No. 137, Original

IN THE SUPREME COURT OF THE UNITED STATES

VOLUME 6 OF 25 VOLUMES

TRANSCRIPT OF TRIAL PROCEEDINGS

STATE OF MONTANA

Plaintiff,

v.

STATE OF WYOMING

and

STATE OF NORTH DAKOTA

Defendants.

BEFORE THE HONORABLE BARTON H. THOMPSON, JR. Special Master Stanford, California

James F. Battin United States Courthouse 2601 2nd Avenue North Billings, Montana 59101 9:01, Thursday, October 24, 2013

Vonni R. Bray, RPR, CRR P.O. Box 125 Laurel, MT 59044 (406) 670-9533 Cell (888) 277-9372 Fax vonni.bray@gmail.com

Proceedings recorded by machine shorthand Transcript produced by computer-assisted transcription

1	APPEARANCES
2	FOR PLAINTIFF STATE OF MONTANA:
3	Mr. John B. Draper, Special Assistant AG Montgomery & Andrews
4	325 Paseo de Peralta, 87501 P.O. Box 2307
5	Santa Fe, NM 87504-2307 Telephone: (505) 986-2525 Fax: (505) 982-4289
6	E-mail: jdraper@monand.com
7	Mr. Jeffrey J. Wechsler, Special Assistant AG Montgomery & Andrews
8	325 Paseo de Peralta, 87501 P.O. Box 2307
9	Santa Fe, NM 87504-2307 Telephone: (505) 986-2637 Fax: (505) 982-4289
10	E-mail: djwechsler@montand.com
11	Mr. Cory Swanson Deputy Attorney General
12	602 Sanders P.O. Box 201401
13	Helena, MT 59624 Telephone: (406) 444-4774 Fax: (406) 444-3549
14	E-mail: coswanson@mt.gov
15	Ms. Anne Winfield Yates DNRC Chief Legal Counsel
16	1625 Eleventh Avenue P.O. Box 201601
17	Helena, MT 59620-1601 Telephone: (406) 444-0503 Fax: (406) 444-2684
18	E-mail: ayates@mt.gov
19	Mr. Kevin R. Peterson DNRC Legal Counsel
20	1625 Eleventh Avenue P.O. Box 201601
21	Helena MT 59620-1601 Telephone: (406) 444-5785 Fax: (406) 444-2684
22	E-mail: KevinPeterson@mt.gov
23	
24	
25	

```
APPEARANCES CONTINUED
1
2.
    FOR DEFENDANT STATE OF WYOMING:
              Mr. James C. Kaste
 3
              Water & Natural Resources Division
              Sr. Assistant Attorney General
 4
              123 Capitol Building
              Cheyenne, WY 82002
5
              Telephone: (307) 777-3535 Fax: (307) 777-3542
              E-mail: james.kaste@wyo.gov
6
7
              Mr. Chris Brown
              Water & Natural Resources Division
              Sr. Assistant Attorney General
8
              123 Capitol Building
9
              Cheyenne, WY 82002
              Telephone: (307) 777-3406 Fax: (307) 777-3542
10
              E-mail: chris.brown@wyo.gov
              Mr. Andrew J. Kuhlmann
11
              Water & Natural Resources Division
12
              Assistant Attorney General
              123 Capitol Building
13
              Cheyenne, WY 82002
              Telephone: (307) 777-3537 Fax: (307) 777-3542
14
              E-mail: andrew.kuhlmann@wyo.gov
15
16
17
    FOR DEFENDANT STATE OF NORTH DAKOTA:
18
              Ms. Jennifer L. Verleger
              Assistant Attorney General
19
              500 North 9th Street
              Bismarck, ND 58501-4509
              Telephone: (701) 328-3640 Fax: (701) 328-4300
20
              E-mail: jverleger@nd.gov
2.1
22
2.3
2.4
25
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15			
16			
17			
18			
19			
20			
21			
22			
24			
25			
∠⊃ 			

```
1
             THURSDAY, OCTOBER 24, 2013, 9:01 A.M.
              SPECIAL MASTER:
                               Good morning, everybody.
 2
    I'm going to take just one minute here to get myself
 3
 4
    organized.
 5
              Mr. Draper, so I assume we're going to start
    out with a continuation of the testimony of Mr. Davis,
 6
    and then after that, we'll have Mr. Hayes today?
 7
              MR. DRAPER: Kevin Smith is on the stand.
 8
              SPECIAL MASTER:
                               Sorry. Mr. Smith.
 9
10
              MR. DRAPER: Yes, and we will continue with
   him to be followed by Mr. Hayes. I might mention,
11
    also, we've been discussing between the states about
12
13
    adding one joint exhibit that I wanted to bring to your
14
    attention. It's the joint appendix that we jointly
15
    filed with you. And it's on your website. But we had
   neglected to include it among the joint exhibits here.
16
              So we've agreed we'd like to submit that as a
17
    further joint exhibit. And if it's all right with Your
18
19
    Honor and Wyoming -- I think there's a lot of pages
    there -- it might not be necessary, in light of the
20
21
   message you gave us from the clerk's office about not
2.2
    needing hard copies on some of these things, that we
   provide an electronic copy of that.
23
              And as the parties desire to use it, we would
24
    simply provide copies of those portions that were going
25
```

```
to be used.
              SPECIAL MASTER: Mr. Kaste?
2
             MR. KASTE: We don't object to including the
 3
    joint appendix as an exhibit in these proceedings.
4
              SPECIAL MASTER: So does it have a number?
5
             MR. DRAPER: I would propose we give it the
6
   next number, which is J72.
7
              SPECIAL MASTER: Okay. So then we will admit
8
   that as J72. And, again, to the degree that it is
9
10
   actually utilized as part of the examinations, then the
11
   specific portions of that will then be presented to the
   witness?
12
                        (Exhibit J072 admitted.)
13
14
             MR. DRAPER: Yes, Your Honor.
15
              SPECIAL MASTER: Okay. Then that sounds
16
   fine.
          Anything else this morning?
             MR. DRAPER: Not that I can think of, Your
17
18
   Honor. We're -- I think we're ready to resume with
   Mr. Smith.
19
20
              SPECIAL MASTER: Okay. Thank you very much.
21
   So, Mr. Smith, can you come back up and take you're
2.2
   place again in the witness box. Sorry. This morning
23
   I'm having problems with names. Sorry I referred to
24
   you as Mr. Davis earlier.
              THE WITNESS: That's quite all right, sir.
25
```

```
1
              SPECIAL MASTER: And so, Mr. Smith, you're
   aware you're still under oath.
2
 3
              THE WITNESS: Yes, sir.
              SPECIAL MASTER: Thank you. So,
 4
   Mr. Wechsler.
5
                      KEVIN SMITH (CONT.),
6
7
   having been first duly sworn, testified as follows:
                       DIRECT EXAMINATION
8
   BY MR. WECHSLER:
9
10
         Ο.
              Thank you, Your Honor. Good morning,
   Mr. Smith.
11
           Good morning, sir.
12
         Α.
13
         O.
              Very glad to see you didn't leave town last
14
   night.
              Yesterday we had a discussion about the
15
   historic operations of Tongue River Reservoir. And we
16
   started with the operations prior to the compact, prior
17
   to 1950; do you recall that discussion?
18
19
              Yes, sir.
         Α.
              And I think when we left off, we were talking
20
         Ο.
21
   about the period of time between 1950 and the 1978
2.2
   flood; is that your recollection as well?
23
              I believe so, sir.
         Α.
24
              And I think you may have talked about this
         O.
   yesterday. But to orient us, were the operations
25
```

```
between 1950 and 1978 consistent with the operations of
   the reservoir prior to 1950?
2
 3
         Α.
              Yes, sir.
              When we stopped yesterday, we were looking at
 4
   an exhibit. And I just have a couple more questions on
5
   that exhibit. And the exhibit is 309A, M309A.
                                                     If you
6
7
   could let me know when you have that.
              I have it now. You can go ahead.
8
              If you'd turn, please, with me to page 2.
9
10
   And just before the heading -- well, this 309A, if I
11
   recall correctly, was a document produced by the
   predecessor agency to yours; is that right?
12
13
         Α.
              Yes, sir. By the State Water Conservation
14
   Board.
15
         O.
              And it's dated October 19th, 1967?
              Yes, sir.
16
         Α.
              And it was talking about the operations of
17
         0.
   the reservoir; right?
18
19
         Α.
              Yes.
              If you look with me, please, to page 2. And
20
         Ο.
21
    just before the heading "how the reservoir should have
```

23 A. Yes, sir.

operated"; do you see that?

2.2

Q. And here in parens it indicates that there's an attachment of some copies of the US geological

```
reservoir storage records for the period 1939 through
    1960; you see that?
 2
              Yes, I do, sir.
 3
         Α.
              Great. Let's take a look at those records if
         Ο.
 4
   you would, please. You have those before you?
 5
              Yes, I do.
 6
         Α.
              And so I'm looking at something that has a
 7
         Q.
    couple of tables on it. At the top it reads
 8
    "Yellowstone River Basin," and to the left it seems to
 9
    indicate 478; do you see that?
10
11
         Α.
              Yes, sir.
              Yesterday we had a discussion about the
12
13
    capacity of the reservoir when it was originally built.
14
    And I'd like you to look with me, please, under the
   heading at the top here. And if you could read the
15
    language under the heading "streams."
16
              Under the heading of streams is "1938-50,
17
         Α.
    maximum month-end contents, 75,760 acre-feet, June 30,
18
19
    1944 (elevation, 3424.9 feet); no storage October 1939
    to February 1940."
20
21
         Ο.
              So here, I'm understanding that the maximum
    contents prior to 1950s, according to the U.S.
2.2
    geological surveys, is 75,760 acre-feet; is that how
23
    you understand that statement?
24
              Yes, it is.
25
         Α.
```

```
1
         Q.
              Is that consistent with your testimony
    yesterday?
 2.
              Yes, it is.
 3
         Α.
         Ο.
              And then moving down here to the remarks,
 4
    could you read that, please?
 5
              Under remarks?
 6
         Α.
 7
         Q.
              Yes, please.
              "Dam completed in May 1939. Prior to
 8
    October 1947, the usable capacity was 73,900 acre-feet.
 9
    Present usable capacity, 68,000 acre-feet at spillway
10
    crest elevation 3424.4 feet. Water used for
11
    irrigation."
12
13
              So this indicates that prior to 1947, the
14
    used usable capacity was 73,9; is that how you
    understand that?
15
16
         Α.
              Yes, sir.
              And then -- and then it indicates present
17
         Ο.
18
    usable capacity is 68,000 acre-feet. Do you see that?
              Yes, sir.
19
         Α.
20
              And this, we can -- we looked at the
         Ο.
21
    statement which suggested that this was relatively
2.2
    contemporaneous records from the USGS. So it might be
23
    from the period 1967 or thereabouts; is that a fair
    conclusion?
2.4
25
         Α.
              Yes, sir.
```

- Q. Can you explain how the usable capacity might have gotten from 73,900 prior to 1947 to 68,000 in the time period around 1967?
 - A. When you have reservoirs onstream, you have sedimentation rates that will slowly fill up reservoirs with sediment and displace the water.
 - Q. The usable capacity of the reservoir gets reduced over time from the sedimentation?
 - A. Yes, it does.

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

2.2

23

24

- Q. And, again, yesterday we talked about when a water right in Montana for the State Water Projects

 Bureau is perfected, meaning it's fully usable in the maximum amount. And can you remind us, when is a reservoir, a state project perfected?
- A. With the State Water Conservation Board, those projects were built for marketing water for sale. And storage was the issue to collect the water for sale. So once that project was built and was storing water, that water right was perfected.
 - O. A maximum amount for the --
 - A. To the full amount of that reservoir.
- Q. And we were talking about this period between 1950 and 1978. During this time the contracts to the water user changed. Does that impact the maximum amount of the water right?

1 Α. No, it does not. Let's turn to the 1978 flood. Can you please 2 Ο. describe that flood? 3 There was a flood -- flood of record, I 4 believe, in that basin. And it did occur May of 1978. 5 From the historical documentation, primarily from the 6 USGS website's reading, it appeared that the peak of 7 that flood was approximately 18, 19,000 CFS. 8 remember correctly, I believe the reservoir filled 9 10 within one or two days. I believe it came up to 30,000 acre-feet rather quickly and then started spilling. 11 The routing effect of the reservoir with the storage 12 13 and the length of the reservoir dropped the peak of the 14 flood from that 18 or 19,000 down to 10 or 11,000 CFS 15 discharge. The aftereffects of that flood were numerous. 16 In the short-term, of course, there was damage 17 downstream. The normal flows, I believe, downstream 18 for the floods from the last 60 years were anywhere 19 between 3000 to 5000 CFS, I believe. So when you have 20 21 double that amount in that flat basin, there's going to 2.2 be definitely a large amount of property damage and 23 other damage downstream. 24 Other damage specifically was to the project and on the spillway structure and immediately 25

 $1 \mid downstream$ of the spillway structure and tailrace.

Q. And what does that mean?

2

12

13

14

15

16

17

18

19

20

21

2.2

23

24

25

At your terminal end of the spillway, where 3 Α. the water discharges, it discharges typically into an 4 area we call a tailrace. That area itself is an area 5 that if -- if the spillway has not taken out the energy 6 7 of the water that is spilling, that area is utilized and used to try to expend the energy in the water, the kinetic energy. So when the water leaves a tailrace 9 10 area, it's -- causes less damage. Is a more tranquil flow. 11

What became apparent with the spillway design that was in place was that was not occurring. The -- there is a lot of head cutting and scouring in the tailrace area. Wing walls of the principal spillway were exposed, other issues occurred.

The long-term effect of that flood pointed out the serious deficiencies in the capacity and capabilities of that project to handle what should have been a run-of-the-mill flood event in that basin.

- Q. You mentioned that there was damage downstream. I wonder if you would expand on that a little bit. What kind of damage occurred below the Tongue River Reservoir in Montana?
 - A. From my discussions with Art Hayes and

```
others, the damage was erosion, property damage, damage
    to bridges, bridge abutments. Typically what you'd
 2
    see, what we've seen recently in other recent floods
 3
    with the high flows when they exceed the floodplain and
 4
    erode soil, it basically -- well, as I said, it's
 5
    primarily property damage and damage to roads and
 6
   bridges.
 7
              Are you familiar with the designation
 8
         Ο.
   high-hazard dam?
 9
10
         Α.
              Yes, I am, sir.
              What is that designation?
11
         Q.
              There is some confusion sometimes when people
12
         Α.
13
    say high-hazard dam, they immediately assume unsafe.
14
    And that's not the issue. High-hazard dam is simply a
15
    classification of the project. High-hazard structures
    in Montana are regulated by the State Dam Safety
16
17
    Program.
              If it was a hydropower facility, it would be
18
    regulated by the Federal Energy Regulatory Commission.
19
20
    If it's a BOR dam, they regulate their own. Corps of
21
    Engineers regulate theirs in their own dam safety
2.2
    programs.
              The high-hazard classification is -- for the
23
    State of Montana is should that project fail, there
24
    would be loss of life downstream. And there are some
25
```

- other constraints tied to that, specifically with the volume or height of dam and items. But primarily high-hazard is defined by loss of life downstream.
 - Q. In this time period, we're talking 1978, was the Tongue River Reservoir considered a high-hazard dam?
- 7 A. Yes, it was.

4

5

6

8

9

10

15

16

- Q. Has that designation changed? In other words, is the Tongue River Reservoir still considered a high-hazard dam?
- 11 A. Yes, it is.
- 12 Q. And can you explain why?
- 13 A. The downstream risks are still the same, if 14 not expanding with population growth.
 - Q. Does the designation of the Tongue River
 Reservoir as a high-hazard dam, does that impact the operations of the reservoir?
- Yes, it does, inasmuch as we are operating 18 under approved dam safety operating permit that we 19 20 receive from the dam safety program. Every five years 21 we do a thorough five-year inspection and review of the 2.2 project with the dam safety program. And within those issues, constraints may be put on projects or 23 qualifications. Such as Tonque River, we are required 24 to monitor the project through a series of monitoring 25

wells, flume vault measurements.

2.2

But the monitoring of -- the monitoring wells, flume vault measurements. We also are required to revisit the performance of the structure on the seepage monitoring. We just recently redid a report that's on draft mode that's on my desk waiting for my review to evaluate the performance of the system.

- Q. Did you say the designation of the Tongue
 River Reservoir as a high-hazard dam impacts the amount
 of water that you want to have stored at the beginning
 of fall?
- A. Yes, it does indirectly. An issue here is prudent and reasonable operations of your project.

 Downstream users, if we are operating the project unsafely, i.e, if we go into wintertime with the reservoir lapping at the spillway crest, that allows us zero opportunities to mitigate flows or regulate flows through the system. It also puts us at extreme risk of ice damage on the property, on the structure, as well as passing sheets of ice downstream into the river downstream, which was -- can also cause some damage by changing -- altering the stream channel itself.

To that end, if -- there is always the understanding that you're going to be operating a reservoir according to a reasonable standard of

1 | practice.

5

6

7

8

9

10

11

12

13

20

21

2.2

23

- Q. And so does the designation as a high-hazard dam also impact the amount of flows that are passed through the reservoir during the winter?
 - A. Yes, it does. Because it comes into the issue of your reservoir pool elevations and how to control those pool elevations.
 - Q. So we've talked about the designation as a high-hazard dam. And in one of your answers, you also mentioned that there is a distinction between being a high-hazard dam and being unsafe; is that right? Is there a distinction?
 - A. Yes, sir, very much so.
- Q. And after the 1978 flood, was the Tongue River Reservoir also considered unsafe?
- A. Yes, it was considered as an unsafe dam. And there were reservoir restrictions placed on that structure to minimize the opportunity for it to fill and spill.
 - Q. We talked about the operations of the reservoir pre-Compact. We talked about the operations of the reservoir between that period from the compact and to the 1978 flood. And you said that those historic operations were consistent; right?
- 25 | A. Yes, sir.

```
1
         Q.
              Did the operations of the Tongue River
   Reservoir change after the 1978 flood?
 2.
              Yes, sir. It did.
 3
         Α.
         Ο.
              In what sense?
 4
              After the 1978 flood, there were restrictions
 5
         Α.
    on the project to ensure that -- it's described in the
 6
 7
    final environmental impact statement from 1995 for the
    rehabilitation of the project. But if I remember
    correctly, the attempt was to keep the storage down to
 9
    about 20,000 acre-feet until the historic filling
10
    period of the spring, at that time, not to let it fill
11
    more than to satisfy its contracts, which would be -- I
12
13
    think they restrict it to elevation 3420, which would
14
    be about 50,000 acre-feet, I believe. A little over on
15
    that.
              It has a little designation for a foot mark;
16
         Q.
    right?
17
              Yes, sir.
18
         Α.
              Is the elevation above sea level?
19
         O.
20
              Yes, it is.
         Α.
21
         Ο.
              So I want to talk, then, about the operations
2.2
    of the reservoir during the time that it was being
    rehabilitated. And to get there, I want to first talk
23
```

about the events that led up to the rehabilitation of

that reservoir. So are you familiar with the Northern

24

```
Cheyenne Compact?
              Yes, I am familiar with that compact, sir.
2
              Can you just generally describe the Northern
 3
         Ο.
    Cheyenne Compact?
4
              In general, sir, the Northern Cheyenne
5
         Α.
    Compact between Montana and the Northern Cheyenne Tribe
6
7
    and the federal government, the compact was written to
    satisfy the tribe's compact rights, water rights.
              Would you turn with me, please, to
9
    Exhibit M527?
10
              I have it, sir.
11
         Α.
              What is this document?
12
         Ο.
              This is entitled "Montana Code Annotated
13
14
          The Water Rights Compact, State of Montana,
    Northern Cheyenne Tribe, United States of America."
15
              You've read this compact before?
16
         Ο.
17
         Α.
              Yes, I have read it.
              Would you take a second to take a look at it,
18
         Ο.
    and let me know if this looks consistent with your
19
20
    understanding of it.
21
         Α.
              Yes, it does.
2.2
              This is also codified in the Montana Water
23
    Use Act at 85-20-301; is that right?
              Yes, sir.
2.4
         Α.
              And in the compilation we provided to the
25
         Q.
```

```
Court, that's at page 297.
              MR. WECHSLER: Your Honor, it's a publicly
2
   available statute. For convenience, we would offer it
3
   so it can be part of the record.
4
5
              MR. KASTE:
                          No objection.
              SPECIAL MASTER: Okay. Exhibit M527 is
6
7
   admitted.
                        (Exhibit M527 admitted.)
8
   BY MR. WECHSLER:
9
10
         Q.
              Mr. Smith, could you turn, please, to article
    2A, 2B, which on Exhibit M527 is on page 4 of 16?
11
              Okay. I'm on page 4 of 16.
12
         Α.
13
              Do you see the small B under the title
14
    "Storage and Exchange Water"?
15
         Α.
              Yes, I do.
              Could you please read that first sentence?
16
              "Storage and Exchange Water. The tribe has a
17
         Α.
18
   right to divert or deplete, or permit the diversion or
19
   depletion of, up to 20,000 acre-feet per year from a
20
   combination of water stored in the Tongue River
   Reservoir and exchange water."
21
2.2
              Is that your understanding of the storage
23
   right of the Northern Chevenne Tribe?
              Yes, sir.
2.4
         Α.
              And is it your understanding that that was
25
         Q.
```

```
pursuant to the Northern Cheyenne Tribe Compact?
         Α.
              Yes, sir.
2
              Do you know if the right of the Northern
 3
         Ο.
    Cheyenne Tribe was determined in the statewide
4
    adjudication?
5
              Yes, sir.
6
         Α.
            And was it?
7
         Q.
              Yes, it was.
8
         Α.
              What was the priority date of the storage
9
    right in that adjudication?
10
              In the adjudication, the storage right of the
11
         Α.
    Northern Cheyenne Tribe's water was to equal the most
12
13
    senior right in the reservoir. Since our right is the
14
    only other right in the reservoir, their target date is
    the same as ours.
15
              1937?
16
         Ο.
17
         Α.
              Yes, sir.
              Turn with me, please, to page 10 of Exhibit
18
         O.
   M527. Are you there?
19
20
              Yes, sir.
         Α.
21
              I'm looking under the heading D, "operation
         0.
    of Tongue River Reservoir"; do you see that?
2.2
23
              Yes, I do.
         Α.
              And if you could, please, read -- let's start
24
         Ο.
    with the first sentence of that revision.
25
```

```
1
         Α.
              "Item No. 1, to provide for Tongue River
    Reservoir operation, procedures that are consistent
2.
    with the purposes of this compact, a reservoir
 3
    operation plan shall be developed by a five-member
4
    advisory committee."
5
              Does that advisory committee exist?
         Ο.
6
              Yes, it does.
7
         Α.
              What's it called?
8
         O.
              It's called the Tongue River Reservoir
9
         Α.
10
    Operating Committee.
              Advisory Committee?
11
         Q.
12
         Α.
              Yes.
13
              And yesterday you testified that you are a
         O.
14
   member of that advisory committee; is that right?
15
         Α.
              Yes, I am.
              Okay. Please read the next sentence.
16
         0.
              "The committee shall have representatives
17
         Α.
    from the state of Montana, the Tongue River Water
18
19
    Users' Association, the Northern Cheyenne Tribe, the
    United States, and a fifth member to be selected by the
20
    other four."
21
2.2
              Is that the composition of the Tongue River
23
    Advisory Committee?
2.4
         Α.
              Yes, it is.
              And there's a fifth member that's selected by
25
         Q.
```

the other four. Currently who are the members of the Tongue River Reservoir Advisory Committee? 2. Membership of the advisory committee, of 3 Α. course, myself as the bureau chief of the State Water 4 Projects Bureau, Art Hayes as the state president of 5 the Water Users' Association. The BIA is also a member 6 of the committee, and I don't remember the name of that 7 person right off the top of my head. For the Northern 8 Cheyenne Tribe -- Shanara Gion is the member for the 9 Northern Cheyenne Tribe. And the fifth member is Roger 10

Q. Those -- well, you were on the basin tour that was part of this case; right?

Muggli out of Miles City from the T & Y Diversion

15 | A. Yes.

District.

11

- Q. And many of those people joined us at various parts of that tour?
- A. Yes, I am. And it just hit me. William
 Walksalong has become the Northern Cheyenne Tribe
 member. Shanara Gion has become, I believe, the BIA
 rep for the advisory committee, if I remember that
 correctly.
- Q. Moving to the next sentence. It starts "the advisory committee." It says, "The advisory committee shall annually agree upon on reservoir operation

schedule setting forth proposed uses of storage and direct flow for the year"; do you see that? 2. Yes, sir. 3 Α. Ο. And does that occur? 4 Yes, it does. 5 Α. Is that what's now known as the operating 6 Ο. 7 plan? Yes, it is, sir. 8 Α. Next, it indicates the Department of Natural 9 Resources and Conservation or its successor shall 10 thereupon be responsible consistent with the terms of 11 this compact and other applicable law with the daily 12 13 operations of the reservoir and implementation of the 14 reservoir operation plan; do you see that? 15 Α. Yes, I do. So could you please explain the relationship 16 between the advisory committee and the DNRC and the 17 18 State Water Projects Bureau representing the DNRC? 19 The advisory committee and with the bureau Α. chief of the State Water Projects Bureau, myself in 20 21 this instance as a member of the committee, and the 2.2 DNRC, the issues are listening to the concerns and the issues that are ongoing within the basin, deal with the 23 operations to ensure that we build a reservoir in a 24

prudent and safe manner, to make sure we have the water

```
for the Northern Cheyenne Tribe Compact water and also
    for our contractural obligations of the Water Users'
2.
    Association. There were other components within the
 3
    compact that also were general guidelines we follow.
4
    And we try to implement those.
5
              The underlying responsibility of the project
6
7
    and the safety of the project and performance of the
   project still lies with the state. The state still
    owns the Tonque River Reservoir Dam and the pertinent
9
10
    structures.
              So the underlying responsibilities for safety
11
    and operations still lie with the state on that
12
13
   project.
14
         O.
              This Northern Cheyenne Tribe Compact is state
15
    law?
16
         Α.
              Yes, it is.
              And so within those confines that you just
17
         Ο.
18
    described, you are obligated to follow this compact; is
19
    that right?
20
         Α.
              Yes, we are, sir.
21
         Ο.
              Turn with me, please, to Exhibit 528.
2.2
         Α.
              Yes, sir.
23
              Do you understand that the Northern Cheyenne
         Ο.
    Tribe Compact was ratified by the federal government?
24
```

25

Α.

Yes, sir.

That is my understanding.

