9 lower flows, go to the ninety-five percentile. So,
10 this means that, ninety-five percent of the time, the
11 flow is equal to or greater than the value shown on the
12 table.

13 Q. Uh-huh [affirmative].

14 A. Prior to Flaming Gorge Reservoir coming
15 online, the ninety-five percentile was 1,140 CFS. Now,
16 or based on the period of record, here, that we used,
17 1963 to 2007, it is 1,420. So, again, a result of
18 Flaming Gorge construction and operation, those low
19 flows have been significantly increased.

20 Q. Now, if you'll look at Exhibits 16, 17, 18 and
21 19, it's a series of graphs measuring stream flow in
22 the Green. Would you explain to the Court what these
23 graphs show in terms of the flows and available water
24 in the Green?

25 A. As I was asked to look at the issue of

1 unappropriated water at the point of diversions for the
2 Blue Castle project, I went and used the U.S.
3 Geological Stream Flow Gauging Records for the last 30
4 years, from 2007 back 30 years, assuming that it would
5 reflect current conditions, operating practices and so
6 forth and water uses on the system. I went through and
7 analyzed what the average flow was for that period,
8 which is about 3.9 million acre feet a year, on
9 average. I, then, selected an average year, which I
10 selected 1978 as being representative of that, and what
11 this-

12 Q. And that's Exhibit 16?

13 A. That is Exhibit 16 and this is a hydrograph of
14 those stream flows for the Green River at Green River
15 for 1978 water year. So, starting in October and,
16 then, it goes through September. You can see that, in
17 the winter months, the flows are in the neighborhood of
18 1,800 to 2,500 CFS on a daily basis. That continues on
19 through the winter period. Then, we get into late
20 February, the first part of March. We start to see a
21 little bit of snow melt from the lower elevations. The
22 flows start to increase and, in this particular year,
23 they peaked-out at about 24,000 cubic feet per second.
24 Then, they start to recede down during the July and
25 August period and, then, again, hit a base flow. In

1 this particular case, it's between about 1,800 CFS and
2 3,000 CFS but, again, on an average year, that is
3 showing there's significant water in the system.

4 Q. And, again, looking at that low flow time,
5 during the winter months, on Exhibit 16, if you're
6 looking at a-if this represents an average year, flows
7 of 1,800 to 2,500 CFS, the Blue Castle withdrawal is,
8 again, 70 CFS?

9 A. That is correct and that's shown on the next
10 hydrograph.

11 Q. Right. Let's talk about 17, then.

12 A. Okay. Exhibit 17 is the same hydrograph,
13 1978, for the Green River at Green River. Again, an
14 average year and, then, I've subtracted from that 70
15 CFS to represent the diversion that is proposed by the
16 Blue Castle project. You can barely see a shade of red
17 there and, in essence, they're almost on top of each
18 other. So, it's indicating that the 70 CFS is an
19 extremely small portion of the total flow in the river
20 on an average year.

21 MR. WRIGHT: Your Honor, can you see that on your
22 copy?

23 THE COURT: I can, yes. It's clear.

24 MR. WRIGHT: A slight red line?

25 THE COURT: Uh-huh [affirmative].

1 MR. WRIGHT: Okay.

2 Q. All right, Jerry, let's talk about impact on
3 the Green in times of low flow. What year did you pick
4 as a low flow year?

5 A. I picked the year 2002.

6 Q. Why?

7 A. That is the lowest flow during the 30-year
8 period that I selected. Plus, it is the second lowest
9 year in over 100 years of record. 1934 was the only
10 year that was lower.

11 Q. Okay, right in the middle of the Dust Bowl,
12 right?

13 A. Yes.

14 Q. All right and, then, explain the hydrograph—
15 and this is a low year with the 70 CFS withdrawal from
16 the river?

17 A. Yes. This is, again, a very low year. You
18 can see that it starts somewhere just above a thousand,
19 1,200 CFS. Then, in the winter period, it goes up to
20 almost 2,000. Then, again, you get the same spring
21 run-off in late February, early March. In this
22 particular year, the peak flow was only 7,600 CFS. So,
23 substantially less than 1978 or an average year.

24 Then, the hydrograph drops off very rapidly and
25 you can see that, in late July, it is below 1,000 and

1 the low flow period is in late August, early September,
2 where the flows get down as low as seven to 800 CFS.

3 Then, it appears, in early September, we start
4 getting some rains. The flows start to come up and are
5 up over 2,500 CFS at that point in time.

6 Q. Okay and the red line represents, again?

7 A. The red line would indicate the 70 CFS,
8 subtracted from the actual gauge reading at Green
9 River, to show the impact of the Blue Castle diversion.

10 Q. Now, take a look at Exhibit 19. I think what
11 you've done here is take a snapshot of just the low
12 flow period from 2002, August through September. Is
13 that right?

14 A. That is correct and the reason that I did that
15 is, as you look at water administration, average years
16 or above, there's plenty of water. There's no problem.
17 The problems come in those years where you have
18 extreme drought and you've got to make sure that the
19 water supply is available to get you through that
20 period.

21 So, what I've taken is the hydrograph for just two
22 months, August and September of 2002, again, which
23 represents extremely low flow conditions on the Green
24 River and it's blown-up. The scale is much larger.
25 So, you can see the difference between the actual

1 measured flow, which is shown in green, and, then, the
2 flow of the river after the diversion of the 70 CFS by
3 Blue Castle.

4 In the August period, those flows are somewhere in
5 the neighborhood of seven to eight hundred CFS. So,
6 the Blue Castle diversions represent somewhere around
7 ten percent of the flow that would be there.

8 Then, towards September 10th, somewhere around
9 there, you can see, again, the range coming back and
10 the flows increase and, so, there, the flows are up in
11 the 2,000-2,500 CFS range. Then, drop off again in
12 late September to somewhere around 1,200 and, then,
13 start to increase again as the weather cools and we,
14 apparently, get some additional rains in the system.

15 Q. So, in terms of extreme low flow, in an
16 extremely low flow year, 2002, you're talking about a
17 time frame of a couple of months where you're really
18 down and you've got the Blue Castle withdrawal
19 representing about a ten percent impact on the river.

20 A. Yes. In this particular year, that is true.

21 Q. Now—

22 A. Mr. Wright, there's one thing I want to point
23 out here.

24 Q. Yes.

25 A. This is 2002 and, as we discuss other things,

1 some of the practices on the river have changed that
2 would mitigate the flows.

3 Q. Let's talk about those.

4 A. Okay.

5 Q. Before we get to—well, what specific practices
6 have changed since 2002 on the river?

7 A. In the year 2000, the Fish and Wildlife
8 Service published a report with regards to the flow and
9 temperature needs for the endangered fish on the Green
10 River and, there, they identified different flow
11 requirements depending upon the water year that we were
12 experiencing. For low water years, they have indicated
13 that the fish need about 1,300 cubic feet per second,
14 in their opinion, to be able to reproduce and be
15 protected.

16 Q. Okay and how is that flow supplied?

17 A. That flow would have to come from other
18 facilities, water supplies and, in this particular
19 case, it is Flaming Gorge Reservoir that becomes the
20 vehicle to, basically, augment those needs.

21 Q. Let's talk a little bit more about Flaming
22 Gorge. Would you turn to Exhibit 20? Could you tell
23 the Court, briefly, what that is?

24 A. This is the record of decision that was issued
25 by the Bureau of Reclamation in 2006 with regards to

1 how they would operate Flaming Gorge Reservoir in order
2 to meet the flow requirements that were set forth in
3 the 2000 Fish and Wildlife study.

4 Q. Could you turn to, after the title page, the
5 first page of Exhibit 20? The second paragraph reads
6 the purpose of the proposed action is to operate
7 Flaming Gorge Dam to protect and assist in recovery of
8 the populations and designated critical habitat of the
9 four endangered fishes while maintaining all authorized
10 purposes of the Flaming Gorge unit of the Colorado
11 River Storage Project, including those related to the
12 development of water resources in accordance with the
13 Colorado River Compact. Would you translate that for
14 us? What does that really mean?

15 A. I think this document is indicating that they
16 are going to change the operation of Flaming Gorge
17 Reservoir to meet the requirements for the four
18 endangered fish but, at the same time, they are going
19 to operate it such that the states of the Upper Basin
20 are able to put to use the water that is available to
21 them under the Colorado River Compact.

22 Q. Turn to page 5, please, of Exhibit 20.
23 Counting, starting with the first paragraph, not
24 including the indented quote block. So, you've got
25 paragraph 1, 2, 3, fourth paragraph. It's the last

1 paragraph on the page, the second sentence. Would you
2 read that, please?

3 A. The goal of the recovery program—that one?

4 Q. Yes.

5 A. The goal of the recovery program, therefore,
6 is to recover the listed species of the Upper Colorado
7 River to the point of delisting while allowing for the
8 continued operation and development of water resources
9 of the Upper Colorado River Basin.

10 Q. And the recovery program. What is that?

11 A. That is a program that was entered into by the
12 Upper Basin states, the Fish and Wildlife Service,
13 Bureau of Reclamation and other interested parties to,
14 in essence, recover the four endangered species.

15 Q. And, so, how was the operation of Flaming
16 Gorge changed in terms of sustaining flows in the Green
17 River?

18 A. Okay. With the record of decision that was
19 issued in 2006 by the Bureau of Reclamation, they are
20 making a commitment that they will re-operate Flaming
21 Gorge Reservoir to provide for the in-stream flow needs
22 of the endangered fish and, so, in the dry years, that
23 would be the 1,300 CFS during those low flow periods.

24 Q. While, at the same time, what is the impact on
25 the Upper Basin states' use of their water allocations

1 under the compact?

2 A. The Upper Basin states are also working with
3 the Bureau of Reclamation and Fish and Wildlife Service
4 to ensure that those releases also provide water in the
5 system to meet their anticipated consumptive water
6 needs, as well as the fish and, so, it's, kind of, two
7 components there. It's re-operating Flaming Gorge for
8 the fish and to allow the Upper Basin states to develop
9 their entitlement under the Colorado River Compact.

10 Q. Okay. In your opinion, is the Green River a
11 sufficiently dependable system of water supply for the
12 proposed Blue Castle project?

13 A. Based upon my analysis of the flow records, I
14 think there is adequate, there is unappropriated water
15 in the system. I think that, with the re-operation of
16 Flaming Gorge, there will be sufficient water, even in
17 dry periods, to meet Blue Castle's needs as well as
18 provide for the needs of the endangered fish.

19 Q. Would you turn to Exhibit 57, please? Please
20 tell the Court what that is?

21 A. This is an order of the State Engineer on a
22 change application filed by the San Juan-Spanish Valley
23 Special Service District to transfer water from the San
24 Juan River up to the Spanish Valley area near Moab,
25 Utah.

1 Q. And what significance does this decision have
2 in connection with your analysis of water availability
3 in the Colorado River Basin for the Blue Castle
4 project?

5 A. This change application is fairly similar to
6 the one covering the San Juan water for the Blue Castle
7 project. This change application is based upon a water
8 right held by the San Juan County Water Conservancy
9 District that they, then, transferred to the San
10 Juan/Spanish Valley Special Service District to allow
11 them to move that water right. It's an approved water
12 right, to move it up to Spanish Valley to meet the
13 needs of this special service district.

14 Q. And what does this decision, this State
15 Engineer order, tell you? How does it inform your
16 opinion concerning water availability?

17 A. Again, they dealt with the issue of whether
18 there is water available under Utah's compact
19 entitlement within the Colorado River system.

20 Q. And the conclusion was?

21 A. That there was sufficient water that would be
22 available and, even though some had claimed that
23 climate change might be a problem or so forth, the
24 State Engineer determined that, just because a water
25 right might be cut, by priority, was not reason enough

1 to reject the application.

2 Q. Why is that? I mean, drought is a real
3 possibility. Why is it that the State Engineer would
4 approve the use of water with the possibility hanging
5 out there that it might have to be cut in times of
6 shortage?

7 A. Under the prior appropriation system, their
8 system assumes that there will be shortages and that
9 water rights will have to be cut-off during extreme low
10 flow periods and, so, if you denied all of the
11 applications that were filed, and only approved those
12 that would have water during those low flow periods,
13 then, there would be a lot of water that would run the
14 waste during an average or even a slightly below
15 average year.

16 Q. Would you turn to page 5 of Exhibit 57?

17 A. Okay.

18 Q. The fourth paragraph down, second from the
19 bottom, last sentence begins it is the opinion of the
20 State Engineer that there is unappropriated water in
21 the Colorado River, at the proposed point of diversion,
22 to serve this application. Issues related to access to
23 the proposed point of diversion are the responsibility
24 of the applicant to resolve.

25 You concur with the opinion that expressed, by the

1 State Engineer, that there is unappropriated water in
2 the river to support this particular application,
3 Exhibit 57?

4 A. Yes, I do.

5 Q. Has the Division of Water Rights done any
6 modeling in connection with the Green River?

7 A. It is my understanding that, yes, they have
8 done some modeling to model the river to impose new
9 water rights coming online to deal with the fish issues
10 and general administration of that system.

11 Q. Take a look at Exhibit 58. Do you recognize
12 this as at least an updated version of that modeling?
13 I said updated because it includes the word update.

14 A. Yes, I do. I have seen it.

15 Q. Now, how has the Division of Water Rights, in
16 its modeling on the Green, factored-in the approved
17 Blue Castle applications when it's assessing available
18 water on the Green River?

19 A. As they are projecting future water needs from
20 the Green River, they have included the Blue Castle
21 project demand of 70 CFS in their modeling work.

22 MR. WRIGHT: Your Honor, you'll find that
23 reference on page 7 of that exhibit. The pages aren't
24 numbered. It's just the seventh page in.

25 Q. Jerry, would you point us to where that

1 reference to the Blue Castle application is on that
2 page?

3 A. That is on the table that is entitled Utah
4 Water Rights Diversion and Depletion Summary and, at
5 the bottom of that table, there is, under the name, it
6 says proposed NPP Below Green River Gauge.

7 Q. NPP meaning nuclear power—

8 A. Nuclear power plant.

9 Q. Take a look at the next page of Exhibit 58.
10 It's titled Potential Use. Would you explain to the
11 Court what these totals are meant to describe?

12 A. Okay. The total allocation is what Utah is
13 entitled to under the Colorado River Compacts and,
14 again, that number ranges from 1.35 to 1.42 million
15 acre feet a year. Current use within the system is
16 about one million acre feet per year. So, it's showing
17 remaining water to be placed to beneficial use of
18 369,000 acre feet depletion annually.

19 Also, the State of Utah has entered into
20 negotiations with the Navajo Nation with regards to
21 their reserved water right claims. Those are, at this
22 point, eighty-one thousand five hundred acre feet of
23 depletion. That would be from the San Juan drainage.
24 So, the maximum potential is just subtracting those
25 numbers out and, for modeling potential, they've used a

1 number of 340,000 of additional depletion within the
2 system.

3 Q. Do we know what the Navajo Reserve rights,
4 where those are headed? Do we know what the tribe
5 intends to do with those water rights?

6 A. No. They would be quantified and, then, it
7 would be a decision or determination the Navajo Nation
8 would make as to whether they—where they wanted to
9 utilize those. I would state this, though, that, in
10 the negotiations, it was a requirement that that water
11 would be used in the Utah portion of the Navajo
12 Reservation or within Utah.

13 Q. And why is that? What benefit does Utah get
14 from that?

15 A. Again, it dies the water use to the State of
16 Utah. If they took that water and took it to New
17 Mexico or Arizona, then, those states would benefit
18 from it and the State of Utah, in negotiating with the
19 Navajos, wanted to provide water systems for the people
20 that live in the Utah portion of the reservation and
21 allow them opportunities to benefit from the
22 development of that water resource.

23 Q. Did you look at the question of impairment?

24 A. Yes, I did.

25 Q. Take a look at Exhibit 56. Could you tell the

1 Court what that is, please?

2 A. This is a slide of the Green River area where
3 the points of diversion for the Blue Castle project are
4 located and, then, it shows the other large diversions
5 from the Green River in that area.

6 Q. And did you reach any opinion concerning
7 whether the Blue Castle proposed Diversion would create
8 impairment to other water rights on the system?

9 A. As I evaluated the proposed diversion by Blue
10 Castle Holding, and examined the existing, as well as
11 approved, yet undeveloped, water rights in the Green
12 River area, I did not believe there would be impairment
13 of any existing water rights, whether currently being
14 used or proposed to be used in that area.

15 Q. The highest point of diversion, based on this
16 particular map, Exhibit 56, shows Adams. Who are the
17 Adams?

18 A. That is Bill and June Adams. They were a
19 party to this action at one time. I don't know whether
20 they still are or not and they own the water right in
21 this vicinity for about 55 acres of irrigation.

22 Q. All right. So, Blue Castle is going to be
23 diverting downstream from the Adams Green River Canal,
24 Thayne, East Side Ditch and Green River Companies. All
25 of those diversions are upstream from where Blue Castle

1 intends to divert?

2 A. Yes and, again, I denoted the large diversions
3 here. Green River Canal Company, Thaynes Ranches, are
4 fairly large diversions. East Side Canal is another
5 fairly large diversion. Green River Companies has
6 several diversion points on the system that divert out
7 of the river. All of those are located up gradient of
8 the proposed points of diversion for the Blue Castle
9 project.

10 Q. So, not much chance we could impair somebody
11 who is upstream?

12 A. No.

13 Q. You're aware that certain of the experts for
14 the plaintiffs contend that there is a declining water
15 supply in the Colorado drainage. You're aware of that
16 claim, generally?

17 A. Yes.

18 Q. And what is your opinion in connection with
19 that notion of a declining water supply? Is there?

20 A. The analysis that they have performed, for
21 example, they have taken the flow records for the Green
22 River at Green River USGS Gauging Station, done an
23 analysis of those, done a regression line which shows
24 the trend sloping downward or the water supply
25 decreasing. To me, that is not surprising because

1 Utah, over the period of record, has placed water to
2 beneficial use. Wyoming is developing their
3 entitlement. Colorado, to a small extent, has
4 developed theirs, but Utah has seen significant
5 development with the enlargement of Strawberry
6 Reservoir construction.

7 Q. I was just going to ask you. Could you list,
8 for us, some of the water development above that gauge
9 that would contribute to the declining flows you would
10 measure at that gauge?

11 A. Probably the biggest one, right off, would be
12 just the construction of Flaming Gorge Reservoir and
13 the holding-back of 3.78 million acre feet just to fill
14 that reservoir and, so, that's got to be accounted for
15 as you look at the records. Other large projects are
16 the enlargement of Strawberry Reservoir.

17 Q. How big was Strawberry before the enlargement?

18 A. Before the enlargement, I think it was about
19 250,000 acre feet. Now, it's over a million acre feet.
20 So, again, to fill that reservoir to provide for that
21 water has a significant effect on the hydrology.

22 Q. Are there other CUP pieces that have been
23 developed?

24 A. As far as the Bonneville Unit, there's also
25 Starvation Reservoir, an additional irrigation in the

1 Duchesne area. Also, there is, in the Vernal area, the
2 Uinta Unit and Jensen Units of the Central Utah
3 Project. Those would include Steineker Reservoir and
4 Red Fleet Reservoir. Plus, there's other smaller
5 development throughout the Basin that would be
6 reflected in those flow figures.

7 Q. So, the declining trend described by the
8 plaintiffs' experts, how, if at all, does that impact
9 your opinion as to available water on the Green River
10 for these applications?

11 A. I still, even with what they've presented, you
12 would have to go back in and add in the historical
13 depletions to, in essence, re-generate a virgin flow.
14 Then, do an analysis on that to determine if, in fact,
15 there is a trend. Regardless of that, I believe that,
16 under the current flow within the Colorado River
17 System, the Compacts, Utah is entitled to deplete 1.4
18 million acre feet of water from the Colorado River
19 System, on average, and I think there is water
20 available to satisfy those needs.

21 Q. Let's talk, briefly, about the delivery
22 obligations of Wyoming and Colorado. When the states
23 in the Upper Basin, you know, they have, as you've
24 described, an obligation to deliver water to the Lower
25 Basin. How do they work under the Compact? Let me ask

1 you this way. Is there a way to identify,
2 specifically, Colorado has to send this much? Wyoming
3 has to send this much? Utah has to send this much or
4 does the Compact provide for how those decisions are
5 made to get deliveries to the Lower Basin?

6 A. In the upper Colorado River Basin Compact, it
7 made a commission made up of Wyoming, Colorado, New
8 Mexico and Utah, plus there was a federal
9 representative on that commission. That commission is
10 charged with the responsibility of ensuring the
11 deliveries are made to the Lower Basin and to Mexico.
12 That Commission meets on a regular basis. They look at
13 the hydrology within the system and if, in fact, there
14 are periods of shortage, then, the commission would,
15 then, take action to have the states, then, curtail the
16 diversion of water in order to meet those downstream
17 obligations, but it is not the States acting
18 independently of themselves.

19 Q. How are the—specifically, let's get below
20 Flaming Gorge and talk about Lake Powell, Lake Mead,
21 even Havasu. How are those reservoirs used in
22 connection with deliveries to the Lower Basin states
23 and even, ultimately, to Mexico, under the Compact?

24 A. Lake Powell, and the storage reservoirs
25 located upstream of that, are used by the Upper Basin

1 states to meet their downstream obligation. Lake Mead,
2 Lake Havasu, Davis and the others are used by the Lower
3 Basin states to meet their delivery obligations to
4 water users out of the Colorado and, so, again, Lake
5 Mead is a fairly large reservoir, 25,000,000 acre feet,
6 plus, that is used to meet those delivery demands in
7 the lower basin during times of shortage.

8 Q. Okay.

9 MR. WRIGHT: John, do you guys have witness copy
10 of your exhibits?

11 MS. SWENSEN: Yes.

12 MR. WRIGHT: Can we use it?

13 MS. SWENSEN: Oh. Sorry. We have them, like,
14 individual.

15 [Inaudible discussion.]

16 Q. Mr. Olds, I'm going to show you one of the
17 plaintiffs'—

18 MR. WRIGHT: Do you have a bench courtesy copy?

19 Q. Mr. Olds, that is—the exhibits aren't
20 numbered, but that's, probably, Plaintiffs' Exhibit.
21 It's the tenth photograph from the beginning and it
22 purports to show a point of diversion for one of the
23 water rights at issue and I think it's the San Juan
24 right. Have you taken a look at that point of
25 diversion to calculate where it is currently located?

1 A. Yes, I have.

2 Q. And does that photograph accurately depict
3 where that point of diversion is?

4 A. No, it does not.

5 Q. And where is the actual point of diversion?

6 A. The actual point of diversion is south of
7 there, on the San Juan River.

8 Q. Okay. How would you explain that apparent
9 mistake in locating that diversion up the hill that
10 way?

11 A. When I looked at this, I realized—I scaled it
12 off on a topog map and, doing it on the topog map, it
13 fell on the San Juan River. Knowing the system under
14 which this electronic version is created, I realized
15 that there was an error in the underlying data that was
16 used to plot this map. So, I called the Division of
17 Water Rights' staff and I said I think you've got a
18 problem with this particular section and you have to
19 realize that the section from which this water right is
20 described is south of the San Juan River in the Indian-
21 Navajo Reservation, probably unsurveyed. I said it
22 looks like there is a possible error in the section
23 corners as you have entered them in the database that
24 is, then, accessed to construct the map and he looked
25 at it and he says, yes. We're off 500 meters. I will

1 fix that.

2 Q. Okay. So, in any event, the San Juan
3 diversion is actually located on the river.

4 A. On the river, yes.

5 Q. Look at the eighth photo. So, flip back two
6 to photo number 8 and is that the one that shows—I need
7 to make sure. Yes, under other points of diversion,
8 what does that photograph depict?

9 A. This is a radius search around where the
10 proposed points of diversion for the Blue Castle
11 project will divert water and it shows the existing
12 water rights that are in the database.

13 Q. Now, is there anything in that photograph that
14 you were not already familiar with when you looked at
15 the question of impairment based on these applications?

16 A. No.

17 Q. And, as far as you can tell, did the State
18 Engineer, in the orders approving these applications,
19 take those other water rights and points of diversion
20 into consideration?

21 A. Yes.

22 Q. Are all of those still in use, as far as you
23 know?

24 A. No, they are not.

25 Q. Which one is not?

1 A. There's the Elgin Ditch water right, and I
2 don't know the number right off, but it diverts on the
3 east side of the Green River. It is for 13 CFS of
4 water. That ditch has not been operated for a number
5 of years.

6 Q. Okay. All right, then. Mr. Olds, based on
7 your analysis of available water on the Green, then,
8 what is your opinion concerning unappropriated water to
9 support these applications?

10 A. It is my opinion that there is unappropriated
11 water at the proposed points of diversion on the Green
12 River to satisfy this project. That is based upon my
13 research of the Compacts, law of the river, as well as
14 the hydrology of the Green River at that location.

15 Q. And what is your opinion concerning the
16 question of impairment of other water rights?

17 A. I do not believe that a diversion of the 70
18 CFS will impair other water rights. Located downstream
19 from the Blue Castle points of diversion, there's,
20 approximately, 37 CFS of potential diversion but,
21 again, the flow of the river, as it by-passes Blue
22 Castle, has not been lower than 700 in recent times
23 and, with the re-operation of Flaming Gorge, they will
24 be somewhere around 1,300 CFS by-passing those points
25 of diversion.

1 Q. At the lowest flow points?

2 A. Yes.

3 Q. And, in your opinion, does the proposed Blue
4 Castle project put water to beneficial use?

5 A. Yes. I believe it will. I believe it's going
6 to stimulate the local economy, create jobs, both for
7 the local regional and state economy.

8 Q. And are those issues that a state engineer
9 would typically look at, at least for projects of
10 scale, as opposed to, say, somebody just wants to
11 irrigate 100 acres or something?

12 A. Yes. I think those are very important issues.

13 Q. Now, very briefly, stream alteration and dam
14 approval. There, obviously, will be a diversion
15 structure that Blue Castle will have to design and
16 build. At what point does the State Engineer's Office
17 become involved in evaluating and inspecting that
18 actual structure, how it's gauged and the approval of
19 the structure and the dam itself?

20 A. Okay. In addition to the water right
21 applications that are before us in this case, the
22 applicants will have to file for a stream alteration
23 permit to actually make the diversion out of the river.
24 At that point in time, they will be required to submit
25 plans with regards to what they intend to do and it

1 would be my recommendation that they work very closely
2 with the Recovery Implementation Program to ensure that
3 that diversion structure that is made is done such that
4 it does not unreasonably affect the endangered fish,
5 natural stream environment and so forth. So, that
6 remains to be done and the applicant realizes that they
7 have that burden going forward.