```
1
         Q.
              Looking to Exhibit M528; what is that
   document?
2.
              This is Public Law 102-374 from the
 3
         Α.
   102nd Congress. This is the Settlement Act -- let me
4
   rephrase that. It's titled "An Act to Provide for the
5
   Settlement of the Water Right Claims of the Northern
6
7
   Cheyenne Tribe and for Other Purposes."
              MR. WECHSLER: And, again, Your Honor, it's a
8
   public document. But we would offer it to complete the
9
10
   record.
                          No objection.
11
              MR. KASTE:
12
              SPECIAL MASTER: Okay. Thank you.
13
   Exhibit M528 is admitted into evidence.
14
                        (Exhibit M528 admitted.)
15
   BY MR. WECHSLER:
              If you'd turn with me, please, to page --
16
   what's marked at the bottom with the Bates No. MT15147,
17
   which is the second page, I believe, of the document.
18
19
              Yes, sir.
         Α.
              And I'm looking at the heading at the bottom
20
         Ο.
   section for "ratification of compact"; you see that?
21
2.2
         Α.
              Is that under Section 4? Yes, I have it.
23
              And could you read Subsection A there?
         Ο.
              Yes, sir. "Subsection A, In general, except
24
         Α.
   as modified by this Act, the Water Right Compact
25
```

- entered into by the Northern Cheyenne Tribe in the state of Montana is hereby approved, ratified, and 2. confirmed." 3 Q. Do you also understand the Northern Cheyenne 4 Tribe Compact to be federal law? 5 Yes, sir. 6 Α. 7 Q. And so that's another reason why you're obligated to follow it? 8 9 Α. Yes, sir. 10 Ο. Subsection C under that same Section 4, that indicates, "Except for the authorizations contained in 11 subsection 7B1 and 7B2, the authorization of the 12 13 appropriations contained in the Act shall not be 14 effective until such time as the Montana Water Court 15 enters and approves a decree as provided in subsection D of this section"; do you see that? 16 Yes, sir. 17 Α. 18 And do you understand that to mean a decree Ο. must be adopted in Montana adjudication? 19 20 Α. Yes, sir. 21 After the adoption of the NCT Compact and its 2.2 subsequent ratification by Congress, was there an 23 environmental impact statement completed? 2.4
 - Α. Yes, sir, there was.

25

And I think you referred to that earlier in Q.

```
your testimony; right?
         Α.
              Yes, sir.
2
              Let's take a look at that document which is
 3
         Ο.
   Exhibit M335. Do you have that before you?
4
              Yes, sir, I do.
5
         Α.
              What is Exhibit M335?
         Ο.
6
              This exhibit is the Tongue River Basin
7
         Α.
   Project, Final Environmental Impact Statement, dated
8
   March 19, 1996.
9
10
              MR. WECHSLER: I believe, Your Honor, a copy
   of this is Exhibit M335. I believe we've also provided
11
   to the Court an original bound copy.
12
13
              SPECIAL MASTER: That's correct. You did.
14
   BY MR. WECHSLER:
15
              Is this a document you're familiar with,
   Mr. Smith?
16
17
         Α.
              Yes, I am.
              And is it a document that you had
18
         Ο.
   responsibility for working with when you were in the
19
20
   process of constructing the Tongue River Reservoir.
21
         Α.
              Yes, sir.
2.2
         Q.
              And did you work with it on a daily basis?
              No, sir.
23
         Α.
24
         0.
              Regularly?
              Regularly, sir.
25
         Α.
```

```
Taking a look at Exhibit M335, does this look
 1
         Q.
    like a complete and accurate copy of the Tongue River
 2.
    Basin Project Final Environmental Impact Statement?
 3
         Α.
              Yes, sir.
 4
              MR. WECHSLER: Your Honor, at this point we'd
 5
    move the admission of Exhibit M335.
 6
 7
              MR. KASTE:
                          No objection.
              SPECIAL MASTER: Exhibit M335 is admitted
 8
    into evidence.
 9
                        (Exhibit M335 admitted.)
10
    BY MR. WECHSLER:
11
              Turning to the -- it's the third page of the
12
         Ο.
13
    document. It's labeled with the Bates stamp MT04891;
14
    do you see that?
15
         Α.
              Sir, my copy doesn't have Bates stamps on it.
              You have the original?
16
         Ο.
              I have the original copy here.
17
         Α.
              At the -- it's a letter on State of Montana
18
         Ο.
    letterhead indicating, Dear Reader, signed by Arthur R.
19
20
    Clinch, Director; do you see that?
21
         Α.
              Yes, sir.
2.2
              The first sentence reads: "The project
23
    sponsors, the Montana Department of Natural Resources
    and Conservation, Northern Cheyenne Tribe, and the U.S.
24
    Bureau of Reclamation prepared this Tongue River Basin
25
```

```
Project Final Environmental Impact Statement, (final
    EIS) incorporating comments received from the draft EIS
 2
    released to the public in June 1995"; do you see that?
 3
              Yes, sir, I do.
         Α.
 4
              Is that consistent with your understanding
 5
         Ο.
    that the project sponsors of this project were the
 6
 7
   Montana DNRC, the Northern Cheyenne Tribe, and the
    United States Bureau of Reclamation?
              Yes, sir. It was a three-way partnership for
 9
10
    this project.
              And did those three entities, were they also
11
         Ο.
    responsible for the content of the environmental impact
12
13
    statement?
14
         Α.
              Yes, sir.
              So let's take a look at some of that content.
15
         Ο.
    If you'll turn with me, please, to page 1-1.
16
    looking at under the heading "introduction." I believe
17
    it's the second full sentence beginning with "this
18
   project"; do you see that?
19
20
              That was a long first sentence. Yes, sir.
         Α.
21
         Ο.
              It indicates that the project is -- and I'm
2.2
    skipping through the first phrase in the sentence --
    "is being proposed to alleviate dam safety concerns and
23
    protect downstream lives and property, to protect all
24
    existing water use contracts held in the Tongue River
25
```

```
Reservoir, and to provide up to an additional 20,000
    acre-feet per year of water to the tribe"; do you see
2
    that?
 3
              Yes, I do, sir.
4
         Α.
              Is that consistent with your understanding of
5
         Q.
    why the project was built?
6
7
         Α.
              Yes, sir.
              Let's turn to page 2-3.
8
         Ο.
              Pardon me, sir?
9
         Α.
              2-3. Under the heading "effects of dam
10
         Ο.
    failure on human safety and property downstream of the
11
   project"; do you see that?
12
13
         Α.
              Yes, sir.
14
              And the first sentence seems to be talking
         O.
15
    about the operations of the dam since 1978; right?
              Yes, sir.
16
         Α.
              Is that consistent with what you described
17
         Ο.
    earlier?
18
19
              Yes, it is, sir.
         Α.
20
              And then the next sentence there indicates
         Ο.
21
    that there's consequences if the dam were to fail;
2.2
    right?
              Yes, sir. The -- it lines out if the project
23
    had a catastrophic failure, which with the spillway in
24
    its configuration at that time was not out of the
25
```

question, it was estimated between 300 million to 1 2. \$500 million worth of damage should that project fail. That's a lot. 3 Ο. Not accounting for the loss of life. 4 Α. Can we turn, please, to page 3-5? And what's 5 Q. shown on page 3-5 of the FEIS? 6 On page 3-5 is Figure 3-1, which is titled 7 Α. "Tongue River below the dam historic streamflows." 8 The -- it's an X, Y chart with a mean -- median monthly 9

- streamflows and CFS on the Y axis and time and months along the X axis.

 Q. This is a figure that you attached to your
- original expert report, which is Exhibit M3; right?
 - A. Yes, it is, sir.

10

11

12

13

14

15

16

17

18

19

20

21

2.2

23

24

- Q. Why did you attach it to your expert report?
- A. It shows quite well the established practice of the project throughout its 70-plus year history. It also demonstrates very clearly that the primary fill period for this project, as with most any intermountain project on the eastern slope, is through the spring months, April through June or May through July.
- Q. And there's been an awful lot of discussion in this case about winter flows. And does this figure 3-1 on page 3-5 also show anything about winter flows?
 - A. Yes, it does. Looking through the period

But

KEVIN SMITH - October 24, 2013 Direct Examination Cont. by Mr. Wechsler

```
from October through February or March, its
   historically median monthly flows are between 220 CFS
2
   to 175 and 180 CFS.
 3
              What does that term "median" mean?
4
              Median is defined as the middle point of your
5
   data set. So half of your data set is higher than that
6
7
   number, and half your data set is lower than that
   number.
              If you'd turn with me, please, to page 3-7.
9
10
   And what's shown on page 3-7?
              On page 3-7 are two photos showing the Tongue
11
         Α.
   River Reservoir spillway. One is a picture of the
12
13
   spillway itself during the 1978 flood. And the other
14
   photo is an aerial photo showing the extent of
15
   flooding.
              Turn with me, please, to page 3-26. Do you
16
   have that?
17
18
         Α.
              Yes, sir.
              I'm looking at the heading "3.13.6.3 Tongue
19
         Ο.
   River Basin agricultural economy"; do you see that?
20
21
         Α.
              Yes, sir.
2.2
              And here's a description of the -- how the
   Tongue River Basin has an awful lot of reliance on
23
   agriculture in that area. I'm not going to ask you
24
```

about the specific numbers shown in this document.

```
is it your understanding that agriculture is important
   in the Tongue River Basin?
2
              Most definitely so, sir. There's 120 miles
 3
         Α.
   or so, as the crow flies, from the project to Miles
4
   City. And it's primarily all agricultural communities,
5
   whether they're ranches or farm operations.
6
7
         Q.
              Turn with me, please, to page 4-19; do you
   have that?
              Yes, I do, sir.
9
         Α.
10
         Ο.
              Here I'm looking under the heading "reservoir
   ice." And the second sentence reads: "Historically
11
   the reservoir has been drawn down by irrigation
12
13
   releases through the summer and maintained at a low
14
   elevation during the winter months, see Figure 4-5, to
15
   avoid use of the spillway in the spring"; do you see
   that?
16
17
              Yes, I do, sir.
         Α.
              Is that consistent with your testimony that
18
   the reservoir is drawn down in the irrigation season
19
   and then maintained at a low elevation during the
20
   winter months?
21
2.2
         Α.
              Yes, sir.
23
              Over on the next column there's a heading
    "downstream river rights"; do you see that?
24
```

Α.

25

Yes, sir.

Q. And here it's talking about river ice in the Tongue River Reservoir. Could you explain, please, the concern with the downstream river rights?

2.2

A. Yes, sir. Well, this is Montana, and eastern Montana at that. It's -- it can get fairly cold in the minus 20-, minus 30-degree sections and is at risk, when you have a river that the base level in the summertime for irrigation is 400 CFS, give or take, it seems. And spring runoff puts water through there approximately between 2000 to 5000 CFS. The river channel is a developed, wide channel.

In wintertime flows, there needs to be sufficient depth to prevent ice from forming from the bed of the river coming up. So it's very desirable to get, what I would call, an ice shelf formed for the initial part of the cold season at a higher level if you can, so if you need to adjust flows, you can adjust flows without freezing up the river. Because once you do freeze up the river, restrict the flows, if we have to pass additional flows to deal with flood issues and mitigation, it's very likely you end up creating ice jams and/or putting the river on top of your river ice, which then, in turn, ends up flooding out at the banks and going through your farm fields and taking out bridges and whatnot.

- Q. The FEIS, Exhibit M335, at page 4-19 uses the term anchor ice. Are you familiar with that term?
 - A. I am familiar with that term.
 - Q. What's that mean?

3

4

5

6

7

10

11

12

13

14

15

16

- A. Anchor ice is ice that forms from the bed of the river coming up as opposed to forming on the surface of the water coming down. There's not enough warmth in the water in the bed of the stream so that it is cold enough to start forming ice.
- Q. From your perspective, is it important to operate the Tongue River Reservoir in a way that minimizes any damage from anchor ice or ice jams?
- A. Most definitely. Most definitely so. Especially as to our public entity as well.
- Q. And historically, has the Tongue River Reservoir been operated in such a manner?
- 17 A. Yes, it has.
- Q. Is it important, from your perspective, to have some flexibility in the winter operations in order to adjust for winter ice and anchor ice?
- A. Yes. Yes. This is a large basin from the mountains in the Big Horns to where the headwaters are to Miles City. There is a lot of topographic relief.

 I guess you could say that there are different
- 25 climates. The river basin is, I want to say,

```
approximately 300 miles long or so, give or take.
   lot of changes in that river basin at one point to
2
   another. So flexibility is greatly desired in any
 3
   system like this where we have a reservoir close to the
4
   middle of the basin.
5
              Could you turn with me, please, to the next
6
         Ο.
7
   page, page 4-20? And this appears to be a Figure 4-9
   titled "Tongue River below the dam." And do you
   understand that to be below Tonque River Reservoir?
9
10
         Α.
              Yes, sir, my understanding is below the
   reservoir.
11
             And this indicates proposed releases
12
         Ο.
13
   following construction; do you see that?
14
         Α.
              Yes, sir.
15
              What do you understand that to mean?
              This was taken from the modeling studies and
16
         Α.
   appears to be the agreed upon -- or showing examples of
17
18
   a flow regime and the possible development of the
19
   water.
20
              And, again, we see that this is a median
         Q.
21
   monthly streamflow. So there's an equal number of
2.2
   years -- or months that it would be above that number
23
   and an equal number that would be below; is that right?
24
         Α.
              Yes, sir. Yes, sir. Based on the
25
   assumptions.
```

```
1
        Q.
             And so what do you understand the -- it uses
   the term "proposed." What do you understand that to be
2.
   referring to?
3
```

- That this is -- that this is the desired results after construction and rehabilitation of the project, this was the intent during the EIS of establishing flow rates and how they would affect the operations of the river.
- You say the "intent." Do you mean the intent of the project sponsors meaning DNRC and Northern Cheyenne Tribe and the United States Bureau of Reclamation?
- 13 Α. Yes, sir.

4

5

6

7

9

10

11

12

14

15

17

20

21

- And so this was how they were proposing to O. operate the dam?
- Correct. I also may state that this is still 16 Α. proposing to maintain the historical pattern of the winter months but still recognizing a primary fill 18 19 period from that April through July period.
 - So it's consistent with historic operations? Ο.
 - Α. Yes, sir.
- 2.2 And we can see a little more with the model 23 results and the proposals if you turn to page E11, which is towards the back of the document. Do you have 2.4 that before you? 25

1 Α. Yes, sir. So what is this page showing? 2. Ο. Page E11 has three tables: Tables E5, E6, 3 Α. and E7. The tables -- the first Table E5, shows 4 historical streamflows below the Tongue River Dam from 5 the period of 1946 to 1989. Table E6 shows streamflows 6 during construction below Tongue River Dam. And Table 7 E7 shows the model streamflows below Tongue River Dam. All consistent with historic flows? 9 Ο. 10 Α. Yes, sir. Was this final environmental impact 11 Q. 12 statement, was that adopted? Yes, sir. The final environmental impact 13 14 statement was done to meet the National Environmental Protection Act, the NEPA criteria under the Bureau of 15 Reclamation. It also satisfied the Montana 16 Environmental Policy Act criteria. And it was accepted 17 18 with the record of a decision as well. 19 Shortly after it was approved, that was when Ο. you started working; right? 20 21 Α. Yes, sir. I starting working in June or July of '96. 2.2 23 So it was your responsibility to make the rehabilitation happen? 2.4

25

Α.

In a nutshell, yes, sir. There were a lot of

| people involved --

2.2

- Q. You had a lot of help. We might still be constructing if it was just you.
 - A. It would be somewhere, sir.
- Q. What I would like to do is talk about the operations of the Tongue River Reservoir during that period that construction was going on. And so can you first give me an idea, when was construction of the rehabilitation project, when was that going on?
- A. When I came on board, sir, as I said earlier, I was walking in on the preconstruction meeting in June or July of 1996. Construction began at that time. It was a three-phased construction. The construction ran through 1999.

As I said before, it was a three-phase project. The first phase was building the roads to the dam and mining aggregate at several locations and processing that aggregate for future production of the roller-compacted concrete at the dam. I believe there was approximately 100,000-plus cubic yards of that material provided and stockpiled in the wintertime in '96 at the dam site.

The second phase of the project -- the second phase of the project involved the emergency spillway construction. The emergency --

Q. Before you go on to the second phase, can you explain how phase one of the project impacted operations of the reservoir?

2.2

A. Phase one of the project impacted operations of the reservoir a couple ways. We built a bridge downstream of the dam to access the toe of the dam for stockpiling. So we maintained flows to make sure we could build the bridge at that location.

One of our primary mining areas today is called Camper's Point. And today at the higher pool levels, you have a lake inside surrounded by land at Camper's Point. That is an area that we had drafted down to make sure -- the reservoir was drafted down to make sure we were able to mine that area not in the water, to process materials.

There were also some rough grading of the state parks while we were doing the mining operations in the same areas. I believe we also installed one boat ramp, which meant we had to draft the reservoir down to below elevation, 3400 probably, to install the key -- or the cutoff on the boat ramp itself at the base.

So those criteria, those issues, while we were doing construction -- and I should point out that whenever we're doing construction and rehab efforts on

```
our projects, we work within what schedules we can to
mitigate and minimize the effect for water deliveries
downstream. And many times those goals are mutually
exclusive. Prime construction weather and issues would
dictate we would do everything in summertime. And we
would have a minimal reservoir pool.
```

- Q. And we looked at the environmental impact statement actually describes the way in which you're trying to mitigate or limit the change in the operations; right?
- A. Yes, sir. We try to minimize the change in the flow regime as much as we can to reduce the impacts downstream.
 - Q. When did phase two occur?

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

2.2

23

24

25

A. Phase two fired up in 1997. The phase two is an interesting project. It was the roller-compacted concrete spillway that was over the crest of the dam.

That project, at the time, was the largest roller-compacted concrete overlay in the nation. And I think it was recognized internationally as well. It was quite a structure. Or it is quite a structure. The crest length is about 650 feet wide. The spillway itself covers most of the crest length of the dam.

The restrictions that this caused for operations, we were cutting through the crest of the

```
dam.
          So in essence, we're taking out the freeboard.
    Because we put the crest of the roller-compacted
 2
    concrete spillway at about -- it's about three feet
 3
   higher than our primary spillway right now. So it's an
 4
    elevation 3431.6, I believe.
 5
              When we do things like that, we evaluate the
 6
 7
    flood hydrology. I believe for that project we looked
    at the 100-year recurrence event to ensure that we
   would have the reservoir down to an appropriate level
 9
10
    to at least capture the 100-year flood event before we
    would crest our excavation through the crest of the dam
11
    to make sure we wouldn't breach the dam.
12
13
              So there's -- when you get into construction,
14
    and as I'm talking, there are actually more things that
15
    are coming to mind. So I might sound like I'm
    rambling, and I should stop. But one thing always
16
    leads to another.
17
              And dealing with construction on the dam, a
18
    lot of constraints when you start cutting through crest
19
    of dams or work on spillways, you have to time that
20
    work to coincide with minimal risk of flooding.
21
                                                      If --
    eliminate or mitigate or minimize the risk of
2.2
23
    overtopping. Because once you overtop the dam
    embankment itself, there is very little -- there is
24
    very little recourse on preventing your dam from start
25
```

```
failing. It's just earth on the downstream side.
   the erosional process will take off, and you have a
2
   very serious issue at that time.
3
              So as with any construction project on dams,
4
   evaluating and working with the hydrology of the system
5
   is paramount to ensure you minimize your risk to
6
   downstream landowners.
7
              Phase three, when did it start?
8
9
              Immediately after. And I should say it was
10
   probably -- phase two was probably not quite finished
   when phase three started. In fact, there was overlap
11
12
   on phase three and phase two.
13
              Phase three involved tearing out the primary
14
   spillway, the existing spillway that was --
15
              SPECIAL MASTER: Can I just stop for a
            So the question was, when did it start?
16
   second?
              THE WITNESS: Oh, my apologies, sir.
17
18
              SPECIAL MASTER: That's okay. You're just
   anticipating his next question.
19
20
   BY MR. WECHSLER:
21
         0.
              So my next question is: Could you please
2.2
   describe phase three?
23
              SPECIAL MASTER: Is there a date on phase
   three?
24
                            It would be 1998, sir.
25
              THE WITNESS:
```

1 SPECIAL MASTER: Thanks. BY MR. WECHSLER: 2. 3 Ο. So once phase three began -- you were describing phase three. 4 Yes, sir. It was concurrent, the end of 5 phase two to phase three. And I just started running, 6 7 sir, I'm sorry. The phase three work included removing the 8 9 existing spillway and also tunneling and putting in a new low-level output works adjacent to the existing 10 11 low-level output works. You talked in general about how construction 12 13 projects changed the operations of the reservoir and 14 how the operations changed as part of this project. 15 And I think it might be helpful if we look again at Montana demonstrative Exhibit 3; do you have that with 16 That's the one that has Table 4A from Mr. Book's 17 you? 18 original report and also Table 2 from Mr. Dalby's 19 expert report. 20 Yes, sir, I have that. Α. 21 Ο. What I'd like to look at is the label at the 2.2 bottom of page 3 of Mr. Book's report. That's Table 23 Do you have that before you? Yes, sir. 24 Α. And looking at this period when construction 25 Q.