8 Q. In fact, let me stop you there and add
9 Endangered Species Act consultation was one of the
10 conditions of approval that Mr. Jones added when he
11 approved these applications, correct?

12 A. That is correct. As a condition of approval,
13 the applicants must satisfy the section 7 consultation
14 with the Fish and Wildlife Service as they go forward
15 and Blue Castle has known that and has been in
16 agreement that they would do that as part of the NEPA
17 process as they go forward with the NRC licensing
18 process.

19 Q. Okay and I think I interrupted you about—

20 A. The dam.

21 Q. -the dam, yes.

22 A. Now, with regards to the 2,000 acre foot dam,
23 they would have to develop plans and specifications,
24 submit those to the State Engineer for his review and
25 approval. So, that is another step in the process.

1 They can—

2 Q. And there's no discretion there? You can't
3 build a dam to impound a couple thousand acre feet of
4 water in the State of Utah without talking to Kent
5 Jones.

6 A. That is true and they cannot do any
7 construction until they get the approval of the State
8 Engineer with regards to those plans and
9 specifications.

10 Q. And, in connection with that proposed storage
11 reservoir, based on your analysis concerning water
12 availability and just your general understanding of the
13 site, are you aware of any impediments to that kind of
14 storage reservoir on site?

15 A. Now, I have not been to the site to inspect it
16 for those purposes but, again, I would assume that they
17 could develop a reasonable storage reservoir there. It
18 may cost them a few dollars, but that's part of the
19 process.

20 Q. All right.

21 MR. WRIGHT: Nothing further, Your Honor.

22 THE COURT: Thank you, Mr. Wright. If it's all
23 right with everybody, I think we'll take a noon break
24 and, then, we'll begin cross-examination as soon as we
25 get back. Let's take a break until 1:00. Court will

1 be in recess until 1:00. Thank you.

2 BAILIFF: All rise.

3 [Recess.]

4 BAILIFF: Seventh District Court [inaudible], the
5 Honorable George Harmond, Jr. presiding.

6 THE COURT: Good afternoon, ladies and gentlemen.
7 Please be seated. We'll get back on the record in the
8 *Heal Utah v. Kane County, et al.* This is Case 1207009,
9 an Emery County Case. The record will show counsel is
10 present. Mr. Olds was on the stand about to be cross-
11 examined. Mr. Olds, if you would come back up to the
12 stand, please, Sir. Mr. Flitton?

13 MR. FLITTON: Thank you.

14 CROSS-EXAMINATION OF MR. OLDS

15 BY MR. FLITTON:

16 Q. Mr. Olds, let me start by going back on just
17 the methodology and make sure I'm clear, exactly, what
18 you did and how you determined the basis for your
19 opinion that there's water available here. I think
20 what I heard you say is that, in looking at the
21 availability of water, the primary thing-or, the
22 starting point, at least, of where you went was to
23 examine the Colorado River Compact. Is that correct?

24 A. Yes.

25 Q. Okay. So, would it be fair to say that, in

1 viewing this, what you look at is, if there's water
2 available under the Colorado River Compact, then, there
3 would be water available for this appropriation, or is
4 it more complicated than that?

5 A. No. I think that's only the first step in the
6 evaluation.

7 Q. Okay. So, what's the next step, then?

8 A. Well, after you determine what Utah's
9 apportionment is under the Compact, then, you've got to
10 look at the physical availability at the point of
11 diversion that the applicant would want to divert the
12 water from.

13 Q. Okay and, so, with respect to that second
14 step, the availability at the point of diversion, what
15 you've examined is the flow records from the Green
16 River gauging station, primarily. Is that right?

17 A. Yes. That's one component, yes.

18 Q. Okay and what else did you look at?

19 A. Well, again, then, there's the issues of the
20 fish, the record of decision and so forth that play
21 into that as well.

22 Q. And those two items play to whether there is
23 water available in the source?

24 A. Yes.

25 Q. Okay and, so, how do the fish play into that?

1 A. Well, again, there's a requirement for
2 providing flows for the fish to ensure that they
3 continue to propagate in the area and, so, you have to
4 look at, over and above that, what water is available
5 for diversion.

6 Q. Okay and what is that minimum flow
7 requirement?

8 A. The minimum flow during the low period is the
9 1,300 CFS. That's the target that they're trying to
10 get to and it can fluctuate.

11 Q. Okay. So, and since that's the low period,
12 that's the requirement for any low period. I mean, it
13 goes above that when it's high periods, correct?

14 A. Yes. Yeah, it's got flows that they want to
15 have during the peak and so forth, yes.

16 Q. Okay and that operating agreement requires,
17 which is part of this, you know, Fish and Wildlife
18 Service requirement, is that that water be left in the
19 river, the 1,300 second feet from the dam all the way
20 to the confluence with the Colorado. Is that right?

21 A. I would not characterize it the way you've
22 stated it, no.

23 Q. Okay, because my understanding is the
24 agreement says that it has to—there's three reaches on
25 the river, correct?

1 A. Yes.

2 Q. Okay and it has flow requirements for all
3 three of those reaches. Is that right?

4 A. Yes.

5 Q. Okay. So, why would you not characterize that
6 water, even there's requirements for all three reaches,
7 and those three reaches go for the entire river, why
8 wouldn't that be a requirement for the entire river?

9 A. Again, you stated that under the agreement. I
10 don't think it's an agreement, per se. It's the record
11 of the decision that the Bureau of Reclamation issued
12 with regards to how they would re-operate Flaming Gorge
13 Reservoir to be in compliance or to satisfy the needs
14 of the Fish and Wildlife Service for the endangered
15 fish and, at the same time, allow the states to
16 continue to develop their Compact entitlement.

17 Q. Okay. Now, you testified with respect to the
18 water rights. You're familiar with both of these
19 underlying water rights, correct?

20 A. Yes.

21 Q. Okay. Do either of these water rights have
22 call on storage in Flaming Gorge?

23 A. No.

24 Q. Okay. So, in times of shortage, they don't
25 have the right to require that additional releases be

1 made in order to satisfy their diversions under the
2 rights?

3 A. Directly under these water rights, no. That
4 is not a component of those water rights.

5 Q. Okay. So, in looking at the flows, there are
6 several periods where the flows drop below 1,300 second
7 feet, right?

8 A. Historically, that has occurred, yes.

9 Q. Okay. What about since 2006?

10 A. It, probably, has. I didn't look at that,
11 specifically.

12 Q. Okay. What percentage, over the last ten
13 years, has that occurred? Sorry.

14 A. I don't know. I couldn't answer that without
15 going back and looking at the records, specifically.

16 Q. Okay, but in those periods, Blue Castle would
17 not have the right to divert any water, correct?
18 Because it's below the 1,300 CFS minimum stream flow?

19 A. Again, that is not how the record of decision
20 will work. The State of Utah, the State Engineer has
21 issued approval for these two applications to divert 70
22 second feet for the Blue Castle project. During low
23 flow years, when there would not be adequate water to
24 supply the 1,300 for the fish and the diversions by
25 Blue Castle and other water users, the record of

1 decision has been implemented that indicates releases
2 from Flaming Gorge Reservoir. 3.78 million acre feet
3 of storage would, then, be made to insure that there is
4 water for the fish as well as for the water rights that
5 divert from the Green River.

6 Q. So, you're suggesting that it's anywhere at
7 1,200 CFS and the Fish and Wildlife Service says, look.
8 We need another 100 CFS to even meet the minimum flow
9 requirements. So, they release additional water into
10 the operating plant, correct? Under the record
11 decision, they would call for release of additional
12 water to make up for that deficit?

13 A. I think that's how it would work, yes.

14 Q. Okay. Who would call to make up your deficit?
15 Because you don't have any storage rights in that
16 reservoir, as you've said. So, who would call to make
17 up the deficit to Blue Castle's water rights?

18 A. In the one exhibit that I referred to earlier,
19 and I think it's the one with regards to the modeling
20 that has been done on the system-

21 Q. Right, I think it's 57.

22 MR. WRIGHT: Fifty-eight.

23 Q. Fifty-eight, sorry.

24 A. Okay and, again, this is work that has been
25 done by the State of Utah in connection with the other

1 participants of the Recovery Implementation Program.
2 Utah is committed to work with the Recovery
3 Implementation Program to provide the water for the
4 needs of the fishery. In addition, they have a goal or
5 desire to also develop Utah's entitlement under the
6 Colorado River Compact and, so, as you look at the
7 table—let me count the pages, first.

8 MR. WRIGHT: I think it's the seventh page.

9 A. What is it?

10 MR. WRIGHT: Seventh page.

11 A. Seventh page, and it's the table Utah Water
12 Right Diversions and Depletion Summary. Again, this is
13 developed by the team that is working to ensure that
14 the flows are there and they are protected for the fish
15 and they have included, in their studies, as far as
16 what are the needs for downstream deliveries in order
17 to meet the needs of the fish and the water rights that
18 are diverting water and they've included the diversion
19 for the nuclear power plant.

20 Q. Okay, but what I'm not understanding, based on
21 this, is it doesn't show, in here, where the source—it
22 doesn't talk about Flaming Gorge Reservoir being the
23 source of any additional water, correct?

24 A. But, again, that is the whole purpose of this
25 study is how are we going to re-operate Flaming Gorge

1 Reservoir in order to meet those objectives, those two
2 objectives: protect the fish and provide water for the
3 approved water rights on the system.

4 Q. Do you know when this table was prepared? I
5 don't see a date on it.

6 A. The front of it has August 27th, 2012.

7 Q. Okay. So, this was prepared after the
8 operating plan was already put in place, after the
9 record decision?

10 A. Yes.

11 Q. Okay. Does the State of Utah have any storage
12 rights in Flaming Gorge Reservoir?

13 A. No, they do not.

14 Q. Okay, they're owned by the Bureau of
15 Reclamation, right?

16 A. Yes.

17 Q. Okay. So, how does the State compel releases
18 to make up your water rights from Flaming Gorge when we
19 have flows in the river that are below 1,300 second
20 feet?

21 A. Again, I wouldn't characterize it the way
22 you've stated it. It's the Bureau of Reclamation,
23 under the record of decision, have agreed that they
24 will operate their facility such that they provide for
25 those fish flows and, also, for the State of Utah to

1 develop their Colorado River entitlement and I think we
2 reviewed that when we read the record of decision.

3 Q. Well, yeah. I recall you talking about that,
4 but I don't think that necessarily answers the question
5 because, what we're looking at here—isn't what we're
6 looking at is saying these are new water rights on this
7 system? We're moving water rights up into the Green
8 River from the Colorado, at the bottom, and we have to
9 analyze what the impacts are to the Green River system,
10 correct?

11 A. Yes.

12 Q. Okay and, before these were approved, the data
13 that you've referred to show that there were periods,
14 before these water rights were even approved, that
15 there was insufficient water, at times, to meet the
16 minimum flow requirements of the operating agreement.

17 MR. WRIGHT: I'm going to object to the continued
18 reference to minimum stream flow requirements. The
19 testimony, so far, has been that these are targets.
20 These are not minimums that are being imposed on
21 anyone.

22 THE COURT: I think that's accurate.

23 MR. FLITTON: Well, and that's fine, but the
24 effect of those requirements, given the history of the
25 project, is that those are required flows. I mean,

1 that's the way the operating-

2 MR. WRIGHT: The objection is misstating the
3 testimony so far. No one has testified that that's a
4 requirement.

5 THE COURT: He hasn't testified that. That's your
6 theory, but I don't think he has testified-

7 MR. FLITTON: Well, I asked him that question,
8 though. I asked him if those are the minimum flows and
9 he said yes.

10 THE COURT: He said those are the target flows.
11 Anyway, I'll let you ask him that question if you want
12 to clarify-

13 MR. FLITTON: Okay, that's fine.

14 THE COURT: --but the objection is sustained.

15 MR. FLITTON: Okay.

16 Q. So, in your view, are those target flows or
17 are those required flows in the river?

18 A. Those are target flows and they allow some
19 variance from that. So, it's not 1,300 just
20 constantly.

21 Q. Okay, but if there's less than 1,300 second
22 feet, and there's a water right, then, would that water
23 right holder be allowed to divert the water and further
24 deplete water from that system when it's below 1,300
25 already?

1 A. And, again, I would answer the question in
2 this way. The State of Utah has made a decision that
3 they approved these two change applications to move
4 water from down on the San Juan and on Lake Powell up
5 on the Green River. The State Engineer made a decision
6 that that was in the public interest, that it conformed
7 with the statute and, in doing that, then, the State
8 has committed that they will work under the Recovery
9 Implementation Program and that's what this document,
10 here, is, Green River Water Rights Distribution Model
11 Update. That's what that is all about is to ensure
12 that the flows are provided for the fish at the same
13 time that the needs of the water rights are being
14 supplied as well and that is accomplished under the re-
15 operation of Flaming Gorge Reservoir.

16 Q. Well, I guess where I'm getting lost here is
17 that you keep talking about these goals and these
18 programs, but I don't understand where the water is
19 going to come from because the State of Utah doesn't
20 have the right to demand releases, right?

21 A. No, they do not.

22 Q. So, where does the water come from?

23 A. Again, it's working in a cooperative manner
24 with the Recovery Implementation Program which includes
25 the other basin states and the Bureau of Reclamation,

1 Fish and Wildlife Service and others, Western Power, to
2 ensure that the fish are recovered to a point of de-
3 listing and they are working to achieve that objective
4 and, to do that, it requires the cooperation of the
5 Bureau of Reclamation in re-operating Flaming Gorge
6 Reservoir and that is what is happening.

7 Q. Okay, but I—

8 A. It's the program who determines the releases,
9 the calls, so on. Will there be requirements for Blue
10 Castle to work with the Recovery Implementation
11 Program? Yes, I think there will be when the water
12 rights are finally dealt with.

13 Q. Okay but, first of all, I mean, you're talking
14 about some future program. There has been no
15 discussions with the Colorado River Implementation
16 Program as of yet, have there?

17 A. Oh, yes, the State has been.

18 Q. But I'm talking about with Blue Castle in
19 terms of the water right.

20 A. There was some, I think, initial discussions
21 and, then, they realized that, no. We had to get
22 through the water rights process, even get approval,
23 before we took the next step. So—

24 Q. Okay, but in terms of evaluating the water
25 right, there's no guarantees that there will be water

1 that can be released from Flaming Gorge Reservoir in
2 the future or from whatever other source. Isn't that
3 right?

4 A. If you look at the hydrology in the west and
5 the water rights system, there is no guarantee that
6 water will be there. No water right is guaranteed
7 water.

8 Q. No, but my concern is that we're looking at
9 two water rights, that are sitting at the bottom of the
10 system, that have the main stem of the Colorado above
11 it, that have—in terms of Kane County. They have the
12 San Rafael River and, then, you've got all these other
13 tributaries that fall between Green River and Lake
14 Powell that are feeding the system. So, there was a
15 much bigger drainage area feeding the system above
16 these water rights than there is now having moved them
17 up to Green River and my concern is that you've got
18 this 1,300 second foot number where the record shows,
19 you know, that there are times when it's not there and,
20 yet, there's a finding that there's unappropriated
21 water in that source. How do you reconcile that?

22 A. If you look at the fishery flows, and I would
23 ask you the question. Is there a water right for those
24 fishery flows? No, there is not. It is being
25 protected under the cooperative efforts of the

1 participants in the Recovery Implementation Program.

2 Q. Well, I guess, doesn't the—I mean, it seems to
3 me that the Endangered Species Act, though, comes into
4 play here in terms of there's been a finding that
5 there's endangered species on that river.

6 A. Yeah.

7 Q. And, so, there's a GEPRE opinion that was
8 issued, correct?

9 A. Yes.

10 Q. And, so, there's this process that's taken
11 place, under the federal government, that says we want
12 these flows in the river for the fish to protect them
13 under the Endangered Species Act. Isn't that what
14 we're talking about here?

15 A. Okay. Yes.

16 Q. Okay. So, in terms that there's not a water
17 right supporting that, that water, even though it goes
18 through the Green River, makes up part of the by-pass
19 flows to the Lower Basin states, correct? It's counted
20 towards that?

21 A. It would go to supply the delivery obligations
22 of the Upper Basin, yes.

23 Q. Okay. All right. So, really, it's being left
24 in the river under the water rights that are part of
25 that Colorado River Compact on the system. Isn't that

1 right?

2 A. Again, I don't think it says that you have to
3 have so much water at the Green River Gauge in order to
4 meet downstream obligations. The Compact says that the
5 Upper Basin will deliver, at Lee's Ferry, so much
6 water. Whether that's made-up out of the San Juan
7 River or the Green River or the Colorado, that remains
8 to be determined based upon the conditions of that
9 particular year or series of years.

10 Q. How does the operating plan work with respect
11 to—I'm talking about the Flaming Gorge Operating Plant.
12 How does it work with respect to gauging the in-flow
13 into the reservoir? Does it make releases based on
14 what the in-flow is during the non-impound period? Do
15 you understand what I'm saying?

16 A. No. If you would re-phrase the question.

17 Q. Okay, let me back-up. Does Flaming Gorge have
18 the ability to impound water all year long or is it
19 limited in period of time when it can impound water
20 from the dam?

21 A. No. It can store water year-round.

22 Q. No, I'm not talking about storing. I'm
23 talking about diverting and not releasing pass-through
24 flows.

25 A. And I would term that as storing water. So,

1 yes, they can store year-round or, in your terms, they
2 could divert and withhold the water year-round.

3 Q. Okay. So, how does the operating plan, then,
4 account for what the natural flows are that are flowing
5 into Flaming Gorge Reservoir or above?

6 A. And, again, I'm not an expert on this. There
7 may be others that could address this, but it's my
8 understanding that, under the record of decision and
9 the operation of Flaming Gorge Reservoir, there's a
10 team that has been created that meets late in the-or,
11 early in the spring to determine what the water supply
12 conditions are going to be. Then, they set the target
13 flows that they're going to work towards and the
14 releases that they will be making from Flaming Gorge
15 assuming so much water from the Yampa and the other
16 tributaries that come in and, then, they adopt that and
17 move forward. It's my understanding they can adjust
18 that, as the season goes on, whether it becomes weather
19 or particular drainage is producing more water than
20 they anticipated and so forth but, again, then, they
21 set those target flows and try to meet those as they
22 move down through the system.

23 Q. Okay and explain to me how Wyoming satisfies
24 its obligations to the Lower Basin states, this by-pass
25 or shepherding?

1 A. Would you tell me what their obligation is to
2 the Lower Basin?

3 Q. Well, I don't have that number in front of me
4 but, I guess, what I'm trying to get at is that water
5 all comes down the Green River. Is that right?

6 A. There is water that comes down the Green
7 River. I would not term it as being Wyoming's
8 obligation under the Compact.

9 Q. Well, its proportionate share. Is that
10 better?

11 A. Again, if you read the Compact, I believe it
12 says the Upper Basin states are obligated to deliver.
13 It doesn't say Wyoming is obligated to deliver or Utah
14 is obligated to deliver. It is all of the states
15 working together.

16 Q. But Wyoming shares its proportionate
17 obligations under that Compact, correct?

18 A. I do not see it as being proportional, no.

19 Q. So, what are you suggesting? That there's a
20 race to be the first to develop the most, even if it's
21 not according to your percentage because, then, the
22 other states are going to have bigger obligations to
23 make those releases?

24 A. No. I think the states work in cooperation
25 with each other. They know what the others are doing.

1 For example, with regards to Wyoming, they could
2 develop water that is, ultimately, tributary to the
3 Yampa. They could develop water in the head waters of
4 the Green River. So, there's decisions that could be
5 made there and the same with Colorado. They could
6 develop water on the Yampa, the main stem of the
7 Colorado, the San Juan. So, there is some flexibility
8 in the system.

9 Q. I guess I'm having a hard time getting my arms
10 around the fact that you've got—each state has an
11 allocation under the Colorado River Compact and the
12 Upper Basin Compact, right?

13 A. They have an apportionment, yes.

14 Q. Okay and that apportionment, what you're
15 telling me is that there's not a direct correlation
16 between that apportionment and a percentage of releases
17 under the, you know, down to Lee's Ferry, correct?
18 That that's, kind of, a moving target for these states?

19 A. In my reading of the compacts, and if you can
20 show me otherwise, I'd be happy to look at it, but I do
21 not believe the compacts say that, for example, Wyoming
22 will deliver, at the Wyoming/Utah line, fourteen
23 percent of the lower basin obligation. I do not
24 believe that says that.

25 Q. So, as State Engineer, how did you look at

1 Utah's obligation? Do you just feel like we take what
2 we can get?

3 A. No. I think you do engineering studies of the
4 hydrology, determine what you think the apportionment
5 for Utah would be under those hydrologic conditions
6 and, then, develop the water knowing that, during times
7 of curtailment, there is a process that is defined
8 under the compacts as to how that would take place.

9 Q. How would Wyoming, for example, get credit,
10 though, for any flows? I mean, you have the
11 Commission, right? The Colorado River Commission?

12 A. The Upper Colorado River Commission.

13 Q. Right and they, sort of, monitor these release
14 obligations?

15 A. Yes, at Lee's Ferry.

16 Q. Right. Okay and, so—and I think you said it's
17 based on a 10-year, you know, 75 million acre foot
18 requirement, correct?

19 A. That is one of the obligations, yes.

20 Q. Okay and, so, you've got the seven and a half
21 million, roughly, per year. How is that measured? How
22 is that monitored?

23 A. There is actually a USGS gauge located below
24 Glen Canyon Dam at Lee's Ferry where that water is
25 physically measured. In addition, they do add in the

1 flow of the Paria, which comes in several miles
2 downstream.

3 Q. All right. Okay. So, your viewpoint is—just
4 so I make sure I understand it—your viewpoint is that,
5 with the exception of any requirements under the
6 operating plan to protect the endangered species, there
7 are no other obligations for additional flows in the
8 Green River based on the Colorado River Compact?

9 A. I do not read that in the compacts, no.

10 Q. Okay. So, basically, any water that's
11 available in the Green above whatever is required under
12 the Fish and Wildlife Service and under the operating
13 plan is water that's available for use?

14 A. Re-phrase that question, please.

15 Q. Okay. Anything above what—I'll just say
16 1,300, but what I mean—the question is, actually,
17 whatever is required by the Fish and Wildlife Service
18 under the operating plan as a minimum flow or target
19 flow, whatever it is, [inaudible] anything above that
20 is available for use, in your opinion?

21 A. I think it would be, yes.

22 Q. What about anything below 1,300 second feet?

23 A. Again, with trying to meet the needs of the
24 fish, I think that is what Utah has committed to, that
25 they will work within their Recovery Implementation

1 Program and with the re-operation of Flaming Gorge to
2 make sure that that water is there, at the same time
3 utilizing their apportionment with the re-regulation of
4 Flaming Gorge Reservoir as well.

5 Q. And are there any such flow requirements or
6 issues similar with respect to in-stream flows at the
7 original points of diversion? I'm talking about, you
8 know, downstream.

9 A. As far as from Lake Powell, no. There would
10 not be any. There is a recovery program on the San
11 Juan River. Whether it covers the point where the San
12 Juan water right was transferred from, I'm not sure. I
13 know it's in Colorado and New Mexico, but whether it
14 comes down into Utah, I don't know.

15 Q. Okay. You talked, earlier, about the priority
16 system, right? Does it concern you, or was it part of
17 your analysis, to evaluate what effect priority cuts
18 would have on the proposed nuclear power plant if they
19 were made?

20 A. That is one issue that I did look at, yes.

21 Q. Okay and let me back up a little bit. What
22 experience do you have with nuclear power?

23 A. I'm not an expert in nuclear power.

24 Q. Okay. Do you have an understanding how a
25 nuclear power plant works?

1 A. Very basic.

2 Q. Okay and, in terms of determining the amount
3 of water that was necessary, did you make that
4 determination or were you just given a number?

5 A. That was made by other engineers that would do
6 the design of the actual units.

7 Q. Okay. So, the 70 second foot number came from
8 others. That wasn't something that you helped-

9 A. That it's provided 25,000 acre feet as being
10 the water use requirement for each unit each year and,
11 then, dividing that out, you get 70 CFS.

12 Q. Okay. Okay. So, you have a basic
13 understanding of the operation of the nuclear power
14 plant, right?

15 A. I think so, yes.

16 Q. Okay and what about the shutdown of the
17 nuclear power plant?

18 A. I'm not versed on that. Others would be.

19 Q. Okay. So, when you say you looked at this
20 priority issue, what was the determination you made
21 with respect to whether that creates an issue for the
22 reliability, let's say, of the water supply?

23 A. If you look at priority cuts within the
24 Colorado River system of Utah, that would be triggered
25 if the Upper Basin states could not meet their

1 obligation to the Lower Basin and to Mexico. At that
2 time, then, the Commission would meet and, again, that
3 would be jointly, all of the states meeting to decide
4 how the cuts would be made and there's certain criteria
5 that's set forth in the Compact as to how that would be
6 done and, then, each State would regulate the water
7 rights within their administrative system to ensure
8 that those downstream obligations are met.

9 Q. What are the priority rights of these two
10 applications, priority dates?

11 A. The Kane County applications have 1964
12 priority date. The San Juan application has a priority
13 date of 2000.

14 Q. Okay, but is that the priority date that would
15 govern since it's been moved to the Green River?

16 A. If you looked at cuts under the Compact, yes.
17 I think those dates would be the controlling dates.
18 If you're looking at localized interference, it would
19 be the 2009, the year that the change applications were
20 filed.

21 Q. Okay. So, you said the San Juan is 2002?

22 A. 2000.

23 Q. 2000, okay. Let's talk, a little bit, how you
24 calculated Utah's allotment under the Colorado River
25 Compact. You're using a number of 1.4 million acre

1 feet, correct?

2 A. I think the Utah Division of Water Resources
3 and I think the State Engineer is using a number of 1.4
4 million acre feet. I was involved in the review of
5 that number, years ago, and I think it is a very
6 reasonable number. So, it isn't one that I, Jerry
7 Olds, consultant for Blue Castle, arrived at.

8 Q. No. What I was asking is that's what your
9 opinion is based on, however, is that number?

10 A. Yes.

11 Q. So, what is—how do you calculate that 1.4
12 million acre foot depletion allocation?

13 A. In essence, what you would do is take what is
14 the flow of the Colorado River at Lee Ferry, okay?
15 And, I believe, in the illustration that I showed
16 earlier, that long-term average has been 4.7 million
17 acre feet per year. That's long-term. Anyway, you
18 need to determine what that number is as far as the
19 critical ten-year period, okay? And it's a little bit
20 less than 4.7. Then, you have to subtract out the 7.5
21 million acre feet that has to be delivered to the Lower
22 Basin and the Upper Basin is obligated to deliver up to
23 750,000 acre feet to Mexico to satisfy one-half of the
24 commitment to Mexico. Then, you subtract that out of
25 the flow number. Whatever is left over is available to

1 the Upper Basin.

2 If you look at that number, it's somewhere around
3 6.0 million acre feet to 6.2. I think the Upper
4 Colorado River Commission, right now, is using a number
5 of about 6.2, which puts the number a little bit
6 higher. Anyway, you determine that, then, subtract out
7 50,000 acre feet for the State of Arizona to be used in
8 their portion of the drainage in the Upper Basin. Utah
9 is, then, entitled to deplete twenty-three percent of
10 the water that's available in the Upper Basin.

11 Q. What I really wanted to know is, in terms of
12 looking at—you testified, a little bit, with regard to
13 your opinion on whether the flows in the Colorado River
14 are generally declining. This 4.7, it correlates also
15 to the total flow of the river, right?

16 A. 14.7.

17 Q. Oh, you used 14.7?

18 A. That's the average of Lee's Ferry.

19 Q. Okay and that's the number that you're relying
20 on?

21 A. Uh-huh [affirmative].

22 Q. Okay. Under the original Colorado Compact, at
23 the time that was done, they assumed that they were,
24 what? Seventeen million acre feet?

25 A. The flows that were measured during the late

1 1800's, early 1900's, did indicate a larger water
2 supply or a higher water supply but, again, they only
3 had 20 years of record to deal with back then. Now
4 that we have 115 years, yeah. We see some variation in
5 that.

6 Q. And you said you were familiar with the recent
7 study that was done by the Bureau of Reclamation,
8 correct?

9 A. I have reviewed that.

10 Q. Okay and, in that, they address this issue of
11 water supply, correct?

12 A. Water supply and the future demand, yes.

13 Q. Okay and some of their water supply
14 projections are lower than this 14.7 million acre feet
15 that you refer to, correct?

16 A. When you say projections, yes. Going into the
17 future with their forecast models and that, it is
18 indicating that there is a potential for some reduction
19 in the flows.

20 Q. Okay and some of those reductions are down
21 even below 13 million. Is that correct?

22 A. Again, they do different models to try to
23 predict the future to 2060, I think it is, and there's
24 different modeling that they've done, different
25 techniques or approaches and, yes. It ranges from

1 substantial decreases to slight increases depending
2 upon the assumptions made. The point that I made, with
3 regards to the hydrographic of the Colorado River, is
4 none of us know the future. They're trying to predict
5 the weather in 2060. The weather guy can't even get it
6 right two weeks from now, let alone 50 years into the
7 future.

8 I think it is important that the states have an
9 administrative system to deal with whatever mother
10 nature gives them, whether it's high flows, low flows,
11 and Utah has a very structured priority system to deal
12 with that.

13 Q. So, just so I understand. Let's say, as a
14 hypothetical, over the next ten years, we see flows in
15 the Colorado River, you know, as they measured, you
16 know, twenty percent lower than they are now, whatever
17 the number is, right? That's going to affect Utah's
18 allocation by that percentage as well in those years,
19 right? Over a ten-year period?

20 A. It could do, uh-huh [affirmative].

21 Q. Okay. So, in that case, what you would
22 suggest is that we have a priority system that would
23 kick in and it would be based on what the Commission
24 says and they would say, okay. These water rights need
25 to be cut off so that we can meet our obligations

1 downstream. Is that right?

2 A. I would not characterize it that way. It's
3 not my system that I developed. I think that's the
4 system that's out there. Utah has a water rights
5 system of prior rights and the Upper Colorado Basin
6 Compact, then, sets criteria as to how water rights
7 would be curtailed in times that the states could not
8 meet their downstream obligations and, so, it wasn't
9 myself that devised that or thought it up. I'm just
10 looking at what would have to transpire.

11 Q. And I'm not suggesting that you devised it.
12 I'm just talking about that what you've referenced in y
13 our testimony, is that how it would work, generally?

14 A. I think the way I just stated it is the way
15 that it would work.

16 Q. Okay. So, in such a scenario, there may not
17 be water, at all, available for these water rights?

18 A. There's a possibility. No water right is
19 guaranteed a firm supply.

20 Q. No and, in your view—I know that you've looked
21 at applications like this. Is the risk of having your
22 water rights cut off like that worth the expenditure of
23 such a large amount of money?

24 A. And there are options available to Blue Castle
25 if we got into extreme drought period.

1 Q. Let's talk about that. You testified, a
2 little bit earlier, that, you know—you made it sound
3 like it would be pretty simple, that you could just go
4 out and acquire the right that someone else has, on a
5 temporary basis or whatever, and file a temporary
6 change application. That's not a real easy process, is
7 it?

8 A. It depends. We see it happen throughout the
9 State where people will acquire water through an
10 agreement with a water user, file a temporary change
11 application on it. The change application process on
12 it for a temporary application can be somewhat
13 streamlined compared to the normal process.

14 Q. But it's not an immediate fix. It's not like
15 going out and calling the water company and saying, you
16 know, start delivering water to us, right?

17 A. No. They would have to go through a process
18 to identify a water right that had a senior priority
19 that would not be subject to cut. Then, reach some
20 type of an agreement with those users in order to do it
21 and, then, file the necessary water right application.

22 Q. And have you looked at whether there's, you
23 know, as a contingency plan, have you looked at whether
24 there's water rights that would satisfy those
25 requirements?

1 A. Again, I think that would be something you
2 would have to evaluate, but I would assume, if the
3 price was right, there would be a lot of farmers that
4 would want to give up irrigating. So, yes, is the
5 answer to your question. I think there would be water
6 rights that could be acquired.

7 Q. Well, my question was have you looked at water
8 rights and identified—

9 A. I have not, specifically, went up and studied
10 that, but I think, with my knowledge and understanding,
11 I could, probably, identify some given some time.

12 Q. Okay. Let me just ask you a question and it's
13 a point of clarification but, you know, what is the
14 status of the negotiations with the Tribe relating to
15 the federal reserve water rights?

16 A. Which tribe?

17 Q. The Navajo Tribe.

18 A. With regards to the Navajo Tribe, and, again,
19 I haven't been involved in this. You can ask Kent
20 Jones when he's on the stand. I was very involved in
21 it as we originally started the negotiations. We did
22 quantify what those reserved water rights would be and
23 developed what we felt was the framework for a
24 negotiated settlement with regards to those and the
25 State of Utah and the Navajo Tribe has been working to

1 implement that. I know the State Legislature has
2 appropriated money to help in developing wet water for
3 the Navajos so that not only does the State of Utah
4 recognize a water right for them, but water systems
5 would be developed to deliver water.

6 Q. But has an agreement been signed and reached?

7 A. What's that?

8 Q. Has an agreement been signed?

9 A. No, it has not.

10 Q. Okay. Are there other reserved water rights
11 that are part of this Colorado system?

12 A. There is the Ute Indian Tribe and the Uintah
13 Ouray Indian Reservation.

14 Q. Okay and what's their claim?

15 A. Their claim is for 248,000 acre feet of water.

16 Q. Okay and are those accounted for in the—let me
17 see what the—is it Exhibit 11 or 12?

18 A. A portion of those are. The others are
19 actually being applied to beneficial use.

20 Q. So, referring back to Exhibit—

21 MR. WRIGHT: Twelve.

22 MR. FLITTON: Twelve, thank you.

23 Q. You got 186,500 acre feet that goes to both
24 the Ute and Navajo, correct?

25 A. Yes.

1 Q. Okay and, earlier, I think, wasn't the number
2 for the Navajo 81,500 acre feet?

3 A. Yes.

4 Q. Okay. So, and what did you just say is the
5 claim by the Utes?

6 A. 248,000.

7 Q. Okay. So, you're off by—I mean, this number
8 could be off on the low end by as much as 140.

9 A. No. You've asked the wrong question. You
10 asked me what was the claim of the Ute Indian Tribe.

11 Q. That's it.

12 A. It's 248,000. A portion of that is currently
13 being used today. So, there's about 110,000 that is
14 not being used today.

15 Q. So, where is the portion of the Ute Tribe,
16 then, that's being used under this table?

17 A. It's under the 1 million acre feet that we
18 showed earlier as being [inaudible]

19 Q. So, it's on the other side of the equation?

20 A. Yes.

21 Q. Okay and are there any other claims that are
22 made, that are not shown on there, or does that cover
23 everything?

24 A. I believe it covers everything. Even in the
25 category that says other, there's 5,000 acre feet there

1 and, again, you have to realize the two change
2 applications that's the subject of this trial. They're
3 included within that, San Juan County and Kane County.

4 Q. What about individual water rights?

5 A That's the other, less than 5,000. So, they
6 total 80,000.

7 Q. There's less than 5,000? So, just so I
8 understand, you're saying that there's less than 5,000
9 acre feet of water rights that are approved and, yet,
10 unperfected, still, or unconverted on the Green River
11 system?

12 A. No.

13 Q. Or are you talking about the whole Colorado?

14 A. This is the entire Colorado and that is for
15 water rights that, in their quantity of water that
16 they're filed for, they're smaller than 5,000 acre
17 feet--

18 Q. Each?

19 A. -and, combined, they account for 80,000 acre
20 feet of potential depletion.

21 Q. Okay. Got it. Just a few more questions, Mr.
22 Olds. Let's go back to Exhibit 58. I think the easy
23 way to count, maybe, is from the back. So, it's one,
24 two, three, four pages from the back and it's the Green
25 River Gauge Summary and predicted lots and results. Do

1 you have it?

2 A. Yes, I do.

3 Q. Okay, thank you. All right. So, what this
4 document appears, to me, to show is, in that first
5 column, it shows the number of days in each of those
6 years where the flow in the Green River, the gauging
7 station at Green River, was below 1,300 second feet,
8 correct?

9 A. Yes.

10 Q. Okay and, then, the way that I assume that
11 this next column was made up is you take those number
12 of days, and I would assume you would have to look at
13 what the actual flows were, to come up with a number of
14 how many acre feet are needed to make up for that
15 minimum flow deficit, correct?

16 A. That's, basically, what they're trying to do
17 is identify what is the whole, so-to-speak, in the
18 hydrograph.

19 Q. Okay and this is a document [inaudible] by the
20 State Engineer's Office, right?

21 A. Yes.

22 Q. Okay and it does refer to minimum flows?
23 Instead of target flows, it says minimum flows,
24 correct?

25 A. Uh-huh [affirmative].

1 Q. Okay. So, for example, in 2002, it identifies
2 92 days where there was water—there was lower flows
3 than 1,300 second feet at that gauging station?

4 A. Re-phrase that, please.

5 Q. Okay. In 2002, there were 92 days when the
6 flows at the Green River Gauging Station were below
7 1,300 second feet, correct?

8 A. Okay. Yes.

9 Q. Okay. This only goes up to 2004.

10 A. Okay.

11 Q. Have you done any analysis to see how many
12 days those flows were below that level since then?

13 A. No.

14 Q. Don't you think that would be important in
15 trying to determine whether there's sufficient water to
16 make this plant be able to operate economically?

17 A. Again, if you look at the years past 2004,
18 2002 is the driest year, second driest in the period of
19 record. Yeah, we've had a few other dry years. We've
20 had a few wet years as well, but none of them have been
21 lower than 2002.

22 Q. Yeah, but you've also indicated, earlier in
23 your testimony, when you were talking about the
24 regression line on, you know, the total flows in the
25 Colorado River, right? One of the things you said was

1 that you have to take into consideration the uses that
2 keep being added on every year, correct?

3 A. Yes.

4 Q. Okay. Well, as I look at this table, it
5 seems, to me, that as you go down, those numbers, you
6 know, at least in this period which covers what?
7 Thirty years, thirty-two years, you know, you're seeing
8 a period, further down, where there's more days that
9 those flows are not there, correct?

10 A. That is true, but look what the average is.
11 It's the average to ensure that those flows are there.
12 It's 15,500 acre feet per year on average.

13 Q. Okay, but the flows in acre feet aren't
14 exactly the same thing, always, either, are they? I
15 mean, you can have an acre foot yield, over the course
16 of a year, that's much different than what the flows in
17 the river are, right?

18 A. I don't understand your question.

19 Q. I'm talking about peaking and, you know, high
20 and low flows.

21 A. Yes, but it still—this stable is showing that,
22 to fill those troughs in the hydrograph back to the
23 1,300, on average, it's 15,500 acre feet. I don't see
24 that as a horrendous number.

25 Q. Well, what percentage of 53,000 is that?

1 A. I don't know. You'd have to go back and
2 analyze that.

3 Q. Well, I mean, but if you're saying the average
4 is 15,000 acre feet, right?

5 A. Yes.

6 Q. That's being—okay. That cuts into 53,000 acre
7 feet, pretty significantly, doesn't it? If you were
8 trying to show that there's unappropriated water there,
9 and you're saying that, on average, it takes 15,000
10 acre feet to make up that difference, doesn't that come
11 out of your 53,000? I mean, doesn't that say there's
12 not 53,000 acre feet in the river?

13 A. No. I would not interpret it that way.

14 Q. Why not?

15 A. I think the 53,600, it's available most years.
16 The only ones that we have to really be worried about
17 is those dry years and, with the record of decision
18 that is being made, and the State of Utah cooperating
19 with the Recovery Implementation Program, I believe
20 those flows will be met and I believe the water users
21 on the Green River will be able to divert the water to
22 which they are entitled under their water rights.

23 Q. But you say you believe they will be met, but
24 I haven't heard anything that says there's any concrete
25 showing of how that's going to happen or that it will

1 happen. [inaudible]

2 A. I think that's the purpose of this study is to
3 show that it will happen.

4 Q. But the study also shows that, on average,
5 there's a deficit of 15,500.

6 A. That is for '72 to 2004, yes.

7 Q. Okay and these applications would be the ones
8 that are, really, subject to that. Is that not
9 correct?

10 A. I think—

11 Q. I mean, in making an evaluation where there's
12 unappropriated water in the source, don't you have to
13 take into consideration that there's an average of
14 15,500 acre foot deficit?

15 A. I would answer that in saying that, yes. That
16 15,500 foot deficit is going to be made up under the
17 re-operation of Flaming Gorge.

18 Q. Okay, except for there's no water rights
19 attached to storage in Flaming Gorge. You're just
20 saying that, if we can get the states to cooperate, and
21 if we can get the federal government to cooperate,
22 then, maybe, they'll make additional releases that
23 would make that up.

24 A. The State Engineer is working under the
25 Recovery Implementation Program to ensure that the fish

1 flows are met. That's how those releases would be made
2 and, at the same time, that would also allow the
3 existing water rights on the Green River to continue to
4 use the water to which they are entitled.

5 Q. Okay, but under your approval, and using the
6 same model, right? The 15-

7 A. It isn't my approval.

8 Q. Well, and I misspoke. What I meant is, under
9 the Blue Castle Holding water right approvals, the
10 15,500 acre feet is the average deficit that's needed
11 to get up to the 1,300 CFS level, right?

12 A. Yes.

13 Q. Okay. The 70 CFS, under these applications,
14 would be in addition to that, correct?

15 A. It could be during certain periods.

16 Q. Okay. So, the number is actually higher than
17 15,500 because you have to, then, add on whatever
18 additional water it would take to get the, you know, up
19 to the 53,000 on average.

20 A. Okay.

21 Q. Correct?

22 A. Yes.

23 Q. Okay.

24 MR. FLITTON: I have no further questions. Thank
25 you.

1 THE COURT: Re-direct, Mr.—let's see. Ms. Valdes,
2 do you have any questions of Mr. Olds?

3 MS. VALDES: No questions. Thank you, Your Honor.

4 THE COURT: All right, thank you. Mr. Wright, re-
5 direct?

6 MR. WRIGHT: Thank you, Your Honor. Your Honor,
7 the Upper Colorado River Basin Compact is caused by
8 Utah Code Section 73-13-1 and I was going to have Mr.
9 Olds read a piece of that.

10 THE COURT: Sure.

11 MR. WRIGHT: What I'm saying is I don't have it as
12 a specific exhibit.

13 THE COURT: Right. That's fine.

14 RE-DIRECT EXAMINATION

15 BY MR. WRIGHT:

16 Q. Jerry, you talked, a little bit, about the
17 Upper Colorado River Compact and how the states have to
18 work together in the event of curtailments. Would you
19 just read the highlighted portion from—which article is
20 it?

21 A. This is Article 4 of the Upper Colorado River
22 Basin Compact.

23 Q. Right, Article 4. Read the highlighted
24 portion.

25 A. In the event curtailment of the use of water

1 by the states of the upper division at any time shall
2 become necessary in order that the flow at Lee Ferry
3 shall not be depleted below that required by Article 3
4 of the Colorado River Compact, the extent of
5 curtailment by each state of the consumptive use of
6 water apportioned to it by Article 3 of this Compact
7 shall be in such quantities and at such times as shall
8 be determined by the Commission upon the application of
9 the following principles: (A) the extent and time of
10 curtailment shall be such as to ensure full compliance
11 with Article 3 of the Colorado River Compact.

12 Q. So, in effect, in the event of shortages,
13 there's no codified or set formula. It's the states
14 have to get together and the Commission, itself, is
15 going to make those determinations?

16 A. Yes.

17 Q. And there are other principles listed under
18 that section you just read. You read the first one. I
19 think there's two others, correct?

20 A. Yes.

21 Q. Okay.

22 MR. WRIGHT: Thank you, Your Honor. No further
23 questions.

24 THE COURT: Any cross on those items, Mr. Flitton?

25 MR. FLITTON: No.

1 THE COURT: All right, thank you. You may step
2 down, Mr. Olds. Thank you for your help today. Next
3 witness, Mr. Wright?

4 MR. WRIGHT: Thank you, Your Honor. Applicants
5 call Dr. Thomas Hardy.

6 THE COURT: Dr. Hardy, if you would please come
7 forward, Sir, and raise your right hand and be sworn.

8 THOMAS BYRON HARDY, PH.D. called as a witness by
9 the defendants, being first duly sworn, was examined
10 and testified on his oath as follows.

11 THE COURT: Have a seat, please, Sir.

12 DR. HARDY: May I pour some water?

13 THE COURT: Absolutely. Take whatever you need.

14 DIRECT EXAMINATION

15 BY MR. WRIGHT:

16 Q. Dr. Hardy, tell us your full name, please.

17 A. Thomas Byron Hardy.

18 Q. And let's have you summarize your professional
19 background, starting with what you're doing right now.

20 A. Currently, I am the Chief Science Officer at
21 the Meadows Center for Water and the Environment and
22 will be named the Endowed Professor of Environmental
23 Flows at Texas State University under the Meadows
24 Grant. Prior to moving to Texas in 2009, I was the
25 Associate Director of the Utah Water Research

1 Laboratory where I went on faculty in 1988 and became a
2 full tenured professor and was the Director of the
3 Institute for Natural Systems Engineering, which I
4 started in 1989.

5 Q. That was at Utah State?

6 A. Yes, Sir.

7 Q. Tell me about your particular specialties.

8 You achieved a Ph.D.?

9 A. Yes. My Ph.D. is in civil and environmental
10 engineering, with an emphasis in water resources. My
11 masters is in aquatic ecology. One of my bachelors is
12 biology. My second bachelors is in secondary education
13 and my professional career, basically, can be
14 characterized as looking at impact assessments in river
15 corridors on changes in flow and aquatic biode or
16 riparian systems, fish, mackerel, invertebrates.

17 Q. All right. Would you tell the Court about
18 your experience, in particular, with the Colorado River
19 and its tributaries, that whole system?

20 A. Back in the late 1980's, at the time that the
21 Bureau was beginning to evaluate use of rotary wing
22 aircraft, helicopters and videography in order to
23 determine backwater presence and area. A colleague of
24 mine, Dr. Christopher Neal, and I, at Utah State
25 University, were flying a fixed-wing remote sensing

1 aircraft, with red, green and near infrared imagery,
2 and we were evaluating the use of image processing
3 techniques rather than manually delineating backwater
4 systems and comparing it to the work of Mr.
5 Pucciarelli, which will be referred to in the backwater
6 areas.

7 I also was involved in a team—while in grad
8 school, I worked, full-time, for a consulting firm
9 called Biowest in Logan, Utah and we put together,
10 basically, with a group of species experts in the
11 Basin, a document on the habitat suitability curves of
12 the endangered species of the Upper Colorado River
13 Basin and habitat suitability curves indicate what
14 depth or what velocities are preferred by the various
15 endangered species, by adult, by spawning, juveniles or
16 young of the year.

17 I've worked, extensively, on hydropower re-
18 licensing and water diversions into Duchesne, the
19 Uintah River, etc., in the Basin.

20 Q. Now, Blue Castle has asked you to testify
21 concerning stream environment and public recreation
22 issues in connection with these applications. Is that
23 right?

24 A. Correct.

25 Q. All right. Let's talk about stream

1 environment. Well, to some extent, they're going to
2 overlap, but would you describe for the Court how you
3 set about beginning your analysis, the methodology that
4 you apply, looking at the question of the impact on the
5 Green River, in particular, of the 70 CFS diversion
6 proposed by these applications. Explain how you went
7 about your work and the methodology.

8 A. I was tasked with evaluating a constant 70 CFS
9 withdrawal from the River. So, the first thing I did
10 was download the daily flow gauge record, the same as
11 Jerry Olds was using, and did the same thing he did,
12 independently, and that was subtract 70 CFS from every
13 daily flow and, then, looked at the period of record,
14 calculated the flow duration curves for the system with
15 the existing flows or with 70 CFS being withdrawn on
16 every day, instantaneously.

17 I, then, went further to evaluate, from the
18 available USGS gauge at Green River, the actual field
19 data that was available on the relationship between
20 stage, which is basically depth in the river, and
21 discharge width and discharge relationships, velocity
22 and discharge relationships, cross-sectional area
23 discharge relationships to try to understand, then,
24 how, over a range of discharges and over time, those
25 would, potentially, be impacted by a 70 CFS reduction

1 in flow.

2 Q. All right. Now, was there anything
3 particularly new or unusual about the methodology you
4 applied to this?

5 A. No. The standard technique, it is what we
6 call hydraulic geometry equations at a station, which
7 is, simply, that the stage or depth varies with the
8 power law of the discharge. So, stage equals a co-
9 efficient A, times the discharge raised to an exponent,
10 basically a-

11 Q. Standard formula?

12 A. Standard formula that's been in use since the
13 seminal work by Leopold Maddox in the 1940's. There
14 are three equations we commonly use; that is that stage
15 is a power law of discharge, width is a power law of
16 discharge and velocity is a power law of discharge.
17 Those are called the continuity equations because, if
18 you add the co-efficients, you get one-or, the
19 exponents. If you multiply the co-efficients, you get
20 one. Standard hydrology engineering practice.

21 Q. When you use the phrase discharge, what do you
22 mean?

23 A. Cubic feet per second passing a point in the
24 stream, such as the gauge at Green River.

25 Q. It could be any point but, in this case, it

1 happened to be the gauge.

2 A. Because that is the place where we have
3 empirical data where USGS has gone out and said, oh,
4 the height of the water on the gauge is 5.32 and, then,
5 they would measure verticals across the river to
6 determine the estimate of the discharge—excuse me.
7 They would come back, a month later, where the stage
8 would change. They would re-measure the discharge and
9 they would do that, repeatedly, to develop what is
10 called a staged discharge rating curve.

11 Q. And the discharge rate, we're talking in terms
12 of cubic feet per second?

13 A. Yes, Sir.

14 Q. And you also testified at the administrative
15 hearing before the State Engineer—

16 A. Yes, Sir.

17 Q. -in connection with these applications?

18 A. Yes, Sir.

19 Q. What is a rating curve?

20 A. At any gauging station, in particular, you
21 usually have a device, whether it's a pressure
22 transducer or some kind of a steeling well with a laser
23 that is recording the height or stage of the water
24 every 15 minutes, typically. That's not giving you the
25 discharge. It's, simply, giving you the height of the

1 water.

2 USGS goes to the site and, on a given day, says
3 it's 5.62 and they measure the discharge. They come
4 back and say, oh, it's at 6.3 and the discharge is
5 5,000. They come back, a month later, and the gauge is
6 3.2. Oh, the discharge is 700. So, you develop a set
7 of pairs of stage and of discharge that you, then,
8 using a regression equation, you fit that data to a
9 power law and that is what's called a rating curve.
10 Therefore, for each measurement of the stage, you can
11 put it into the equation and get an estimate of the
12 discharge and that is how USGS, then, gives you, every
13 15 minutes, times 24 hours a day, divided by 96, gives
14 you the mean daily flow at the gauge.

15 Q. And it's pretty common for these kinds of
16 gauges to have live telemetry. You could go online,
17 right now, for example and see what's happening at
18 some of these gauges. Is that right?

19 A. Correct and that is because it is reading the
20 stage. It is sending the number of the stage to the
21 computer. The computer takes that number and puts it
22 in the regression equation and, then, it puts a dot on
23 the plot that tells you what the discharge is.

24 Q. So, you could take a real time snapshot of
25 lots of different sources, whether it's the Green

1 River, the Colorado, or others.

2 A. Correct.

3 Q. And how this concept of a rating curve, how
4 did you apply it, here, to this particular withdrawal
5 from the Green River, in your analysis?

6 A. The first thing I did was, for any given
7 river, except if it was purely bedrock, the geometry of
8 the channel changes over time. The Green River, in
9 particular, is a sand bed river and, so, if you pull
10 down from the internet at the USGS site, you will find
11 a number of what we call rating curve numbers and that
12 is where, in 1973, they went out and they measured
13 stage and discharge and they did that over several
14 months and they would have a set of data that they
15 developed a curve to, call it rating curve number 7. A
16 flood goes through and changes that geometry, they
17 start over and collect data and develop a new rating
18 curve. So, that's rating curve number 8 and, if you
19 download the data from the gauge, you will see there
20 are a number of rating curves.

21 The first thing I did was plot those individual
22 rating curves because I know, as a sand bed river, it's
23 going to change.