```
was going on, can you see that there were some changes
   in the operations?
2.
              Yes, sir.
 3
         Α.
              What is it that you're seeing here?
 4
         Ο.
              I'm looking toward the end of the 1997 line,
5
         Α.
   you see drafting reservoir down through July and
6
7
   through August into September and October. And then
   the operations '98 of go back -- we drafted down to
9
   about 6000 acre-feet. We're actually at the top of our
10
   intake structures.
11
         Q.
              Does that mean it's about as low as you can
   take it?
12
              It's not to dead pools, sir. It's to the top
13
         Α.
14
   of our intake towers.
15
         Ο.
              Where is dead pool?
              Dead pool elevation is 3474 and something.
16
         Α.
              Do you know how much that is in terms of
17
         Ο.
   acre-feet?
18
19
              The acre-feet at dead pool is 711 acre-feet.
         Α.
              I'm sorry. I interrupted you. You were
20
         Ο.
21
   describing how Table 4A shows the change in operations
2.2
   during the construction.
                    From 1997, 1998, and 1999, we were --
23
              Yes.
24
   had very low pools. We were working on -- and
```

actually, we built a copper dam into the lake to

25

```
1 isolate the intake tower, or both intake towers, I
2 should say, to do construction. We had to build one
3 intake tower, and we modified the other one.
```

- Q. Overall, were the operations of the Tongue River Reservoir during the construction periods, were those consistent or inconsistent with the historic operations of the Tongue River Reservoir?
- A. Are you saying were the operations during construction inconsistent or consistent?
 - Q. Which one was it?
- 11 A. Oh, the operations during construction are 12 inconsistent with the historical pattern of operations.
- Q. And so the rehabilitation project was complete when?
 - A. It was completed in 1999.
- Q. I might get you to turn now, to -- we have
 Montana Demonstrative Exhibit 2, which is the pictures.
 And if you look at Exhibit 2W.
- 19 A. Yes, sir.

4

5

6

7

8

9

10

15

20

25

- Q. What's that a picture of?
- A. That's a picture of the plaque that's on our primary gatehouse at the Tongue River Dam site. And it's a dedication plaque saying Tongue River Dam rehabilitation dedicated July 1, 1999.
 - Q. That confirms your testimony as to when the

construction was complete? 2 Α. Yes, sir. All right. Let's move to operations of the 3 Ο. Tongue River Reservoir following the rehabilitation. 4 And we looked earlier at the Northern Cheyenne Tribe 5 Compact and related documents and saw the existence and 6 makeup of the advisory committee; do you remember 7 talking about that? Yes, sir. 9 Α. 10 Ο. So what is the role of the advisory committee? 11 The role of the advisory committee is to meet 12 Α. 13 at least annually. We actually have tried to do it 14 quarterly. But the role is to meet and discuss the operations of the reservoir, look at the basin climate 15 conditions, needs, what it looks like we're going to 16 have for runoff for our contract deliveries and for the 17 Northern Cheyenne Tribe Compact waters, and to 18 19 generally make recommendations for setting outflows. 20 And you're on the advisory committee. Ο. How often do you meet? 21 2.2 As I said, we try to meet quarterly. 23 least annually, but we try to meet quarterly. What makes a difference between meeting 2.4 Q. quarterly and annually? 25

```
1
         Α.
              If we are -- if the basin hydrology looks
   good, Art Hayes and I will contact each other.
                                                    We'll
2
   visit. And Art will follow up by calling and
3
   contacting other board members of the committee.
4
   we'll make the call to not have a meeting because our
5
   flows are not going to change. We are going to have a
6
   full reservoir pool. And deliveries will be as normal.
7
              If we have additional meetings, it's
8
   perhaps -- there are concerns in the basin, low flows
9
   or bad snowpack. And we're trying to bring in
10
   technical experts from the NRCS to discuss what they
11
    think is -- are good projections for later on for the
12
13
   spring runoff.
14
              Turn with me, please, to Exhibit M524.
         Ο.
15
              Do you have that book with you?
              Yes, sir.
16
        Α.
              SPECIAL MASTER: Can we take a ten-minute
17
            So do you want to just -- is there a little
18
   section you want to finish up here?
19
20
              MR. WECHSLER: No.
                                  Now's a great time.
21
              SPECIAL MASTER: Then why don't we actually
2.2
    take -- rather than a 10-minute break, why don't we
   take a full 15-minute break at this particular point.
23
   So why don't we plan to come back at 25 after the hour.
24
   And I'm actually going to stay here for a second and
25
```

```
clear some things up. So people can be seated.
                        (Recess taken 10:10 to 10:25
2
                        a.m., October 24, 2013)
 3
              SPECIAL MASTER: Okay. Everyone can be
 4
5
   seated.
              Okay. Mr. Wechsler, you can proceed. Do you
6
7
   have an estimate of how much longer you think the
   direct exam is going to go? I'm just asking for
9
   Mr. Kaste's experts.
              MR. WECHSLER: I still have a little bit more
10
   left. Maybe an hour.
11
12
              SPECIAL MASTER: Okay. Thanks.
13
   BY MR. WECHSLER:
14
             Mr. Smith, we are about to take a look at the
15
   Tongue River Dam Manual for Operation and Maintenance,
   which is Exhibit M524. So can you please take a look
16
   at that document?
17
18
         Α.
              Yes, sir.
19
              And can you describe what Exhibit M524 is.
         O.
20
              This is the Tonque River Dam Manual for
         Α.
21
   Operation and Maintenance. This is the first 46 pages,
   which is the manual itself. The rest of the manual is
2.2
   not attached, which are all the attachments.
23
              And is this a document that's created and
24
         Ο.
   drafted by your bureau?
25
```

```
1
         Α.
              Yes, it is.
              And it's a document that you use in the
2
         Ο.
   operations of the Tongue River Reservoir?
 3
         Α.
              Yes, it is.
4
              MR. WECHSLER: Your Honor, I would move the
5
   admission of Exhibit M524.
6
              SPECIAL MASTER: Any objection?
7
              MR. KASTE:
                          No objection.
8
              SPECIAL MASTER: Okay. Exhibit M524 is
9
   admitted into evidence.
10
                        (Exhibit M524 admitted.)
11
   BY MR. WECHSLER:
12
13
         0.
              Mr. Smith, what's the purpose of this
14
   document?
15
         Α.
              These documents -- and, again, we have
   operation maintenance manuals on our other 20 water
16
   storage projects. The purpose of this document is to
17
   provide general guidelines on the operations. And if
18
   there's any specific maintenance issues or details to
19
   be addressed, they are covered in here as well.
20
21
         Ο.
              You talked about a number of factors that go
2.2
    into reservoir operations, at the beginning of your
   testimony. Are those factors a consideration when the
23
   State Projects Bureau is drafting a manual for
24
   operation and maintenance?
25
```

```
1
         Α.
              Yes, sir.
              You consider things like the characteristics
2
         Ο.
    of the basin?
 3
         Α.
              Yes, sir.
4
              And the physical limitations of the
5
         0.
    structure?
6
7
         Α.
              Of course.
              And the water rights both upstream and
8
   downstream?
9
10
         Α.
              Yes, sir. For the issue of filling and our
11
    general operations.
              And this document sets guidelines for the
12
         Ο.
13
    operations of the reservoir?
14
         Α.
              Yes, sir.
15
         Ο.
              Let's look, please, at page 10. Or 9 and 10.
              Yes, sir.
16
         Α.
              And what I'd like you to do, Mr. Smith, is
17
         Ο.
    describe the features of the Tonque River Reservoir.
18
    And as I look at Exhibit 524, there's a series of
19
    diagrams. It looks like page 10 is the general layout.
20
21
    The next page, page 11, shows contours. And then on
2.2
   page 12, Figure 5 is the Tongue River Dam survey
   monuments. So if you could use these figures and
23
   please describe the features of the Tonque River
24
   Reservoir.
25
```

```
1
         Α.
              Yes, sir. I'll just use the figure on page
    12, which is Figure 5, the Tongue River Dam survey
 2
   monuments. This specific diagram is put into the O & M
 3
   manual to provide us a quick reference when we go out
 4
    to do physical surveying at the site and see if we have
 5
    any movement at the site. However, it's about the
 6
 7
    cleanest picture to offer for descriptions.
              Going from left to right on the dam
 8
    structure -- and I should say, once I get talking --
 9
    when we're working on dams, generally speaking, we
10
    assume that we're standing on the dam crest looking
11
    downstream. And then we put things in terms of left or
12
13
    right and not directions. It's just something we've
14
    gotten used to. And it's kind of a matter of rule of
15
    thumb.
              So starting from the left-hand side of the
16
    structure itself, we come across from the county road
17
    and coming into the site. The first thing we get to is
18
    the recently rebuilt spillway. That is a five-cycle
19
    labyrinth. I believe the crest width of that is
20
    175 feet from side wall to side wall. And it has a
21
2.2
    design capacity of 40,000 CFS for discharge.
23
              SPECIAL MASTER: So just excuse me for one
24
    second. So I don't know how long you're actually going
    to be talking about this particular exhibit.
25
                                                  But I
```

```
know from over there you can touch the screen, and it
   actually will indicate where you're actually looking.
2
   And I wonder whether or not you have the same ability.
3
              MR. WECHSLER: I believe he does.
4
              THE WITNESS: Is it going to work? So how do
5
   I clean that off, sir?
6
7
              SPECIAL MASTER: That's the next question.
              THE CLERK: She can do it, or else there's a
8
9
   spot on it. Touch the screen that says "undo last."
   Up in the top right corner, it will say "undo last."
10
   Just touch the actual screen.
11
              SPECIAL MASTER: And I wonder if there's a
12
13
   different -- can we control the colors?
14
              MR. WECHSLER: Yes.
              SPECIAL MASTER: How do we control the
15
   colors?
16
              We can be off the record for a moment.
17
                        (Discussion held off the
18
19
                        record.)
20
              SPECIAL MASTER: We'll go back on the record.
21
              THE WITNESS: Thank you, sir. As I was
2.2
   saying, when we stand on the top of the dam crest, we
   like to look downstream going left to right. And with
23
   that, that would be the left side, and this would be
24
   the right side. So the reservoir would be at this --
25
```

```
on this side of the structure.
              Looking at the project itself, when we come
2
   in off of the county road onto the left abutment, we
 3
   immediately get to the spillway. It's a 5-cycle
4
   labyrinth spillway with a design capacity of 40,000
5
   CFS.
6
7
              SPECIAL MASTER: Where is that on the
8
   picture?
              THE WITNESS: That is at this location, sir.
9
10
   I can just do this.
11
              SPECIAL MASTER: Yeah.
              THE WITNESS: The labyrinth spillway is the
12
13
   weir walls. And those are, I believe --
14
   BY MR. WECHSLER:
              So for the transcript, you circled a series
15
   of what looks to be almost triangles on the lower
16
   left-hand side of the document?
17
18
              Yes. And, according to type and shape,
   what's defined as the labyrinth walls. And they are, I
19
   believe, 12-foot-high walls. The side walls of the
20
21
   spillway itself are probably 40-foot high at that
2.2
    location to contain the flood flows.
              Crossing over from the -- well, let me just
23
   go downstream. The tailrace and terminal structures as
24
   circled are on the top of the page. And that's where
25
```

```
the water discharges, either from the two low-level
    outlets or from the flip bucket of the principal
 2
 3
    spillway.
         Q.
              And that -- there's actually an arrow
 4
   pointing to it saying outlet channel Tongue River?
 5
              Yes, sir. Going across to the right, it
 6
         Α.
 7
    should be noted that that principal spillway is not
   built into the dam. It's built through a -- basically
    a hillside.
 9
10
              Going across the bridge across the spillway
    onto the left abutment of the dam itself, we come to
11
    the emergency spillway, which is this structure here.
12
13
    The emergency spillway is cut through the crest of the
14
    dam, 650 feet wide. And it has a standard ogee,
15
    o-g-e-e, ogee crest spillway on it. The interesting
    thing on this, though, is it's called a stair-stepped
16
    spillway. That's an important feature on this project
17
18
    for design capacity is 60,000 CFS. And for that flow,
    the only way to build a relatively smaller stilling
19
    basin on the toe of the dam, we have to dissipate the
20
21
    energy of the system of the water flowing over.
                                                      The
2.2
    stair step is a method to remove a lot of that energy
    as it cascades down.
23
              And that's actually, on the document itself,
24
         Ο.
    labeled auxiliary spillway; is that right?
25
```

- A. Correct. That's labeled as the auxiliary

 spillway. And I should say that sometimes I use the

 terms interchangeably: emergency spillway and auxiliary

 spillway.
 - O. Please continue.

2.2

A. Yes. And that spillway was designed to operate, assuming that the reservoir is full and we have a 100-year event, this spillway would start to flow.

And that brings us to the right abutment which is tied into the hillside. And that's this area here. And there's really nothing too remarkable to be noted on that.

Of interest, I guess, is during construction, this whole area in here, where the left abutment is tied into the existing hillside, we found out that it was what we would call an unprotected surface. So we had claimed embankment against a large coursework of open gap graded rock. And we actually -- during construction, we actually found a void in the embankment. The void was approximately 8 to 12 feet in diameter, maybe 60 or 70 feet long.

It was by happenstance, we found it. It was during the excavation for the spillway itself. And it actually was about a six-inch hole when we first saw it

```
and told somebody to go out there and see what it was,
    and they fell in.
 2
                       True.
              So we did have to do some mitigation
 3
   measures. And the other item to point out is we do a
 4
    lot of field investigations. And this site had been
 5
    explored, drilled, sampled, I believe geophysical
 6
   methods done on it. And when we started overlaying the
 7
   data, we had this void area mapped out very well, just
    around it. And we never did intercept this area.
 9
10
    it's, again, typical to always identify everything in
    the foundation.
11
              And that basically is our project.
12
13
    auxiliary spillway, we did rough-in a channel to go
14
    back down following the old pre-dam river channel
15
    around in a slough back down to the main river channel.
              Turn with me, please, to the demonstrative
16
         Ο.
    Exhibit 2, which has the pictures. And I think we have
17
18
    some pictures of the reservoir beginning at Montana
    Demonstrative Exhibit 2T.
19
              I'm there, sir.
20
         Α.
21
         Ο.
              What is this picture showing?
2.2
              This picture is showing the Tongue River
23
    Reservoir. And it actually is a very good
    representation of showing that this is a long lake.
24
    The photo was taken -- it looks like this photo was
25
```

- taken from the new gatehouse location, which is on the left side of the dam, and looking toward the south, toward the Big Horn Mountains. And on to the left side of the photo, you can catch what we have monumented.

 It's an old landslide that's right immediately upstream of the project as well that we monitor that on occasion
 - Q. You testified yesterday that the physical feature of it being a long reservoir impacts the evaporation.
 - A. Yes, I did, sir. Insomuch as surface area is a driving feature. The other item is prevailing winds to drive evaporation. And the winds, for as much that I have been there working on the project for several years in a row, seem to drive toward the southeast.
- 16 O. Turn to Montana Demonstrative Exhibit 2-U.
 - A. Yes, sir.

7

8

9

10

11

12

13

14

15

17

18

25

Q. What does this picture show?

to make sure it's not still moving.

- A. Sir, this picture shows the labyrinth weir itself. I believe the person who took the first photo just turned 90 degrees and took this photo at the same location. And it appears that the reservoir level is about two feet from full in this photo looking at the spillway walls.
 - Q. What's the elevation at full?

A. Full pool elevation is 3428.4.

1

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

- Q. What does that correspond to in terms of acre-feet?
 - A. A little over 79,000 acre-feet.
 - Q. And do you have a table that shows the relationship between the elevation and the amount of water in the reservoir?
 - A. Yes, sir. That is part of the -- one of the appendices in the operations and maintenance manual.
 - Q. So you can see if it's two feet below full, then you have a pretty good idea of what the contents are?
 - A. Yes, sir. I should say that that rating chart or that storage chart was derived from a 1995 -- I believe 1995 at the metric survey conducted by Western Water Consultants as part of this overall project.
 - Q. And the bathymetric survey looks at sedimentation and various factors; is that right?
- A. Well, the bathymetric survey by itself is strictly just a given depth from the -- down to the lake bed. It's simply a topographic -- for lack of a better term, it's just simply a topographical survey of the lake bed when the lake's in place. Then the survey that was conducted by Western Water was generated into

```
1 four-foot contours, and then storage was interpolated
2 from that.
```

Q. Let's look at Montana Demonstrative 2-V. What does this picture show?

3

4

8

9

10

11

16

17

18

19

20

A. This is inside the primary gatehouse. And it shows the -- there Art Hayes is getting ready to operate the gate system for us on this.

This is the control panel that operates the primary and secondary gates in the primary gatehouse.

- Q. We already looked at Exhibit 2-W. So turn, please, to Exhibit 2-X. What does that show?
- A. This is a photo of the emergency or auxiliary roller-compacted concrete spillway. I would just as soon say RCC from this point on for that. It would be simpler for me.

Again, this photo was taken probably from about where the bridge crosses the principal spillway overlooking the roller-compacted spillway.

- Q. Next picture is Montana Demonstrative 2-Y. What does this show?
- A. This is a photo of standing over the
 downstream tailrace, looking back at the principal
 spillway and also the two low-level outlet discharge
 points. If you look to the -- past the principal
 spillway to the side hill, you'll see concrete on the

1 side hill going up. That's the remnants of our old spillway. 2 It's interesting to note that during the 3 1930s, in the design, it wasn't uncommon for the 4 designers to take the low-level outlet works and 5 discharge them out through the spillways. And this one 6 7 was the same. Our low-level outlet works, the existing one, was in the center of the old spillway, which 8 actually created quite some hydraulic issues and other 9 items for the flow regimes that we had. 10 If there's water coming over the spillway 11 Q. shown here, what happens to it? 12 Typically, for the lower flows, and that's 13 14 even up to the 3000 or 4000 CFS, as it comes over the 15 spillway, it discharges, and it comes into what looks to be a small pool. That's called a flip bucket. 16 to about 5000 or 6000 CFS, the water will simply come 17 down the chute. It will roll in the flip bucket and 18 just cascade out of the spillway. 19 20 Once we get to flows in the 6000 plus, 7000, 21 I believe, is the number, that spillway, actually it's 2.2 called sweeping. The flow will actually sweep through 23 the flip bucket. It won't pond up there. It will just be like a sheet flow. And the flip bucket is designed 24 to throw the water vertically up into the air. 25 And

```
then it comes back down into the plunge pool.
    that's how the energy is dissipated in this type of
2
 3
    spillway.
              And we already looked at the next picture.
4
    So let's turn back to Montana Exhibit M524, the
5
    operating manual. And if you could turn with me,
6
7
    please, to page 19. Under the heading "dam operator,"
    there it indicates, "The responsibility of the daily
8
    operations of the dam and reservoir rest with the
9
    association and its dam operators."
10
              And I think that's what you described
11
    earlier; right?
12
13
         Α.
              Yes, it is.
14
              Is there a dam tender?
         Ο.
15
         Α.
              Yes.
              Who is that?
16
         Ο.
              That would be Mark VanHale.
17
         Α.
              He works with the association?
18
         O.
              Yes, he works for the association.
19
         Α.
20
              What are his responsibilities?
         O.
21
         Α.
              For the day-to-day operations on the project,
2.2
    if I may just go through a typical season.
23
              Please.
         Ο.
              After runoff flows are through and we're into
24
         Α.
    delivering contract water, contract holders will
25
```

```
contact Art and/or Mark via leaving voice mail messages
   or direct contact and make requests for contract
2
   deliveries. Mark then will adjust gates as necessary
 3
   to work with those contract deliveries.
4
              If there are commissioners on board to
5
   monitor and deliver water, then I believe it goes to
6
   the commissioners then, but Mark is responsible for the
7
   operation of the gates themselves.
8
9
              SPECIAL MASTER: Can I just interrupt just
10
   for clarity of the record? What gates are you talking
   about?
11
              THE WITNESS: The primary or auxiliary gates
12
13
   in low-level outlet works.
14
              SPECIAL MASTER: So these are gates for the
15
   reservoir?
16
              THE WITNESS: Yes, sir. These are the actual
   gates in the reservoir itself.
17
18
   BY MR. WECHSLER:
              Turning to page 20, please. Under the
19
         Ο.
   heading "method and schedule of operation"; do you see
20
   that?
21
2.2
         Α.
              Yes, sir.
23
              Second paragraph there says, "The date
    irrigation releases begins varies from year to year
24
   with May 1 usually being the earliest"; do you see
25
```

that? Yes, sir. 2 Α. That's consistent with what you testified to 3 Ο. yesterday? 4 Yes, sir. 5 Α. And I think you also described the fill 6 Ο. period. And remind us, what's the fill period on this 7 reservoir? Our fill period is tied to the hydrograph, 9 Α. which is that April through June time period. 10 And then it indicates, "Irrigation releases 11 Q. usually end by September 30th as specified in the water 12 13 purchase contracts." And I think that's also 14 consistent with what you said yesterday? 15 Α. Yes, sir. And then it says, "The actual dates that 16 releases begin and end depend on the year's actual 17 18 climatological and hydrological conditions"; do you see that? 19 20 Yes, I do. Α. And that sentence, does that reflect on the 21 Ο. 2.2 description that you gave of the need for flexibility? 23 It most certainly does. Α. Yes. Because if the year's climatological or 24 Ο. hydrological conditions are different than normal, you 25

have to be able to adjust that; right? Α. Yes. 2 Turn, please, to page 21. Here it indicates 3 Ο. "maximum winter storage"; do you see that? 4 Yes, I do. 5 Α. What is this describing? Ο. 6 7 Α. In our operations and maintenance manuals, we will set out parameters that we like to see our 8 reservoirs operate at. Maximum winter storage is the 9 pool level that we would like to see in the wintertime 10 during operations for the -- and not to exceed value, I 11 12 should say. This indicates that the maximum reservoir 13 14 elevation for winter storage is elevation 3417.5 feet with 45,000 acre-feet of storage; right? 15 Yes, it does. 16 Α. Why is the maximum storage set at 45,000 for 17 Ο. the Tonque River Reservoir? 18 19 The 45,000 acre-foot storage -- more Α. importantly, it's the elevation of 3417.5. It 20 correlates to the base of the spillway walls. 21 The intent with that elevation is to minimize the amount of 2.2 water on the concrete surfaces, especially the vertical 23 surfaces, to minimize the freeze-thaw and ice damage to 24 the concrete and prolong the life of the structure. 25

```
1
        Q.
             If the structure is damaged, it can't really
   serve its purpose; right?
2
```

- It does increase 0 & M costs, repair Α. The other issue that's tied to that elevation is we start getting up to higher elevations, we have thinner dam crest zones. So we have issues with making sure we don't damage the outer shell riprap arming protection of the reservoir too.
- And next sentence here says, "This winter maximum helps prevent damage to the riprap and embankment from wind driven waves and ice."
- Α. Yes. 12

3

4

5

7

9

10

11

16

17

20

- 13 Ο. That confirms your testimony that you just 14 gave?
- 15 Α. Yes, sir.
 - Next heading says "minimum winter storage." Ο. What is that referring to?
- Very much like the other items, we have 18 Α. guidelines to -- we try to operate between on our 19 reservoirs. Minimum winter storage can be tied to 21 various things. For most of our projects, I think for 2.2 all of our projects, where we have a minimum winter storage is to protect the concrete structures in the 23 reservoir, primarily the intake control towers. At --24 these projects were built back in the 1930s. 25 And