24 Q. Explain that. What do you mean by that?

25 A. The slope of the water surface elevation,

1 given the geometry, may be a little steeper or a little
2 less steep, depending upon the geometry.

3 Q. And is that because, simply, the action of the
4 water on the sand, sediment load, other things can
5 affect what the bottom of the river looks like.

6 A. High flow or low flows may result in changes
7 in the geometry of the channel. At higher flows, it
8 can scour out, move to the left, move to the right a
9 little bit. It can lower flows, make mid-channel bars
10 that would change that relationship and, since I was
11 evaluating a potential change in the discharge for the
12 future, one question I asked myself: well, if I use
13 the most current rating curve, someone might say, well,
14 it's not going to look like that because you know it's
15 different from 1973. It's a different rating curve.

16 So, I looked at all the different rating curves
17 and decided that the best estimate of future conditions
18 was to incorporate the variability of all of the rating
19 curves in my analysis, which is what I did, and it
20 resulted in some interesting features about that
21 relationship between stage and discharge at the gauge.

22 Q. Okay, and we're going to get to some exhibits
23 that will illustrate this, but I just want to lay this
24 foundation. Would you define or explain the terms
25 exceedence or exceedence level?

1 A. Yes. Just like Mr. Olds presented in his
2 testimony and exhibit, if you take all of the known
3 discharges on a given day and for every day, at the
4 gauge, and you rank them highest to lowest, it's what's
5 called a Wybel formula. You rank them number one, the
6 highest flow, two, thee, and you have, say, 5,000
7 measurements. Well, you do one divided by 5,001; the
8 second rank, two divided by 5,001 and that tells you
9 the percent of time that a flow was equaled or
10 exceeded.

11 So, high flows, at a ten percent exceedence, say,
12 24,000 CFS at the Green River Gauge, that flow was
13 equaled or exceeded only ten percent of the time. It's
14 a rare flow. It's a high flow.

15 Opposite end, and low flows, a very low flow,
16 ninety-five percent exceedence might be 1,000. One
17 thousand CFS is equaled or exceeded 95 percent of the
18 time. The converse of that coin is it's only lower
19 than that five percent of the time.

20 Q. Five percent of the time, okay, and, lastly,
21 in terms of just, sort of, defining some terms, talk
22 about—explain backwater, what a backwater is and
23 backwater delineation. How does that work?

24 A. Okay. A backwater would represent an area of
25 the channel where, typically, there are very low or no

1 velocity areas. They, typically, have formed in areas
2 where you have some type of a new point or an area
3 where you get what we call flow separation. The water
4 is coming down. You get an opening to the channel, to
5 the side, like a dry wash, and you get the classic
6 separation where you get a re-circulation zone, like a
7 whirlpool.

8 The velocities slow down. The suspended sediment
9 falls out. That's where you get beaches and, then,
10 they also have the feature, because of that, where you
11 get a backwater when the flow recedes. Then, you get
12 this ponded area that's open, typically, at the
13 downstream side, although they can be open on the front
14 side. That's just pure geomorphology and movement of
15 sediment and the dynamics and that's how they're
16 created.

17 Those are important areas for fisheries, for young
18 of the year, rearing habitats, etc., but those are the
19 mechanisms that are formed, but they are, typically,
20 formed during the high flow process. Hence, in the
21 Recovery Implementation Program, under extremely dry,
22 average year, wet years, they have different levels of
23 higher flows to, basically, move the sediment and
24 create the characteristics of the channel and most of
25 those flows are in the 8,000 CFS range, and higher,

1 under the Recovery Implementation Program.

2 Q. Okay.

3 A. And delineation is either done taking a
4 picture and using professional judgment, or you can,
5 empirically, go down the river and, physically, try to
6 measure the location and size of each of the
7 backwaters. The work that's been done in the Green,
8 primarily, has been done from photo interpretation or
9 interpretation of video imagery.

10 Q. Okay. What section of the Green River did you
11 evaluate in connection with this proposed diversion for
12 the Blue Castle project?

13 A. It would be in the vicinity of Green River
14 where the proposed diversion was located to the
15 confluence with the Colorado River, which is
16 approximately 120 miles.

17 Q. And is that reach three of the river?

18 A. That is what is common referred to as reach 3
19 in the Recovery Implementation Program documentation.

20 Q. And what was the maximum diversion rate you
21 were asked to consider out of the Green River?

22 A. Of 70 cubic feet per second continuous
23 instantaneous diversion rate.

24 Q. And the gauge you relied on, I think you
25 already said, was the gauge at Green River?

1 A. Yes, Sir.

2 Q. USGS?

3 A. Yes, Sir.

4 Q. And the types of data, I think you've,
5 probably, covered it: width, stage, discharge. What
6 other kinds of data factor into your analysis?

7 A. One of the first things I did was went to
8 Google Earth and looked at all the available imagery by
9 moving down the river, section-by-section, and looking
10 at how the river changed. For each of the dates of the
11 imagery, I went back to the gates to see what the flow
12 rate was, oh, on September 6, 2004, Green River Gauge
13 was 1,250. Oh, I have high water in this imagery. It
14 was 2006. On that day, the flow was eight thousand-
15 something CFS.

16 So, I just wanted to see what the physical
17 dynamics were because I had gone back and pulled
18 information, such as Mike Pucciarelli's work in 1988
19 and 1989, where they used imagery to actually delineate
20 the size and basic location of backwaters. I wanted to
21 see what that looked like relative to new imagery that
22 was available and I also went back and read available
23 information from the Recovery Implementation Program;
24 for example, data by Heinz and Tyus or Tyus and Heinz,
25 and others, on distribution and use of backwaters by

1 the endangered species so I could understand better the
2 linkage between the physics of backwaters, their
3 location, their characteristics, and the implication of
4 removing 70 CFS, potentially, on those features that
5 are important to the fish.

6 Q. All right and how would you characterize the
7 specific analysis that you apply to the types of data
8 that you've just described?

9 A. Well, first of all, I could not find any real
10 cross-section morphology data other than general
11 characteristics of the backwaters like maximum depth or
12 size and area of the backwaters. There wasn't any
13 specific geometry that I could rely upon except what
14 was available at the gauge.

15 So, I took the field measurements at the gauge, as
16 I indicated. I did obtain, from USGS, some hand-
17 measured cross-section geometry in the vicinity of the
18 gauge, measured at different discharges and, in
19 particular, one measurement at nine hundred and
20 something CFS and another measurement at 700 CFS, which
21 is very much the lowest flow basically recorded in the
22 proceeding period of record. So, that was very
23 important, to me, to see what it looked like.

24 I, then, conducted the basic analysis of the stage
25 discharge, depth discharge, by removing that regression

1 and, then, removing 70 CFS. I repeated that analysis
2 for width. I repeated that analysis for velocity. I
3 repeated the analysis for cross-sectional area. I used
4 the mean velocity to infer, from my experience,
5 potential impacts to fish, mackerel, invertebrates or
6 travel time for recreation. I looked at the changes in
7 stage and depth and its implication, perhaps,
8 implications to backwater impacts for the endangered
9 fish, etc.

10 Q. So, it's possible to actually calculate—you
11 mentioned recreation. So, someone who wants to say,
12 float the river, you can actually calculate the
13 velocity change that a withdrawal of 70 CFS out of a
14 river that, say, might have 5,000 CFS going through at
15 a given time, you can actually—there's a formula that
16 will let you calculate the velocity of loss from that
17 withdrawal?

18 A. The velocity is equal to a co-efficient times
19 the discharge raised to a power, one of the continuity
20 equations. So, that gives me mean channel velocity.
21 So, if I change the flow, I can calculate the change in
22 velocity and, as a white water rafter and a river
23 guide, I know how boats float on rivers. So, it's a
24 pretty good idea that, if I'm in the center of the
25 channel and I'm floating, how much does that velocity

1 change the rate I'm moving down the river, and that was
2 the basis upon which I addressed one of the issues in
3 this proceeding as what is potential impact on rafting.

4 Q. Right and the formula is a standard formula?

5 A. That is the basic continuity equation is stage
6 versus discharge, velocity versus discharge and width
7 versus discharge.

8 Q. And how would you characterize the variability
9 in the physical data you relied on at the gauge?

10 A. As would be expected, I could refer to an
11 exhibit. I think it would help explain to the Court.
12 Variability at the higher range of the discharges is
13 higher. That's to be expected because of the magnitude
14 of the flows, those geomorphic flows. If you've ever
15 stood on a river at high flow, you can hear it pulsing.
16 You can see the water bouncing and, so, if you're
17 measuring the stage, you're going to get more
18 variability. That's the way rivers operate, but what
19 was interesting at the Green River Gauge, and it's not
20 uncommon, is that, as you got into the low flow, below,
21 say, 5,000 CFS, where one might be more concerned about
22 impacts, the variability is very much diminished.

23 Q. Okay and, also, how would you characterize the
24 general sources for biological data that you considered
25 in your assessment? And, by biological data, I think

1 what we're talking about is living things in the river.

2 A. Yes. Right. We know, from the work that's
3 been done in the Recovery Implementation Program, the
4 integrative monitoring program, we, pretty much, know
5 when Razorback Suckers are using backwaters during the
6 high flow, spring period. They tend to move out
7 afterwards. We know that Colorado Pipe Minnow, one,
8 probably, fish of major concern, migrating upstream in
9 the reach one and reach two to spawn and, then, the
10 larval fish drifting downstream in the May/June period,
11 coming out, and, then, really rearing-in the lower
12 section 3 of the Green River in these ephemeral
13 backwater side-channel-type of habitats and the data on
14 collections of the biological data showing use in these
15 backwaters, along with large numbers of non-native
16 fish.

17 What was important to me is that the work showing
18 that, as you increase the depth of the backwaters, the
19 maximum depth, the number of Colorado Pipe Minnow you
20 find increases and the average depth of those maximum
21 depths of the backwaters is on the order of, depending
22 upon the study, whether it's Haynes and Tyus, or Tyus
23 and Haynes, may be anywhere from 29 to 38 centimeters
24 as being the type of backwaters being used. Well,
25 that's a foot of water, at least, and, in my analysis

1 of the changes in stage that are less than an inch, it
2 had a large bearing on my assessment of what impacts I
3 may or may not have.

4 Q. Okay and what about water temperature?

5 A. I discounted an impact to water temperature
6 from the physics of the situation, where I've got flows
7 on the low end that are 1,000 cubic feet per second.
8 The thermal mass is what we call it. If I take a t-
9 spoon of water and put a Bic lighter on it, it heats up
10 really quick and it cools off really quick. If I take
11 a Bic lighter and hold it under a swimming pool, it
12 doesn't heat up very fast and it doesn't cool down very
13 fast and, so, the thermal characteristics of the lower
14 river, with the canyons re-radiating heat, my
15 professional opinion, as an engineer and do water
16 quality modeling, is that the amount of temperature
17 differences between removal of 70 CFS was not going to
18 be something you may even be able to measure. You may
19 be able to calculate a change but, realistically,
20 you're not going to be able to see it.

21 Q. Okay. All right. Let's talk about—well,
22 actually, let me ask you this. Regarding physical
23 impacts to the river, based on your analysis, what did
24 you conclude the effect the 70 CFS would have on the
25 river?

1 A. I said it was diminimus and I broke it into
2 two components. One was a high flow component. Under
3 the long-term gauge data, you look, year-to-year
4 spring, run-off flows. The Recovery Implementation
5 Program, for dry years, recommend 8,000 cubic feet per
6 second for the geomorphic flows. You go up to an
7 average year and it's twelve thousand-something.
8 Twenty-four thousand seventy CFS being removed from the
9 river at 8,000 CFS is less than one percent.

10 Q. And you're using the figure of 8,000 CFS why?

11 A. Cubic feet per second at the Green River
12 Gauge, for example.

13 Q. Right.

14 A. If you took 70 CFS out of the river, when it's
15 flowing 8,000 CFS, it's less than one percent of the
16 flow. I would challenge anybody to measure that with
17 the technology we have today. At the water lab, if we
18 wanted that kind of accurate measurement, we weigh the
19 water. You're not going to weigh the water in the
20 Green River at 8,000 cubic feet per second and, from a
21 settlement transport perspective, the stream power to
22 move sand at those sort of flow rates, and you remove
23 70, you would be into the third or fourth significant
24 digit after the decimal point on the amount of material
25 you're going to move.

1 Based on that, I also worked with a team, in the
2 Snake River Basin Adjudication, that had some of the
3 most prominent geomorphologists in the country: Peter
4 Whiting, Jack King, Jack Schmidt, Bill Emmett, John
5 Patriani, myself and we were tasked with what would be—
6 how would you divert flow from a river that would
7 preserve the formation of beaches and backwaters in
8 scenic and wild rivers in Idaho? That's the same
9 physical process by which you form backwaters and
10 beaches in the Green River.

11 Our conclusion after intensive study of sediment
12 transport—we went out and measured bed low, measured
13 suspended low. We did the modeling, equations and we,
14 basically, came to the conclusion that the safest thing
15 was the removal, instantaneously, of no more than ten
16 percent of the flow

17 Well, clearly, in the Green River had a large
18 impact on my view of the river because, at geomorphic
19 lows, I'm less than one percent, even at the lowest
20 geomorphic flows. I, then, flipped a coin and said,
21 during the low flow period, that same logic holds
22 because, all the way down to the ninety-five percent
23 exceedence, very, very low flows, I'm still taking less
24 than ten percent of the flow. That made me very
25 comfortable that I'm okay in preserving the process.

1 Q. So, you didn't—at no time are we at risk of
2 crossing that ten percent threshold—

3 A. No, Sir.

4 Q. —that you identified in your Idaho study?

5 A. No, Sir. We are not. The second part of that
6 was actually looking at the computed regression
7 equation on change in stage if I remove 70 CFS and that
8 was on the order, even at the lowest flow, of an inch
9 and I just could not concede how that would, over all
10 of the different variability of backwaters, that was a
11 conservative number because my regression equation
12 slope is greater than the slope of all of the empirical
13 data and I would need to show an exhibit to illustrate
14 that.

15 Q. Okay and what conclusion did you reach
16 concerning impact to water quality?

17 A. Again, given such a small volumetric change,
18 even at the lowest flow rates, under the Recovery
19 Implementation Program, we anticipate target flows on
20 the order of 1,300 CFS. I'm still less than ten
21 percent. I'm on the order of five percent. I'm not
22 changing water quality. I'm just simply diverting 70
23 CFS. I am not putting an additional load in. I'm not
24 adding nutrients. It's just not going to have an
25 impact.

1 Q. Okay and, then, what conclusion did you reach
2 concerning recreational impacts to the river?

3 A. Again, the issues there were rafting,
4 floating, fishing, etc., and, based on my analysis,
5 especially with the cross-section geometry collected
6 downstream of the Green River Gauge by USGS that's 700
7 CFS, I had plenty of height to float a boat over. My
8 changes in stage were so small that I wouldn't have any
9 difficulty, even with formation of what we call point
10 bars on the inside of bends. You still have the
11 outside bow weg, or deepest part of the river, the boat
12 would go through.

13 I did calculations based on the mean velocity
14 changes. I mean, a day's float time between having the
15 flow in the river and taking 70 CFS, the worst case, at
16 like the ninety-eight percent exceedence low flow was
17 about .2 miles a day. I can make that up in 20 minutes
18 of rowing down river.

19 Q. Okay. Let's talk about a few of the exhibits.
20 If you would turn to Exhibit 14. Now, we had Mr. Olds
21 look at a few of these. So, I don't want to spend a
22 lot of time. There are others we want to get to with
23 you, but you have reviewed these hydrographs as well,
24 correct?

25 A. Yes, Sir.

1 Q. And help us understand, then, in terms of
2 extreme environment, how these illustrate the testimony
3 that you've given us.

4 A. When I looked at the change in the flow
5 duration curves as presented in Exhibit 14, one of the
6 first things that became apparent to me, in my analysis
7 independent of Mr. Olds', was that, because of re-
8 operation of Flaming Gorge and releasing water during
9 the low flow period, we, now, have higher flows than
10 what we would have had without Flaming Gorge. So, we
11 have more water during the low flow period, on average,
12 almost all of the time and that is a benefit to the
13 fisheries.

14 There is some reduction in the peak flows but,
15 with my assessment and opinion and the Recovery
16 Implementation Program, those target geomorphic flows
17 of 8,014, 24,000 over a range of water year types, the
18 geomorphic processes will be maintained. So, I'm not
19 concerned with a 70 CFS reduction.

20 Q. We've mentioned, quite a few times, the
21 Recovery Implementation Program, but I'm not sure we've
22 really defined it for the Court. Would you, briefly,
23 describe what that is in connection with the endangered
24 fish?

25 A. I think Mr. Olds talked to it eloquently. It

1 is a combination of the Bureau of Reclamation, U.S.
2 Fish and Wildlife Service, the various states and the
3 Utah Division of Wildlife Resources who are out
4 monitoring upper Colorado River systems, in particular,
5 the Green, what's going on with the endangered species,
6 what's happening with non-native interactions, how are
7 the projected analyses of the recommended flow regime.
8 Again, the targets under low flow, average year, water
9 year.

10 That program is intended to inform the science
11 behind the decision-making on a year-to-year basis of
12 the status of the system and how to operate Flaming
13 Gorge.

14 Q. All right. Now, I think I may have
15 interrupted you. Were you finished with Exhibit 14?

16 A. Yeah. Well, I'm not concerned. I just,
17 simply, cannot fathom a concern at the high flow range
18 because of how small 70 is relative to the magnitude of
19 the flow. I think it's important to also note that a
20 flow duration curve says, well, this flow is equaled or
21 exceeded ten percent of the time. What this doesn't
22 tell you is that, with an instantaneous reduction, you
23 do not change the timing of these flows. I mean, when
24 the flood comes, it comes at exactly the same time.
25 It's simply reduced by 70 CFS.

1 Q. And that's because a 70 CFS withdrawal is
2 constant?

3 A. Is constant. So, there is no change in the
4 timing. There is no change—some small, diminimus
5 change—I'm sorry. There is no change in the frequency.
6 Those floods will come at the same frequency. The 70
7 CFS has absolutely no bearing on the frequency of the
8 floods. It changes the magnitude by 70 CFS, less than
9 one percent.

10 Q. Okay. Now, Mr. Olds talked about Exhibit 15.
11 It is a, sort of, a chart, numerical description of
12 what Exhibit 14 tells us, correct?

13 A. Correct.

14 Q. Now, let's just—I want to jump to—turn to
15 Exhibit 24. Do you have that?

16 A. Yes, Sir.

17 Q. Tell us what that is, please?

18 A. What I calculated here was the diversion rate
19 of 70 CFS is less than a five percent low reduction.
20 This is the low flow range, below 8,000 CFS. As I've
21 indicated, above 8,000—and I think you can just set off
22 to the side because it's just inconsequential. So,
23 [inaudible] in the low range, what I did was look at
24 the percent flow reduction. If I have 1,000 CFS in the
25 river, ten percent of that is 100 CFS. Seventy is less

1 than ten percent and these, basically, tell you, then,
2 what kind of percent reduction, and you'll notice that
3 the ninety-nine percentile, it is ten, is because there
4 was that one flow of, I think, 480 CFS—or, I'm sorry,
5 768 CFS one day we got the flow. It's not like that
6 flow was there day after day after day.

7 Q. All right. Okay and turn to Exhibit—well, I
8 think I want to go to 37 next. Turn to 37. Would you
9 tell the Court what that depicts, please?

10 A. Yes. I requested from the U.S.G.S. that they
11 actually had river geometry, physically measured
12 geometry, in the vicinity of the Green River Gauge and
13 what you need to realize is that, when you put a
14 gauging station in, at a given location, depending upon
15 the river characteristics, the individual measuring the
16 flow may move a little upstream or they may move a bit
17 downstream to get the best conditions to measure the
18 discharge, that they want an accurate discharge
19 measurement.

20 What I thought was interesting, here, is that,
21 looking at the morphology of the Green River, which is
22 dominated by canyons, non-alluvial or channels that can
23 adjust their width very much, but pockets of areas
24 where you can get side channel or backwater formation.

25 Well, if you go down river a bit, and this is

1 interesting because it corresponds, kind of,
2 approximately where Mr. Norris' exhibit shows flows at
3 two flow rates at the Green River Gauge and, then,
4 downstream a bit with the formation of a sand bar at a
5 lower discharge. What this is is, basically, a rep
6 linear channel showing the water surface at a flow rate
7 of 1,340 and, at that kind of a discharge, my change in
8 stage, I'm going to say, generously, is a half an inch.
9 You can just look at this graph and see it's not going
10 to change the width. It's not really going to change
11 the depth. Pretty graphic.

12 What's important, then, is the next figure. It's
13 just downstream a bit but, now, this is measured at—

14 Q. Are you talking about 38?

15 A. I'm sorry. Exhibit 38 is measured at 980 CFS.
16 This would be at the very low end of the variance of
17 the target flow range in the recovery implementation
18 program. Again, at this sort of flow rate, from my
19 regression, is on the order of a half-an-inch and what
20 you see is it's not going to change the width. It's
21 not going to change the depth.

22 Then, finally, in Exhibit 39, this is very telling
23 because the channel geometry is changed. I would
24 expect things like this to happen. It's 709 CFS. This
25 is at the very bottom end of the flows recorded at the

1 gauge and, if you do, then, the calculation of the
2 expected change in the stage, this is in the vicinity
3 of the gauge where all the empirical data is collected,
4 and you get a very small change in stage, you are not
5 exposing the middle of the river. It's got a mid-
6 channel bar. It's no longer a nice, uniform U-shape.
7 It's behaving the way I would expect the sand bed river
8 to behave.

9 Q. And just so it's clear for the Court, what
10 you're talking about, the line in the graph, that
11 depicts what the bottom of the river channel looks
12 like?

13 A. That's the bottom of the river, uh-huh
14 [affirmative].

15 Q. Okay.

16 A. So, from a recreation point of view, if I'm
17 coming down on what's on the figure, here, to the
18 right-hand side, you know, I've still got three foot of
19 depth. My fully-loaded whitewater 14-foot momentum
20 raft is drawing about four and a half, five inches of
21 water. You know, I'm going to float right by this
22 section of the river.

23 Q. Okay. Now, go back to Exhibit 25. We talked
24 about regression equation and rating curves. Would you
25 tell us what Exhibit 25 illustrates, please?

1 A. This figure represents the combined data from
2 rating curve, I think, seven, eight, nine, ten, eleven
3 and twelve from the Green River Gauge. So, all of the
4 data, pooled together, that I fit why is A—in this
5 case, X is the discharge, raise two an exponent or
6 power and R^2 to .95.

7 Now, what is important to realize, here, and why I
8 went with the pooled data, in particular, other than I
9 wanted to know the variability. First of all, I'm not
10 concerned about flows at 15,000 CFS and removing 70.
11 So, I didn't care about the fit there. What I was
12 really concerned about was the fit on the lower range.

13 Point number one I would like to make is, if you
14 draw a line on the bottom of the blue diamonds and,
15 then, you compare my black line, which is the
16 regression equation, it should be obvious that the
17 slope of the blue dots is like this, but the slope of
18 the regression is much steeper. Therefore, if I go,
19 say, a cue of 2,500, which is halfway between the
20 squares, and I go up to the bottom of the blue. I'm
21 just going to say it's six and, then, I cut that in
22 half and go to the bottom of the blue, I'm going to be
23 halfway. I'm going to be at five, basically.

24 Q. Would you mind just standing up so that the
25 Judge can see exactly what you're drawing?

1 A. So, I drew a line on the bottom of the blue
2 and I went to about 2,500 and, where I intercept the
3 line, I would be at six. If I cut the flow by 2,500
4 cubic feet per second, I would come over and be at
5 about five. So, it would reduce the stage by a foot.

6 If I look at the black line, it's much steeper
7 and, if I do those same flows, I'm going to go between
8 about a 6.4 down to about 5. So, I am over-estimating
9 the change in the depth given at 2,500 CFS change in
10 discharge.

11 Well, clearly, even whether you use the blue line
12 or the regression, changing the flow by 70 winds up in
13 small changes in stage.

14 Q. Okay. Now, turn to Exhibit 26.

15 A. What this figure demonstrates is, I calculated
16 the change in stage after removal of 70 CFS, on a daily
17 basis, for the same period of record and it's,
18 basically, the same as the flow duration curve. What
19 this says is, for a given discharge, how much of a
20 change in stage would there be and, as you can see, at
21 the very low range, it's .12 feet. Well, 12 times 12
22 is 144. So, that's 1.4 inches would be, probably, the
23 maximum expected change of stage at the gauge.

24 Q. After taking 70 CFS out?

25 A. After taking 70 CFS out.

1 Q. Okay and, I think, Exhibit 27 is a reflection
2 of .6.

3 A. Yes, Sir, it is.

4 Q. All right. Just—we don't need to go through
5 every one. Pick one, any of those exceedence levels,
6 and, then, walk through the column and just explain so
7 the Court understands what this means.

8 A. I'll use the ninety-five percent exceedence.
9 So, that's a discharge of 1,420. If I take—and the
10 stage computed there would be 5.43 feet. If I take 70
11 CFS out, I get 1,350 CFS. Again, this is in the
12 ballpark of the recommended flows for the Recovery
13 Implementation Program. Well, the change in stage at
14 the gauge is 5.36 feet, that difference is .068 feet.
15 Point 068 times 12 inches, very, very small number.

16 Q. Okay and, in terms, when you're talking about
17 stage, you're talking about depth?

18 A. Depth.

19 Q. Okay. Quickly, Exhibit 28.

20 A. This is the second continuity equation.
21 Velocity is a power law of the discharge. In this
22 case, X would be the discharge. This is a fit to,
23 again, I pool all of the data to be consistent with the
24 stage. This was the equation I used, then, to say, if
25 I remove 70 CFS on a daily basis, what would my change

1 in mean calm velocity be?

2 Q. Okay and 29?

3 A. Twenty-nine is, basically, after you remove 70
4 CFS and you compute the change in main calm velocity,
5 this is how much that velocity would change as you have
6 increases in discharge and, as you can see, once you
7 get above, 8,000, 10,000 CFS, the relative change in
8 velocity, because you're removing so little, it's,
9 basically, nothing.

10 Q. Right and, then, Exhibit 30 is, again, a
11 numerical reflection of 29?

12 A. Correct and, again, the 95 percent exceedence,
13 going from 1,420, my mean channel velocity is about
14 1.19 feet per second. You remove 70. The discharge
15 is, now, 1,350. My mean calm velocity is 1.16 feet per
16 second. So, you've reduced it by on the order of .04
17 feet per second.