```
typically when we do rehabilitation work, we don't
1
   replace the intake towers because we don't have the
2
   opportunity to drain our reservoirs completely.
3
4
              With the concrete built in the 1930s, they're
   very susceptible to freeze-thaw damage in the
5
   wintertime if they are exposed. So the intent is to
6
7
   minimize that exposure and to minimize the exposure of
   the structures to stress of ice. Because the other
8
   component to that is we're not always certain how well
9
   these structures were reinforced and if they can resist
10
   straight ice loading on the structures.
11
              In this operating manual, it says that "The
12
         Ο.
13
   minimum elevation for winter storage is 3396 feet with
14
   10,800 acre-feet of storage."
              Since the rehabilitation of the reservoir,
15
   have you gone below this number?
16
              Since the rehabilitation? No, we have not.
17
         Α.
              Next section is the "minimum outlet
18
         Ο.
19
   discharge." And what's that describing?
20
         Α.
              This is the minimum releases that we
21
   determined through the Tongue River operating committee
2.2
   and final environmental impact statement, flows
   necessary to be released through our project to
23
   maintain the system, keep the river flowing, prevent
24
   the ice jams downstream and to -- and to maintain our
25
```

```
historical practice of operations.
2
              Here this indicates that the minimum outlet
         Ο.
    discharge is 175 CFS. It says -- to read the actual
 3
    language it says, "Pursuant to the operating plan,
4
    Appendix A, the minimum flow to be maintained at the
5
   dam outlet to help maintain the fishery and Tongue
6
7
   River, will generally be the inflow or 175 CFS,
    whichever is less; right?
              Yes, it is.
9
         Α.
10
         Ο.
              And the next sentence, can you read that,
11
   please?
              "The cutting outflows to below the minimum
12
         Α.
13
    will be allowed only as needed to accommodate necessary
14
    dam safety inspections, maintenance, drought
15
    conditions, or other emergency purposes."
              What does that mean?
16
         Ο.
              That the 175 is the flow that we strive to
17
         Α.
18
    have. However, there are going to be conditions arise
19
    that we know we're going to have to be able to adjust
20
    that flow.
21
         Ο.
              Next is the "winter operations of tunnels."
2.2
    Do you see that?
              Yes, I do, sir.
23
         Α.
              What is that referring to?
2.4
         Ο.
```

25

Α.

At the Tongue River Reservoir, it's unique

```
amongst our projects because during the rehabilitation,
   in order for us to maintain summer releases, and winter
2.
   releases for that matter, and still work on this
3
   project, we had to build a second low-level outlet as
4
5
   part of the project.
              So most other projects we have releases, we
6
   don't have to deal with splitting flows. At Tongue
7
   River, the old conduit, again, concrete built in the
   1930s, after the first year of operation, we had
9
   swapped to the primary outlet. And we didn't put flows
10
   through the auxiliary or the old existing conduit. And
11
   for the first 100 to 150 feet up the conduit entrance,
12
13
   the portal, we had a lot of concrete, I would say,
14
   slaking or the surface of the concrete peeling off from
   freeze-thaw damage.
15
              So from that point, our intent was to put
16
   enough flow through the system for the river to provide
17
   a heat sink, as it were, to help prevent freezing.
18
   the association also attempts to put canvas cover over
19
   the outlet works as well to minimize the amount of air
20
21
   flow going through the system at the low flows to
2.2
   reduce the chance of freezing there.
              The other conduit, we found out during a
23
   winter inspection where we had minimal flows going
24
   through, we had about a two-foot wall of ice at the
25
```

```
exit portal with a small opening that you could just
   about slide through to get into it. And that was from
2
   some slow seepage and dripping water just built up over
 3
   time, and a little bit of water that, perhaps, melted
4
   and ran down from the face of the hillside.
5
              So we need to make -- ensure that we have a
6
7
   little bit of water flowing through there to make sure
   that when this does form in cold periods, that there's
   sufficient water to keep it cut through and to flush it
9
10
   out when it forms and gets too large.
11
         Q.
              Essentially, there has to be water flowing
    through both outlets?
12
13
         Α.
              Yes.
14
              In the winter?
         Ο.
15
        Α.
              Yes.
                    It's very important to minimize damage.
              Before we leave this page, I intended to ask
16
         Ο.
   you about this. We talked about the minimum winter
17
18
   storage and whether or not it had ever gotten below the
   10,800 acre-feet of storage. And I think you said it
19
20
   had not; right?
21
         Α.
              Correct.
2.2
              We also look at the maximum winter storage of
23
    45,000 acre-feet. In recent years, have you gone above
   the 45,000 acre-feet of winter storage?
24
```

Yes, we have.

25

Α.

Q. And why have you done that?

2.2

A. Well, as an instance this year, we went where we're above it right now about 57,000 acre-feet. And it was -- that was not intended. There was a large precipitation event late September. And it seemed we have quite a bit of flows coming in on the system. And we are -- we're not grafting yet or lowering the pools down. But we're releasing 300 CFS and still gaining right now.

Past years, and in conversations with the association and the end users, had discussions about since we have a new concrete structure at the dam, the principal spillway structure, and they're built to current standards and with -- I would like to say, with the latest in technology and admixtures and preventative measures that will help mitigate or minimize some of the freeze-thaw damage, that we wanted to evaluate the performance of the concrete walls with some water against them, knowing full well that this will in a short term probably not have any effect. In the long term, it will increase the operation and maintenance costs because of the repairs that are going to have to happen because we're putting through additional cycles of freeze-thaw.

The association agreed to that. And really

```
for the intent of trying to mitigate some of the
unknowns in this system because of the size of the
basin, we're trying to predict with a crystal ball from
six months to eight months in advance what we're going
to get for a primary fill season. So if we have some
water in there extra, we have some more flexibility
through the winter months.
```

Q. Have you attempted to go above the 45,000 acre-feet maximum in response to the shortages that lasted up through 2006?

2.2

A. I'm sure that that might have prompted the association members to accept the additional risk of higher O & M costs in the long run.

However, in the short term, it's an issue that we thought was a prudent thing to do just to have the flexibility to -- to have the flexibility through the year to try to minimize some of the risks of predicting summer flows or spring runoff flows.

- Q. You say -- you talk about the higher O & M for the Users' Association. What do you mean by that?
- A. The association is part of the agreement, the water marketing agreement, pays for 100 percent of the operation and maintenance costs and all the, I'll say, small repair costs which might not be so small on occasion, probably, say, under 20 or \$25,000-type costs

and others. 2 And so when we go through operational changes, like, you know, something like this, we need a 3 visit with the association because they are going to be 4 bearing the brunt of the expense. 5 In other words, if you go above that 45,000 Ο. 6 and it causes damage, they have to pay for it? 7 Yes, they do. 8 Α. 9 And when you're making an operational change like this and going above the 45,000, is it important 10 to be cautious? 11 Yes, it is. And that's why we don't have 12 Α. 13 50,000 reflected in the O & M manual. We determined we 14 have the opportunity to be prudent here and basically empirically test this and evaluate it over a 5- or 15 10-year period. And if that works out well and works 16 out well for the system, then we'd incorporate it into 17 the O & M manual. 18 19 At that point you might be able to change the Ο. operation and maintenance manual? 20 21 Α. Yes, sir. 2.2 Now, the operations -- this operation and maintenance manual, in your experience, is it 23 consistent with industry standards? 24 Yes, it is. 25 Α.

```
And is that including the maximum winter
1
         Q.
    storage, minimum winter storage, minimum outlet
2
    discharge, and winter operation of tunnels?
 3
              Yes. And the Dam Safety Program requires, in
4
    the state of Montana, requires all high-hazard dams to
5
   have an operation and maintenance manual.
6
              Let's turn to Exhibit 316.
7
         Q.
              Excuse me, sir. Did you say 316?
8
         Α.
              316.
9
         O.
10
         Α.
              I found it.
              What is Exhibit M316?
11
         Q.
12
              This is the operating plan for the Tongue
         Α.
   River Reservoir.
13
              Is this the operating plan that's referred to
14
         Ο.
15
    in the Northern Cheyenne Tribe Compact?
              Yes, it is.
16
         Α.
              It's what was adopted pursuant to that
17
         Ο.
18
   process?
              Yes, it is, sir.
19
         Α.
20
              Is this a document you're familiar with?
         Ο.
              Yes, I am.
21
         Α.
2.2
         Ο.
              And it relates to the operations of the
23
    Tongue River Reservoir; right?
              Yes, it does.
24
         Α.
              And you actually had a copy of this attached
25
         Q.
```

```
to your original expert report?
              Yes, I believe as Appendix A.
2
              If you turn to the last page, Appendix A8 --
 3
         Ο.
   yeah, page A8.
4
              I'm there, sir.
5
        Α.
              And this has a series of signatures?
6
         0.
        A. Yes, sir.
7
              And this shows one of the signatures, the
8
         Ο.
   second one, is that of Glen McDonald's; who is he?
9
10
         Α.
              Glen McDonald was my predecessor, State Water
   Projects Bureau chief.
11
12
              MR. WECHSLER: Your Honor, at this time, I'd
   move the admission of Exhibit M316.
13
14
              MR. KASTE: No objection.
15
              SPECIAL MASTER: So actually, before -- I'm
16
    just curious. I assume this is exactly the same as
   M525?
17
              MR. WECHSLER: Your Honor, I believe it is,
18
19
   yes.
20
              SPECIAL MASTER: So you're not planning on
21
   introducing M525?
              MR. WECHSLER: No, I'm not.
2.2
              SPECIAL MASTER: Okay. Thanks. Then Exhibit
23
   M316 is admitted.
2.4
                        (Exhibit M316 admitted.)
25
```

BY MR. WECHSLER:

4

5

6

7

- Q. How does the operating plan relate to the operating manual?
 - A. The operating manual refers to the operating plan as -- well, they're combined. The operating plan in Appendix A is our -- meets our goals and guidelines for the operations of the project. And the operations manual is written around the operating plan.
- 9 Q. Who is responsible for developing the 10 operating plan?
 - A. For developing the operating plan?
- 12 O. Yes.
- A. That was required through the Northern
 Cheyenne-Montana Compact. And the parties that were
 involved were the project sponsors, being the State of
 Montana, the federal government, and the Northern
 Cheyenne Tribe.
- Q. Looking back at the records, do you know if there were revisions and comments made on the operating plan?
- A. Yes. I believe there were. I was in deposition and I was shown some work product copies of it and other -- yes.
- Q. And those revisions are actually documents that are kept in your bureau; correct?

```
1
         Α.
              Yes, there are.
              Because you're responsible for the Tongue
 2
         0.
   River Reservoir?
 3
         Α.
              Yes, sir.
 4
              Can you turn with me, please, to Exhibit
 5
         Q.
   M340?
 6
 7
         Α.
              Sorry for the delay, sir. I'm getting a
    little bit disorganized.
              No problem. We have a lot of documents to
 9
         Ο.
    look at.
10
              You just mentioned that you have a file
11
    showing the revisions and comments on the Tonque River
12
13
   Reservoir. And are those documents shown in Exhibit
14
   M340?
15
         Α.
              Yes, sir.
              SPECIAL MASTER: I'm sorry. If we can just
16
    stop again for a second. So how long is M340?
17
              MR. WECHSLER: Half an inch thick.
18
19
              SPECIAL MASTER: Should be over here
    somewhere. Why don't you go ahead and proceed. I'll
20
    find it later.
21
2.2
    BY MR. WECHSLER:
              Let's look at a couple of these documents. I
23
    won't ask you to go through all of them. Look at the
24
    first page. It indicates at the top is the logo for
25
```

```
the DNRC; right?
         Α.
              Yes, sir.
2
              And it shows it's from the State Water
 3
         Ο.
   Projects Bureau?
4
5
         Α.
              Yes, sir.
              And it seems to be from a Craig Stiles; who
         Ο.
6
7
   is that?
              Craig Stiles no longer works for the State
8
9
   Water Projects Bureau. But at the time, he was -- I
   believe his title was Tonque River Project Coordinator.
10
              And the document is to Ms. Jeanne Whiteing;
11
         Q.
   do you see that?
12
13
         Α.
              Yes, sir.
14
              Do you know who Ms. Whiteing is?
         O.
15
         Α.
              Yes, sir. She's an attorney for the Northern
16
   Cheyenne Tribe.
              I'll pause for a second.
17
         Ο.
              MR. WECHSLER: Your Honor, should I wait
18
   until you have it? Or would you like me to proceed?
19
20
              SPECIAL MASTER: I hate to use up any court
21
   time while we try to find it. Oh, okay. We have found
2.2
   it. Okay.
                Thanks.
   BY MR. WECHSLER:
23
              If you'll turn with me, please, Mr. Smith, to
24
         0.
   page, what's at the bottom listed as MT07735.
25
```

1 A. I'm there, sir.

4

5

- Q. And here it indicates that it's a fax transmittal from Mr. Allen Clubfoot; do you see that?
 - A. Yes, sir, I do.
 - Q. Do you know who he is?
- A. Allen Clubfoot is a member of the Northern Cheyenne Tribe.
 - O. And then who is this transmission to?
- 9 A. This transmission is to -- labeled the Tongue 10 River Advisory Committee, Glen MacDonald, Craig Stiles.
- 11 Q. You just mentioned who Mr. McDonald is. Who 12 is Mr. Stiles?
- A. Well, Allen Clubfoot wrote Greg Stiles. I'm assuming he means Craig. And Craig is, as I said, the project coordinator for the Tongue River.
- Q. And then it indicates that these are comments from the BIA for your review?
- 18 A. Yes, sir.
- Q. If you'd turn a couple pages in -- actually, let's look at the next page. And this is labeled
- 21 | MFT00737; do you see that?
- 22 | A. Yes, sir.
- Q. And this is, again, the subject matter is
 "Operating plan for the Tongue River Reservoir-review
 and comment." And do you know either of those two

```
individuals?
         Α.
              I know Rose Rennie.
2
              Who is she?
 3
         Ο.
              She works -- she's an attorney that works for
 4
    either the Bureau of Reclamation or the Solicitor's
5
    office.
             I don't know correctly which one.
6
7
         Q.
              Turn to the next page. And actually, I mean
   MT07739. And this is from Mr. Gordon Aycock; do you
    see that?
9
10
         Α.
              Yes, I do, sir.
              The subject matter is Tongue River Reservoir
11
         Q.
    operating plan; do you see that?
12
13
         Α.
              Yeah.
14
              And the date is 8/22/2000. Do you know who
         O.
15
   Mr. Gordon Aycock is?
              Yes, I do, sir.
16
         Α.
              Who is he?
17
         Ο.
              He is a Bureau of Reclamation engineer who is
18
         Α.
19
    retired.
              At the time was he working for the Bureau of
20
         Ο.
   Reclamation?
21
2.2
         Α.
              Yes, sir.
23
              And just to pick out one more -- or two more
24
    there. Page MT07745. Again, this is on letterhead
    from Ms. Whiteing's law firm, dated August 24th, 2000.
25
```

- And is that about the time that the operating plan was being discussed by the advisory committee?
 - A. To my knowledge, yes.
- Q. This is from Ms. Whiteing. We talked about Mr. Clubfoot. And there's also an individual listed here, Mr. Jason Whiteman; do you see that?
- 7 A. Yes, sir.

- 8 | 0. Who is he?
- 9 A. Again, Jason Whiteman is with the Northern
 10 Cheyenne Tribe. I believe at that time period he was
 11 with their Natural Resources Department.
- 12 Q. And finally, here you have page MT07771.
- 13 | 07771. You have that before you?
- 14 A. I'm getting there, sir. I have it.
- Q. And so this is -- appears to be a fax, again, from Mr. Stiles to Mr. Art Hayes and Mr. Roger Muggli.
- 17 And you know who those individuals are?
- 18 A. Yes, I do, sir.
- 19 Q. Who are they?
- A. Art Hayes is the president of the Tongue
 River Water Users' Association. And Roger Muggli is
 the manager for the T & Y Irrigation District.
- Q. Do you understand this to be the contents of a folder that's kept at the State Water Projects Bureau containing the comments on the operating plan?

```
1
         Α.
              Yes, sir.
 2
              And looking at it, does it appear to be a
         Ο.
    complete copy of those documents?
 3
         Α.
              Yes, sir.
 4
              MR. WECHSLER: Your Honor, at this point, I'd
 5
    move the admission of Exhibit M340.
 6
              MR. KASTE: No objection.
 7
              SPECIAL MASTER: Okay. Then Exhibit M340 is
 8
    admitted.
 9
                         (Exhibit M340 admitted.)
10
    BY MR. WECHSLER:
11
12
              So based on your review of the records, it
13
    looks like the operating plan went through a fairly
14
    rigorous review; would you agree with me?
              Yes, I think most things with this project
15
         Α.
    and through the course of the project went through
16
    rigorous review.
17
              And that included a review by the Northern
18
19
    Cheyenne Tribe; right?
20
         Α.
              Yes, sir.
21
         Ο.
              And also a review by individuals at the
    Bureau of Reclamation?
2.2
23
              Yes, sir.
         Α.
              And also the Bureau of Indian Affairs?
24
         Ο.
              Yes, sir.
25
         Α.
```

- 1 Q. As well as from your office? Α. Yes. 2. If you'd turn back to the operating plan for 3 0. the Tonque River Reservoir. 4 Which exhibit was that, sir? 5 Α. M316. M316. First, looking at page A3, Ο. 6 under the heading "guidelines." And what are 7 guidelines in this operating plan? The guidelines appear to be established to 9 provide a means and mechanism to operate the committee 10 to ensure that the goals were met for the operating 11 12 plan. Looking at guideline No. 7, this confirms 13 14 your testimony earlier about the membership of the advisory committee; right? 15 16 Α. Correct. Turning to page A4, under the heading 17 Ο. "regulation of reservoir levels and outflows." What do 18 you understand that to be? 19 20 The underlying goals and criteria for Α. 21 establishing the operating plan. If you look at the -- under goals, the sixth 2.2 23
- goal there indicates "fill the reservoir during spring runoff"; do you see that? 24
 - That would be item No. 6, yes, sir. Α.

```
1
         Q.
              Is that consistent with your testimony about
   the fill period and the historic fill period?
2.
                    That ties in with the hydrograph of
 3
         Α.
              Yes.
   this basin.
4
              Goal No. 10 indicates "maintain appropriate
5
         Ο.
   winter outflow from the reservoir, minimize downstream
6
   icing problems."
7
              And you've talked about that as well; right?
8
9
         Α.
              Yes, I have.
10
         Q.
              Now, do you have some flexibility in
   operating the winter outflows?
11
              Yes, sir, we do.
12
         Α.
13
              Why is that flexibility important?
         Ο.
14
              To deal with the day-to-day changing
         Α.
15
   conditions. Just using this year as an example, in
   about middle of September, we're at about the 3418,
16
    3417 levels for the 45,000 acre-foot. And the
17
   southeastern Montana, northeastern Wyoming, and western
18
   South Dakota got hit with a very large precipitation
19
   event that I think South Dakota is still coming out of.
20
21
              We're currently -- we're releasing 175, 200
2.2
         And we gained, I want to say, 11,000 or 12,000
   acre-feet of water since that time period. So we are
23
   adjusting our gate flows upward to try to bring that
24
   back to a manageable level for the winter conditions.
25
```

```
1
              Likewise, we've gone into wintertime
   discharging 175 CFS or 200 CFS and managing our inflows
2.
   and maintaining the flows and watching snowpack.
3
   Snowpack being good in the end of November and
4
   December, but then nothing gaining. And then we will
5
   have to adjust our flows downward to match the inflows.
6
7
              It's -- like I say, it's a large basin. And
   things never stay the same in this basin.
8
9
   Historically, every year we have high spring runoff
10
   from April through June. And we are predicting ahead
   of time to catch those flows, mitigate downstream
11
   risks, and fill the reservoir to meet our obligations.
12
13
              Under the guidelines, which is on that same
14
   page, A4, then if you'll turn to the next page, A5,
15
   quideline No. 4, I'd like to discuss that with you.
              Here it indicates that "By March 1 of each
16
   year, the DNRC shall evaluate reservoir storage,
17
   snowpack, streamflow, streamflow forecast, total
18
   moisture, and the extended weather forecast outlook";
19
   do you see that?
20
21
         Α.
              Yes, I do, sir.
2.2
         Q.
              Do you do that?
23
              Yes, sir, to the best of our abilities.
         Α.
24
              How do you do that?
         Ο.
              When we -- of course, the physical
25
         Α.
```

```
measurements and monitoring, we have currently realtime
   data for reservoir storage and outflows.
                                               Inflows may
2.
   or may not be there because of the river, stream ices
 3
   up. So we have the physical data for the reservoir.
 4
   We contact the National Resource Conservation Services,
5
   being the NRCS, and their experts out of Bozeman to try
6
   to obtain forecasting from the SNOTEL sites. We also
7
   contact the National Weather Service. Sometimes
    they're interacting with the NRCS at this time to try
9
10
   to do predictions on flows.
              We try to bring all that together about that
11
    time period to make our final determinations.
12
13
              And that impacts the way in which you operate
14
   the reservoir?
15
         Α.
              Yes, it has to.
              Staying with guideline 4 here, skipping a
16
   sentence, the next sentence says, "If the reservoir
17
   elevation is higher than average and indications are
18
    that a wet, high runoff spring could exist, the DNRC
19
20
   and TRWUA will consider increasing the outflow so that
21
   some storage capacity is available to control
2.2
   downstream flooding"; do you see that?
23
              Yes, sir.
         Α.
              And I think you've talked about the need to
24
         Ο.
   operate the reservoir as to control downstream
25
```

```
flooding; right?
2
              Yes, sir. To mitigate as much as we can.
         Α.
    The primary purpose, as indicated in that sentence, is
 3
    that we are here to fill our contractual water
4
   marketing needs as well as Northern Cheyenne Compact
5
   water rights. But as a high-hazard dam owner, we have
6
7
    to take into consideration the downstream properties
    and lives at risk.
              Next, it indicates, "If the reservoir
9
10
    elevation is lower than average and conditions indicate
    the potential for a dry low runoff spring, the DNRC
11
    will inform the advisory committee of a potential for a
12
13
    water shortage that year"; do you see that?
14
         Α.
              Yes, sir.
15
         Ο.
              Goes on to say, "The advisory committee will
16
    implement the storage plan to minimize the impact of
    such a shortage."
17
              And you talked earlier about the need to
18
    operate the reservoir in case of a shortage as well;
19
20
    right?
21
         Α.
              Yes, sir.
              And so is this consistent with that
2.2
         Ο.
23
    testimony?
              Yes, it is.
2.4
         Α.
              Does this happen?
25
         Q.
```

```
A. Yes. However, if it's -- we have a dry year, typically, prior to March 1st -- March 30th, we were having discussions on flows and river flows much earlier on. And after this, too, the issues on -- discussions on establishing pro rata shortages amongst the users occurs at this time period as well.
```

Q. What do you mean by pro rata sharing of shortages?

2.2

- A. If we're not full, we will discuss, Art Hayes and myself, about what we think would be a reasonable amount of contract water to be delivered, ensuring that we're not affecting the Northern Cheyenne Tribe contract water, although their water is also under the same shortage criteria as ours, and determine what percentage of contracts can be delivered. And then the shareholders' amounts under the agreements are reduced by that amount. However, they make full payments on those water right contracts.
- Q. This guideline No. 4 is talking about evaluating conditions going into a year. Do you try to do that as early as possible?
- A. We do, sir. We, across all of our projects, start in probably end of December, first of January of every winter months. We've established the appropriate SNOTEL sites that we tap into to just monitor snowpack

```
1 and what we see for our running averages. We maintain 2 that for our 21 projects.
```

- Q. And that's all forecasting. And you talked yesterday about the variability of climate conditions in the basin. Are there times when you forecast the snowpack to be one thing and then it turns out to not be as it was forecasted?
 - A. Yes. That has definitely happened.
 - Q. It happens on, unfortunately, a common basis?
- 10 A. Well, in this basin, yes. Because this basin
 11 is prone to spring rains. And that will change
 12 everything in a forecast.
- Q. Let's look at guideline No. 9 here. This
 indicates that "The advisory committee recommends that
 the maximum preferred carryover be 45,000 acre-feet
 (elevation 3417.5 feet) in order to minimize
 freeze-thaw damage to the dam by allowing water to
 remain at the bottom of the concrete walls"; you see
 that?
 - A. Yes, sir.

3

4

5

6

7

8

9

- Q. And that's pretty consistent with the operating manual?
- 23 | A. Yes, sir.
- Q. It's for the same reason you described before?