18 Q. Okay and, then, look at Exhibit 31.

19 A. Thirty-one is the power law continuity
20 equation with width is the function or the discharge
21 and this is very classic for almost all river systems
22 where the variability in width is a lot higher. That
23 concerned me, initially, until I kept looking at all my
24 data from Google Earth and the channel and how confined
25 the channel is by Bedrock Canyon and, therefore, you're

1 really not going to get huge changes and that's why so
2 much of the data, Your Honor, is vertical, is just
3 because it's going up and down, not so much being
4 changed because it has no place to change the width, in
5 reality.

6 Q. Okay.

7 A. So, that's to be expected. So, that was the
8 equation I used to, then, estimate changes in width
9 with changes in discharge and that's reflected in
10 Exhibit 32. As you decrease discharges, after removing
11 70 CFS, these are the sort of width changes you would
12 expect to see at the gauge.

13 Q. And how would you characterize those width
14 changes?

15 A. Very small. They're feet. Some places in the
16 river, they're going to be a bit more. Some places in
17 the river, a bit less, but this is what is happening at
18 the gauge.

19 Q. Okay and, then, again, 33 is a numerical
20 depiction of 32?

21 A. Correct. Ninety-five percent exceedence
22 level. If you look at the change of 70 CFS, it's on
23 the order of a foot or less.

24 Q. Okay and that's at the 95?

25 A. Yes, Sir, and it's reflected, I think it's

1 important to note what the cross-section geometry is
2 going to show, that the 1,000, the 900 and the 760
3 empirically measured a mile down from the gauge
4 location. Those cross-sections show the same answer
5 based on the regression equation at the gauge a mile
6 upstream and that's important because it works.

7 Q. Okay. Then, the last three, 34, 35 and 36.

8 A. Cross-section-in 34, I wanted to look at the
9 change in cross-sectional area, those plots I showed a
10 mile downstream at 1,000, 980 and 706. I wanted to see
11 what happened with cross-sectional area. The reason I
12 did that is I wanted to see what the potential
13 implications were to, basically, wetted perimeter, the
14 area upon the bed which produces Mackerel
15 invertebrates.

16 Q. Let me stop you and ask you, when you talk
17 about cross-section area, what does that mean if you're
18 just looking at the river?

19 A. If I look at Exhibit 37, I am looking into the
20 river. The area between the water surface and the bed,
21 if you counted up all of those little squares and their
22 area, that would be the cross-sectional area. So, it's
23 the area between the water surface and the bed of the
24 river.

25 Q. Okay.

1 A. So, it's a pretty good index of the conveyance
2 of water through the cross-section.

3 Q. Like a taking a slice out of the river and
4 examining it.

5 A. And looking in it, right.

6 Q. Okay, got you.

7 A. So, that's the cross-sectional area changes.
8 Again, it was informative to me. Exhibit 35 shows
9 that, in square feet, that the largest changes over the
10 range of all of the daily discharges, removing 70, on
11 the order of 35 square feet, but the bulk of the
12 difference is on the order of five to seven to eight
13 square feet over almost the flow range in normal
14 discharges.

15 Q. Okay.

16 A. And, then, 36 is, simply, the equivalent
17 tabular data for the graphs. Ninety-five percent
18 exceedence value, removing 70, you're changing the
19 cross-sectional area by about 24 square feet.

20 Q. All right and, then, the last exhibit, you've
21 pretty much covered it, but this is the recreation
22 impacts where you calculated the effect on floating or
23 rafting the river.

24 A. Well, it was more than just recreational
25 impacts. It is the vast majority of the river channel,

1 in the 120 miles of the Green River, is confined canyon
2 and indicative of this sort of geometry and, if you
3 look at all the Google Earth imagery between flow
4 rates, Exhibit Number 39 shows up in the imagery with
5 formation of mid-channel bars. That's just an artifact
6 of sediment transport and dynamics. So, this, to me,
7 was very telling that I'm getting the dynamics of most
8 of the river captured in the empirical data at the
9 gauge and empirical data collected a mile downstream
10 from the river.

11 Q. All right and pick one of the exceedence
12 categories to explain the effect of the 70 CFS
13 discharge or diversion.

14 A. All right. I am going to go to Exhibit 28—or,
15 27. This is a change in depth with the 70 CFS
16 diversion. Let's go to the 99 percent exceedence
17 value, which is 700 and, if Your Honor would let me say
18 709 is about the same as 700, I'm going to get a .12
19 foot change in stage. Point 12 times 12, 144. One
20 point four inches, right? And, so, if you take the
21 blue line on page 39, and you look at that sort of
22 change, it's like the second line down on the graph.
23 It's very, in my testimony, diminimus.

24 Q. All right, then. Then, based on the analysis
25 you provided, what is your opinion as to whether the

1 applications, if approved, would have an unreasonable
2 effect on the natural stream environment of the Green
3 River?

4 A. In my professional opinion, from experience
5 and modeling and looking at the changes, reviewing the
6 available biological data on backwater use and
7 backwater areas and depths, my testimony is that the
8 proposed diversion of 70 CFS would be diminimus and not
9 result in impacts to recreation fisheries, water
10 quality, etc.

11 Q. All right.

12 MR. WRIGHT: No further questions, Your Honor.

13 THE COURT: Let's see, what we'll do, if it's all
14 right, we'll take a short, ten minute, break before we
15 begin cross-examination.

16 MS. SWENSEN: That would be great.

17 THE COURT: So, everybody will be back here, on
18 the record at 3:00. Thank you.

19 BAILIFF: All rise.

20 [Recess.]

21 BAILIFF: All rise. Seventh District Court now
22 reconvening, the Honorable George Harmond, Jr.
23 presiding.

24 THE COURT: Please be seated, ladies and
25 gentlemen. We'll be back on the record in Case

1 1207009, Emery County case, Heal Utah, et al. v. Kane
2 County Water Conservancy District, et al. The record
3 will show counsel is present. Dr. Hardy is on the
4 stand.

5 MR. WRIGHT: Your Honor, I had said I was finished
6 with Dr. Hardy but, actually, I was wrong. I, kind of,
7 skipped around in my notes and forgot to ask a couple
8 of questions. So, I just need to finish that?

9 DIRECT EXAMINATION OF DR. HARDY CONTINUED

10 BY MR. WRIGHT:

11 Q. Dr. Hardy, we didn't talk about the issue of
12 non-native fish and the impact of the introduction of
13 non-native fish in the Green River on the native fish
14 and, particularly, the endangered species. How has
15 that informed our opinion as to whether the withdrawal
16 of 70 CFS endangers or further endangers those fish?

17 A. I'm really concerned about the presence of
18 non-native fish in the Green River. If you look at the
19 available data on collecting fish in backwaters, year
20 after year after year, they are dominated by the
21 presence of non-native competitors and predators. In
22 my humble opinion, it may be more of an issue towards
23 long-term recovery of the species than the type of flow
24 alterations we're talking about. Not to suggest, in my
25 testimony, that flow alteration, presence of dams, have

1 not had an impact on the native fish, but as it stands
2 today, the presence of non-native is a huge, huge
3 concern.

4 Q. The non-native fish compete for food?

5 A. Food, space and direct predation.

6 Q. Direct predation?

7 A. And remember that the-A-0, for example,
8 Colorado Pipe Minnow, are very small fish and they're
9 drifting. When they get into the backwater, and you've
10 got a Red Shiner, for example, will predate. I know,
11 in the Virgin River, I found three Red Shiners in 1984.
12 By 1988, they had completely taken over the fish
13 community and we had to rope on the river in an attempt
14 to get rid of Red Shiner and in an attempt to save the
15 native fish. I mean, non-natives are a serious problem
16 in the Basin.

17 MR. WRIGHT: That's it, Your Honor. Thank you.

18 THE COURT: Thank you, Mr. Wright. Mr. Flitton?
19 Oh, Ms. Swenson.

20 MS. SWENSEN: Yes.

21 CROSS-EXAMINATION

22 BY MS. SWENSEN:

23 Q. Mr. Hardy.

24 A. Hi.

25 Q. Can you hear me all right? Can you hear me

1 all right?

2 A. Yeah, that's better.

3 Q. Okay. You talked a lot about your background.
4 Do you consider yourself to be an expert on any of the
5 endangered species present in the Colorado River?

6 A. I don't know if I would say I was an expert,
7 but I would say I was an expert on native fishes, in
8 general.

9 Q. You mentioned, in your work, years ago, with
10 Biowest, I believe, that, as part of it, you worked
11 with species experts to determine habitat issues and
12 suitability, correct?

13 A. My testimony is I worked in Biowest and
14 attained that help, with species experts, to develop
15 habitat suitability criteria for the endangered
16 species.

17 Q. Thank you for the clarification, but I suppose
18 my question is are you distinguishing between yourself
19 and species experts, as you explained?

20 A. We brought in people, like Harold Tyus, Chuck
21 McCayda and others, who would sample on the river. Ron
22 Rile and I took, at the time, all the available
23 monitoring data and analyzed the depth and velocities
24 of use by the various endangered species. At the time,
25 I was on the Virgin River Fishes Recovery Team and had

1 been sampling similar species like the Round Tail Chub,
2 Boney Tail Chub in the Green River. I had been working
3 on native fishes and, so, our job was to analyze the
4 available biological data to say this is what we think
5 the preference is or requirements for things like
6 depth, velocity, habitat use, etc., were and, then, we
7 ran a workshop where we had the experts in the room
8 discussing those results and coming up with final
9 versions of the curves for depth, for velocity, for
10 substraight for each of the endangered species.

11 Q. Okay and, in your analysis, you always assumed
12 a 70 CFS diversion, right?

13 A. I'm sorry. Just one more time?

14 Q. A 70 CFS diversion, that's what you assumed in
15 preparing your analysis?

16 A. An instantaneous diversion of 70 CFS.

17 Q. At a constant rate over time?

18 A. Yes.

19 Q. Okay and you do not know whether there are any
20 contaminants in the affected area of the river,
21 correct?

22 A. Not to my knowledge.

23 Q. And you did not consider whether there would
24 be any increased concentration of contaminants in the
25 water for the proposed depletions because, as you

1 testified, it's purely a withdrawal. Nothing will
2 return to the river, correct?

3 A. Two aspects of that, yes. My testimony is, if
4 you're withdrawing water, there is no release back.
5 So, you're not increasing the concentration just by
6 removing the 70 CFS. In my general consideration of
7 changes in potential water quality, I just could not
8 envision any water quality constituent at the sort of
9 magnitudes of the base flow versus the reduction that
10 would result in changes that would be of concern to me.

11 Q. Just so we've got that clear, what we're,
12 essentially, saying is, if I've got a tablespoon of
13 salt mixed into a gallon of water, and I pour out a
14 cup, the concentration, assuming it's well mixed and
15 everything, should still be the same in both the cup
16 and what's left of the gallon, right?

17 A. Yes because the milligrams per liter remains
18 the same because you've just simply taken out a volume
19 of the water.

20 Q. Correct and that's, essentially, what you're
21 saying with your analysis of when you're only removing
22 70 CFS from the river, and none of it is being
23 returned, that the concentration in the Green River
24 should be, essentially, unchanged?

25 A. Correct, within-yes. Correct.

1 Q. You've testified that the USGS gauge station
2 at Green River is in a, roughly, U-shaped channel,
3 correct?

4 A. I don't believe I said that the USGS gauge at
5 the Green River was in a U-shaped channel. I
6 indicated, in my exhibits collected, approximately, a
7 mile down river, that at the 1,000 and the 980, it was
8 a U-shaped channel, but was not at the 709.

9 Q. Do you recall giving a deposition in this
10 case?

11 A. Correct.

12 Q. And do you recall that you were under oath at
13 that time?

14 A. Yes.

15 Q. And I was actually the person there
16 questioning you, correct?

17 A. Correct.

18 Q. So, do you recall that, when I asked you, so,
19 the USGS gauge station at Green River is in a steep, U-
20 shaped channel, right? Your answer, yes.
21 Approximately a U-shaped channel, period. Are you,
22 now, changing that answer?

23 A. No, because I think it's clear, in my
24 exhibits, that, at two of the measured discharges, the
25 1,000 and the 908, it's, approximately, a U-shape but,

1 then, at the 709, it is no longer an approximate U-
2 shape.

3 Q. Let's talk about that 709 location because my
4 understanding is that that was Exhibit 39. I should
5 say Defendants' Exhibit 39 and my understanding, from
6 your work, Professor Hardy, is that this separate
7 location, that you only had one days' worth of data
8 from this location. Is that accurate?

9 A. Yes. This is a measurement of the cross-
10 section geometry approximately .75 miles downstream of
11 the gauge collected by USGS.

12 Q. Correct and is it your position, today, that
13 that point of measurement represents significantly
14 different river morphology than represented at the
15 gauge?

16 A. No. It's indicative of the variability that
17 would be expected at the gauge.

18 Q. Thank you, at the gauge. It's not intended to
19 be representative of changes in the river further
20 downstream, for example?

21 A. No, it would be also indicative of changes.
22 This is a sand bed river. Sand bed rivers have changes
23 in morphology and, as I indicated, previously, in my
24 testimony, if you look at the changes in river
25 morphology, middle bars versus side bars over the full

1 range of flows available on Google Earth, you can see
2 these, sort of, mid-channel features coming and going,
3 depending upon the date of the imagery and the flow
4 rate.

5 Q. Let me clarify. Your position is, still, as I
6 believe you testified in deposition, that the location,
7 the point of measurement, let's call it, captured in
8 Exhibit 39, that that is representative of—you view
9 it's consistent with the morphology at the exact gauge.
10 Is that correct?

11 A. I'm sorry.

12 Q. Let me re-phrase.

13 A. Can you, just a little—I have my hearing aids
14 in, but I'm having a little bit of trouble hearing you
15 now. If you could speak a little louder, please.

16 Q. No, please. What I'm trying to get at is the
17 July 23rd, let's call it point of measurement reflected
18 in Exhibit 39. With me so far?

19 A. Yes.

20 Q. Okay. I understand you saying that it is
21 representative of the type of changes that could occur
22 at the gauge point as well, correct?

23 A. Yes.

24 Q. And your position is that the gauge, and I'm
25 referring to the Green River gauge that we've referred

1 to, is representative of downstream reaches of the
2 Green River to the confluence with the Colorado. Is
3 that accurate?

4 A. It is representative of many sections of the
5 Green River between the Green River gauge and the
6 confluence with the Colorado.

7 Q. Thank you for that clarification and, then,
8 all I'm trying to pin down is, with that July 23rd
9 isolated point that we have, is it your position,
10 today, that that is an additional point of reference
11 that, in addition to the Green River Gauge morphology
12 would show you what other downstream morphology might
13 react? How it might react to the proposed diversion?

14 A. It is, in fact, a measurement of the Green
15 River approximately .7 miles downstream of the Green
16 River gauge and, therefore, indicative of the channel
17 conditions at that physical location in the Green
18 River.

19 Q. And, in fact, you believe that the gauging
20 station at Green River is, probably, more sensitive to
21 the changes in flow because it is less confined than
22 downstream reaches. Is that correct?

23 A. It would be more sensitive to changes in flow
24 compared to steep, confined bed rock sections of the
25 channel in the lower Green River and may be less

1 sensitive to flow than some other sections that might
2 have wider, more alluvial, channel sections which occur
3 in small areas within the Green River below the Green
4 River gauge.

5 Q. Right. You don't deny that there are alluvial
6 sections of the Green River downstream from the gauge,
7 correct?

8 A. Yes, there are.

9 Q. And I think you also testified that—well, let
10 me ask. Did you attempt to quantify the extent of
11 backwater or alluvial sections of the river downstream?

12 A. I did this in two ways. I went to the
13 original work by Mike Pucciarelli, in 1988, and, then,
14 his summary published in 2000, I believe, for the 1989
15 data that calculated, for the Green River gauge down
16 the 120 miles of river, in 20 mile segments, and showed
17 that the number of backwaters was, approximately, .78
18 to 1.2 to 1.4 per mile, on average. In 1988, it was
19 about one backwater per mile. It also calculated
20 number of side channels and there was about .2 side
21 channels per mile, on average, over the 120 miles.

22 I also, then, took Google Earth and I looked at
23 the river in, for example, September 26, 2004, I
24 believe, approximately 1,700 cubic feet per second. I
25 took the liberty of measuring what I considered to be

1 side channels or potential back waters down the channel
2 for the 120 miles. Came up with about six percent of
3 the linear distance of being backwaters on those images
4 for that date.

5 Q. And taking those numbers, either the ones from
6 the historical data that you referenced from the
7 publication or from your—let's call it your Google
8 Earth analysis for short-hand, those numbers are about
9 the frequency with which that type of habitat occurred,
10 correct?

11 A. Correct.

12 Q. They don't say anything about the importance
13 or significance of that habitat, correct?

14 A. Correct.

15 Q. On your Google Earth analysis, what dates were
16 available for all stretches of the river? I dealt with
17 Google Earth before. I know that some areas might have
18 certain dates that are available and, then, the next
19 one over has different dates. Did you track that?

20 A. I did, but I don't specifically recall that.
21 I know that I tried to stay with the same date but, as
22 I looked at imagery—and what I indicated is I would
23 take a section of river and I would use all the dates
24 and I would look at what was there and, if imagery
25 wasn't available on the same date, I tried to, excuse

1 me, pick the closest date with the flow rate that was
2 there to try to take variation out of the analysis. I
3 just wanted to know, on a linear distance, how much of
4 the river channel would be these type of features.

5 Q. So, did you, then—I haven't seen, anywhere,
6 disclosed like the actual dates that you were trying to
7 create windows of.

8 A. As I indicated, I believe it was September
9 26th of 2004, was the date of most of the imagery that
10 I used to do my assessment of what I thought backwaters
11 or side channels were.

12 Q. Just that date?

13 A. No. I indicated, in my testimony, that I
14 looked at all the days, but when I did my measurements,
15 it was, approximately, that date unless there wasn't
16 imagery available on that date in the section of river.
17 Then, I tried to pick a date that had, approximately,
18 the same flow rate.

19 Q. Just so we're clear, we're saying that, when
20 you say measurements, you're talking about the
21 measurements of the frequency of the backwater habitats
22 occurring in that stretch or are you talking about a
23 different frequency?

24 A. I tried to measure the length of what I
25 thought was the backwater to compare it to the total

1 length of the river.

2 Q. As measured on or about September—

3 A. In the 2004 period, right.

4 Q. Okay and my question, then, is did you compare
5 the existence of the backwaters, you can call it by
6 frequency or by distance, to another date in time for
7 the entire length of river?

8 A. No, just generally, fundamentally, for the
9 information collected by Pucciarelli in 1988 and 1989.
10 Oh, I'm sorry. I also read the study that involved
11 Utah Division of Wildlife Resources and Steve Meisner,
12 where they looked at non-native removal techniques in
13 backwaters and they did have the frequency and number
14 base, but they had a protocol that did not do complete
15 enumeration and, so, I didn't try to compare it to that
16 because they started at a ramming place and only
17 sampled the first two backwaters and didn't, really,
18 enumerate all of them. So, it was a bit of apple and
19 oranges.

20 Q. Okay. So, with respect to the flow data, you
21 used flow data from the USGS Green River gauge,
22 correct?

23 A. Correct.

24 Q. And you only used flow data from that gauge,
25 correct?

1 A. Correct.

2 Q. You're aware that there are additional gauges
3 near that section of river?

4 A. Generally, but not specifically.

5 Q. Are you aware that there additional gauges
6 between Green River gauging station and the confluence
7 with the Colorado?

8 A. Generally, but not specifically.

9 Q. Did you make any attempt to gather data from
10 any of those gauges?

11 A. No.

12 Q. You've testified that most, and if you want to
13 qualify most, please, be my guest, but most of the
14 sections of the Green River downstream proposed
15 diversion are in a confined, hard rock channel. Is
16 that accurate?

17 A. Generally speaking, yes. I mean, it's
18 dominated by that kind of bed form.

19 Q. And the exceptions might come into play with
20 the backwater habitats that we were discussing earlier,
21 correct?

22 A. Correct. Pucciarelli's data indicated, in
23 1988, there was 116 backwaters and, in 1989, I think,
24 there was like 206 backwaters that were delineated
25 between—basically in reach 3 of the Green River.

1 Q. Okay and those backwaters would react
2 differently to changes in flow than the section where
3 you took the measurements at the Green River gauge,
4 correct?

5 A. Yes, it would.

6 Q. And did you attempt to model the effects on
7 the backwater habitat, specifically?

8 A. Yes. To the extent that I looked at the
9 changes in stage, and this is where, from an
10 analytical, geomorphic perspective, the continuity
11 equations, stage versus discharge, width versus
12 discharge, velocity versus discharge, geometry at a
13 station, gauges are, typically, put in on runs where
14 you have nice, straight laments or flow characteristics.
15 Ripples have higher gradient. Pools have less
16 gradient and, so, typically, if you compare the
17 exponent to the discharge, which is the slope of the
18 water surface line, it is steeper in ripples and less
19 so in backwaters and, so, using data from the run is
20 more likely to be an average, but it's going to be less in
21 a pool or backwater. So, you're over-estimating.
22 You're under-estimating in ripples. There are not very
23 many ripples in the lower section of the Green River,
24 below the Green River gauge. That knowledge led me to
25 believe that I had a good idea of the magnitude of the

1 change.

2 The second part is that it's not so much that
3 there is an instantaneous change in stage. It's
4 continuous and, so, the formation of the backwater is
5 occurring during a higher flow period of the year and,
6 so, you are still going to get small, medium and large
7 depths for backwaters in the river. It's not that you
8 are taking a backwater and instantaneously dropping it
9 by that stage. So, it's over-estimating the impacts.

10 Q. No, I understand that, but when you're looking
11 at the calculations, let's say the exceedence levels,
12 for the changes in stage, those are calculated at the
13 location of the Green River gauge, correct?

14 A. Correct.

15 Q. And your calculations in change of width of
16 the river, based on the proposed withdrawal, were based
17 on the data from the Green River gauge further
18 downstream, correct?

19 A. Correct, except for the three exhibits that
20 were collected at approximately .75 to a mile
21 downstream of the gauge.

22 Q. But, again, you viewed those as typical of the
23 river morphology near where the gauge is, not
24 necessarily different areas downstream, correct?

25 A. It was still a more alluvial section than the

1 section of the gauge and not dissimilar to the section
2 in Mr. Norris' testimony that he pointed out,
3 downstream, of the gauge.

4 Q. And, again, that more alluvial section you're
5 referring to, that's the July 23rd point of
6 measurement, correct?

7 A. Correct.

8 Q. For which you have only one day's worth of
9 data, correct?

10 A. Correct.

11 Q. Okay. You did not forecast projected flows in
12 2014 or 2020 or any other year, correct?

13 A. No.

14 Q. You analyzed the impact of the proposed
15 diversion using historical flows and historical average
16 flows, correct?

17 A. Correct.

18 Q. You did not incorporate any forecasted future
19 flows from third parties, such as the Bureau of
20 Reclamation's 2012 study, correct?

21 A. Not in the analysis that was conducted, but I
22 did examine those material when they came out and in
23 preparation of this hearing today.

24 Q. And do you have additional analysis to
25 disclose to us, at this time, using that?

1 A. Nope. Just, generally, didn't change my
2 opinion.

3 Q. Your opinion, as to the impact of the
4 diversion, would not change if the frequency or the
5 duration of the low flow periods increased in the
6 future, right?

7 A. My testimony was that, over the range of
8 discharges that are expected at the gauge, that the 70
9 CFS diversion would not represent a negative impact.

10 Q. So, I'm trying to get at we're talking about
11 your basing it on historical flows rather than doing
12 some projection or forecast of future flows, right?
13 And you agree with that?

14 A. I'll answer it this way. Back in 1995, I was
15 part of the team that looked at severe, sustained
16 drought in the Upper Colorado River Basin. My job in
17 that was to model the expected changes or implications
18 on the endangered species. As part of that exercise,
19 tree ring reconstruction was evaluated going back from
20 700 A.D. to the present and there were extensive, long
21 periods of severe, sustained drought in the 1200's, the
22 1500's, where the flows at Lee Ferry were estimated to
23 be on the order of 10 million acre feet, way less than
24 what we see now.

25 That's important from two perspectives, frankly,

1 in my formulating an opinion. First and foremost,
2 those long periods of severe, sustained drought, at a
3 fraction of the flows we see at the time we measured
4 fish, we had these fish in the river. So, they were
5 able to make it through those severe sustained droughts
6 and be present in the river.

7 Number two, we were at very low flows at the time
8 we got high enough, when we started measuring flows
9 when we had the Colorado Compact. Fundamentally, like
10 Mr. Olds said, we have gone through periods of very low
11 flow, followed by high flow, followed by low flow,
12 followed by high flow. We have the record of data we
13 have, now, and the trend analysis, as Mr. Olds says,
14 reflects, in large measure, the depletions due to the
15 development of water in the Basin and we do not know
16 what the future will bring. It's just as much that the
17 flows could go into a wetter cycle again as it is that
18 they could continue in to a drier cycle. So, that did
19 have a bearing on my evaluation and testimony.

20 Q. So, I think, what you just answered, which I'm
21 not certain. We may have to go back to the original
22 question, but so I understand what you just testified,
23 you said, one, that, basically, fish survive droughts;
24 and, two, that we don't know what the future brings as
25 far as trying to project trends forward, into the

1 future, for various reasons.

2 A. Correct.

3 Q. Accurate? So, back to my original question.

4 Your opinion, as to the impact of this diversion, would
5 not change if you were presented with data that showed
6 the frequency or the duration of low flow periods
7 increased in the future. Is that right?

8 A. I would want to see what the frequency in the
9 duration and magnitude of those low flows were before I
10 would render an opinion.

11 Q. Professor Hardy, do you recall, in deposition,
12 when we talked about a this same issue and I asked,
13 just to keep the hypotheticals simple, let's say that
14 the dry periods, themselves, were not significantly
15 more severe, but they were more frequent than in the
16 past 30 years. Would that affect your opinion? Your
17 answer was my initial reaction is, if the volumes are
18 on the same order of what I had evaluated, my opinion
19 would not change because those volumes and the 70 CFS
20 reduction do not have an impact whether they last for
21 three weeks or three months or once every five years or
22 twice every five years. Those impacts are not a
23 problem in this sort of hypothetical situation. Do you
24 agree with that answer as you sit there today?