```
1
         Α.
              Yes.
              Looking at No. 11, this indicates, "The
2
         Ο.
   minimum outflow of the reservoir during the winter low
3
    flow period from October 1 to March 1 will generally be
4
    the inflow or 175 CFS, whichever is less. Cutting out
5
    flows to below the minimum will be allowed only as
6
   needed to accommodate necessary dam safety inspections,
7
   maintenance, dam safety, or other emergency responses";
   do you see that?
9
10
         Α.
              Yes, sir.
              And this also is very consistent with the
11
         Q.
    operating manual?
12
13
         Α.
              Yes.
14
              Is this operating plan consistent with
         O.
    industry standards?
15
                    I would say so.
16
         Α.
              Yes.
              You consider it to be a reasonable operating
17
         Ο.
18
   plan?
19
              Yes, especially for the site.
20
              Which, of course, you have to consider in
         O.
    operating a reservoir?
21
2.2
         Α.
              Yes, sir.
23
              Now, I want to turn to the water rights in
    the Tonque River Reservoir. And so let's turn to
24
    Exhibit M526, which has previously been admitted; you
25
```

have that before you? Α. Yes, I do. 2 Are you familiar with this stipulation? 3 Ο. Yes, I am. 4 Α. So what is this amended stipulation? 5 Q. This is the amended stipulation that's been 6 Α. 7 signed amongst parties and submitted to the Water Court for the State's water right atonement. At the time the amended stipulation was 9 10 entered into, were you the State Water Projects Bureau chief? 11 12 Α. Yes, I was. I want to take a look at a couple of things 13 Ο. 14 in this. Paragraph 6 of the amended stipulation first. 15 At the end there, the final two paragraphs, could you read that? 16 Paragraph 6, the final two sentences? 17 Α. 18 Yes, please. Ο. 19 "The two rights, however, are commingled and Α. 20 administered conjunctively according to an operation 21 plan developed pursuant to the compact. Both rights 2.2 are dependent on the DNRC's ability to fill and refill the project continuously subject to physical and legal 23 water availability and capacity in the reservoir." 24 Do you understand the two rights to mean the 25 Q.

Northern Cheyenne Tribe right and the DNRC right? Α. Yes, sir. 2 What does it mean to be "commingled and 3 Ο. administered conjunctively"? 4 Well, we have the unique situation where both 5 water rights have the same priority date. With that, 6 they store at the same time. They're delivered at the 7 same time. Within the compact itself, there is 8 language that the Northern Cheyenne Tribe's storage 9 10 water is also -- shares pro rata shortages with the State's water right. 11 If the Tongue River Reservoir does not fill, 12 Ο. 13 does that impact the Northern Cheyenne Tribe right? 14 Α. Yes, it does. 15 Ο. Why? The Tongue River Reservoir does not fill the 16 Α. shortages that are shared amongst the two parties. 17 18 Ο. Turn, please, with me to page 4, paragraph 9; 19 do you have that? 20 Yes, sir. Α. 21 Ο. Here it indicates that "The United States of 2.2 America Bureau of Reclamation objected." Let me stop 23 there. Do you recall the Bureau of Reclamation objecting to the original preliminary decree? 24 Yes, sir. 25 Α.

```
Continues "to the volume in the decree."
1
         Q.
   Does that refer to the preliminary decree?
2.
              Yes, sir.
 3
         Α.
              And then it indicates a volume there of
         Ο.
4
    134,316 acre-feet; do you see that?
5
              Yes, I do, sir.
         Α.
6
              Was that the volume in the original decree?
7
         Q.
              I believe so, sir.
8
         Α.
              What's the capacity of the Tongue River
9
   Reservoir after the rehabilitation project?
10
              After the rehabilitation project was just
11
         Α.
    over 79,000 acre-feet.
12
              So that volume would have allowed
13
14
    approximately a one-and-a-half fill; is that right?
15
         Α.
              Yes, sir.
              Are you familiar with the term "one-fill
16
    rule"?
17
              I have heard that term.
18
         Α.
19
              What do you understand it to mean?
         O.
20
              My understanding of that term is that you're
         Α.
21
    allowed to fill just to the storage of the reservoir
2.2
    and no more.
23
              Once during the year?
         Ο.
24
              Yes, sir. Per water year.
         Α.
25
         Q.
              In Montana, are you -- well, as State Water
```

```
Projects Bureau chief is it your experience that
   Montana has a one-fill rule?
2.
              Speaking to State Water Projects, none of our
 3
         Α.
   projects are limited to a one-fill rule.
4
              Let's look a little bit at the amended
5
         Ο.
   proposed abstract, which is towards the back of this
6
7
   document. And it's at the page MT15126; do you have
   that?
8
              Yes, I do, sir.
9
         Α.
10
         Q.
              And looking at the owner, it has a
   description there. It also talks about the water right
11
   being commingled which we just looked at. And here the
12
13
   priority date -- what's the priority date on the Tongue
14
   River Reservoir, as you understand it?
15
         Α.
              April 21st, 1937.
              And it indicates, consistent with your
16
   testimony, that this was a filed right. The purpose,
17
18
    then, says sale; do you see that?
              Yes, sir.
19
         Α.
20
              What does that mean?
         Ο.
21
         Α.
              That the State of Montana, through the State
2.2
   Water Conservation Board and now the State Water
   Projects Bureau, as the owner of the water right,
23
   stores the water for sale to market to others.
24
```

25

Q.

You testified both yesterday and today that

```
once the project was completely built and filled and
    then that -- the water was offered for sale.
                                                   Then the
2.
    water right was perfected up to the maximum amount of
 3
    the reservoir.
4
              And I'm wondering, is this part, the purpose,
5
    consistent with that testimony?
6
7
         Α.
              Yes, it is, sir.
              Here under this amended proposed abstract we
8
    talked about a couple of days ago, this particular
9
    reservoir has no flow rate; do you see that?
10
11
         Α.
              Are you on page 1, sir?
12
              I am.
         Ο.
13
              Yes, I see that, sir.
         Α.
14
              And is that consistent with an onstream
         Ο.
15
    reservoir?
16
         Α.
              Yes, sir.
              Do you have any onstream reservoirs in the
17
         Ο.
18
    State Water Projects Bureau that have flow rates?
              Not that I can recall. It's just simply tied
19
         Α.
20
    to storage.
              In the volume section here, this indicates a
21
         Ο.
2.2
    specific volume has not been decreed for this water
    right, meaning the Tongue Reservoir water right.
23
    is that a common feature for your State Water Projects
24
25
    Bureau --
```

```
1
         Α.
              That is --
              -- projects?
 2
         Ο.
              I'm sorry. That is not a common feature
 3
         Α.
    amongst our other 20 water storage projects.
 4
              Would the number we looked at before that was
 5
         Ο.
    134,000 and change, would that -- as a volume, would
 6
 7
    that be more consistent with other projects in Montana?
              Yes, it would be. Well, other projects
 8
   within the State Water Conservation -- other projects
 9
    under the purview of the State Water Projects Bureau.
10
              Are there any other State Water Projects
11
         Q.
    Bureau projects that have no volume set?
12
13
              I believe there is the Fred Burr project in
14
    the Bitterroot Valley. And it does not have a volume
    tied to it either.
15
              Moving to page 2 of this document. At the
16
    top here, it indicates that the water is diverted into
17
    storage and released under the operation plan for
18
    Tongue River Reservoir developed pursuant to the
19
    Northern Cheyenne-Montana Compact.
20
21
              Do you understand that to be the operating
2.2
    plan we just looked at?
              Yes, sir.
23
         Α.
              And so that's actually a component of your
24
         Ο.
    water right?
25
```

A. Yes.

2.2

- Q. Let's talk a little bit about the operations of the reservoir since the enlargement. The capacity of the reservoir is now 79,000 and change; right?
 - A. Yes, sir.
- Q. Have the operations of the enlargement -- I'm sorry -- the operations of the reservoir since the rehabilitation, have they been consistent with historic operations?
 - A. Definitely so, sir.
- Q. How so?
- A. The minimum -- or the minimum. The winter release recommendation of 175 CFS is very consistent with historical practices. The pattern of use that -- the historical pattern of use is still followed very well. And it is -- the pattern of historical use has followed that because of basin characteristics and the volume of water that comes through for storage that's available for storage is typically always in the spring months.
 - Q. Since the rehabilitation, has the Northern Cheyenne Tribe used its reservoir storage right?
- A. Since the rehabilitation, I believe the Northern Cheyenne Tribe has marketed one year, maybe two years, during the drought years some of their

```
water, but not very much.
              Otherwise they haven't used it?
 2
              Correct.
 3
         Α.
              And so has the amount -- has the amount of
 4
         Ο.
    water that's been stored in any given year in the
 5
    Tongue River Reservoir, has that amount been consistent
 6
 7
    with prior to the Yellowstone River Compact?
              Yes, sir.
 8
         Α.
              And I'd like to take a look a bit at the
 9
10
    winter flows through the reservoir. And to do so, I'll
11
    ask you, again, to use that Montana Demonstrative
    Exhibit 3. This time I'll be looking at the flows from
12
13
    Table 2 of Exhibit M11, which was Mr. Dalby's expert
14
    report. And the last page of that Montana
    Demonstrative Exhibit 3, I think shows historic flows
15
16
    and CFS after the rehabilitation project in -- below
    the reservoir; do you have that?
17
18
              Yes, I do, sir.
         Α.
19
         O.
              And here the columns are the months; right?
20
              Yes, sir.
         Α.
21
              So working from January across and the last
         Ο.
2.2
    is December?
              Yes, sir.
23
         Α.
24
              Do you understand the term water years?
         Ο.
              Yes, sir.
25
         Α.
```

1 Q. What is a water year? For us a water year runs October 1st through 2 Α. September 30th. 3 So let's say you take a year, 2013, the water 4 year for 2013 actually starts in October of 2012; is 5 that right? 6 Yes, sir. 7 Α. And goes all the way through to 8 Ο. September 2013? 9 10 Α. Yes, sir. Okay. Looking at the -- you said that the 11 Q. rehabilitation project was completed in '99. And 12 13 looking at the flow rates during the winter months, 14 October through March, has that generally been consistent with what you understand to be -- let's 15 first start with pre-compact, pre-1950 operations? 16 17 Α. Generally so, sir. And, in fact, the flows recently have been a 18 Ο. little bit less than prior to the compact; right? 19 20 Α. Yes, sir. 21 And do you understand the flows during this Ο. 2.2 period to be generally consistent with the period from 1950 to the flood in 1978? 23 24 Α. The pattern of use is very much the Yes.

25

same.

```
1
         Q.
              I want to talk about a couple concepts
   related to reservoir operations during a typical year.
2
   And you've described at length the operations during
3
   the year and when the spring runoff is. But I don't
4
    think we've talked a lot about carryover storage.
5
              Will you please explain to me what carryover
6
7
   storage is?
              At the end of the water year, if all the
8
   contracts were not delivered and the Northern Cheyenne
9
   Tribe Compact water was not marketed and/or delivered,
10
   at the end of that year, the start of the new water
11
   year starts, and the water just becomes part of the
12
13
   next year's accounting.
                            It's not carried over.
14
   becomes the next year's accounting, and that's your
15
   carryover.
              After water is carried over in any given
16
   year, does the State of Montana still have the right to
17
   fill up the maximum amount of its water right?
18
19
              Yes, sir.
         Α.
              In other words, even after the carryover,
20
         Ο.
21
   you're allowed to use 69,000 acre-feet plus of water;
2.2
   correct?
23
              Yes, sir. And the carryover's feature as
         Α.
24
   well of trying to mitigate back to back dry years.
              And each year, even if the Northern Cheyenne
25
         Q.
```

```
Tribe didn't use their 20,000 acre-feet for the next
    water year, they still have only 20,000 acre-feet of
2
   water?
 3
         Α.
              Correct.
4
              You talked quite a bit about the forecasting
5
         Ο.
    that you do in any given year and that you make
6
7
    adjustments based on that forecasting; right?
              Yes, sir.
8
         Α.
              Are you in regular communication with the
9
10
    Tongue River Water Users' Association throughout the
    winter?
11
              I'm in fairly regular conversations with Art
12
         Α.
13
    Hayes through the winter months and summer months as
14
   well.
15
         Ο.
              And irrigation season as well?
16
         Α.
              Yes.
              Exhibit 337, let's look at that, please.
17
         Q.
              Excuse me. Was that 367?
18
         Α.
19
              337.
         Ο.
20
              Oh, 337.
         Α.
21
         Q.
              Do you have that?
2.2
         Α.
              Yes, I just found that.
              Actually, before we talk about Exhibit M337,
23
         Ο.
    I think you -- we looked yesterday at a list of
24
    contract holders from the Tongue River Water Users'
25
```

```
Association and how they have shares; right?
         Α.
              Yes, sir.
2
              If the Tongue River Reservoir does not fill,
 3
         Ο.
   do you know what happens to the amount of each of those
4
    shares?
5
              They are all equally reduced.
         Α.
6
7
         Q.
              So if it doesn't fill, those shares get
    reduced?
8
              Yes, sir.
9
         Α.
10
         Q.
              Farmers don't get the same amount of water?
11
         Α.
              No.
                   It's a pro rata reduction.
12
              Turning to the exhibit we were just talking
         Ο.
13
    about, Exhibit M337; do you recognize this document?
14
         Α.
              Yes, sir, I do.
15
         O.
              And starting with the first two pages, what's
    that document?
16
              The first two pages are minutes or notes from
17
         Α.
18
    the Tongue River Water Users' Association secretary and
19
    treasury, Pat Helm, about a annual meeting we had in
20
    2006, dated November 2nd.
21
         Ο.
              Were you at that meeting?
2.2
         Α.
              Yes, I was.
              And did you receive this document from the
23
    Tonque River Water Users' Association?
24
                    We received this document after that
25
         Α.
              Yes.
```

meeting. Look at the next page, which is labeled 2 Ο. MT07371; do you see that? 3 Α. Yes, sir. 4 And what is this document? 5 Ο. This is a standard form that we send to the 6 Α. associations, to all our associations, for them to fill 7 out and send back to us outlining the time, date, and place of where they are going to be holding their 9 annual meeting. 10 From the same meeting? 11 Q. Yes, sir. 12 Α. 13 Next page. Do you know what that is? O. 14 Are we talking 07372, sir, or 73, sir? Α. 15 Ο. Seventy-two. Do you know what that is? However, this is something that doesn't 16 Α. Yes. come from our office. This comes from the association 17 itself and the board to its shareholders. 18 19 Looking at the next page, 7373; what is that? Ο. 20 Α. This is a standard letter that we send out on 21 a yearly basis to the associations across the state, 2.2 reminding associations to provide us their annual meeting dates. And if there's specific information or 23 problems that we have, we might identify those in the 24

letter for points of discussion during the meeting.

```
1
         Q.
              This is a letter from you to the secretary of
    the Tongue River Water Users' Association?
2.
              Yes, sir.
 3
         Α.
              Do you understand -- all of these documents
 4
         Ο.
    are related to the annual meeting in 2006; right?
5
              Yes, sir.
         Α.
6
7
              Do you understand these documents to be
         Q.
    connected?
              Yes, sir.
9
         Α.
10
              MR. WECHSLER: Your Honor, at this point, I'd
   move the admission of Exhibit M337.
11
12
              MR. KASTE: No objection.
              SPECIAL MASTER: Exhibit M337 is admitted.
13
14
                        (Exhibit M337 admitted.)
15
   BY MR. WECHSLER:
              First, looking at the first page of the
16
    document. And here it indicates that you gave a report
17
18
    on transfers; do you see that?
19
              Yes, sir.
         Α.
20
              Do you know how transfers are done?
         Q.
              Yes, sir.
21
         Α.
2.2
         Q.
              How?
              The -- oh, in general, between the shares
23
         Α.
    that are marketed, end users can sell their shares of
24
    stock and divest themselves of interest in the
25
```

association via the selling of their contracts. 2 The process they go through is the one end user will have another purchaser of the stock, as it 3 were. And they'll go through a release and transfer 4 documentation process through the board. The board 5 will verify the information and make sure it's clear 6 and correct and sign that document and send the 7 paperwork up to the department for our review and 8 approval of the release and transfer and then our 9 10 approval of the signed water purchase agreement. And then looking at the letter that you wrote 11 Q. to Pat Helm in September of 2006, I think you indicate 12 13 in here that that meeting information has to be 14 provided to you; is that right? 15 Α. Yes, sir. 16 Ο. And does that happen every year? Yes, it does. 17 Α. And that allows you to keep track of what's 18 Ο. going on with the association? 19 20 Α. Yes. And it's a means for us to keep our 21 O & M manuals updated and our records updated, yes. 2.2 We were talking about a typical year. And I 23 was asking you questions about that. But is it fair to say that every year is different? 24 That would be the typical year is a different 25 Α.

1 year, yes. That's why it's important to have 2 Ο. flexibility? 3 Α. Yes, sir. 4 I want to talk about the operations in the 5 Ο. specific years that are issued for damages in this 6 case. So starting with 2001, could you please describe 7 the operations of the reservoir in 2001? 9 With any water year, the caveat on anything 10 is a -- well, a few caveats. With any water year, you have to look at the previous year and issues going on 11 within that previous water year for conditions. 12 13 that will also flavor somewhat your actions of the 14 upcoming year. And you also have to deal with, again, 15 the issues of looking at that crystal ball and trying to project six months in advance what you should be 16 able to see coming down your stream during the high 17 flows and the spring runoff. 18 19 2000 -- the 2001 water year was a lot different than others. We had just finished off the 20 21 Tongue River rehabilitation in '99. We -- that summer 2.2 of '99, spring/summer of '99, we flooded out in Decker 23 Coal on their north extension, specifically the pit 16 south that we discussed. The -- we had issues with 24 Decker Coal on the head walls in their pits. 25 The east

side of the reservoir swelled, so we were trying to help monitor and mitigate some of those with the 2 company there. 3 In the spring of 2000 before the beginning of 4 the 2001 water year, we had an issue with the primary 5 gate, secondary gate in the gatehouse during 6 operations. I believe Keith Kerbel and then dam tender 7 Randy Fulmer were in the gate chamber and operating the 8 auxiliary gate, raising it. And the bonneted slide 9 10 gate, which is the primary operator in that gate 11 system, was closed. The gate -- the fixed wheel gate experienced, 12 13 the nondescript term is an uplift issue. What happened 14 is the gate was catapulted out of its gate chamber. 15 came up into the gate chamber with the water pressure pushing it up. When the water pressure equalized, the 16 ten-ton gate then came down and took apart the various 17 18 steel couplings and connectors. 19 So we had that issue in the spring of 2000. And through the forensics and rebuild, that was 20 21 rescheduled and was reinstalled in the spring of 2001. 2.2 In the interim of that work, we discovered

some defective work from the contractor on some other issues. So we had to -- instead of drafting the reservoir down to dead pool or trying to put a bulkhead

23

24

gate in the reservoir to isolate the whole system, we had to utilize divers in the middle of winter to do some underwater construction work as well.

2.

2.2

and I can't say this for certain, but Decker Coal, part of the mitigation plan for their flood work mitigation, due to the geology of that area, especially along the west side, they were changing their mine operations to put in cuts, precutting some of their areas so they could mine out the clinker zone or this fractured rock zone, mine the coal out of that stretch and backfill it with finer materials, overburden, to act as a dam. So the next year when the reservoir would come up, it would have an area of their permit area that they could mine without risk of flooding. Basically, they would cut out coal seam and backfill the dam and build an underground dam and mine that area afterwards.

And last but definitely not least is, again, right after construction, I described that we'd found that void in the dam embankment, it was at a relatively high elevation. And it was actually an issue if we had not discovered it, it would have been either partial or full failure of the dam within a few years of operation at high pool. Because the void itself was about an elevation starting around 3420. So it was a -- and

```
considering how few times the reservoir was at the high
elevations, it was surprising how much material was
moved out of area.
```

So with that, we were being conservative and cautious in some of our filling operations. And we had extensive monitoring across the board to keep track of any evidence that our mitigation repairs that we took were working and try and make sure and verify they were working through the monitors.

So with all of those issues in mind, I guess, that sort of flavored how we went into the 2001 water year.

Q. Was 2001 a dry year?

4

5

6

7

9

10

11

12

13

14

15

16

17

18

19

20

- A. The end result of 2001 was a very dry year. I believe we went into winter running about 90 percent of average of snowpack, maybe less. I believe we probably minimized our flows through the wintertime months, and then we didn't have much of a runoff.
 - O. Did the reservoir fill?
 - A. The reservoir did not fill at that time.
- O. Did it come close to filling?
- A. I would have to look at the data. Because I can't remember off the top of my head.
- Q. Sure. Let's look. You're looking at Demonstrative Exhibit 103?