25 A. Yes, I do, because you parameterize the

1 hypothetical where your question was open-ended,
2 without any context.

3 Q. Well, to be clear, you added the parameters of
4 the frequency of duration, but within what you added,
5 you would maintain that answer?

6 A. Yes.

7 Q. Okay. You testified, today and at the
8 administrative hearing previously, that, in sum—and I'm
9 trying to include depth, width, temperature, velocity,
10 the various factors that you've analyzed—that the
11 proposed diversion would represent a diminimus change
12 to the natural stream environment, correct?

13 A. Yes.

14 Q. Are you aware that the U.S. Fish and Wildlife
15 Service has defined what constitutes a diminimus
16 withdrawal in the Upper Colorado River Basin?

17 A. Not to my knowledge.

18 Q. You didn't incorporate that definition in your
19 analysis when you said it was diminimus, did you?

20 A. No.

21 Q. And, if you learned that the Fish and Wildlife
22 Service defined diminimus withdrawal in the Upper
23 Colorado River Basin as less than .1 acre foot per
24 year, that wouldn't change your analysis?

25 A. No.

1 Q. But the proposed diversion under the change
2 application significantly exceeds that amount, doesn't
3 it?

4 A. Yes.

5 Q. At—let's talk about the width analysis that
6 you did, the changes in width of the river. You've
7 testified that the potential change in river width up
8 to—I believe this was going to the ninety-nine percent
9 exceedence level, 1.3 feet would be a diminimus change
10 in river width, correct?

11 A. Correct.

12 Q. And your claim that it is diminimus is based
13 on the change relative to the overall width of the
14 river at that point, correct?

15 A. Correct.

16 Q. So, when we say, at that point, we're talking
17 about at the point of the Green River Gauge where
18 you're taking data, correct?

19 A. Yes and in combination with looking at the
20 Google Earth imagery over a range of flows which range,
21 I think, from eight and twelve thousand down to twelve
22 hundred and, if you go to section after section in the
23 canyon reaches and you look at the difference in the
24 width, and you measure between eight thousand imagery
25 or the twelve thousand imagery and 1,250 or 1,270, you

1 just do not get large changes in the width relative to
2 the total width of the river.

3 Q. So, my question is not aimed at undermining
4 the calculation of up to 1.3 feet, which I understand
5 you're saying would, although I may not agree, I
6 understand you're saying that that would apply on down
7 the river. If anything, it might be on the high end,
8 correct?

9 A. It's just indicative of what you would expect
10 in confined reaches, yes.

11 Q. So, my question, though, has to do with,
12 assuming that that's the right change in width, 1.3
13 feet, right? That your claim that that is just a
14 diminimus change has to take into account whatever the
15 total width of the river, at that point, is, correct?

16 A. Correct, because I looked at the river.

17 Q. So, did you do width measurements of the river
18 all the way down to the confluence with the Colorado?

19 A. Yes, I did.

20 Q. And what is the average width?

21 A. I want to say something on the order of,
22 maybe, 350 feet, something like that.

23 Q. Uh-huh [affirmative]. That's the average for
24 the entire—sorry, from the point of diversion or, at
25 least, from the Green River Gauge down to the

1 confluence with the Colorado River?

2 A. So that my testimony is clear, I started at
3 the gauge and I would bring the imagery up and I would
4 look at the channel. If all the channel was the same,
5 I would take a width measurement. I would scroll down
6 and go, oh. Here is an entire section, quarter mile,
7 half mile, and it's all in a canyon. This is,
8 approximately, what it looks like. I would take a
9 width measurement and-

10 Q. For whatever Google Earth had available in
11 September 2006, I think?

12 A. All of the available imagery. When I was
13 doing that, I was looking at what was the highest flow,
14 what was the lowest flow, what was happening in the
15 channel and, in those sections where you have confined
16 canyons, you just don't see a change in the width
17 because it only goes up and down. It doesn't have
18 alluvial features.

19 Q. And, where you have the more alluvial
20 sections, you would see more, or would expect to see
21 more of an impact on-

22 A. And they do have greater variability in the
23 alluvial section mineral bottoms.

24 Q. Uh-huh [affirmative] and that could be greater
25 than 1.3 feet in those sections?

1 A. Yes. It may be on the order—it could be 10,
2 15 or 20 feet, 30 feet, even, but that's relative to
3 three or four hundred feet of width in the channel.

4 Q. But, again, we're talking about coming in from
5 the sides, I assume [inaudible]

6 A. Yes.

7 Q. So, you're talking about, what you just said,
8 10, 20, 30 feet narrower.

9 A. Out of three or four hundred feet, yes.

10 Q. Uh-huh [affirmative]. You didn't assume any
11 particular type of intake structure in your analysis,
12 right?

13 A. I'm sorry. I didn't quite catch all that.

14 Q. Sorry. I tend to speak up quickly. You did
15 not assume any particular type of intake structure in
16 your analysis, right?

17 A. That is correct. In my previous testimony, I
18 indicated that that would be addressed as part of the
19 NEPA and EIS process.

20 Q. It was beyond the scope of what you were asked
21 to look at, correct?

22 A. Correct.

23 Q. And you're not aware of Blue Castle asking
24 anyone else for advice regarding the design of an
25 intake structure at this time, correct?

1 A. Not to my knowledge other than I did have some
2 discussions with them relative to my work on senior
3 design of the fish passage structure at the Washington
4 Fields diversion in the Virgin River and that one of
5 the things they might consider in their diversion was
6 things like mitigation where, on balance, you might get
7 eight to ten percent of a return flow in order to
8 capture fish, to return them to the river, that they
9 could, then, mitigate by creating an artificial side
10 channel for rearing of the endangered species, only to
11 that extent, but nothing in terms of actual design of
12 the structure.

13 Q. So, this mitigation suggestion that you made—

14 A. Yes?

15 Q. —were you evaluating it, specifically, with
16 respect to, say, the Colorado Pipe Minnow?

17 A. Yes or Razor Back Sucker or any other larval
18 drifting fish.

19 Q. That are found in that stretch of the Colorado
20 River?

21 A. Correct.

22 Q. And it's your opinion that you could resolve
23 these issues by—explain to me the design criteria that
24 you suggested.

25 A. Well, I mean, from working with the Bureau of

1 Reclamation's Fish Screening Shop, with the two senior
2 design teams that we put together at Utah State in the
3 Civil and Environmental Engineering Department, we
4 provided preliminary designs for the fish structure on
5 the Washington Fields diversion, which used a rotary
6 drum fish screen, which you divert water into the
7 canal. It goes through the screen and it pulls off the
8 fry or the juveniles and they are returned to the river
9 with the by-pass flow.

10 There are a number of design options that you
11 could do that that include minimization of attractant
12 flows in the four bay, where you move fish to one side
13 but, then, you pull water, or they're less likely to be
14 entrained and, then, you can have fish screening. So,
15 with Blue Castle, it was just from that experience
16 suggesting that there might be ways to help minimize
17 potential entrainment of any larval fishes coming down
18 the river.

19 Q. But, to your understanding, no decision has
20 been made on the type of intake or diversion-

21 A. I have no knowledge of that.

22 Q. Okay and that's not part of your conclusion as
23 to diminimus impact?

24 A. Correct.

25 Q. In your testimony today, you made reference to

1 the Colorado Pipe Minnow, among others, but as,
2 probably, being a fish of major concern, correct?

3 A. Correct.

4 Q. And you referenced a study that had a large
5 bearing on your analysis because it showed—and please
6 correct me if I misstate this because this was the
7 first, I think, that I became familiar with it where
8 one foot of a change in stage, and it may have been
9 worded as depth, was necessary to show a change, an
10 increase in the size, of the Colorado Pipe Minnow. Is
11 that accurate?

12 A. That doesn't—

13 Q. Explain to me what the—you indicated that,
14 one, it had a large bearing on your analysis to see
15 that it took a foot difference in water to make an
16 impact on the size of the Colorado Pipe Minnow.

17 A. No. That's mischaracterization.

18 Q. Please clarify.

19 A. The study by Haynes and Tyus in 1990 looked at
20 the distribution of Colorado Pipe Minnow as a function
21 of mean maximum depth of back waters.

22 Q. Deep maximum depth? Is that what you said?

23 A. Of backwaters, okay? They broke it up into
24 sizes of backwaters. So, less than 15 centimeters, 15
25 to 45 centimeters, 45 to 75 and greater than 75. So,

1 that's the max depth of the backwaters. What their
2 data clearly shows is, as you increase the average max
3 depth of the backwater, the number of Colorado Pipe
4 Minnow you find increases.

5 Q. Uh-huh [affirmative].

6 A. Well, the average of all of the measured
7 backwaters was about 29 centimeters, 29.6. That's
8 about a foot of water. If you remove an inch of water,
9 you still have 11 inches of water in the backwater,
10 okay?

11 Q. Uh-huh [affirmative].

12 A. Another study that was done by Tyus and Haynes
13 in '91 indicated that Colorado Pipe Minnow, in their
14 words, mainly used backwaters on the order of 38
15 centimeters, which is well over a foot of water and,
16 so, when I saw that the deeper the water, the more you
17 have, okay? That's in the low flow period. A third
18 element of that was studies conducted by Kishna and
19 Heinz in 2004, but it was in the Ouray section, which
20 is above reach 3, but what they found, there, for
21 winter survival and impacts was that, during the fall,
22 as temperatures decrease, Colorado Pipe Minnow were
23 moving from shallower to the deepest backwaters that
24 were available and, over the period of their study,
25 when Flaming Gorge was still hydropeaking, and the

1 flows would range between 600 and 900 CFS, so the
2 change in flow is 300 CFS, in the upper end of the
3 Ouray reach, they saw changes in stage measured in
4 their backwater of .1 meters, but at the lower end of
5 that section, it was .01 meters, which the lower end of
6 the section is more indicative of the gradient of reach
7 3 and, again, that is just evidence that the change in
8 stage with a 300 CFS change in discharge, .01 meters,
9 that's .3 inches, to me, that was just evidence of
10 behavior of backwaters. At 300 CFS change in flow, I'm
11 changing by 70. Physics tells me it has to be less.

12 Q. You had calculated, at the low flow
13 measurement, that you had approximately 700 CFS, about
14 a 1.44 inches change in depth, correct?

15 A. Approximately, yes.

16 Q. So, that's the change in depth that we would
17 be considering for these backwaters with, I think you
18 said, with the average maximum depth of 29 centimeters,
19 correct?

20 A. The average maximum depth that they reported
21 was 29.6 centimeters.

22 Q. Centimeters, thank you. I misspoke,
23 completely, on that, but was there anything in that
24 that indicated that—I mean, I hear—your testimony is
25 that, as the water got deeper and deeper, there were

1 more Colorado Pipe Minnow present—

2 A. Correct.

3 Q. -in the study. Was there anything indicating
4 the converse; that, when you decreased existing
5 backwaters, that it hurt or didn't hurt the Colorado
6 Pipe Minnow presence there?

7 A. No. The thing that's critical to understand
8 is, with the continuous withdrawal of 70 CFS, from a
9 geomorphic perspective, backwaters are going to be
10 created with features that will range from shallow to
11 deep, even with a 70 CFS reduction. So, you're not
12 instantaneously changing it. So, you're still going to
13 have a distribution of shallow through intermediate to
14 deeper. What the data shows, from the monitoring, is
15 that the Colorado Pipe Minnow are going to,
16 preferentially, continually selecting deeper backwaters
17 for their use.

18 Q. At every stage of their life?

19 A. Stage zero, going into the late summer/early
20 fall, it will, typically stay there over winter.
21 That's why I thought the study at Ouray was important
22 because it showed that they moved out of the shallower
23 backwater into the deepest backwater to overwinter and,
24 then, they would leave those when they got into the
25 spring to disburse.

1 Q. Okay and I think the magic number there, if I
2 recall correctly, is about 200 millimeters total length
3 is when they started moving out and using—

4 A. Of the fish?

5 Q. Of the fish using side channels or margins of
6 the stream.

7 A. It's your position any potential impact on
8 side channel habitats is mitigated by the fact that the
9 fish are more mature by the time they move through
10 those sections of the river. Is that correct?

11 A. The fish are growing as they move down into
12 the lower Green River where they will use these
13 ephemeral backwater and side channels as rearing
14 habitat even though there are very, very few side
15 channels in the lower Green River. The studies by
16 Pucciarelli in 1988-1989 , it's on the order of .2 side
17 channels per mile.

18 Q. And, again, that doesn't say anything as to
19 the importance of the side channels, just the total
20 area that they cover, correct?

21 A. Correct.

22 Q. And it's your position that the majority of
23 the rearing of these fish, specifically with the
24 Colorado Pipe Minnow, occurs upstream of the point of
25 diversion? Is that accurate?

1 A. No. The fish migrate above the point of
2 diversion during the spawning run into the Ouray and
3 Jensen reach where they spawn. After the fish hatch,
4 they begin to move down river and the majority of the
5 rearing actually occurs in the lower Green River, in
6 the lower section.

7 Q. Downstream of the point of diversion?

8 A. Downstream of the point of diversion, correct.

9 Q. Thank you and that's, specifically, to the
10 Colorado Pipe Minnow, your answer that you just gave,
11 correct?

12 A. Correct.

13 Q. Okay. Essentially, given that you were
14 calculating relatively small changes in flow, according
15 to your data, you didn't identify any particular
16 habitat type that would be unduly affected by the
17 diversion, correct?

18 A. Unduly affected? Again, as I indicated
19 previously, if you look at the continuity equations on
20 changes in depth, which is stage, changes in velocity
21 or changes in width, and you're using data from a run,
22 which is, typically, where you gauge, that is,
23 probably, very indicative—

24 Q. And it's where this gauge is, correct?

25 A. I'm sorry?

1 Q. I just want to clarify. Typically, where the
2 gauge is and, in this case, it's where the gauge is
3 located, correct?

4 A. Right, at Green River.

5 Q. In a run?

6 A. Right.

7 Q. Okay. Please continue.

8 A. And that, typically, is more indicative of
9 average conditions in the reach where those equations
10 show more sensitivity and ripples a bit less in pools
11 and you want to look at that carefully. Look at the
12 Jowett study for the hundred rivers in New Zealand and
13 you can confirm that.

14 Q. Similarly, given the relatively small changes
15 in flow that you anticipate, you didn't focus on
16 whether young fish would be at a higher predation risk
17 after the proposed diversion, did you?

18 A. No.

19 Q. You admit that the measured low-flow in your
20 data, the 700 CFS, was well below the recommended mean
21 base flow of 1,300 CFS in a dry year, correct?

22 A. Yes and I would also add that that is a
23 measurement that occurred prior to the record of
24 decision with the Recovery Implementation Program and
25 you would not expect to see that flow because they are

1 going to target 1,300 CFS.

2 Q. Have you observed—you said that you collected
3 the data, all that was available, through 2012 from the
4 USGS station? I know that you—

5 A. I went to the USGS gauge water for the nation
6 and asked it to download the available field data that
7 they had posted on the site and it went from 2007, I
8 think October 23rd, or something like that, of 1979
9 through 2012.

10 Q. Were there any instances in there where it
11 went below 1,300 CFS?

12 A. Yes.

13 Q. After the record of decision?

14 A. Uh-huh [affirmative].

15 Q. You just stated that it was 2007 through 2012,
16 I believe, and—

17 A. Yes. I think it was in 2004, was the 700.
18 I'd have to go back and check. I don't remember,
19 specifically. What I do remember, though, is that the
20 number of times that flows are that low are on the
21 order of 95, 98, 99 percent exceedences.

22 Q. Not asking you about the frequency. I
23 understand the exceedence tables that you've drafted,
24 but with respect to that you would not expect to see
25 any flows below 1,300 CFS after the record of decision,

1 is that borne out by your review of the data?

2 A. In part, yes and, in part, no. I think the
3 thing to remember about the flows, they're targets and,
4 as specified in the record of decision and the re-
5 operation of Flaming Gorge, there's up to a 25 percent,
6 I think, variation in those that they are anticipating
7 to be built-in, without harm to the species, because
8 those are the recommended flows. So, if they're
9 willing to look at 1,300 with a 25 percent variation,
10 then, I would not be surprised if we have flows less
11 than 1,300, on occasion. Would they sustain them? I
12 don't believe so.

13 Q. You stated, today, that in discussing the
14 diminimus finding, that we're not at risk of more than
15 ten percent change in flows, correct?

16 A. No. My testimony is that, in the—we don't see
17 more than a—we do not observe more than a ten percent
18 reduction in flows over the range of anticipated flows.

19 Q. On Exhibit 24, Defendant's Exhibit 24—well,
20 you were here, in the Courtroom earlier today, correct?

21 A. Yes.

22 Q. Did you hear Mr. Olds give his testimony?

23 A. Yes.

24 Q. Sorry. I moved away from the mike. He
25 testified that there would be, approximately, a ten

1 percent impact on flows at the 2002 low flow point of
2 700 CFS that we discussed, right?

3 A. Correct.

4 Q. And you agree with that, in fact, right? At
5 that data point?

6 A. Yes. If that single daily flow of 700 were to
7 see a 70 CFS reduction, then, you would have a ten
8 percent reduction.

9 Q. That would be ten percent and that's
10 consistent within Exhibit 24. In your 95 to 99 percent
11 exceedence range, we've got 4.9 to 10.1 percent
12 reduction in flow, correct?

13 A. Because the 10.1 reflects the single data
14 value.

15 Q. I understand. But, so, essentially, five
16 percent of the time, you could expect to see a,
17 roughly, five to ten percent impact on the flow,
18 correct?

19 A. No. In the 95 to 99 percent interval, you
20 would expect to see a five to ten percent.

21 Q. Thank you.

22 A. Noting that the 10.1 percent is a single daily
23 value.

24 Q. Correct. The only data that you had from that
25 particular location, in fact, right?

1 A. Correct.

2 Q. And, so, you referenced, just now, a twenty-
3 five percent built-in variation in the flows that's
4 anticipated by the—I assume you mean the record of
5 decision or the operating plan for Flaming Gorge?

6 A. Correct. That's the way I've read it.

7 Q. So, would it be your position, then, that
8 anything less than twenty-five percent impact on flows
9 is diminimus?

10 A. I think it would depend upon the nature of
11 what more than twenty-five percent look like, for how
12 long. If it was a single day, probably not. If it
13 went for six years, probably.

14 Q. So, the duration in frequency of the low flows
15 would matter?

16 A. Yes.

17 Q. Okay and you acknowledge that some of the
18 downstream sections, downstream from the proposed point
19 of diversion of the Green, are part of the critical
20 habitat for the four endangered fish species in the
21 lower Green, right?

22 A. Yes.

23 Q. But you didn't, specifically, take the
24 critical habitat designation into consideration because
25 you don't think that it mattered to your analysis,

1 correct?

2 A. I think I took the critical habitat into
3 consideration because it was part of my evaluation of
4 whether there was impacts or not.

5 Q. Do you recall, in your deposition, when I
6 asked you did you consider whether any of the Green
7 River downstream proposed project has been designated a
8 critical habitat for any species? Your response was I
9 did not, specifically, take that into special
10 consideration because I just didn't think it—it wasn't
11 an impact in my mind and it didn't matter whether it
12 was critical habitat designated or not. I looked at
13 it—I want to give the complete answer. I looked at it
14 from the perspective, if these fish use these river
15 corridor, what are the impacts? Whether it was a legal
16 designation was not a factor in my opinion.

17 A. Right.

18 Q. Is that consistent with your testimony, here,
19 today?

20 A. Yes because I think that the key is I'm
21 recognizing the importance of backwater habitat, that
22 those are the nursery grounds for Colorado Pipe Minnow
23 and other fish in the lower river. In considering and
24 referencing my opinions in this, it considered those
25 factors and I think it's correct, in my deposition,

1 that whether it's a legal designation or not doesn't
2 matter. It is the fact that what's important is what
3 would the potential impact be on those types of
4 critical habitats: backwater, side channels, etc.

5 MS. SWENSEN: I have on further questions at this
6 time.

7 THE COURT: Thank you, Ms. Swensen. Ms. Valdes,
8 any questions?

9 MS. VALDES: No questions. Thank you, Your Honor
10 for asking.

11 THE COURT: Thank you and you're welcome. Mr.
12 Wright? Re-direct?

13 MR. WRIGHT: Yes, Your Honor.

14 RE-DIRECT EXAMINATION

15 BY MR. WRIGHT:

16 Q. Just, probably, more a point of clarification.
17 Blue Castle has not held out your work, for
18 preparation of these applications, as the final word on
19 the impact of the Green River that this project might
20 have, correct?

21 A. Correct.

22 Q. There's still an entire NEPA process and the
23 environmental impact statement process still to come
24 should the applications be approved, right?

25 A. Correct.

1 MR. WRIGHT: Nothing further. Thank you.

2 THE COURT: Thank you. Just one second. Anything
3 further on those items, Ms. Swensen?

4 MS. SWENSEN: Excuse me. Just really quickly.

5 THE COURT: Take your time. That's all right.

6 MS. SWENSEN: Sorry.

7 RE-CROSS-EXAMINATION

8 BY MS. SWENSEN:

9 Q. Mr. Wright just referred to additional work
10 that you anticipate will be done—sorry. I stepped
11 again. Mr. Wright just referred, I believe, to
12 additional work that you anticipate will be done as to
13 the environmental impact of the proposed diversion on
14 the Green River, correct?

15 A. Correct.

16 Q. Are you, currently, engaged in performing any
17 of that work?

18 A. No.

19 Q. Are you aware of anyone else retained by Blue
20 Castle who is engaged in that work?

21 A. I believe I referred Mr. Edward Borney and
22 Biowest at the time, initially, as someone that would
23 be qualified to collect fisheries data from the lower
24 Green River. That's all I'm aware of.

25 Q. You're not aware of whether they have actually

1 begun such work or engaged-

2 A. You know, to be honest, I think Ed mentioned
3 something to me that they had been collecting, but I
4 can't remember, specifically.

5 Q. And, regardless, none of that work that may be
6 being done has had any bearing on your analysis that
7 you presented today?

8 A. That is correct.

9 Q. Okay.

10 MS. SWENSEN: I have nothing further.

11 THE COURT: Thank you, ma'am. Anything else from
12 anyone? Dr. Hardy, you may step down.

13 DR. HARDY: Thank you.

14 THE COURT: Thank you very much for your help
15 today. Next witness, Mr. Wright?

16 MR. WRIGHT: Yes, Your Honor, the applicants call
17 Tom Retson.

18 THE COURT: Mr. Retson, if you would come forward,
19 please, Sir. Raise your right hand and be sworn.

20 THOMAS RETSON called as a witness by the
21 defendants, being first duly sworn, was examined and
22 testified on his oath as follows.

23 THE COURT: If you would have a seat, please. Mr.
24 Retson, if you would be kind enough, would you spell
25 your name for the record?

1 A. R-E-T-S-O-N.

2 THE COURT: Thank you, Sir.

3 A. Sure.

4 DIRECT EXAMINATION

5 BY MR. WRIGHT:

6 Q. Good afternoon, Tom.

7 A. Good afternoon.

8 Q. Tell the Court what is your current role or
9 position with Blue Castle?

10 A. I'm the Chief Operating Officer for Blue
11 Castle Holdings.

12 Q. And what does that mean?

13 A. As Aaron summarized, I manage most of-or,
14 virtually all of the work that's done on the project
15 and, specifically associated, at this point, with the
16 application for the early site permit.

17 Q. Tell the Court about your educational
18 background before you started work.

19 A. I hold a bachelor of science degree in nuclear
20 engineering from the University of Wisconsin and, after
21 that, I worked for GE's nuclear energy business based
22 in San Jose, California for 23 years. Following that,
23 formed a consulting firm that focused on nuclear and
24 renewable technologies. That's Energy Path and part of
25 the work that that organization has done led to the

1 association that Aaron indicated that led to Blue
2 Castle Holdings being formed.

3 Q. Expand, a little bit, on your experience at
4 GE. What kinds of tasks were you involved in? What
5 kinds of aspects of licensing, building, running a
6 nuclear power facility?

7 A. Sure. When I first joined GE, I became a
8 fortunate member of a special program that allowed us,
9 over the course of three years, to rotate assignments
10 and I started out, every six months, changing from
11 things like containment design to reactor design to
12 fuel design to fuel management to international
13 projects. After a training period, I was involved in
14 international fuel projects and fuel development.
15 Following, about 20—or, 15 years into my career, I
16 moved into the operating plant business that focused on
17 the outage services activities where we provided the
18 work that was done at many plants across the world for
19 the outage-related maintenance, whether it's re-fueling
20 the reactor or doing repair and maintenance work on the
21 nuclear plant.

22 Q. All right and, since that time, have you
23 continued to remain current on nuclear licensing,
24 nuclear construction, technology, selection, those
25 kinds of issues, since leaving GE?

1 A. Absolutely. In fact, perhaps the best way to
2 answer that is one of the key projects we conducted as
3 Energy Path, after my GE career, involved an
4 evaluation. It was an organization in Texas that
5 engaged our firm to look at the feasibility of building
6 a new nuclear plant on the gulf coast of Texas. This
7 was back in the 2005-2006 time period—actually, 2004 it
8 began and, during the course of that project, we
9 evaluated all the available technologies across the
10 globe for nuclear reactors.

11 We also did a cradle-to-grave study. We looked at
12 new sites in Texas, all the aspects of acquiring
13 partners for doing a project, evaluating that site for
14 its quality under the EPRI guidelines, the Electric
15 Power Research Institute, as a recommendation process
16 for selecting sites. We followed that. We looked at
17 the investment process. We looked at the process of
18 financing, the process of evaluating the cost structure
19 for each of the different types of technologies.

20 Q. You heard Aaron Tilton testify?

21 A. Yes, I did.

22 Q. And, both on direct and cross-examination, he
23 was asked a number of questions about how Blue Castle
24 is going about its process of developing the site and
25 developing the overall project.

1 A. Uh-huh [affirmative].

2 Q. Based on your background, both at GE and as a
3 consultant, is Blue Castle engaged in a process that
4 is, somehow, particularly unique or new or unusual?

5 A. Absolutely not. I'd say it's the process
6 that, effectively, almost every entity is following
7 right now if they're not a state sponsored
8 organization. By that, I mean there are many plants
9 being built in places like China, directed by their
10 government. Here, in this country, either our project,
11 like Blue Castle's project, or, as Aaron mentioned
12 earlier, projects like Florida Power & Light, they are,
13 effectively, following a step-wise process that reduces
14 risk during the course of developing the project, not
15 making the decision, on day one, to invest the fifteen
16 or so billion that's necessary to complete the project.