```
1
         Α.
              Yes, sir.
              From Table 4A of Mr. Book's report we can see
2
         0.
    2001. Does it look like the reservoir came close to
3
   filling?
4
5
         Α.
              No, sir. We got up to about -- we were at
   45,000 -- 44,000, 45,000 in April. And it -- that was
6
7
   as high as we got in May.
              And if you turn to the back of that, the
8
   table of the flows for 2003.
9
              For 2003, sir?
10
         Α.
              I'm sorry. 2001.
11
         Q.
              Okay, sir.
12
         Α.
13
              And so 2001, the beginning in water year,
14
    2001 water year, you have to look at October of 2000;
15
   is that right?
16
         Α.
              Yes, sir. And I'm just looking at the
   outflows.
17
              If you look at the label of the table, I
18
    think it says "monthly mean discharge of the Tonque
19
20
   River at Tongue River Dam"; do you see that?
21
         Α.
              Yes, sir. Thank you. It is the outflows.
2.2
         Ο.
              So is this consistent with historic
23
   operations?
              Yes. Well, the flows in 2001, if we're going
24
         Α.
```

to the end of 2002 October, we had 270 CFS discharging

through October. And that's very likely tied to many of those issues that I just previously discussed. 2 going into November and December, it was apparent that 3 we were aware of what appears to be lower snowpack, 4 about 90 percent of snowpack. 5 And that's because the flows are relatively Ο. 6 7 low? One hundred fifty, one hundred. And the 8 hundred might very well be from the issue of where we 9 had divers going through and swapping our gates around 10 and working on the project. 11 And other than October, those are actually 12 Ο. 13 below the 175; right? 14 Α. Yes, sir. 15 Ο. How about the water year 2002, can you talk about that a little bit? 16 Yes, sir. After the irrigation season of 17 Α. 2001, I believe you can just continue on that same path 18 on the discharges. We just went down. 19 At this point you're heavily into a drought; 20 Ο. 21 is that right? 2.2 We were low and just went down in our releases. We were at 80 and 75 CFS releases until we 23 24 got into May.

25

Q.

At this point, you're doing everything you

can to try to maximize your storage; right?

2.2

- A. Yes, sir. And when I see going into that 2002, we see the May value, this is a monthly mean value. And it's going up to 160 CFS. That's either contract deliveries are starting or senior rights downstream are calling for water. And it was just a terrible year.
- Q. Do you remember what the snowpack was like going into 2002?
- A. 2002, you're taxing me now. I want to say that most of these years were very similar. They seem to have decent snowpack in December or average or close to average. And then it seemed like we ended up not getting any more precipitation or snow through the winter months.

And that's the other thing compared to this, snowpack is one indicator. It's a good indicator. But it's not the only indicator. It even comes into the temperatures in the daytime and nighttime and the weather patterns in the spring and how that snow comes out. If it's a cool spring, snow is not going to melt too fast, and it's going to be a slow runoff. And if it's a slow runoff, there's a lot of senior rights, and water gets used. If it melts quick into a dry matrix that didn't freeze up, the soil matrix, we lose a lot

to percolation. 2 There's many variables tied into snowpack. So it's a great indicator, but it's not the only item 3 that affects that runoff. 4 But now, yeah, 2002, I think we're about 90 5 to 100 percent of average in the December months, but 6 it just went down after that. 7 Dropped off? 8 Ο. 9 Α. Yes. 10 Q. Let's talk about the water year in 2004. In 2004 -- going back to 2003. 2003 was 11 Α. interesting because we were going into -- I have to 12 13 bring up 2003 to go into 2004. If you go through this, 14 2003 was not looking that good either. But, again, this basin, nothing is typical. And we ended up 15 filling and spilling in the May and June time period of 16 2003. And with that, we had a good reservoir pool. 17 We went into the wintertime, I think with a 18 decent reservoir. But we weren't seeing the flows, and 19 we had reduced our own flows down. And we were about 20 21 100 to 120 CFS range. 2.2 Talking about the winter of the water year 2004? 23 24 Yes, sir. Yes, sir. Going into 2004, the Α. winter year. So we were trying to store if we could. 25

```
And, again, snowpack did not develop. And we just
   didn't get any runoff.
2.
              Did the reservoir fill in either 2003 or
 3
4
    2004?
              No, sir, it did not.
5
        Α.
              How about water year 2006?
         Ο.
6
              It did not fill in 2006 either.
7
        Α.
              Can you describe the water year 2006?
8
         Ο.
              Yes, sir. Again, going back to the year-end
9
         Α.
10
   of 2006, the water year for 2005 was actually -- this
   is one reason it does stand out. 2005 water year, the
11
   snowpack was the worst of all the years that we had.
12
13
   And if you look at the hydrographs, the winter base
14
   flows in 2005 were as bad as 2004 if not maybe worse.
15
              However, in 2005, we received spring rains in
    that basin. And given the size of that basin and
16
   conditions, we filled and spilled the reservoir.
17
              And the -- this is the mean monthly flow.
18
   it shows 1500 CFS discharging in June of 2005. Well,
19
   that's the monthly mean flow CFS for that. And so it
20
21
   went up. It was a considerable flow, I think about 4
2.2
   or 5000 CFS discharge for a peak that year.
23
              So going into water year 2006, we had a good
24
   reservoir pool. We had water in the system.
   thought we were doing good. I believe at the end of
25
```

```
December -- I believe in the end of December of that
   year, we -- I want to say we had, like, 150 or
2
   200 percent of snowpack. That's my recollection
 3
   anyway. And it was very good. However, it started
4
   going down after that. And it seemed we didn't get
5
   anything for snowpack.
6
              And if you look at the flows, our monitoring
7
   the snowpack in that issue was reflected in the flows.
8
   We are a little high in December, of 216, and we're
9
    just kind of matching the flows. We don't see the snow
10
   coming down. In January we start dropping. And by
11
   February we are setting the flows down to more minimum
12
13
   levels because we do not see the moisture coming in, or
14
   we do not also see the inflows at the state line
15
   maintaining our reservoir pool.
              Looking back at all of that information and
16
         Ο.
   the reservoir operations in 2001, 2002, 2004, 2006, did
17
   you think the operation at the reservoir at that time
18
19
   was reasonable?
              Given the knowledge known at the time and
20
         Α.
21
   what we're doing, yes.
              Was it consistent with historic flows?
2.2
23
              Well, albeit it was lesser flows than
         Α.
24
   anything we've ever seen. But it was consistent on our
25
   operations, yes.
```

```
1
              MR. WECHSLER: Your Honor, I'm trying to go
   as quickly as I can. I still think I have another 30
2
   minutes of questions. I don't know if you'd like me to
 3
   continue or to break for lunch now.
4
              SPECIAL MASTER: Sort of expands
5
   exponentially.
6
7
             MR. WECHSLER: I apologize. Bad estimate on
8
   my part.
              SPECIAL MASTER: Mr. Kaste, there's two
9
10
   options: We could take a break now and then come back
   and finish up the direct, or I'm happy to plow on
11
12
   through.
13
              MR. KASTE: I don't suppose it matters.
14
   think we could all take our break now and come back
   refreshed.
15
16
              SPECIAL MASTER: Okay. Sounds good. So then
   let's take the noon break now. So let's plan to come
17
   back at ten after 1:00. And I'm going to actually stay
18
   up here for a second and sort through my various
19
   papers. So everyone can be seated or pack up to head
20
21
   off to lunch. So thank you.
2.2
                        (Recess taken 12:07 to 1:13
23
                        p.m., October 24, 2013)
24
              SPECIAL MASTER: Everyone can be seated.
   BY MR. WECHSLER:
25
```

1 Q. Good afternoon, Mr. Smith. Α. Good afternoon. 2. We have three more topics to go through, and 3 Ο. I don't think they'll take as much time. The first is 4 we've talked about a number of things with winter 5 I want to talk about that and just close that 6 7 loop. The second is to talk briefly about the operations of reservoirs in other parts of Montana 8 because the Special Master has indicated that it is 9 relevant, not just what was done in the Tongue River 10 Basin but also that it's not different here than it is 11 elsewhere. And then, finally, I'll ask you to 12 13 summarize your opinions, your rebuttal opinions. So let's start just with the winter flows. 14 And we've talked about a number of different reasons 15 why those winter flows are necessary; right? 16 Yes, sir. 17 Α. And the winter flows that you had in your 18 Ο. 19 rebuttal report and opening report as well, I believe 20 are 175 CFS? 21 Α. Yes, they are. 2.2 Ο. That's consistent with the operating plan and 23 the operating manual? Yes, it was taken from that manual. 24 Α. So the first reason that I have heard you 25 Q.

```
talking quite a bit about are historic operations.
   so can you just briefly summarize how winter
2
   operations -- I'm sorry -- historic operations lead to
 3
   the winter flows of 175 CFS?
4
              To put this, I quess, in the perspective of
5
   historical practice and historical operations, the
6
7
   practice of the operations of the reservoir has been
   developed and -- over time. That project was built in
   1939 and put in to service in 1939 and has gone
9
10
   through, so about 74 years of service to date.
              The historical operations that were developed
11
   is based on the basin characteristics. This basin,
12
13
   it's a large basin, and it is prone to large runoff
14
   events. And the volume of water that is available for
15
   storage for fillings, especially with our priority date
   of 1937, while it's a pre-1950 right, it is a junior
16
   right to most of the rights on the Tongue River below
17
   us. So we have to fill during that historical runoff
18
   time frame.
19
20
              So for that matter, the historical practice
21
   becomes the water right because that's how that system
2.2
   works well.
              And the historic flows have been at least 175
23
24
   CFS during the winter?
              Yes, they have. I believe the median and
25
         Α.
```

mean flows are a little bit higher than the 175 CFS.

- The second reason that we've talked about for Ο. winter flows is stock water. Can you explain how stock water forms a basis for meeting the winter flows?
- Within the system, and especially in agricultural communities and ranching communities, the source of water to water the stock is from the water source, in this case, the Tongue River Reservoir -- or the Tonque River.

To that end, we have to pass river flows through to satisfy those rights.

- Mr. Davis indicated that there were 48 filed 12 Ο. pre-1950 stock water rights from the Tongue River; do 14 you recall that?
 - I believe I do, yes, sir. Α.
 - And are there more that have not been filed? Ο.
 - According to testimony, yes. Α.
- And then a certain amount of water is 18 Ο. necessary associated with that stock water in order to 19 20 carry it down to where the stock are taking water; is that right? 21
 - Α. Yes, sir.

2

3

4

5

6

7

8

9

10

11

13

15

16

17

2.2

And it's the winter, so you also have to make 23 sure there's no icing in order for the stock to get 2.4 water? 25

- A. Yes, sir. It's not just the amount cows or sheep can drink. It's getting the water down the system and making it available to the stock.
 - Q. Which leads to the third justification for the winter flows, and that is prevent icing of the river. Could you talk about that a little bit?
 - A. Yes. And we touched briefly on this earlier. This is a river that has -- it's a relatively slow-flow river. The flows we're talking about, the flow is, for lack of a better term, laminar.
 - Q. What does it mean?

4

5

6

7

8

9

10

11

Tranquil, uniform flow. It's a very steady 12 Α. 13 state of flow which allows for the -- there's not as 14 much energy in the system to resist ice formation. So 15 when you get to the very low flows, it's easier for ice to form. And the other issue with it, once ice 16 forms -- once ice forms -- and typically, if you are 17 driving down the road you'll notice when you're coming 18 19 through areas, the areas that are getting damaged the most from ice are places where you have constrictions, 20 21 such as bridge abutments and other locations. 2.2 where ice breaks up and flows down, it can get caught up at those locations, and it starts jamming up or 23 backing up water. And that's where you'll see 24 typically -- not always, but typically you'll see more 25

```
of your ice jams and the first formation of the ponds
   behind them and flooding issues.
2.
              So having enough flow to maintain the river
 3
   channel and maintain an ice shelf is very important.
4
   Especially in a system that has the wide range of
5
   temperature fluctuations that we do.
6
              The fourth justification for the winter flows
7
         Q.
   that I've heard you talk about was prevent icing on the
8
   reservoir facilities itself. So could you talk a
9
   little bit about that?
10
                    As discussed and as described in the
11
         Α.
              Yes.
   operating plan and the maintenance manual, the desire
12
13
   is to not have ice on the concrete wall structures and
14
   to have the ice either set at or not fluctuate too much
15
   on the reservoir surface to prevent moving the
   armoring, the rock, the riprap protection on the dam
16
           If you have a fluctuating lake surface during
17
   freeze-up, you'll start moving rock around and riprap
18
19
            And that can -- leaves long-term maintenance
   around.
    issues, repair issues that have to be repaired and
20
   taken care of.
21
2.2
              Sounds like what you're describing relates to
23
    the 45,000 maximum storage limit?
```

A. Yes, it does.

2.4

25

Q. And what about icing in the tunnel?

1 Α. That refers back to the operating of both Again, the old tunnel -- I'll call it the 2 auxiliary tunnel, concrete in that structure, once you 3 get away from the entrance portal, is very competent, 4 very strong concrete. It's been curing for 74 years. 5 And it's very strong. 6 The issue is the concrete at the portal 7 stress, the first hundred or 200 feet. And the issue 8 is to make sure we have flow through there to 9 10 protect -- to generate enough warmth to protect that concrete from going through repeated freeze and frost 11 cycles and to mitigate and stop or slow up the damage 12 13 that we're seeing. And the other tunnel was, of 14 course, we described through seeps and other things. If it's not operated, it does have the very high 15 potential of being able to plug the outlet portion of 16 the pipe with ice. 17 And the fifth reason I've heard you discuss 18 about the need for water flows has to do with to 19 prevent flooding and damage downstream; is that right? 20 Yes, sir. 21 Α. 2.2 Q. Could you talk about that a little bit? Well, it would be reckless of us in that 23 Α. basin to go into winter with a full pool at spillway 24 crest. Given the issue of maintaining a set flow and 25

```
then being at the whim of the river, when below us has
   not seen that for going into its eighth decade of use,
2
    it is -- an anti-operating plan is called out. One of
 3
    the issues and items that we are to address is to
4
   mitigate flood damage downstream if we can. And I say
5
    if we can because in this basin, sometimes we just get
6
7
    flows that fill and spill the reservoir very quickly.
              Can I get you to turn, please, to Exhibit
8
         O.
   M310?
9
10
         Α.
              I have it.
              Do you recognize Exhibit M310?
11
         Q.
12
              Yes, I do.
         Α.
13
              What is it?
         O.
14
              This is dated December 1982. And the title
         Α.
15
    is "Documentation and supporting data for the Tongue
    River project direct flow right for stock watering."
16
              Is this a document that was created -- you
17
         Ο.
    understand to have been created by the DNRC?
18
19
              Yes, sir.
         Α.
              And is this a document that you understand to
20
         Ο.
21
    relate to the Tongue River Reservoir?
2.2
         Α.
              Yes, sir.
23
              Is it a document that you've reviewed as part
    of your work in this case?
24
              Yes, it is.
25
         Α.
```

```
1
         Q.
              And is it also a document that's kept in your
    records at the State Water Projects Bureau?
 2
              Yes, it is.
 3
         Α.
         Q.
              It relates to the winter flow?
 4
              Yes, sir.
         Α.
 5
              MR. WECHSLER: Your Honor, at this time I'd
 6
   move Exhibit M310.
 7
              MR. KASTE: No objection. I notice it's a
 8
   duplicate of 309B. Did that one already come in?
 9
10
              MR. WECHSLER: No, we only put in 309A, I
   believe.
11
12
              MR. KASTE:
                          Okay.
13
              SPECIAL MASTER: So I understand, in fact,
14
    that 309B has not been introduced. And so at this
15
    stage, M310 will be admitted.
                        (Exhibit M310 admitted.)
16
              MR. WECHSLER: Thank you. And we have no
17
    intention of admitting 309B, for obvious reasons.
18
   BY MR. WECHSLER:
19
              If I -- Mr. Smith, if I can get you to look
20
         O.
21
    here, middle photograph, it indicates, "A preliminary
2.2
    report on the Yellowstone River Basin entitled
    'Compilation of Factual Data for Use of the Yellowstone
23
    River Compact Commission, 'published by the Federal
24
    Power Commission, Bureau of Engineering in December
25
```

KEVIN SMITH - October 24, 2013

- Direct Examination Cont. by Mr. Wechsler 1940." And I'll stop there. December of 1940 is prior to the compact right? 2. Correct. 3 Α. And here it actually indicates for use of the 4 Ο. Yellowstone River Compact Commission; right? 5 Yes, sir. Α. 6 And here it indicates, it says "indicated 7 Q. that 'a probable schedule for storage and release 8 operations' for the Tonque project would include." 9 And then before I go into what it's showing, do you 10 understand -- well, at what stage was the Tongue River 11 Reservoir in December of 1940?
- 13 Well, the project was completed in late 1939. 14 And I believe in 1940 they were still going into 15 filling operations.

12

16

17

18

- And so when they talk about probable, you understand that to be this is what they think it's going to be?
- 19 Α. When I see a probable schedule for storage and release operations written in 1940 prior to the 21 reservoir getting filled is, perhaps, not what they 2.2 think it's going to be but here is a possible operation schedule to look at. 23
- And then it shows here October releases of 24 Ο. 3600 acre-feet; you see that? 25

- 1 A. Yes, sir.
- Q. And then in parens it says 61 CFS. I don't want to ask you to do math on the stand, but in rough numbers, does it look like 3600 acre-feet would translate into roughly 61 cubic feet per second for a month? Looks like you're doing math.
- 7 A. Yes, sir.

8

- Q. If you want to, that's fine.
- A. No. It's -- it looks approximate.
- Q. And for -- then No. 2 there indicates

 November to March releases of 33,000 acre-feet; do you
 see that?
- 13 A. Yes, sir.
- Q. And it looks again like somebody wrote in there 111 CFS. And does that look roughly correct?
- 16 A. Yes, sir.
- Q. And I'll ask you the same question about
 April. It then says release of 1800 acre-feet. And
 then it's got an indicator of 30 CFS; do you see that?
- 20 A. Yes, sir. If the other two are correct, that one is.
- Q. And then if you turn -- well, starting at the bottom of this page, which is labeled MT3298, "As a result of this agreement," turning to the next page, "historic releases during October through April have

```
been greater than the " -- and it looks like someone has
   written there FPC's original estimates; do you see
2.
    that?
 3
              Yes, sir.
 4
         Α.
              So would you agree with the notion that the
5
         Ο.
   historic flows have been greater than the probable
6
    schedule that was indicated in 1940?
7
                    The historic flows, actual flows were
8
              Yes.
9
   higher than the probable flow suggested.
              It -- continuing in that paragraph, it shows
10
         Ο.
    that the historic releases are presented below. And it
11
    says, "One notes that the 80 percentile flows are
12
13
    approximately equal to the 167 CFS target release."
                                                          Do
14
    you see that?
15
         Α.
              Yes, sir.
              And I think they're referring to this Table
16
         0.
       Now, what is 80 percentile flows?
17
              In the sense of this document, 80 percentile
18
         Α.
    flows are those flows that are exceeded 8 out of 10
19
            So for this context, the 167 CFS target release
20
    vears.
21
    would be exceeded or the flows are exceeded by that --
2.2
    exceed that eight years out of ten.
23
              And then in the last paragraph here, it talks
24
    about a report entitled "Tongue River project basic
```

design, DNRC 1969"; you see that? I'm looking at the

1 last paragraph. My apologies, sir. 2 Α. 3 Ο. On -- last paragraph on page 3299. Α. Yes, sir. 4 So my question is: Do you know -- are you 5 Ο. with the document Tongue River project basic design 6 DNRC 1969? 7 Yes, sir. 8 Α. And what is that document? 9 Ο. That document, the basic design report from 10 Α. 1969 was the report conducted by Bechtel Corporation. 11 And it was a report looking at -- it was a basic design 12 13 report looking at possible scenarios of building, one 14 would say, the largest facility that could be built on 15 this system to generate the most maximum firm yield to catch all the water it could. 16 And so it might not be relevant for the 17 18 current state of the Tonque River Reservoir; is that 19 right? 20 The project that they were promoting in Α. No. 21 that report, they are looking at different reservoir 2.2 sites on the Tonque River system. And I believe one of the preferred alternatives that were presented had a 23 dam that was 100 feet taller than our dam with the 24

storage volume capacity of 320,000 or 400,000

I believe 320,000 acre-feet. And in that acre-feet. four-fold increase, they were only going to generate --2 calculated their firm annual yield would go up to about 3 a hundred thousand acre-feet per year. 4 Turn with me, please, to Exhibit 284. M284. 5 Ο. Do you have that? 6 7 Α. Found it, sir. First, in looking at the title, it looks 8 Ο. pretty similar to the title of the last document we 9 10 looked at; would you agree with me? 11 Α. Yes, sir. So what is Exhibit M284? 12 Ο. 13 Α. Exhibit M284 is dated December 1982, and its 14 title is "Documentation and supporting data for the 15 Tongue River Project direct flow right for winter stock watering." 16 Now, the numbering at the bottom of this 17 Ο. document indicates that this was a Wyoming document. 18 But is -- are you familiar with this document? 19 Yes, sir. 20 Α. 21 And is this a document that's kept at the Ο. 2.2 State Water Project Bureau as well? 23 Yes, sir. Α. 24 And do you know this to be a document that Ο.

was created by the DNRC?

```
1
         Α.
              Yes, sir.
              And is it something that you reviewed as part
2
         Ο.
    of this case?
 3
         Α.
              Yes, it is.
4
              Does it relate to the Tongue River Reservoir?
5
         Q.
              Yes, it does.
         Α.
6
7
              MR. WECHSLER: Your Honor, I would move the
    admission of Exhibit M284.
8
              MR. KASTE: No objection.
9
              SPECIAL MASTER: Exhibit M284 is admitted.
10
                        (Exhibit M284 admitted.)
11
   BY MR. WECHSLER:
12
13
              And looking at Exhibit M284, it appears to go
14
    down a number of the things that we've already talked
    about. And I don't want to belabor all of those
15
   points. You look at one, it's talking about the
16
    original filing. And we've talked about that.
17
    talks about the historic flows in the 80th percentile.
18
19
    And we've talked about that; right?
20
              Yes, we did.
         Α.
21
         Ο.
              And we talked about the 167; right?
2.2
         Α.
              Yes, we did, sir.
23
              Now, one thing we haven't talked about, if
         Ο.
    you look at the right there of the 167, it talks about
24
    the Tongue River decree, 1914?
25
```

- 1 A. Yes, sir.
- Q. And here it says, "419.17 CFS were claimed
 for the purposes of irrigation, domestic supply, and
 stock watering. In total 16,778.27 acres were found to
 be under irrigation. Assuming a diversion rate of 3.28
 acre-feet per acre, this leaves approximately 167 CFS
 for stock watering purposes during the nonirrigation
- 9 A. Yes, sir.

months"; right?

- Q. Does that look to be a reasonable way of evaluating that 167 CFS for stock water?
- 12 A. Yes.
- Q. Now, No. 4 we did talk about. This is the information on the probable winter release operations from that 1940 report.
- I think we've talked earlier about the 1969
 amendatory contract.
- No. 7 appears to be referring back to the Donald Sullivan memo that we looked at.
- 20 And finally, No. 8 appears to be the Bechtel 21 report that you just discussed; is that right?
- 22 | A. Yes, sir.
- Q. And then the last one here is 9, is 50 CFS.

 And it says, "Statement of claim for existing filed
- 25 | water rights from the Tongue River Project, by DNRC in

```
1
   April 1982." And this document actually comes after
   April 1982; right?
2.
              Yes, sir.
 3
         Α.
         Q.
              And this is also from the DNRC?
 4
              Yes, sir.
5
         Α.
              And so it would be logical to understand this
6
         0.
7
   to be with updated information after April of 1982?
              MR. KASTE:
                          I think that's leading.
8
9
              SPECIAL MASTER: So I think you can just ask
10
   him what the April --
11
              MR. WECHSLER: Sure.
   BY MR. WECHSLER:
12
13
              How does this relate, do you think, to the
14
   April 1982 number?
15
              How does 50 CFS relate to the April 1982
16
   number?
17
         Ο.
              Yes.
              This 50 CFS was what my review -- was an
18
         Α.
   attempt by DNRC to try to make water rights look more
19
   similar to other crop water rights within the state.
20
21
   So they're trying to find means and methods to account
2.2
   for and apply for every water -- every use or drop of
23
   water that they thought they had instead of just going
   back to the original application as it is now, as our
24
   water is for sale, and market it to the association.
25
```

```
I think it's simply just an exercise in
1
    finding calculations to say, if we had to sell stock
2
    water, we want to have a stock water right to sell.
3
              At the DNRC is it common to continue to
4
    evaluate the technical issues?
5
              Yes, it is.
         Α.
6
              And so the thinking in the DNRC on technical
7
         Q.
    issues, does it evolve over time?
8
              Yes, it does.
9
         Α.
10
         Ο.
              And No. 9 there is listed April 1982; is that
11
    right?
              Yes, sir.
12
         Α.
              And this document is December of 1982; is
13
         O.
14
    that right?
15
              Yes, sir. This was --
              Do you recall the date on the previous
16
         0.
    document we looked at, Exhibit M310?
17
              I will, sir.
18
         Α.
19
         O.
              Please.
20
              Exhibit M310 date was December 1982.
         Α.
21
         Ο.
              Looking at that number that's there, 50 CFS,
2.2
    do you think that that number is a reasonable number
    for winter operations?
23
24
         Α.
              No.
                   That's not a -- that's not a reasonable
   number for winter operations.
25
```

1 Q. Why not? It's -- aside from not being close to the 2 Α. practice that's been formed and developed over the last 3 70 years, that flow would be very susceptible to 4 causing a lot of damage downstream. There would be 5 some adverse effects within the entire system if we 6 were to maintain a flow of something like that. 7 Now, we've seen in some expert reports 8 Ο. submitted in this case the notion that what should be 9 done essentially is setting the gauge at 75 CFS in 10 11 October and leaving the gauge at 75 CFS over the course of the winter. 12 13 What would happen if you did just that; if 14 you set it at 75 CFS for the whole winter? 15 MR. KASTE: Object to the characterization of the contents of our expert reports. 16 SPECIAL MASTER: I think it would be fair in 17 this particular case, rather than relating it to any 18 statement made elsewhere, simply to ask the question of 19 whether or not it would be reasonable to set a gauge at 20 75 CFS and maintain it at that. 21 2.2 MR. WECHSLER: Sure. BY MR. WECHSLER: 23 Do you think it would be reasonable to set 24 O. 25 the gauge at 75 CFS?

- A. If the standard operating procedure is rewritten, to rewrite our maintenance manual to be a standard operation to set our winter flows at 75 CFS and then stand down and let it store through the wintertime for the season, I would -- well, that would be reckless and irresponsible.
 - Q. What would the impact be?

1

2

3

4

5

6

7

24

25

The basin or reservoir elevations going into 8 wintertime between 40,000 or 45,000 acre-feet of 9 storage, if we just set the gate at 75 CFS and 10 anticipate median flows across state lines, it is very 11 likely that we'd be pushing water over the spillway in 12 13 February of the year. Once that occurs, we've lost any 14 and all capabilities of managing that reservoir. It's -- it -- we also put ourselves at risk for ice 15 flow should the -- when the ice breaks up on the lake 16 and we have wind pushing the ice into the spillway 17 while the spillway weir walls have been designed for 18 ice loading, it was not intended to be an every-year 19 That would severely -- could severely 20 occurrence. damage the spillway weir walls, should it get to that 21 2.2 point where the members are starting to be 23 overstressed.