17 Q. So, for example, if Blue Castle hasn't decided
18 on a technology—when we talk about technology, what we
19 mean is the kind of reactor, right?

20 A. Correct.

21 Q. And that's a decision we simply don't have to
22 make yet.

23 A. Correct.

24 Q. What is an early site permit?

25 A. Well, an early site permit—and I'll build off

1 of something I believe Aaron said—it really is a permit
2 that, in the construct of the new, what we call the new
3 licensing process, which I'll back up and say that
4 process, in very simple terms, was put in place to
5 allow for us, for the industry, to go through a
6 relatively, in fact, very stringent process but, at the
7 end of the process, to have a license that, once that
8 license is awarded and the plant is built under the
9 purview of that award, then, at the end of that
10 construction process, if the NRC has monitored the
11 progress and they approve that the process was followed
12 as permitted, then, effectively, the plant is approved
13 and can be operated.

14 What had happened with the current version of
15 plans, the plans that we, now, have offering today,
16 virtually all of them were licensed under our old, what
17 they call part 50 process, and that was a much more
18 involved process.

19 Q. And the part 50 you're describing, there's two
20 essential processes under the Code of Federal
21 Regulations.

22 A. Yes. So, I didn't complete the answer. So,
23 the early site permit, then, effectively says that this
24 site meets the criteria that the NRC has put in place
25 and evaluated to say this site, when coupled with an

1 approved and further, on its own review, the reactor
2 design meets the criteria by the NRC to host a nuclear
3 reactor.

4 Q. Okay. Now, I believe the general contractor
5 or primary contractor concerning the early site permit
6 was already identified by Mr. Tilton as Intercon.

7 A. Correct. Correct.

8 Q. You are the primary contact between Blue
9 Castle and Intercon?

10 A. Correct. Correct.

11 Q. Could you take a look at--well, first, let me
12 ask you. Where are we in the process of the early site
13 permit for Blue Castle?

14 A. Yes. Also--and I believe Aaron mentioned,
15 we're approximately fifty percent complete with the
16 application part of the ESP permit and to even clarify
17 that a bit, that means that we are preparing the
18 document and still collecting data, although most of
19 the data, itself, has been collected, analyzing that
20 data, putting it in a form--most of this work or,
21 virtually, all of this work is being done by Intercon,
22 preparing that data in a report for submittal to the
23 NRC.

24 Once it's submitted to the NRC, we're looking at a
25 period of approximately two years for them to review

1 and, normally, over the course of that, they are asking
2 the applicant questions. Those are called RAI's,
3 requests for information, and we expect that to occur
4 in a very timely way. There have been multiple ESP's
5 awarded and approved already. So, we're attempting to
6 follow a process—we're not being the first following
7 this process.

8 Q. And, when you say ESP's approved already on
9 other projects—

10 A. Yes?

11 Q. —there are two sections of the Code of Federal
12 Regulations: 10 C.F.R. Part 50—

13 A. Correct.

14 Q. --10 C.F.R. Part 52. Are there others ahead
15 of us that are following the Part 52 process?

16 A. Yeah and, actually, to be even more specific,
17 the early site permit was created—that concept was
18 created with Part 52. So, anything—the nomenclature,
19 ESP, goes with the Part 52 process.

20 Q. Okay. Would you take a look at Exhibit 41,
21 please? Tell the Court what that is.

22 A. Well, the title is the Early Site Permit
23 Application Work Scope Summary Top Level P6, which is
24 an acronym for Primavera 6, which is a project
25 management software code. This is a condensed list of

1 the activities associated with preparing the early site
2 permit application.

3 Q. All right and you and I have, in preparation
4 for this case, do you recall me asking you to prepare a
5 detailed, sort of, task list?

6 A. Yes, I do.

7 Q. And what did you produce for me?

8 A. Well, I sent you, via e-mail, a document that
9 I believe was 12 or 14 pages long.

10 Q. Try 26.

11 A. Oh, sorry, okay. Maybe it was back-to-back
12 when I was thinking of it, but the essence is that this
13 one page represents approximately 1,200 plus task
14 activities and the essence, there, is that the
15 activities associated with applying for an early site
16 permit are quite detailed.

17 Q. Yes and, so, this is fair to say this is an
18 extremely abbreviated-

19 A. Correct.

20 Q. -I wouldn't even use the phrase punch list.
21 It's not that, but an abbreviated task list of
22 everything to be done in an ESP.

23 A. Correct.

24 Q. Just for the application?

25 A. Just for the application.

1 Q. Now, you testified, and so did Aaron Tilton,
2 that we're fifty percent, approximately, through the
3 application process. It's been a data gathering. Mr.
4 Evans will talk about the kind of data and what that
5 means, but in terms of progress, take a look at Exhibit
6 42 and explain to the Court what we have tried to show
7 in that bar graph.

8 A. It is a bar graph and, in essence, it's also a
9 summary of the work on the early site permit and it's a
10 stack bar graph, as we call them, and the lower part
11 or, in this case, if you've got a color chart, it's
12 blue, indicates the portion of those individual
13 compilations of work activities that represent the
14 completed part of the work and the essence is that,
15 under these individual two, four, six, eight, ten,
16 eleven categories which, again, is the consolidation of
17 those 1,200 plus activities, you can consolidate that
18 and it works out to be over fifty percent of the total
19 scope.

20 Q. Okay and, so, each of these categories along
21 the X axis, along the bottom, project management site
22 work, etc.—

23 A. Uh-huh [affirmative]?

24 Q. —those are categories—

25 A. Correct.

1 Q. -I take it, of work to be done-

2 A. Or that has been done.

3 Q. -and within each category is a whole list of
4 tasks?

5 A. Absolutely.

6 Q. All right and, so, the blue coloring, at that
7 point, demonstrates what's been done?

8 A. Right, in terms of dollars spent, excuse me.

9 Q. Yes. Yes. That was my next question is,
10 we've spent money.

11 A. Correct.

12 Q. Approximately how much would you-has Blue
13 Castle spent towards the-

14 A. Yeah. This is-and Aaron mentioned earlier,
15 it's just about ten million. Virtually all of this is
16 under the Intercon contract; although there are a
17 couple of other contracts that fit under this
18 application process that are significant, but we're
19 talking nine plus million in the Intercon category.

20 Q. All right. Who is or what is McCallum Turner?

21 A. McCallum Turner is an organization that we
22 engaged very early in the process. In fact, right
23 after we initially identified the Green River site area
24 as our primary focus, after going through this matrix
25 evaluation process, we engaged McCallum Turner to do

1 what we call our fatal flaw analysis or early site
2 evaluation process and they have experienced—in fact,
3 they are perhaps—in fact, probably are the most
4 experienced enterprise to be engaged in doing that sort
5 of work where they have been brought in, at least at
6 the time, they had done more than fifty percent of all
7 the U.S. based site reviews on an early review process.
8 In other words, prior to making the application for an
9 early site permit, they assisted other utilities and
10 other entities, such as we, in evaluating the potential
11 for a site to be capable of being approved by the NRC.

12 Q. And, when you say fatal flaw analysis, I think
13 what you mean to say is, look. Go look at the site and
14 tell us if there's anything clear that says we'll never
15 get to build a nuclear power plant there, a fault, for
16 example.

17 A. Absolutely and perhaps I should also say—and I
18 know that the report that they wrote has been part of
19 the discovery process. So, we can discuss it and it,
20 certainly, does indicate—and we were happy to get the
21 report and the conclusions drawn from that report. It
22 gave us the justification for continuing our
23 investment.

24 Q. Turn to Exhibit 45.

25 A. That's it.

1 Q. Is that the report that you're describing.

2 A. That's it, yes.

3 Q. And, after the—let's see, first, second, third
4 paragraph begins with for the listed issues.

5 A. Yes.

6 Q. For the listed issues and based on the
7 available data and level of analysis documented in the
8 report, the site appears to be suitable for commercial
9 nuclear power plants with site-related characteristics
10 similar to those for which vendors have obtained or are
11 obtaining design certifications from NRC.

12 A. Correct.

13 Q. None of the issues evaluated in this study
14 indicated that there are fatal flaws that would
15 preclude development of such plans. So, I take it—and,
16 when you get this kind of report, you say, all right.
17 Now, we can take the next step.

18 A. Correct.

19 Q. Now, turn back—it's out of order a little bit.
20 Turn back to Exhibit 44. What is that?

21 A. Yeah. This is the report that, again, Aaron
22 Tilton mentioned. This is one of the reports that was
23 required, I believe, by CITLA, by the State of Utah,
24 prior to reaching our agreement to acquire the land or
25 to put it under escrow and, so, this is the cultural

1 and paleontological resource inventory report that was
2 conducted under our funding, on our behalf, by the
3 William E. Davis Abajo Archaeology in Bluff, Utah.

4 Q. And the purpose, here, is to determine whether
5 there are archaeological treasures—

6 A. Correct.

7 Q. -important historical sites, things that you
8 wouldn't want to dig a hole up and destroy.

9 A. Correct.

10 Q. And what was found, if anything?

11 A. Well, I am not an expert in this area, but I
12 was somewhat surprised when I did get a phone call, I
13 believe, indicating that there was one finding and, as
14 it turned out, the finding was, in somewhat simple
15 terms, it was a 1940's area garbage dump.

16 Q. Is that right?

17 A. Yeah, on the site.

18 Q. What is a SSHAC analysis?

19 A. Senior Seismic Hazard Analysis Committee. It
20 is one of the very significant aspects of the pre-
21 application—or, actually, the application process and
22 no one would be surprised the seismicity issue
23 associated with nuclear power or any major construction
24 project is significant. The Senior Seismic Hazard
25 Analysis Committee process is a very involved process,

1 in our case, involving on the order of 50 people that
2 are engaged in very different activities. There,
3 effectively, is a jury of very senior experts that
4 review the work done by different groups within the
5 structure of the process.

6 There are two groups. It's, generally, divided
7 into two activities: one associated with developing
8 what we call the design basis earthquake, effectively
9 determining what the largest earthquake is and that may
10 not be an 8.0 earthquake. It could be a 4.0 earthquake
11 that's very close to the site as opposed to an 8.0
12 earthquake 200 miles from the site, and there's another
13 organization that works on developing a model to—it's
14 called the attenuation model, which is the way the site
15 accepts the energy that comes from that design basis
16 earthquake. Very involved process and we're about
17 fifty percent through it.

18 Q. That's part of the early site permit
19 application analysis?

20 A. Correct. Correct.

21 Q. About how many people—and I realize that
22 construction is a phased thing—

23 A. Yes.

24 Q. -but, overall, about how many people does it
25 take to build a nuclear power plant, of the kind that

1 Blue Castle has considered?

2 A. Generally, and our plan would be to follow
3 this process. Generally, plants are built in multiple
4 units at a single site, especially in the case of what
5 we call a green field site, a site where there is no
6 currently existing nuclear plant. So, we would and
7 have modeled the concept of multiple units being built
8 in a one to two-year phase, but what that means in
9 terms of people is ramping-up to a peak somewhere about
10 4,000 people when both plants are under construction in
11 parallel but, generally, on average, 2,500 people
12 during the course of, maybe, a seven year period for
13 the two units.

14 Q. And once a plant—once the governor comes down
15 and cuts the ribbon and they have a little ceremony,
16 how many people does it take to run a nuclear facility?

17 A. Well, depending on the technology we select,
18 which could range from 2,200 to 3,000 megawatts, the
19 technologies that are represented by that range would,
20 in general, yield employee, permanent employee numbers
21 somewhere between 800 and 1,000 people.

22 Q. Okay and the project would be, like any other
23 private development, subject to property taxes?

24 A. Absolutely.

25 Q. And income taxes?

1 A. Absolutely.

2 Q. You heard Mr. Tilton describe, sort of in
3 broad terms, how Blue Castle is going about developing
4 its business model to minimize risk, to de-risk, as he
5 said, the project which, of course, the less risk, the
6 more chance of getting investment interest and equity
7 participation. Are you familiar—well, first of all, I
8 assume you agree with that characterization?

9 A. Absolutely.

10 Q. And are you aware of any other projects
11 developing nuclear power that have been developed along
12 this similar plan?

13 A. Well, in a more formal way, and Aaron also
14 mentioned Horizon Nuclear and, perhaps, that's a little
15 bit of chest pounding, but we had interacted with at
16 least one of the two entities that created Horizon
17 Nuclear in the U.K. and, ultimately, as Aaron
18 mentioned, sold their interest after collecting and
19 developing all the infrastructure necessary to build a
20 project—actually, at two sites and they, literally,
21 followed, or we could say we are following, the same,
22 depending on the timing of the process. We actually
23 told them about our process many years ago.
24 Fortunately, or unfortunately for us, they moved theirs
25 along a little bit faster than we have.

1 Q. Uh-huh [affirmative]. Okay and what happened
2 with the Horizon Nuclear Power Project?

3 A. It is ongoing, but the developers of that
4 project, EON and REW, which are two very significant,
5 large nuclear utilities, more than nuclear utilities,
6 in Germany. They sold their interest in Horizon
7 Nuclear to Hitachi, a company based in Japan.

8 Q. Okay. Do you know how many nuclear facilities
9 are under construction globally, world-wide, right now?

10 A. Yes. At least the last time I checked, it was
11 71 plants and what that literally means is that these
12 are plants where they are actually pouring concrete,
13 building; that, by some definitions, you—in fact, if
14 you looked at some of the sites, even in our country,
15 where they're moving dirt but, technically, under the
16 way that we define construction, it doesn't—we don't
17 call it construction until we start pouring what we
18 call a safety grade concrete. So, the point is--

19 Q. So, there are 71 that qualify under that?

20 A. Correct.

21 Q. Okay.

22 A. Globally.

23 Q. And what is the total generated capacity of
24 this new nuclear development?

25 A. Of the 71?

1 Q. Of the 71.

2 A. Now, you're testing me. Probably, the average
3 is one gigawatt or a thousand megawatts per unit. So,
4 71-

5 Q. Around seventy or seventy-one thousand?

6 A. Right.

7 Q. All right. When was Blue Castle's last
8 contact with the Nuclear Regulatory Commission?

9 A. Last week and, in fact, we had two phone calls
10 last week concerning the project.

11 Q. And you don't have to give a lot of detail,
12 but just describe the general nature of the contact
13 with the NRC. What are they asking us? What do they
14 want from us? What are we giving them?

15 A. Like any project, it's important to keep
16 connected with the stake holders. Obviously, the
17 nuclear regulatory commission is one of the most
18 significant stake holders in our project, especially at
19 this stage, and they, appropriately, are wanting to not
20 only keep up with our progress and keep track of what
21 our schedule is, because they are, internally, just
22 like many other organizations, planning their own use
23 of resources and trying to be prepared for the day when
24 we make our application.

25 Further, we have—the ongoing work we've done,

1 we've been, I'll say, fortunate enough to be able to
2 use some of their resources, and I should say, when I
3 say use, we pay for those resources. I believe it's
4 \$267.00 an hour for those resources, but they have
5 conducted significant what we call pre-application
6 oversight on our project. They've made three visits to
7 our site and they've participated as observers in what
8 we call two of the SSHAC meetings. We call them
9 workshops and they've been in attendance as observers
10 at two of those meetings.

11 Q. And has the NRC expressed, on one way or
12 another, how it views the Blue Castle project to date?

13 A. Well, formally—I mean, it's inappropriate for
14 them to make, let's say, formal comments. They have
15 written one report, post-visit, during their oversight
16 of our core boring activity at the site and this is the
17 process where you drill bores of material up to 600
18 feet, in our case. We've got about a mile and a half
19 of samples that were taken subsurface around the
20 footprint of the proposed reactors, and they witnessed
21 the process of doing that and, primarily, in very
22 simple terms, we all want to make sure that we're
23 following the process that they expect us to follow and
24 that we're doing it under the Q/A process that they
25 would consider qualified and they review that process

1 in an appropriate way; meaning we're so early in the
2 process, we would want to know, very early, if they saw
3 some indication that we weren't meeting their criteria
4 such that we wouldn't have to go back, well into the
5 process, with a very costly endeavor of re-doing
6 something.

7 Q. Okay and what has the NRC done in preparation
8 for the forthcoming Blue Castle ESP application?

9 A. Well, they've got a team. We have two project
10 managers. In fact, one of those phone calls last week
11 was with the project manager on the safety side.
12 There's one project manager called the safety—that
13 represents the safety side of the NRC house and there's
14 another project manager that represents the
15 environmental review side of the house. Both those
16 entities within the NRC monitor the project and they
17 want to keep on top of not only what our progress is,
18 they do see some of the inputs that are collected, like
19 the workshops on the SSHAC side for the seismic work,
20 and they are, I'll say not constantly, but
21 appropriately, frequently, probably on a quarterly
22 basis, checking with us to see if there's anything new
23 with regard to schedule, events like this, for example,
24 and it was a topic of the conversation last week.

25 Q. You mean the application for the water?

1 A. Correct. Correct.

2 Q. Yeah. Okay. Now, recognizing that it's still
3 early in the process, with the ESP application still to
4 come, but fifty percent, there, towards completion, do
5 you have an opinion as to the physical feasibility of
6 the site so far?

7 A. Well, all that we've seen, to date, indicates
8 that we have justification for continuing our
9 investment and for the—it reinforces our determination
10 that we've made the correct choice to make the
11 investment to get to the next stage in that evaluation
12 process.

13 Q. So, you've spent a lot of money, so far, and
14 you're encouraged enough to keep spending.

15 A. Correct. Correct.

16 MR. WRIGHT: Nothing further, Your Honor.

17 THE COURT: Thank you, Mr. Wright.

18 MS. SWENSEN: It's me.

19 THE COURT: Yeah, Ms. Swensen?

20 MS. SWENSEN: Thank you.

21 CROSS-EXAMINATION

22 BY MS. SWENSEN:

23 Q. Hi.

24 A. Hi.

25 Q. So, we heard from you and from Mr. Tilton,

1 previously, a lot about de-risking, which is a new term
2 to me today, but so that we're clear. We're not really
3 talking about decreasing or even altering the
4 probability of the nuclear plant being completed.
5 You're just shifting who bears the financial risk of
6 it. Isn't that accurate?

7 A. Well, I would characterize it differently. I
8 would say we're de-risking the entire project to
9 everyone involved in the project. We, as Blue Castle,
10 effectively, and Aaron outlined it, I think, just
11 correct, we have formed an organization that is—and,
12 maybe, I'll expand a little bit on what he said. We
13 formed an organization that has the expertise that
14 isn't in many of the utilities that might be
15 interested, and will be interested, in, ultimately,
16 being an owner in this asset. So, we have the
17 capability to move the ball down the field more
18 efficiently and in a way that reduces that risk at a
19 lower cost, we believe, ultimately, to the people who
20 will, ultimately, own and operate the plant.

21 Q. Okay. Let's take that bit-by-bit.

22 A. Okay.

23 Q. First, do you believe that Blue Castle has
24 more expertise in the nuclear permitting and oper—well,
25 let me back up. Mr. Tilton testified, earlier, that

1 Blue Castle, certainly, isn't professing to have the
2 expertise in being nuclear plant operators.

3 A. Correct.

4 Q. Correct.

5 A. Agree.

6 Q. The expertise that you refer to is in going
7 through the nuclear permitting and regulatory process?
8 Is that accurate?

9 A. Part of it, yes, including not just that, but
10 the--

11 Q. So, what is Blue Castle's collective expertise
12 in getting a nuclear plant regulated, approved,
13 constructed?

14 A. Well, I suggest—I will answer that question,
15 but I think you should also ask that question of Dr.
16 Diaz, the former Chairman of the Nuclear Regulatory
17 Commission, who is one of the five principals.

18 Q. Are you saying that he is your expertise in
19 this area?

20 A. I think he's part of the expertise.

21 Q. What additional expertise do you have?

22 A. Well, the expertise that we have--in terms of
23 getting the license, specifically?

24 Q. Uh-huh [affirmative].

25 A. Getting a license?

1 Q. That's what I understand you to be saying is
2 part of the unique expertise that Blue Castle would
3 bring that would help de-risk the entire process.

4 A. Okay. Let me back up, if you'll allow me.

5 Q. Please.

6 A. Because we are located in a region of the
7 country where there are relatively few nuclear plants
8 and, specifically, in Utah, as you likely know, there
9 are none.

10 Q. I have noticed that.

11 A. And the utilities in Utah, therefore, have no
12 experience with nuclear licensing.

13 Q. Oh. So, it's just Utah-based utilities, then,
14 that you would be looking to market to? Because,
15 certainly, PacifiCorp has some experience with nuclear
16 entities, correct?

17 A. Their mother company, you mean, of Mid-
18 American? Yes, they do.

19 Q. So, I'm just trying to get at, when you say
20 that you have expertise above and beyond the utilities
21 who you are going to be helping to de-risk the process
22 for them-

23 A. Uh-huh [affirmative].

24 Q. -are we just talking about Deseret Power and
25 UAMPS?

1 A. I'm referring to the utilities in this region,
2 generally in this region: Rocky Mountain Power, in its
3 entity as Rocky Mountain Power, does not have the
4 experience that I believe we can bring to the table
5 that this entity has.

6 Q. Does Rocky Mountain Power not have access to
7 the expertise of their parent companies?

8 A. They do, but they also don't have, in my view,
9 the regional and local expertise that's represented by
10 our company. It's more than just licensing.

11 Q. So, taking it, then, as far as regional and
12 local expertise, you point out, astutely, that there
13 are no nuclear plants operating, currently, in Utah,
14 right?

15 A. Yes.

16 Q. With the closest nuclear plant, and I hope I'm
17 right here, be the Palo Verde Nuclear Plant?

18 A. Correct. Uh-huh [affirmative].

19 Q. So, does anyone on Blue Castle's team have
20 direct experience with the permitting process that Palo
21 Verde went through?

22 A. Not—didn't work for Palo Verde, no, not that
23 I'm aware of, anyway, although you, probably, should
24 ask Dr. Diaz that question because he may have been
25 sitting over the review of their application when it

1 came through.

2 Q. And I think the other part of your de-risking
3 analysis, besides the expertise that Blue Castle
4 uniquely bears, is the financial aspects, being able to
5 do it more efficiently. Am I re-stating that
6 accurately?

7 A. I believe so, yes.

8 Q. And explain to me why Blue Castle would be
9 more efficient than the others, even though, in your
10 words, they're doing, pretty much, the same process
11 that every entity follows when they go through the ESP
12 process.

13 A. In simple terms, most utilities—in fact,
14 virtually all utilities are not set up. Their
15 infrastructure isn't put in place as a development
16 infrastructure. They're oriented towards the
17 operation, the efficient operation of power plants.

18 Q. They're more cautious financially?

19 A. Not just that. The way they hire people. The
20 orientation towards their management is to operate
21 plants efficiently. It's not to develop new plants,
22 build new plants, generally. In fact, it's very common
23 that they engage outside entities to assist them in
24 developing, if they're going to do it in-house, on
25 their own, to develop a new plant and they bring in

1 expertise. We represent some of that type of expertise
2 in the early phases of the development of a new power
3 plant.

4 Q. So, out of the domestic, let's say just in the
5 United States, early site permit applications that have
6 been granted, how many of them have been—what
7 percentage of them have been to utilities?

8 A. I believe all of them.

9 Q. Even though they don't have, really, the
10 structure or the expertise set up to do that?

11 A. Yeah, absolute—well, it's not normal that they
12 do that on a day-to-day basis, unless they are major
13 nuclear utilities and, in the case of the, I think, two
14 of the three, maybe all three of them, the utilities
15 that got them are major nuclear utilities.

16 Q. And when you say they are major nuclear
17 utilities, what you are referring to is they already
18 had existing nuclear stations?

19 A. Yes, but at least in one case, one of those
20 ESP's, for example, was an ESP developed by a
21 consortium of all those utilities that came together
22 to, effectively, be the first one to go through that
23 early site permitting process.

24 Q. But it was still all utilities.

25 A. Correct. Correct.

1 Q. Okay and you mentioned that—this is in line
2 with what we've been discussing—that there are others
3 ahead of you in the part 52, or can we just call it the
4 ESP process?

5 A. Yes.

6 Q. If there's a difference there, I should be—

7 A. No. You're correct.

8 Q. Okay. Who is it? What entities are you aware
9 of that are—

10 A. I believe there are—I mean, ahead of us in—

11 Q. Well, let's go—I should have broken that in
12 two parts. Let's say the ones that have already been
13 awarded.

14 A. Yeah. I can't remember all the names, but
15 Entergy is obtaining one. Exelon is obtaining one and,
16 I think—I can't remember the other two.

17 Q. Uh-huh [affirmative]. Do you remember the
18 locations of Entergy's location?

19 A. One is in Louisiana, the Grand Gulf plant, and
20 the other is Clinton in Illinois and Bob Evans will
21 shun me, now, for not remembering, but—

22 Q. Mr. Evans can give us more details on those?

23 A. Correct.

24 Q. Those were the ones that have already been
25 granted. What about those that are in the process?

1 Are you aware of others?

2 A. I believe, and I'm sorry, I don't have the
3 names in front of me. I know that Florida Power and
4 Light is working not on an ESP-well, actually, they are
5 working on an ESP, as well as a COL. There are, I
6 believe, a total of 14 ongoing applications, active
7 applications, at the NRC and I think Dr. Diaz will be
8 the best person to ask that question.

9 Q. I will, certainly, follow-up with him. Does
10 it refresh your recollection, out of the ones that have
11 been approved, are you aware, also, of the Vogel plant?

12 A. Vogel, yes.

13 Q. That's one of the ones that's been approved
14 for an ESP?

15 A. Yes. Uh-huh [affirmative].

16 Q. And North Anna?

17 A. Uh-huh [affirmative].

18 Q. Is that also-

19 A. Yes.

20 Q. Are you aware of any others, beyond those,
21 that have received an ESP?

22 A. An ESP?

23 Q. The path that you are going.

24 A. As I said, I believe Clinton, which is the
25 plant-

1 Q. I mean, including the, pardon me, the
2 Louisiana and the Clinton, Illinois one. So, a total
3 of four ESP's?

4 A. Correct.

5 Q. Are you aware of any additional?

6 A. No. I don't believe there are anymore that
7 have been awarded to date.

8 Q. Correct and you believe that there may be up
9 to 14 that are active, but the specifics on that—

10 A. These are 14 active applications.

11 Q. In the process.

12 A. There are some applications—I'm sorry.

13 Perhaps I should have said this earlier. Some
14 utilities have chosen to, effectively, go right to a
15 COL process. It's not required by the NRC to apply for
16 an early site permit and, then a COL. You can, as some
17 are doing, go right to a COL. These are entities,
18 generally, that have already selected a technology.
19 For example, we can obtain an ESP without selecting the
20 technology.