```
now put our system back into a river condition that the
    downstream users haven't seen for 75 years, which,
2.
    again, changes the basin hydrology. So, yes, it would
 3
   be irresponsible, reckless, and it -- well, for our
4
    existing prior maintenance manual, it would be against
5
    our dam safety operating permit as well.
6
7
         Q.
              Turn with me, please, to Exhibit M320.
              I have it, sir.
8
         Α.
              What is this document?
9
         O.
10
         Α.
              This is another operations and maintenance
    manual. This one is titled "Middle Creek Dam, also
11
    known as Hyalite Dam." Spelled, H-y-a-l-i-t-e.
12
13
    "Manual for operation and maintenance, the State Water
14
    Projects Bureau, Water Resource Division, revised
   December 2011."
15
16
         Ο.
              This is a document that was produced by the
    Water Resources Division of DNRC?
17
18
         Α.
              Yes, sir.
19
         O.
              And specifically, your bureau?
20
              Yes, sir.
         Α.
21
         Ο.
              And this one was revised in 2011. Were you
    the bureau chief at that time?
2.2
23
              Yes, sir.
         Α.
              And where is Middle Creek Dam?
2.4
         Ο.
```

25

Α.

Middle Creek Dam is located on Hyalite Creek

```
directly above -- in Hyalite Canyon above Bozeman in
    Gallatin County.
 2.
              MR. WECHSLER: Your Honor, at this point, I'd
 3
   move admission of Exhibit M320.
 4
              MR. KASTE:
                          There's a whole bunch of these,
 5
    so I'm going to just do this once, understanding how
 6
 7
    it's likely to turn out. I have to object on the
    grounds of relevance.
              You asked about reservoir operations in other
 9
10
    areas, which is important. But these operating and
   maintenance manuals are developed separately for each
11
    reservoir and, therefore, have variations in them.
12
13
    they don't contain the information which we need, which
14
    is how are we counting the amount of water coming into
15
    the reservoir for purposes of the junior appropriators
    upstream. And, therefore, I don't think they are
16
    terribly relevant to the question at issue in this
17
18
    case.
19
              SPECIAL MASTER: So, Mr. Kaste, I think your
    points will be very relevant to the question of the
20
21
    degree to which ultimately I or the Supreme Court can
2.2
    actually rely upon these documents without additional
    information. But I do think that they are relevant to
23
24
    the proceedings in general at the moment. So I will
    permit this to be entered into evidence.
25
```

```
1
              I understand that your objection is one that
   will be continuing for all similar exhibits. And so
2
   all you have to do is simply say you object for the
3
   same reason as before.
4
5
              MR. KASTE:
                          Thank you.
              SPECIAL MASTER: Okay. You're welcome.
6
7
              MR. WECHSLER: Your Honor, it might expedite
   things and allow me to talk in a more general manner if
8
   Wyoming does not object to simply putting in all five
9
10
   of the operating and maintenance manuals now.
                          I don't object to that.
11
              MR. KASTE:
              SPECIAL MASTER: Great. Why don't you go
12
13
   ahead and do that.
14
              MR. WECHSLER: So at this point, Your Honor,
   I would move not only the admission of Exhibit M320 but
15
   also Exhibit M321, M322, M323, and M324.
16
              SPECIAL MASTER: So, Mr. Kaste, I understand
17
18
   the same objection that you made to Exhibit M320
19
   applies to the others. Do you have any other objection
20
   other than that objection to these other exhibits?
21
              MR. KASTE:
                          No.
2.2
              SPECIAL MASTER: Okay. Thank you.
                                                  So then
23
   Exhibits M320 through M324 are all admitted into
   evidence.
2.4
25
```

```
(Exhibits M320, M321, M322,
1
                        M323, M324 admitted.)
2
   BY MR. WECHSLER:
3
              Mr. Smith, you talked earlier about how these
4
   manuals are developed; correct?
5
              Yes, sir.
         Α.
6
              And so this one follows much the same format
7
         Q.
    as the Tongue River Reservoir Operating Manual; is that
8
9
   right?
10
         Α.
              Yes, sir. The format should be very similar.
              If you'll turn with me, please, to page 20 of
11
         Q.
    Exhibit M320. And first, in the paragraph under
12
13
    "method and schedule of operations," it indicates that
14
    there are contracts for 10,184 acre-feet; do you see
15
    that?
16
         Α.
              Yes, sir.
              And so is this a smaller project than the
17
         Ο.
    Tonque River Reservoir?
18
              Yes, sir.
19
         Α.
              Below there it has a section there entitled
20
         Ο.
21
    "Maximum winter storage"; you see that?
2.2
         Α.
              Yes, sir.
              And so this project also has a maximum winter
23
         Ο.
    storage like the Tongue River Reservoir?
24
              Yes, it does.
25
         Α.
```

1 Q. And it also, for similar reasons, it looks 2. alike? 3 Α. Very much so. Q. It also has a minimum storage; is that right? 4 5 Α. Yes, sir. And then we can see it also has a minimum 6 Ο. outlet discharge. In this case it looks to be 10 CFS. 7 Yes, sir. 8 Α. And so the minimum outlet discharges, do they 9 Ο. vary from project to project throughout the state? 10 Yes, sir, based on the site conditions. 11 Α. 12 And do the winter maximum storage levels, do Ο. 13 those also vary from project to project? 14 Α. The storage level restrictions for wintertime 15 operations will have very similar reasons for having them. But, of course, yes, the elevations themselves 16 will be different. 17 I won't ask you to go through each one of the 18 maintenance manuals. They're in the record. We can 19 20 look at them. But of the 21 state projects -- let me 21 first ask you: Are any of them limited to a singe 2.2 fill? 23 No, they are not. Α. 24 And what typical fill are those projects? O. On the half tracks, the volumes of the 25 Α.

```
reservoirs range from anywhere from 1.3 to 2 or
   slightly over 2, I believe, fills in volume of the
2
   reservoirs. Typically, the volumes were calculated by
 3
   doing a full fill, a partial refill, and evaporative
4
5
   losses.
              How many of your 21 projects are onstream
         Ο.
6
   reservoirs? Is it easier to ask how many are not?
7
              I believe -- sir, I believe we have three,
8
   maybe four, reservoirs that are not onstream.
9
10
         Ο.
              So in the range of 17 or so are onstream
   reservoirs?
11
              Yes, sir.
12
         Α.
13
              Of those 17 or so state water projects that
14
   are onstream reservoirs, how many of them allow for
   winter flows or provide for winter flows through the
15
   reservoir?
16
              All except for, I believe, the East of Rock
17
   Creek Reservoir, and that's due to we have a butterfly
18
19
   valve operator in that system that is very prone to
   cavitation damage when it's just cracked open.
20
21
   Luckily, we have excessive seepage in the foundation of
2.2
   this project that is controlled through a filter system
   and drain system that we generate through the
23
   foundation in its glacial valley, of about 5 CFS in the
24
   stream below us, which is sufficient to maintain the
25
```

```
river.
              And that was the exception?
2
              Yes, sir.
 3
         Α.
              Of the 21 state projects, how many have
 4
         Ο.
   winter maximum storage levels?
5
              All the projects that we have have maximum
6
         Α.
7
    winter storage levels. And that's strictly to make
    sure we do not overfill and spill these projects or
    cause excessive damage.
9
10
         Q.
              Okay. Last, I'd like to turn to your
    rebuttal report and move quickly through your -- some
11
    of your opinions in that report. And that exhibit is
12
13
   M4; do you have that before you?
14
         Α.
              Yes, sir.
15
         Ο.
              Could you turn first to page 7?
              Yes, sir.
16
         Α.
              In your opinion, is it important to have
17
         Ο.
    experience operating a reservoir in order to
18
19
    effectively evaluate reservoir operations?
20
         Α.
              Yes, sir.
21
         Ο.
              And is that true for the Tongue River
2.2
    Reservoir?
              Yes, sir.
23
         Α.
24
         Ο.
              Why?
              To effectively be able to discuss and
25
         Α.
```

```
evaluate reservoir operations, one has to have a sense
    of responsibility and liability for their decisions on
 2
    that project. We're owners; we are liable for this
 3
   project; we're liable for the safety considerations of
 4
    this project. We have our contractual obligations and
 5
    our obligations to the Northern Cheyenne Tribe as well.
 6
              Our decisions are always tempered with the
 7
    evaluation of trying to evaluate and maximize mutually
 8
    exclusive goals of filling the reservoir, ensuring we
 9
    do it safely and dealing with any operational
10
    constraints we have.
11
              The other issue here is unless you are trying
12
13
    to do this by projections six to eight months in
14
    advance on a system where your primary fill period is
    in the spring runoff, it is very difficult to just
15
    assume, well, let's do a simple accounting on the data
16
    that we already know and back count and say we could
17
    have done better here.
18
19
              In that sense, you've eliminated whatever
    risks that you were trying to mitigate or minimize or
20
21
    accept in your filling of the operations of a
2.2
    reservoir.
              In your opinion, is realtime operation of a
23
```

reservoir different than evaluating the operations

24

25

after the fact?

A. Very much so, sir.

2.2

- Q. Turn, please, to page 8. Could you please generally describe here your concern about the evaluation conducted by Mr. Hinckley?
- A. Yes. I think, to wrap it down to a short issue, is that Mr. Hinckley referred to 1950 storage of the reservoir as opposed to the after rehabilitation storage of the reservoir, knowing full well that the expansion of the reservoir from 1996 to 1999 was done to satisfy and meet needs of the Settlement Act of 1992 and had to do with meeting the obligations and requirements under the state and federal law of the Northern Cheyenne Tribe-Montana Compact.

Ignoring those values and ignoring the obligations of those two water rights is -- well, it was wrong.

- Q. Turn to page 9, please.
- A. Yes, sir.
- Q. And I think this concern talked about the concerns you had with the data set used by Mr. Hinckley in his analysis. Can you please describe that concern?
- A. The data set for state line flows was probably okay. However, the data set used for the releases from the Tongue River Reservoir included the reservoir restriction time period for his analysis,

knowing full well that from 1978, 1979 through 1999, outflow releases were adjusted to make sure the 2. reservoir -- or attempted to keep the reservoir below 3 elevation 3420. Using those flows within the analysis 4 would skew those results. 5 We talked at length before about the 6 Ο. operations after the flood and before the 7 rehabilitation project; right? Yes, sir. 9 Α. 10 Q. And those operations were different than historic operations because of the damage? 11 12 Α. Yes, sir. There was more of a sense of 13 urgency of keeping the reservoir drafted down. 14 And then we also looked at the changes that Ο. 15 were done when the construction was actually occurring, where you had the levels very low? 16 Yes, sir. 17 Α. Could you turn, please -- at the back you 18 Ο. have page 22 is Figure 1. What does this show? 19 20 Α. Figure 1 is the daily mean inflows and outflows for Tonque River Reservoir for selected time 21 periods. And the selected time periods for the outflow 2.2 daily mean is 1942 to 1950. And the outflow daily mean 23 from 2003 to 2012. And the inflows were also included 2.4

from -- inflows state line gauge, daily mean time

 \square period from 1960 to 2012.

2

3

4

5

20

21

2.2

- Q. We talked yesterday about the basin having a steep hydrograph; do you remember that?
 - A. Yes, sir.
 - Q. Does this figure show that steep hydrograph?
- A. Yes, it does, sir, from the end of April through the end of June.
- Q. And what conclusions do you draw from Figure 9 1?
- The conclusions from Figure 1 is our 10 Α. operations post-rehabilitation, all a pattern of 11 operation, historical pattern of operation of the 12 13 reservoir from day one. The -- looking at the outflow 14 daily means, even with that, we have been operating more conservatively and trying to and making less 15 releases than we have historically through the winter 16 months. And our primary fill period, as always, has 17 been from the April -- end of April through June time 18 19 period.
 - Q. All right. This actually shows you're being slightly more conservative in operations compared to historic operations since -- let me try that question again.
- Does Figure 1 show that you are being more conservative in the operations of the reservoir since

```
the rehabilitation project, as compared to historic
    operations?
2.
              Our average operations have been more
 3
    conservative since post-operations --
4
   post-rehabilitation than pre, yes.
5
              Let's turn to Figure 2 before we stumble over
         Ο.
6
7
    our words more.
              What does Figure 2 show?
8
              Figure 2 is the daily mean outflows for
9
    Tongue River Reservoir for selected time periods.
10
    Again, this is for all outflows from the project.
11
                                                        And
    this includes the daily mean outflows from 1961 through
12
    1970 as well.
13
14
              What conclusions do you draw from this
         O.
15
    figure?
              Again, what I was attempting to do was just
16
         Α.
    break out the mean outflows from 10-year periods as
17
    opposed to looking at a 50- or 60- or 70-year period to
18
    see if there were trending issues going on. And,
19
    again, it's showing for the outflows that we have
20
21
    currently going on, is that we're following the
2.2
    historic pattern of use that's been well established.
23
    And, again, we are operating more conservatively than
24
    we have in the past.
```

25

Q.

Turn please, to Figure 3. What does Figure 3

show? Figure 3, again, is the daily mean outflows 2 for Tonque River Reservoir. This one has the time 3 period from 1991 through 1999 included into it, as 4 shown by, if you have a colored graph, the green line. 5 What the issue here was to show was that even 6 7 with -- between the historical flows of pre-1950 to the time period where we're dealing with construction operations, our pattern of use is still the same. 9 again, we are still operating more conservatively than 10 the other conditions, than the post-rehabilitation 11 efforts. 12 13 Turn with me, please, to the text on page 14. O. 14 Do you have that? 15 Α. Yes, I do. Could you please describe the concern that 16 was raised -- or that you have with Mr. Hinckley's 17 18 analysis, and describe your response? 19 This concerns the paragraph F operations, Α. winter releases and storage? 20 21 Ο. Yes. 2.2 The issues that I had with the report was 23 that Mr. Hinckley was going off of the 1982 memo that we discussed earlier, the April 1982 memo concerning 24 the 50 CFS for stock water. 25

It appeared to me that there was an attempt
to say, well, the 50 CFS is the minimum allowance. And
anything above that release was a foregone opportunity
in the reservoir operations. I took issue with that,
again, based on our historical pattern of use but even
more so from dam safety and operational issues on this
project.

This was a large basin. And we are balancing

This was a large basin. And we are balancing many different components in this basin and operating this project in a prudent and safe manner.

Again, the issues of trying to state that if we release more than 50 CFS or 75 CFS is a foregone opportunity ignores common sense.

- Q. You also have a problem with the sources that were relied upon by Mr. Hinckley?
- A. Yes. And the McBeath memo, spelled M-a-c-B-e-a-t-h [sic].

9

10

11

12

13

14

15

16

17

18

19

20

21

2.2

23

24

25

- O. And what's your concern with that memo?
- A. Has -- again, as I said earlier, the write-up of the stock water claim from Mel McBeath appeared more to be just the vacation of issue of trying to add a stock water right to the State's underlying water right for the purposes of selling stock waters, I suppose.

In truth, the bottom line is the right of the State Water Projects is for sale and marketed for sale

to the association. And we saw there was subsequent analysis by 2 Ο. the DNRC; right? 3 Α. Yes, sir. 4 And I think that McBeath memo was part of the 5 Ο. adjudication. Do you know if the adjudication ever 6 adopted a 50 CFS winter flow for stock water? 7 No, sir, it did not. 8 You also -- in your report at page 15, you 9 mention a concern with the GeoResearch report and that 10 information. Can you explain that concern? 11 Α. Excuse me. Were you looking at the last 12 13 paragraph on page 15? 14 O. Yes. 15 Yes. One of the issues brought up is Mr. Hinckley was using the GeoResearch report. And I 16 believe he was using the September -- I hope he was 17 using the September 7 GeoResearch report. I don't 18 know. I can check references. 19 20 What's important to note is the GeoResearch 21 report was done -- I should back up. The Tongue River 2.2 modeling studies, I believe there were two modeling reports in 1990. There was a final report written in 23 June of 1990. Then later on, there was a draft report 24

after that report and then another draft GeoResearch

```
report in 1991 looking at additional scenarios of the
   models.
2.
              That was in 1991. The Tongue River filed an
 3
   environmental impact statement. In part of the
4
   environmental impact statement, to meet the
5
   requirements for the project, they incorporate the
6
   model into the document and the various runs. And they
7
   took the cases from that same modeling study and came
   out with a 150 CFS median outflow for the winter flows.
9
              Mr. Hinckley kept with the original reports
10
   that were using 75 CFS as their assumption and not
11
   going forward to the final environment impact statement
12
13
   where the models were run with the other numbers.
14
              On page 16, you indicate that a reasonable
15
   standard of care must be used when making operational
   decisions on high-hazard structures that affect public
16
   health and safety; do you see that?
17
18
         Α.
              Would you direct me to the part of the page,
19
   sir?
20
              You bet.
                        It's in the middle paragraph,
         Ο.
21
   second sentence from the bottom of that paragraph.
2.2
         Α.
              Yes, sir.
23
              And I think you've described that earlier in
24
   your testimony; is that right?
              Yes, sir.
         Α.
25
```

```
1
         Q.
              I think it will help if we turn to Figure 4.
   And that might help you illustrate this point. Do you
2
   have Figure 4 before you?
3
         Α.
              Yes, sir, I do.
4
              And this is done in a series of Figure 4, 5,
5
         0.
        If you'll start with Figure 4, what does Figure 4
6
   show?
7
              Figure 4 shows -- it's a state line inflow
8
   comparison of water year 2002 and 2003. And this
9
10
   correlates -- I was putting back-to-back years
   together; basically showing variability that we have in
11
   this system for inflows.
12
13
              The 2002 water year was our drought year out
14
   of those two years. And it shows on the inflow
15
   hydrograph, we didn't get a lot of water across the
   state line.
16
              However, the 2003 water year was showing to
17
   have the same base flows in the wintertime. But we
18
   have -- and this year we had the precipitation event in
19
   March, prior to runoff, that actually put a lot of
20
21
   water into our system. We had about 2000 CFS crossing
2.2
   state line in a very short duration.
23
              These are the issues that if we were going
   into the wintertime and setting our flow, our outflows
24
```

at a minimum release upward of 75 CFS, and not going

```
back, we would have had -- we would have been full
   already before this end of March. And we would have
2
   passed that straight through the system. And if it
 3
   would have been a colder year or ice had not come off
4
   the reservoir at that time yet, we would have pushed
5
   the ice over the system as well. These are just
6
7
   situations that point that out.
              You have to be prepared for that kind of
8
   variability?
9
10
         Α.
              We have to be aware of the situation in the
   basin as with all of our basins.
11
12
              Turn, please, to -- the next page, Figure 5.
         Ο.
13
              Yes, sir.
         Α.
14
              What does Figure 5 show?
         O.
15
         Α.
              It's a continuation, just a four-year time
   period between Figure 4 and Figure 5. Figure 5 is
16
   water year 2004 and 2005. And for good measure to show
17
18
   a very wet year of 2011.
19
              And I will just say shortly, 2011 we had
   flooding across Montana from one side to the other.
20
                                                          Ιt
21
   was a very large precipitation year for the entire
2.2
   state.
23
              The base flows are relatively the same.
   in fact, 2004, we had nothing for runoff in that year,
24
   and that was a bad drought year. Going into water year
25
```

```
2005, it was actually looking worse than 2004.
    inflows were lower than 2004 until the end of May, and
2
   then we had precipitation events that filled and
3
   spilled our reservoir rather quickly.
4
5
              And to put things in perspective of this
   basin, the 2011 system, which is an unusual event, but
6
7
   we had five back-to-back storm events come through in
   May. And we filled and spilled our reservoir after the
8
9
   first peak came through and mitigated that first peak.
   But at that point in time, we were full. And inflows
10
   to outflows was for the other three or four events.
11
                                                          So
   even with storage, we could only mitigate so much.
12
13
              And finally, if you'd turn, please, to Figure
         Ο.
14
   6.
15
        Α.
              Yes, sir.
16
         0.
              What does Figure 6 show?
              Figure 6 is a USGS printout for the Tongue
17
         Α.
18
   River at state line near Decker, Montana, gauge.
   reason I put Figure 6 in is this is the annual peak
19
   streamflow in cubic feet per second of values per year.
20
21
   So it's nothing more than just a point in time and the
2.2
   peak flow going across state line. But that ties into
   the runoff events.
23
              And primarily, I think one could look at the
24
   data set there and say that the vast majority of flows
25
```

```
will be -- peak flows will be above 2000 CFS.
    2000 to 5000 CFS would sandwich the peak flows crossing
2.
   state line. Again, pushing into the issue of our
 3
   primary fill period for this project is the spring
4
   runoff.
5
              Thank you.
         Ο.
6
7
              MR. WECHSLER: I have no further questions.
              SPECIAL MASTER: Okay. Can I just ask one
8
   quick question, which is not a question of the witness.
9
10
   But has the April 1937 declaration of intent, with
11
   respect to the Tonque River Reservoir, has that been
   introduced into evidence?
12
13
              MR. WECHSLER: I don't believe so, Your
14
   Honor.
15
              SPECIAL MASTER: Are you planning on doing
16
    that at any stage?
              MR. WECHSLER: I'm not sure that that's
17
   listed as an exhibit.
18
19
              SPECIAL MASTER: By either side?
20
             MR. KASTE: I don't believe so.
21
             MR. WECHSLER: I don't believe so either.
2.2
              SPECIAL MASTER: Okay. So I was just curious
   because I'd seen several references to it. But I
23
   didn't see it on the exhibit list. So I wanted to make
24
   sure I hadn't forgotten anything.
25
```

```
1
              So I would suggest at this point, I think I'm
   going to wait for my questions, again, until you've
2.
   asked your cross-examination questions, Mr. Kaste.
 3
                                                         And
   I know that the court reporter, given the highly
4
   technical level of the questions today, would love to
5
   have slightly more frequent breaks today. So I would
6
7
   suggest maybe we take our 15-minute break right now.
   And then we can take, like, a little five-minute break
   in between when we come back and when we get to the
9
10
   very end of today. Does that sound fine?
                          That's fine. And I appreciate
11
              MR. KASTE:
   you not trying to steal my thunder.
12
              SPECIAL MASTER: So let's come back at 2:30.
13
                        (Recess taken 2:13 to 2:32
14
15
                        p.m., October 24, 2013)
16
              SPECIAL MASTER: Okay. Everyone can be
   seated excepted Mr. Kaste. There's no chair.
17
18
              MR. KASTE:
                          Are you --
19
              SPECIAL MASTER: Yes.
                       CROSS-EXAMINATION
20
21
   BY MR. KASTE:
2.2
         Ο.
              Good afternoon, Mr. Smith.
              Good afternoon.
23
         Α.
              I want to start just a little bit and talk
24
         O.
   with you about some of your testimony in which you
25
```