21 Q. And that's Blue Castle's plan, right?

22 A. Is our plan, correct.

23 Q. Okay. So, you testified that Blue Castle is
24 following essentially the same process that other
25 entities have followed with respect to the ESP—

1 A. Yes.

2 Q. -and setting aside those that might be state
3 sponsored entities in China or other places.

4 A. Yes.

5 Q. So, then, but you would disagree that the
6 costs of the other entities would be, in licensing,
7 would be comparable to what Blue Castle can expect?

8 A. I'm not sure I understand. Could you please
9 re-phrase it?

10 Q. Would you agree-

11 A. Yes?

12 Q. -that, since you're going through the same
13 process as these other entities, that the costs that
14 the other entities have incurred in the licensing
15 process, just licensing, setting aside construction,
16 everything else-

17 A. Yes.

18 Q. -should be comparable to what Blue Castle can
19 expect?

20 A. It's our objective, and it's part of the
21 business model of this enterprise, to do that whole
22 process more efficiently than others.

23 Q. Have you done a cost comparison of what it
24 cost others to-

25 A. We have not because we haven't completed the

1 process. It's difficult to draw major conclusions, but
2 I do feel confident, based upon what I do know, some of
3 which is proprietary information, but I do feel very
4 comfortable with the efficiency of our expenditures, to
5 date, and the corresponding progress we've made, to
6 this point, on the ESP application.

7 Q. So, I think the number of approximately—let's
8 see, a hundred million has been thrown around for the
9 licensing costs ballpark?

10 A. Yes.

11 Q. Is that what you're aiming for?

12 A. Absolutely and I would not—I would like to re-
13 phrase the thrown around comment because—

14 Q. I was just trying to give you wiggle room.

15 A. I hope you could imagine, and it's a fact. A
16 great deal of effort has gone into, and Aaron mentioned
17 this. We spent a significant amount of time talking
18 with contacts within the industry and those who are
19 involved. Both the NRC provide us some information.
20 You may or may not know that a significant part of that
21 hundred million dollars, in budget terms, is assigned
22 to pay for the NRC's review of our application, a very
23 significant part.

24 So, obviously, we consulted with them on their
25 anticipated projections of costs for our application

1 and, when you talk with Bob Evans, you might garner
2 some of his knowledge base because he was very helpful,
3 given the fact that Intercon had prepared other ESP
4 applications for other applicants. So, we have the
5 benefit of their, let's say non-proprietary information
6 that we could use in planning our budget.

7 Q. Are you aware of Florida Power and Light's
8 cost to license Turkey Point?

9 A. I am, to some extent, but I think, if you want
10 to go into details on that, I suggest you ask Dr. Diaz
11 because he is much more familiar with that than I am.

12 Q. I think I'm more—we can, certainly, go into
13 the details with Mr. Diaz, or Dr. Diaz, but I'm more
14 interested in from the standpoint—from your perspective
15 that Blue Castle is not breaking new ground here.
16 We're just going to do the same things better, more
17 efficiently, then, if you learned, or if you are aware,
18 that Florida Power and Light expended three hundred
19 million--

20 A. Uh-huh [affirmative].

21 Q. --on their licensing?

22 A. Uh-huh [affirmative].

23 Q. Does that change your opinion?

24 A. Not at all.

25 Q. Explain to me why you believe that Blue Castle

1 can do the same process, walking in the same steps, for
2 a third of the cost?

3 A. Well, the steps are not the same steps. They
4 are the same process, but there's a huge difference and
5 the topic of this hearing, this trial, is an excellent
6 example. I don't have the numbers in front of me and,
7 perhaps, some of them are proprietary, but I know that,
8 in terms of the cost of their water, just the cost of
9 their water, and getting the approval for that water,
10 because of some very unique aspects to their
11 application, that's a very significant and, I believe,
12 much more significant part of their budget than our
13 proposed cost for water--

14 Q. Really?

15 A. --and the process of getting the approval.

16 Q. Just so I'm clear, to the extent that you
17 know, are you talking about the cost of water in their
18 purchase price, or--

19 A. No. No. No. No. The process under which
20 they have had to go through, and I believe are still
21 going through, to get all the, let's say the permits,
22 apart from the federal NRC permits, all the work that's
23 necessary to get their approvals in order for use of
24 water at that site.

25 Q. So, they've had to go through a lot more

1 strenuous review in order to get their water use
2 approved?

3 A. I believe—and, again, I will acquiesce to Dr.
4 Diaz' comments in that regard, partly, because I
5 believe he can publicly say that he has worked as a
6 consultant to that organization.

7 Q. Okay and related question. We talked about
8 that all of the awarded ESP's have gone to major
9 utilities or a consortium of utilities—

10 A. Correct.

11 Q. -correct? You wouldn't maintain that they
12 have comparable financial profiles, in terms of the
13 assets that they hold, to Blue Castle, would you?

14 A. Absolutely not.

15 Q. Their orders of magnitude more significant,
16 correct?

17 A. Uh-huh [affirmative]. Correct.

18 Q. Okay. In terms of de-risking—going back
19 again. You heard Mr. Tilton testify, this morning,
20 that it's not unusual, in fact, it's part of the Blue
21 Castle business model, that there aren't investors, so
22 to speak, signed on at this point, correct?

23 A. Well, there are investors.

24 Q. Other than the founding partners of Blue
25 Castle?

1 A. There's approximately, as Aaron said, I
2 believe he said there were 26 currently.

3 Q. There are 26 shareholders of Blue Castle?

4 A. Uh-huh [affirmative].

5 Q. Are any of them utilities?

6 A. No.

7 Q. Have any of the—and I think Mr. Tilton also
8 testified, that the vast majority of the capital
9 contribution, had come from the Willow Creek entity--

10 A. Correct.

11 Q. -that has been acquired by Blue Castle,
12 correct?

13 A. Uh-huh [affirmative].

14 Q. So, in terms of the funding that Blue Castle
15 expects to bring to bear for the permitting process,
16 setting aside, again, the substantial amount of
17 construction and other funds—

18 A. Uh-huh [affirmative].

19 Q. -but just the permitting process, when would
20 you expect—or, let me re-phrase. Do you expect to sign
21 any major utilities as investors during the permitting
22 process, or would that only occur once you have an ESP?

23 A. As Aaron identified, that could happen. It's
24 not a requirement to happen to reach our ESP objective.
25 As he also indicated, there's a possibility that

1 strategic partners would become part of the project and
2 that's not an atypical situation either.

3 Q. So, essentially, if someone wanted to give you
4 money and buy in, without burdensome strings attached,
5 that would be part of the business model—

6 A. Uh-huh [affirmative].

7 Q. —to allow them in, even at this point, like
8 tomorrow? Is that accurate?

9 A. That could happen, yes.

10 Q. But you are not counting on—and correct me if
11 I'm wrong. You are not counting on any investments
12 from any entities prior to the ESP? You believe that
13 Blue—

14 A. You don't have to—no. We can modulate our
15 level of investment. The schedule, we have objectives,
16 but if the economy causes an upset in one way or
17 another, we can modify our schedule.

18 Q. Well, and I understand when you talk about
19 modulating the risks or taking the option-based
20 approach. You're, generally, talking about a choosing
21 certain points in the time frame of a nuclear plant's
22 development that you could pull back and say we're not
23 going to invest further money at this time because it
24 appears too risky, uneconomic or for whatever reason,
25 correct?

1 A. Uh-huh [affirmative].

2 Q. So, but are you saying that there's further
3 modulation before you get to the ESP point, at which
4 point you might pull back?

5 A. No. We have the option, just like any entity
6 has, to decide, today, to change a plan tomorrow that
7 has to do with the amount of money we're going to spend
8 in one activity within the project or another. For
9 example, a question was asked about the SSHAC process.
10 Every one of these activities leads to, not reports,
11 but during the context of the activity, there are
12 learnings. I use the analogy of the jury within the
13 SSHAC process.

14 One of the outputs from workshop number 2 was a
15 significant request and, by that, I mean a request made
16 by one member of the jury saying it would be really
17 valuable for us, on the jury, to have more seismic data
18 that's very specific to the site and they a made a
19 recommendation that we invest in a seismic monitoring
20 station at the site. Well, that is, as it turns out, a
21 very significant investment, plus hundreds of thousands
22 of dollars, and that decision, in the course of
23 planning, was a change to the planning process for that
24 work. It also caused a slight change in schedule and,
25 as we speak, there are people, I believe this week or

1 next week, who will be installing that seismographic
2 instrumentation at the site. That's an example of how
3 things can change during the course of this process.

4 Q. Sure. Things can change. Let me be blunt.
5 If you don't get any investors signed on, for whatever
6 reason, the economy is bad, they decided to hold off,
7 they just want to wait and see how things roll out, you
8 don't get any investors through the entire ESP process,
9 is it Blue Castle's position that they have sufficient
10 assets to do the entire hundred million cost?

11 A. Yes. Yeah. We will work—use all the assets
12 we have and we expect to obtain, through our subsidiary
13 activities and our continued efforts to reach
14 agreements with strategic partners and, potentially,
15 with utility or other partners to not only complete the
16 ESP, but the COL and, if we can justify, based upon the
17 analysis, when we reach those milestones, even further
18 beyond that point.

19 Q. Okay, but, now, your answer is bringing in
20 and, then, we'll do strategic alliances and we might
21 have those—

22 A. Uh-huh [affirmative].

23 Q. That's talking about additional money coming
24 in the door, correct?

25 A. Uh-huh [affirmative]. Well, additional

1 capital will be required to go beyond the scope of each
2 one of these activities, of course.

3 Q. So, when you say that, yes, Blue Castle could
4 go through the entire hundred million cost, assuming
5 that that's an accurate ESP projection, just on their
6 assets and those that they've acquired, and I'm
7 including the Willow Creek stream of revenue that Mr.
8 Tilton described, that you can make up a hundred
9 million just using those assets?

10 A. If—the answer was given, earlier, I believe—we
11 don't have that hundred million or the—

12 Q. Not today.

13 A. -in the bank, but our anticipation is that we
14 have an infrastructure in place to meet the
15 requirements, the capital requirements needed to
16 compensate or pay all our bills to get an ESP, yes.

17 Q. The infrastructure in place?

18 A. Uh-huh [affirmative].

19 Q. What is that?

20 A. The infrastructure in place within this
21 company—

22 Q. What is the infrastructure that would get you
23 up to a hundred million dollars.

24 A. Well, it could be just the Willow Creek entity
25 as our subsidiary. It could be that it requires more

1 than the Willow Creek subsidiary.

2 Q. So, I think Mr. Tilton testified that Willow
3 Creek had seven to eight million per year in gross.
4 Does that sound right? Net?

5 A. Uh-huh [affirmative].

6 Q. No, excuse me, seven to eight million that
7 Willow Creek had contributed on top of 12.5 million net
8 annually, roughly.

9 A. Yes.

10 Q. Okay and, so, if you take that rate of
11 contribution, eight million a year, over—I think he
12 testified there were an additional five years, that
13 doesn't seem to make up the difference. That's forty
14 million, right?

15 A. I'll re-state what I said before. If you
16 modulate—if the rate at which we receive capital from
17 that subsidiary, and that's the only capital we receive
18 is that amount, then, we would, likely, be modulating
19 the rate at which capital is spent and we would extend
20 the time to complete the ESP.

21 Q. Okay, that's what I—when you say modulating,
22 you mean you would delay the time that it took by
23 putting off certain studies—

24 A. Correct.

25 Q. -in order to raise additional capital and, at

1 some point down the road, resume the ESP?

2 A. It could also be that-

3 Q. Okay.

4 A. -that dollars or capital comes in at a faster
5 rate than seven or eight million dollars a year and
6 we're able to not only stay on the schedule we
7 currently have but, maybe, improving.

8 Q. You testified that-when looking at the scope
9 of progress, there were a couple of exhibits attempting
10 to represent that and I understand that's difficult to
11 graphically convey, but I think you said you were
12 approximately fifty percent of the way in terms of
13 revenue towards the ESP application. Is that accurate?

14 A. Not revenue. We've completed the work--

15 Q. For fifty percent of-

16 A. -for fifty percent of the application process,
17 yes.

18 Q. Approximately, in your experience, how much of
19 the cost of a nuclear plant is incurred after the ESP?

20 A. Oh, major.

21 Q. Seventy-five percent?

22 A. If we look at-

23 Q. Eighty percent?

24 A. When you talk-you say the plant? So, a
25 hundred million versus sixteen to eighteen million.

1 So, we're comparing a hundred million for the ESP to 16
2 to 18 million for a completed plant? Is that what you
3 mean?

4 Q. Sixteen to eighteen million?

5 A. Billion. Sorry.

6 Q. Thank you. That's the cheapest plant I've
7 heard of.

8 A. Right. Right. Sorry. Yeah.

9 Q. That's the suitcase plant.

10 A. Yes.

11 Q. Sixteen to eighteen billion, yes.

12 A. Correct. Is that what you meant?

13 Q. Yes, that is what I meant.

14 A. I'm sorry. I didn't know whether you meant
15 the COL or the entire completed plan. Sorry.

16 Q. Just looking at the entire—yes, assuming that
17 we've got the ESP.

18 A. Yes. Uh-huh [affirmative].

19 Q. That's a milestone, but to the day that we
20 start running water through the plant and operation
21 begins, that's on the order of 16 to 18 billion,
22 correct?

23 A. Billion. Sorry, I misspoke, yes.

24 Q. That's all right. Let's look at—do you have,
25 still, Exhibit 59 with you? It's the Cash

1 Disbursements by Account is the title at the top of the
2 page. Mr. Tilton testified regarding this exhibit
3 today and I think it contains—

4 A. Uh-huh [affirmative].

5 Q. You indicated that he knew about the line
6 items, essentially, that have been incurred in the
7 seventeen and a half million incurred as of the date
8 of, I believe, August 20th, but is this consistent with
9 your understanding of the expenses?

10 A. Yes. Yes.

11 Q. So, the total development stage expenses are
12 listed here as, approximately, fourteen million,
13 correct?

14 A. Yes.

15 Q. And the total expense is 17.5, correct?

16 A. Yes.

17 Q. And there's a difference, there, of, roughly,
18 3.5 identified as payroll expenses.

19 A. Correct.

20 Q. Who is on the payroll?

21 A. That includes all the principals that were
22 introduced earlier—

23 Q. The five founders?

24 A. Five founders and, then, anyone that we have
25 hired to do internal work, like our CFO, others who are

1 contract employees that have worked to support the
2 project.

3 Q. How many contract employees do you have?

4 A. I can't remember the exact number, but I can
5 get that for you. I don't remember.

6 Q. But, essentially, three and a half million
7 going to Blue Castle to pay those expenses.

8 A. Uh-huh [affirmative].

9 Q. Do you see, on there, between—there's the line
10 item that says total development stage expenses of
11 fourteen million and, if you go up to the other bold
12 line, it says total professional fees, 11.15—well, 11.2
13 million, correct?

14 A. Uh-huh [affirmative].

15 Q. Then, the line below it identifies taxes and
16 licenses of, roughly, half a million, correct?

17 A. Uh-huh [affirmative].

18 Q. What is making up the difference there
19 between, roughly, 11.6, 11.7 and 14 million dollars?

20 A. You mean the payroll? I'm sorry.

21 Q. No. No. No. No. I'm sorry. If you walk
22 down from the top—

23 A. Yes.

24 Q. Payroll is added in below.

25 A. Yeah.

1 Q. To the 14, you've got total professional fees
2 11.158 million.

3 A. Yes.

4 Q. Next line, 596,000, correct?

5 A. Yeah, taxes and license.

6 Q. Taxes and licenses.

7 A. Correct.

8 Q. If you add that to 11.158, you don't get 14,
9 correct? My math is not very good. I'm a lawyer, but
10 do you have any idea what additional three million
11 dollars are being expended on?

12 A. No, actually, I don't see that. I'm not
13 adding all these numbers in my head but, perhaps, we
14 should check-

15 THE COURT: I don't think they total the top
16 column. If you look at ten and nine twenty-one for
17 engineering, legal and accounting, that's 11.158.

18 MS. SWENSEN: That is 11.158.

19 THE COURT: But, from the top down below, it's
20 not-

21 MS. SWENSEN: The development stage expenses for
22 the-

23 THE COURT: I think that's the way I start. I
24 shouldn't even be talking about this. I'm sorry.

25 MS. SWENSEN: No, believe me. This was, really, a

1 point that I just wanted to understand. So.

2 A. Well, we do have our CFO here. So, if-

3 Q. Okay. If you don't know the answer, that's a
4 fair answer, that you don't understand that and I think
5 our Judge may be correct. I'm doing the math in my
6 head. You, repeatedly, referenced the comparison with
7 Horizon Nuclear in the U.K., correct?

8 A. Yes.

9 Q. And that that is similar in that, unlike the
10 other examples for the ESP's domestically, this was-
11 well, you indicated that this was more akin to Blue
12 Castle's model.

13 A. Well, in this case, it was a consortium of
14 utilities. They are-

15 Q. They are still two German electric utilities,
16 correct?

17 A. Correct. Absolutely correct, but they went to
18 a country, a market that they had not had experience in
19 and actually created a new company that was focused on
20 the development of a site and activities, collecting
21 the resources necessary to make it possible to
22 construct nuclear plants at those two sites and,
23 ultimately, they could have, as experienced nuclear
24 utilities, continued the development of that project,
25 but they chose to-

1 Q. To sell to Hitachi.

2 A. Correct.

3 Q. Are you aware of any significant legislative
4 incentives for nuclear power development in the U.K.?

5 A. They are talking about reaching an agreement
6 on a floor price for the power out of those plants.

7 Q. Is that also referred to as the strike price?

8 A. The strike price, correct.

9 Q. And you're familiar with the term a contract
10 for difference?

11 A. Yes.

12 Q. And that, essentially, refers to you
13 maintaining—I forget. What did you call it? A floor
14 price or a strike price?

15 A. Yeah, strike price.

16 Q. But, for the electricity—

17 A. Correct.

18 Q. --that will be generated by those plants? Do
19 you have any similar guarantees here?

20 A. No.

21 Q. In fact, contracts for difference are
22 prohibited by the SEC here, aren't they?

23 A. I don't know that. I wouldn't be surprised.

24 Q. And are you aware that there's, currently—you
25 testified that you've been following Horizon,

1 essentially, their progress?

2 A. Essentially, only the fact that they made the
3 deal that they made with Hitachi.

4 Q. Are you aware that Hitachi is, currently,
5 putting the project on hold until there is a strike
6 price agreed to?

7 A. Uh-huh [affirmative]. Yeah.

8 Q. And that's the case for other nuclear
9 developments in the U.K., currently, as well, isn't it?

10 A. Well, in that case, there is a little bit of a
11 complex nature to it because there's another entity,
12 EDF, that is in line ahead of Hitachi.

13 Q. And Hitachi is waiting to see what happens
14 with EDF—

15 A. Correct.

16 Q. —trying to get a strike price?

17 A. Correct.

18 Q. But, again, none of that has any translation
19 to what Blue Castle anticipates here, correct?

20 A. Only in the sense that they have—the example I
21 cited is the concept of building, getting all the
22 assets together, all the—in their case, they hadn't
23 reached all the permits phase, but they did make the
24 sale of those assets in the company. They actually
25 built a company, I believe, of a hundred plus employees

1 and that's what was acquired by Hitachi.

2 Q. And, then, they sold and stepped-back and it's
3 up to Hitachi whether or not the plant ever goes
4 forward, right?

5 A. Correct. Correct.

6 Q. Have you had any foreign investors commit to
7 the Blue Castle project?

8 A. No.

9 Q. You referred to, in your testimony, in various
10 ways—I'm not trying to put words in your mouth here,
11 but the idea that NRC regards Blue Castle, informally,
12 as a viable applicant?

13 A. Yes.

14 Q. Is that a fair assessment?

15 A. Yes.

16 Q. And I'm, partly, taking that language from
17 your previous report.

18 A. Yeah, that's fine.

19 Q. Okay.

20 A. I believe, by law, they would have to
21 interpret us as a viable applicant because, under the
22 law, and I think this is a question you may want to
23 pose to Dr. Diaz—I, perhaps, should have made this
24 comment, earlier, when you asked about ESP and the
25 difference between our balance sheet and that of the

1 utilities. By law, the ESP doesn't require a certain
2 balance sheet. So, to obtain an ESP from the NRC, we
3 are, at least from my perspective, almost as equivalent
4 to as a large nuclear utility.

5 Q. Because the NRC doesn't consider the financial
6 ability of the applicant to complete it.

7 A. It's not a requirement under the ESP process
8 and, again, I defer to Dr. Diaz for the details of
9 that, but I know, in developing the concept of the new
10 licensing process, and the part 52 process where the
11 ESP milestone was created, there was a specific
12 understanding that there would be a difference in the
13 financial requirements of the applicant between the ESP
14 and the award of the COL.

15 Q. And the difference being that it would not be
16 as scrutinized for an ESP as it would for a COL?

17 A. Correct.

18 Q. Correct?

19 A. Correct.

20 MS. SWENSEN: That's all I have at this time.
21 Thank you.

22 THE COURT: Thank you, Ms. Swensen. Ms. Valdes,
23 do you have any questions?

24 MS. VALDES: No. Thank you, Your Honor.

25 THE COURT: I think what we'll do--this seems to be

1 a natural place to take a break unless, Mr. Wright, do
2 you want to finish-up with Mr. Retson this afternoon,
3 we can do that.

4 MR. WRIGHT: Yes. In fact, tell me, Your Honor,
5 what's your preference. Because we're all here from
6 out of town, we, certainly, want to get this done this
7 week. I would be willing to stay and do another
8 witness today, but if that's not your preference, then,
9 we'll-

10 THE COURT: I have other things to consider like
11 the clerks and the security staff.

12 MR. WRIGHT: Understood.

13 THE COURT: Do you think we'll be okay to get this
14 done this week?

15 MR. WRIGHT: Oh, I think so. We just need to
16 hustle, but I would, certainly, like to finish with
17 Tom.

18 THE COURT: If it wouldn't be a problem, would you
19 consider starting at 8:30 in the morning? Would that
20 be inconvenient to everybody?

21 MR. WRIGHT: It would be fine with me.

22 MR. FLITTON: It's all right with us.

23 MS. SWENSEN: It's all right with us.

24 THE COURT: Then, we can do that. That will give
25 us an extra much time over a week. So, why don't you

1 go ahead and finish with Mr. Reston, then?

2 MR. WRIGHT: Just briefly.

3 RE-DIRECT-EXAMINATION OF MR. RETSON

4 BY MR. WRIGHT:

5 Q. First, Tom, in terms of capital development
6 issues for Blue Castle, I take it that's not your
7 bailiwick.

8 A. Correct.

9 Q. That's Aaron and—

10 A. Primarily Aaron's team.

11 Q. Okay and, when asked of you, earlier, about
12 contact with the NRC, I think you told me that the NRC
13 had written—I don't remember if it was recently—

14 A. No. One of the—

15 Q. It was a report or something.

16 A. One of the reports--there was a letter report,
17 I think, although it's not required. I think, on some
18 of their pre-application site visits, it's their—not
19 their standard, but they have permission and,
20 sometimes, they document the fact not only that they
21 did a pre-application related visit but, in this case,
22 they indicated some, I'll say positive, results out of
23 the fact that they witnessed the taking of the core
24 samples and they—I can't remember the exact words, but
25 the essence was that what they saw indicated that we

1 were following the process that they would want us to
2 follow.

3 MR. WRIGHT: Okay. Nothing further, Your Honor.
4 Thank you.

5 MS. SWENSEN: Your Honor—

6 THE COURT: Go ahead. Take your time.

7 MS. SWENSEN: I apologize. I have one more. It
8 will be, maybe, four questions.

9 THE COURT: That's not a problem.

10 RE-CROSS-EXAMINATION

11 BY MS. SWENSEN:

12 Q. In 2004, you led and formed a team in
13 comprehensive feasibility study, the New Nuclear
14 Generation in Texas, didn't you?

15 A. Uh-huh [affirmative].

16 Q. Did you conclude that new nuclear generation
17 was feasible there?

18 A. Yes.

19 Q. And how many new nuclear plants have been
20 built in Texas since 2004?

21 A. I believe none have been built to date. That
22 was a public document. It's called the TX study, the
23 Texas Institute for the Advancement of Chemical
24 Technology and it was a study done, driven primarily by
25 the chemical companies in the State of Texas who were

1 concerned, as indicated earlier, about the volatile
2 price of natural gas and, at the time, as you likely
3 know, there was a very volatile period and there was a
4 very strong situation, in terms of the chemical
5 companies having to consider moving most of their
6 operations to some unstable locations where they could
7 get natural gas at much cheaper prices. They supported
8 the project to look at new nuclear and that report was
9 partially funded by DOE. They used it, partially, in
10 what was called their 2010 program and it became a
11 document that many utilities used as reference material
12 when they were looking at developing their project.

13 Q. But the result in Texas was, to your
14 knowledge, that no nuclear facilities have been built
15 since then?

16 A. Correct.

17 Q. And you referenced that Exelon was attempting
18 to develop a nuclear reactor in Texas, correct?

19 A. Correct.

20 Q. Are you aware of the current status of those
21 efforts?

22 A. Yes. They have chosen to stop the project, at
23 least with respect to developing the site, Victoria
24 County. That's what you're referring to?

25 Q. They've withdrawn their COL application,

1 haven't they?

2 A. Correct. Uh-huh [affirmative].

3 Q. And they made statements, at least, that they
4 had determined it was uneconomic at this time, correct?

5 A. Correct.

6 MS. SWENSEN: That's all I have. Thank you.

7 THE COURT: Anything further?

8 MR. WRIGHT: Nothing further.

9 THE COURT: Ms. Valdes?

10 MS. VALDES: No.

11 THE COURT: You may step down. Thank you, Mr.
12 Retson. I appreciate your time today. We'll take the
13 afternoon recess, then, and we'll come back and be on
14 the record at 8:30 in the morning, if that works for
15 everyone, all right? Thank you, everyone. I
16 appreciate it. Court will be in recess.

17 BAILIFF: All rise.

18
19
20
21
22
23
24
25

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

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