```
talked about the process through which you and the
    Tongue River Advisory Committee make predictions about
 2
    what the flow is going to be like in a certain year and
 3
    what actions you take in response. Do you remember
 4
    testimony about that?
 5
              Yes, I do.
         Α.
 6
              And I think you talked to us about a whole
 7
         Q.
    host of factors that you take into consideration in
    deciding what to do with your reservoir; right?
 9
10
         Α.
              Yes.
              And sometimes you make a decision we need to
11
         Ο.
    store, and sometimes you make a decision we need to
12
13
    draft; right?
1.4
         Α.
              Yes. And in tossups, yes.
15
         Ο.
              Sure. And those decisions are made, if I
    understand right, by the Tongue River Reservoir
16
    Advisory Committee?
17
              Those recommendations are made by the
18
         Α.
19
    Advisory Committee.
20
              And then day to day, the operational
         Ο.
21
    decisions are made primarily by the Water Users'
    Association in consultation with you?
2.2
23
         Α.
              Correct?
              That's a fair way to describe it?
2.4
         O.
```

25

Α.

Yes.

The association is responsible for the

```
day-to-day operations under our guidance.
              All right. Nobody from Wyoming is a member
 2
         Ο.
    of the Tongue River Advisory Committee, are they?
 3
         Α.
              No, they are not.
 4
              Nor are they participants in your
 5
         Ο.
   decision-making process in consultation in the Water
 6
    Users' Association; correct?
 7
              No, they are not.
 8
         Α.
              We can agree, however, that the decisions
 9
    that you make can have an adverse effect on upstream
10
    junior appropriators, can't they?
11
         Α.
              I don't know if I can agree to that, sir.
12
13
         Q.
              Well, if you make a decision to release water
14
    and then you call on the junior appropriators, that
    could adversely affect them, couldn't it?
15
              The issue here is if we're approximating the
16
         Α.
    river flows downstream to meet our historical
17
    operations and historical practice, I wouldn't call
18
    that as an adverse effect to the upstream juniors.
19
```

- Q. It could affect their ability to use water;
 how is that? Isn't that more neutral?
- 22 | A. Yes.
- Q. Thank you. You used the term "fill" many times during the course of your testimony. And I don't think anybody ever asked you to define how you were

```
using the term fill. So when you said fill, what do
   you mean?
2.
 3
         Α.
              Could you put that in a specific context of
   the --
4
                     At various points, I think you said
5
         0.
              Sure.
   Tonque River Reservoir filled and sometimes it filled
6
   and spilled, for example, in 2005 after the big spring
7
   rains.
              Thank you, sir. Yes. In that context,
9
   filling to -- when I said fill, I'd mean to elevation
10
    3428.4, which is the spillway crest elevation.
11
              And that's the current spillway crest
12
         Ο.
13
   elevation; is that right?
14
         Α.
              Yes, sir.
15
         Ο.
              All right. And what date -- do you have a
    specific date where you measure whether or not the
16
   reservoir has filled or not?
17
              The -- are you asking me that we consider the
18
   reservoir not filled if it doesn't meet a certain date,
19
20
   or is it --
21
         Ο.
              Well, I'm trying to figure out if you just
2.2
    look at the peak level inside your reservoir and make a
   determination about whether it filled or not based on
23
   that peak level or if you've picked a date and said,
24
   for example, July 1 is the date we're looking to
25
```

```
ascertain whether or not the reservoir has filled or
   not?
2.
              Oh, no. We ascertain whether it's filled or
 3
         Α.
   not through the runoff that we have it filled.
4
   is no specific date.
5
              Are you looking, then, at the peak level of
         Ο.
6
   the reservoir to make that determination?
7
8
         Α.
              Yes.
              And that can happen on different days in
9
         Ο.
10
   different years; right?
              That has happened in May, and this has
11
         Α.
   happened in July, yes, sir.
12
13
              All right. You talked to us a lot about the
14
   historic operations of the reservoir and the -- as
15
   we've gone through time, the various changes. And can
   we agree that there have been a lot of changes in
16
   Montana with regard to the Tongue River Reservoir since
17
18
   1950?
19
              I would tend to not agree with that from the
   standpoint we've had -- we had rehabilitation of the
20
   project.
21
              I would not consider that a lot of changes.
2.2
              Okay. Let's go through some of them.
23
   at the end we get to a lot, we do. The first thing I'd
    like to talk about is in Exhibit M309A.
2.4
```

25

Α.

Yes, sir.

```
You talked about this exhibit with
 1
         Q.
   Mr. Wechsler. And I'm really interested in the first
 2
    sentence of that exhibit. And I'll read it so we can
 3
   go slow. It says, "As can be verified by the records
 4
    of storage published in the U.S. Geological Survey
 5
    reports, the reservoir was not operated at the maximum
 6
 7
    capacity of 68,000 acre-feet. Instead it was operated
   near 45,000 acre-feet, with the exception of 1944,
    1959, 1964, 1965, and 1967."
 9
10
              Did I read that correctly?
11
         Α.
              Yes, sir.
12
              And that's --
         Ο.
13
              SPECIAL MASTER: Actually, sorry to
14
    interrupt. Can you tell me what page?
15
              MR. KASTE:
                          M309A, first page.
16
              SPECIAL MASTER: First page, thanks.
              MR. KASTE: First sentence after the heading
17
    "Historical operation."
18
              SPECIAL MASTER: Thanks.
19
20
   BY MR. KASTE:
21
         Ο.
              And we can agree that that's true; back in
2.2
    the 1950s, this reservoir was operated at a level about
    45,000 acre-feet consistently with some outliers?
23
              Well, I would say the first three years were
24
         Α.
    operated for filling operations and then filled in
25
```

1944. And then whatever the flow rates were afterwards, yes. 2. And that's because at the time, the people 3 running the reservoir were trying to create a firm 4 yield of 32,000 acre-feet in order to meet the 5 contracts with the Tongue River Reservoir Water Users' 6 Association; right? 7 No, sir. 8 Α. It is true that there were contracts for 9 O. No? 10 the -- between the Tongue River Water Users' Association and the board up to 32,000 acre-feet of 11 water when the reservoir was initially constructed and 12 13 through 1969; right? 14 Α. Yes. There were 32,000 shares marketed. 15 Ο. And that's what the reservoir -- the people 16 running the reservoir were trying to satisfy, are those 32,000 shares; right? 17 18 Α. Yes. But there's more to it than just that, 19 sir. 20 All right. Well, let's look at the contract, O. which is Exhibit M529A. 21 2.2 Α. I have it. All right. And this is the contract from 23 24 1937 between the Tonque River Water Users' Association

and the board; right?

- A. This is the State Water Conservation Board
 and the Tongue River Water Users' Association contract;
 yes, it is, sir.
 - Q. All right. I just want to look at a couple pieces in this contract. First, I'd like to look at Section 4 on page 3. Well, first, we can agree that the purpose of this contract was to allow the board to sell 32,000 shares to the Water Users' Association; right?
- 10 | A. Yes, it is.

4

5

6

7

- Q. And in exchange, the water users were going to help reimburse the board for the cost of the reservoir; right?
- 14 | A. Yes, sir.
- 15 Ο. All right. And then in Section 4, in the second sentence, it says, "The association further 16 agrees that in the event that the live capacity of the 17 project, when completed, is greater than that estimated 18 19 and the amount of water available from that project will permit the furnishing of more than 32,000 20 21 acre-feet of water annually, the association promptly 2.2 will enter into additional water purchase contracts so that water in the amount of the actual live capacity of 23 the project will be sold annually pursuant to 24 outstanding water purchase contracts. The association 25

Cross-Examination by Mr. Kaste shall not furnish or deliver to any water purchaser in any year an amount of water which shall be in excess of 2 the amount to which such water purchaser is entitled 3 under his water purchase contract." 4 Did I read that right? 5 Yes, sir. Α. 6 7 Q. So this is back right when they're getting ready to start delivering water. And the contract 8 says, if it turns out we got more water, we're going to 9 have to sell more contracts; right? 10 Yes, sir. 11 Α. And the people who have these contracts 12 Ο. 13 aren't entitled to any more water than is provided in 14 their contracts; correct? 15 Α. That is what that says, yes.

16 Ο. All right. Let's turn the page and go to And look at Section 6. It says, "In the event page 5. that from time to time, a supply of water is available 18 from the project temporarily in excess of the amount 19 needed and to be needed to furnish all water purchasers under contract therefor, the association shall sell 21 2.2 such water at the highest price obtainable, but in no event shall such waters be sold at a price less than 23 24 the amount being paid by persons under water purchase contracts."

17

20

```
1
              Did I read that right?
              Yes, you did.
2
         Α.
              So in times of excess supply, the contract
 3
         Ο.
    says, we need to go sell some more contracts for that
4
    water; right?
5
              It says -- it doesn't say you need to.
         Α.
                                                        Ιt
6
    says you can.
7
              I'm sorry. I didn't hear that.
8
              It says you can sell more water if you have
9
10
    it.
        You do not need to.
              Right. What I'm getting at is they don't
11
         Q.
    give water away for free; right?
12
13
         Α.
              No, sir.
14
              Very good. And we can agree that back in
         O.
    1950, the amount of water the Tongue River Water Users'
15
    Association could lawfully, pursuant to their contract,
16
   put to beneficial use was 32,000 acre-feet except in
17
    times of excess when they sold additional shares;
18
19
    correct?
20
              Well, except for the other clause that you
         Α.
21
    pointed out, sir, that to market the yield, I believe.
    Although they did not have additional markets in 1950.
2.2
                      That just didn't happen. They didn't
23
         Ο.
              Riaht.
    do that additional marketing in 1950; right?
24
         Α.
              No, sir.
25
```

```
1
         Q.
              In fact, we know from the next contract in
    1969, which is Exhibit M529C, if you look on the third
 2
    page of that contract, in the second whereas clause on
 3
    that page, it's the largest paragraph on page 3, it
 4
    says -- do you have it?
 5
              Yes, sir.
         Α.
 6
 7
         Q.
              Page 3, big paragraph. I'll just read the
    beginning: "Whereas" -- and this is 1969; right?
 8
 9
         Α.
              Yes, sir.
10
         Q.
              "Whereas, the association has never been able
    to market, to the date hereof, as much as 32,000
11
    acre-feet annually."
12
13
              Did I read that right?
14
              Yes, sir.
         Α.
              So we know as of 1969, they hadn't been able
15
         Ο.
    to sell the 32,000 acre-feet of water that they had
16
    originally contemplated; right?
17
              That's the statement here, sir.
18
         Α.
              Okay. So back in 1950, when they were
19
         Ο.
    operating the reservoir at capacity, generally, of
20
21
    45,000 acre-feet, they were providing to the water
2.2
    users something somewhat less than 32,000 acre-feet of
23
    water; right?
              If I may try to explain something else in
24
         Α.
    those averages that you've been stating for the
25
```

```
1
   pre-1950 volumes of the reservoir, sir.
                                             Immediately
    after the filling of that reservoir and the first
 2.
    filling operations, there were some severe seepage and
 3
    leakage issues, I believe in 1941 or '42. And some
 4
    other periods that you have, you'll see some excessive
 5
    discharges in the fall, winter. There were different
 6
 7
    grouting programs and repair work that occurred.
                                                       So
    the reservoir had been drafted substantially in some of
 9
    those years.
10
              So to say that the reservoir wasn't any more
    than 45,000 an average is somewhat of a misstatement.
11
    Yes, that was the averages. But that's including two
12
13
    or three years of probably very low elevations that
14
    were due to construction issues that are put into that.
15
         Ο.
              Those are the first couple years after
16
    completion you're talking about?
              There were a couple issues in there.
17
         Α.
                                                     And I
    cannot remember the specific dates. But there were
18
19
    some flows where they did some exceedingly high
    drafting operations in the wintertime to wrap up and
20
21
    finish their grouting operations.
2.2
              Okay. Well, Exhibit M309A, of course, goes
23
    up to 1967. So it includes a whole bunch of years
    after 1950, too; right?
24
              Yes, sir.
25
         Α.
```

```
1
         Q.
              And that was t-o-o, as in also. Not the year
   1952.
2.
              So let's go ahead and look at, then, so maybe
 3
   we can get a better sense of this, Montana
4
   Demonstrative Exhibit 3; do you have that?
5
              One minute, sir.
         Α.
6
7
              SPECIAL MASTER: It's the one that looks like
   this.
8
              THE WITNESS: Yes, sir. I was hoping to be
9
10
   done, so I sort of missed my --
              SPECIAL MASTER: Understood. It's fine.
11
                                                         T t
   helps sometimes to actually know what the exhibit is
12
13
   that you're looking for.
14
              THE WITNESS: Bear with me, Mr. Kaste.
                                                       Ι
15
   seem to have rearranged some things.
   BY MR. KASTE:
16
              That's all right. You have a big stack.
17
         Ο.
18
              So I'm looking at the first page of Montana
   Demonstrative Exhibit No. 3. That's a Table 4A from
19
   Mr. Book's report; right?
20
21
         Α.
              Yes, sir.
2.2
         Ο.
              All right. Which month do you think we ought
   to look at if we want to determine -- Exhibit M309A
23
   calls it "operated near 45,000 acre-feet." So which
24
   month should we look at to determine what they were
25
```

```
operating near on a typical basis? Should we look at
   May or June?
2.
              I would -- these are end-of-month contents.
 3
    So I'd probably look at June. It should be the end of
4
   month June.
5
              Okay. Well, let's look at June 1940.
6
         Ο.
                                                       The
    end-of-month contents were 36,900; correct?
7
              Correct.
8
         Α.
              1941, are 45,000; correct?
9
         Ο.
10
         Α.
              Yes.
                    And '58 and '65, we see apparently
    runoff was sooner those years.
11
12
              All right. So let's go June of 1943, 40,000;
         Ο.
13
    right?
14
              Yes, sir.
         Α.
              And then we have this 75,760 acre-feet of
15
         O.
    water at the end of June 1944; right?
16
              Yes, sir.
17
         Α.
              You talked with Mr. Wechsler about that one.
18
         O.
19
         Α.
              Uh-huh.
20
              And if I understand it, that's some
         O.
21
    indication to you that the operating -- or the original
2.2
    capacity of the reservoir is somewhere in the 72 or
23
    73,000 acre-feet range; right?
2.4
         Α.
              Yes, sir.
              What's a surcharge pool?
25
         Q.
```

```
1
         Α.
              Surcharge pool, sir?
2
         Q.
              Yes.
              Are you asking about the pool capacity above
 3
         Α.
    the spillway crest?
4
5
         Q.
              Yes.
              Surcharge pool is exactly that, then, for
         Α.
6
7
    that purpose. Some people call it a flood pool; some
   people call it surcharge. It is the available storage
    located above the spillway crest. And it's part of the
9
10
    system that helps route your flood events through your
    reservoir.
11
              So that is the level above which your
12
         Ο.
13
    reservoir starts spilling; right?
14
         Α.
              Yes, it is.
15
         Ο.
              And that's water that ultimately you can't
16
   keep because it's over the spillway; right?
17
         Α.
              Yes, sir.
18
              All right. And that happens not just with
         Ο.
    the dam back in the old days, but we can see that,
19
20
    can't we, in 2008? If you look at May 2008 on the
21
    second page. You see a capacity for an end-of-month
2.2
    contents of 82,565 acre-feet; right?
23
              Yes, sir.
         Α.
              And that's almost 6000 acre-feet over the
24
         Ο.
```

current capacity of the Tongue River Reservoir; right?

- 1 A. No, sir. A little over 3000.
- 2 Q. Little over 3000? I -- oh, 79. I can't add.
- 3 | I'm sorry. Or substract, whichever of the two I'm
- 4 supposed to be doing.
- But that happens sometimes, right, when you
- 6 get a big runoff event, you get higher than your
- 7 | spillway, and all that water eventually makes its way
- 8 over the top; right?
- 9 A. Yes, sir.
- 10 Q. So that's not an indication in and of itself
- 11 of the capacity of your reservoir; it's an indication
- 12 that it's over the top of the spillway?
- 13 A. Yes, sir. But the data from that, I think it
- 14 was a USGS page that was brought up from 1944 had a
- 15 | statement in the remarks column that put the elevation
- 16 of the spilling event at that higher value at 3424.8 or
- 17 .9. It was, I think, .4 or .5 feet higher than the
- 18 | spillway crest. So it defines surface pool that you're
- 19 | talking about, your flood pool.
- 20 Q. I see. If you turn a little bit farther back
- 21 | in this exhibit. Nope not this one. We'll get to it.
- 22 | It is this one, M309A. And there is page -- the second
- 23 to the last page has the No. 478 in the top.
- 24 | A. Yes, sir.
- 25 Q. All right. In there, it talks about

```
extremes. And it talks about this 1944 event where the
1
   reservoir reached 75,760 acre-feet; right?
2
              Yes, sir.
 3
         Α.
         Q.
              At an elevation of 3424.9 feet; right?
 4
              Yes, sir.
5
         Α.
              And then in the next section, in the remarks
6
         Ο.
   section, it talks about the present usable capacity
7
   being 68,000 acre-feet at the spillway crest, which is
8
   at an elevation of 3424.4 feet; right?
9
              Yes, sir.
10
         Α.
              So at the spillway crest, the capacity was
11
         Ο.
12
    68,000 acre-feet; right?
13
              No, sir. Not during that extreme event.
14
              During that event, there was water over the
         O.
15
   spillway; right?
              On the statement in the remarks column on
16
         Α.
   that same site, sir, it says, "Dam completed in May of
17
   1939. [And] Prior to October 1947, usable capacity was
18
   73,900 acre-feet. [This is] Present usable capacity of
19
   68,000 at spillway crest." And I would take that to be
20
21
   the present for whenever this document was printed,
   which is 1967.
2.2
23
              Correct. All right.
         O.
24
              SPECIAL MASTER: Can I just stop for a
             I want to make sure I'm exactly the same place
25
   second?
```

```
Which exhibit?
1
   you are.
              THE WITNESS: This was Exhibit M309A, sir.
2
 3
              SPECIAL MASTER: Yep. And you're talking
   about the remarks column?
4
              THE WITNESS: Yes, sir. On the Bates
5
   No. 03296, the top of the page, we have "location,"
6
7
    "drainage area" -- the title is on the side -- "gauge,"
   and then we have "extremes" and "remarks."
8
9
              SPECIAL MASTER: Okay. I see where you are.
10
   Thank you.
11
              THE WITNESS: Yes, sir.
   BY MR. KASTE:
12
13
             Now we're going to leave that. So let's --
14
   now we understand why we can have a number that's
15
   75,000 acre-feet in June of 1944. So let's move on
   from 1945 to 1950.
16
              So we're past that feeling-out period
17
18
   following construction of the reservoir; right?
19
              Yes, sir.
        Α.
              All right. Fair enough. And we look at
20
         O.
21
   June 1945 and the end-of-the-month contents were
2.2
    38,640; correct?
23
              Excuse me, sir. Are you looking at the
   contents in acre-feet on the same chart here? Of the
24
   309A.
25
```

```
1
         Q.
              I'm sorry. I went back to Montana
   Demonstrative Exhibit 3. Got sidetracked. Now I'm
2
   back.
3
         Α.
              Which year, again, sir?
4
         Q.
              1945?
5
              I'm there, sir.
         Α.
6
7
         Q.
              June, the end-of-month contents are 38,640
    acre-feet; right?
8
9
         Α.
              Yes, sir.
              And then it looks like the reservoir stored
10
         Q.
    throughout the remainder of the summer, didn't it?
11
12
              Yes, sir, it does.
         Α.
13
              That's kind of odd; right?
         O.
              Sir, it's not -- does not follow the general
14
         Α.
15
    trend.
              Fair enough. The next year, 1946, in June,
16
         Ο.
    the end-of-month contents were 41,730; right?
17
18
         Α.
              Yes, sir.
              1947, I have 40,220 in June; correct?
19
         O.
20
              Yes, sir.
         Α.
21
         Ο.
              1948, I have 46,490; correct?
2.2
         Α.
              Yes, sir. You show a 26,000 bump from May to
23
    June, yes.
24
              All right. And 1949, I have 37,820 in June;
         O.
25
    correct?
```

```
1
         Α.
              Yes, sir.
              1950, I have 34,550 acre-feet in June;
2
         0.
3
   correct?
         Α.
              1950?
4
5
         Q.
              Yes.
              Yes, sir, I got it.
6
         Α.
              Okay. So the five years preceding 1950, in
7
         Q.
   June, the reservoir doesn't actually even get over
8
    45,000 acre-feet; right?
9
10
         Α.
              No, sir. But it's filled from the 1950 from
    5000 acre-feet to the 36,000. There is some serious
11
   drafting occurring in some of these years. And I
12
13
   would -- I would not know what was going on in that
14
   time without going through a lot of engineering reports
15
   and records that apparently haven't been found yet.
    'Cause these are some very low numbers. We actually --
16
    it appears that 1947, the reservoir was drained.
17
              Do you know whether, during these period of
18
   years preceding 1950, whether the board was able to
19
20
   satisfy the contractual demands of the Water Users'
   Association?
21
              You would have to confer with the association
2.2
   on their records. But I believe they were satisfied on
23
   some of their needs. But I cannot verify that.
24
                     Now, after 1950, we get to 1969, and
25
         Q.
              Okay.
```

```
we have this second contract that you talked about.
    And that's Exhibit M529B; correct? I meant C. Did you
2.
    find it?
 3
              529C, sir?
         Α.
4
         Q.
              Yes.
5
              Yes, I did.
         Α.
6
              That's the 1969 contract between the board
7
         Q.
    and the Tongue River Water Users' Association?
8
              Yes, it is, sir.
9
         Α.
10
         Ο.
              And that contract allowed the Tongue River
    Water Users' Association to sell 8000 more shares;
11
    correct? From 32 to 40.
12
13
         Α.
              Yes, sir.
14
              Okay. And in addition, here's a bit in this
         O.
15
    contract on page 15, and I'm looking at Section 13 on
   page 15. Are you with me?
16
              Yes, sir. Section 13?
17
         Α.
              Yes. And most of the way down that
18
         Ο.
   paragraph, there's a sentence that says, "The board
19
20
    commits itself to permit a sufficient amount of water
    to flow out of the reservoir and down the river in the
21
2.2
    wintertime as for water for livestock and to keep the
    river a live river."
23
24
              Did I read that correctly?
              Yes, sir.
25
         Α.
```

1 Q. Okay. That's new, isn't? That was new in 2. 1969; right? The language is new, yes, sir. 3 Α. Q. All right. 4 5 Α. I don't believe the operations changed, though. 6 7 Q. After 1969, you have the flood event that you described in 1978; right? 8 Yes, sir. 9 Α. 10 Ο. And that constrained your operations from 1978 until the reservoir was rehabilitated; correct? 11 It did. 12 Α. It did. And I want to make sure I understand 13 Ο. 14 this. 'Cause I thought I heard you say that between 1978 and the time that the reservoir was rehabilitated, 15 the board was able to meet the contractual needs of the 16 Water Users' Association. Did I hear that right? 17 Would you say that again, please, sir? 18 Α. 19 During that period of time, from 1978 through Ο. 20 the reservoir rehabilitation project, was the board able to meet the contractual needs of the Water Users' 21 Association? 2.2 I don't know if I said that, sir. I'm not 23 Α. aware that they did or did not make the obligations. 24 Maybe you said, and tell me if this is right, 25 Q.

```
that the reservoir was operated solely to meet those
   contractual obligations.
2.
```

- Yes, sir. I think the term was to the height Α. now sufficient to make the contractual obligations.
- And they were able to do that even though the Ο. reservoir was impaired to a certain extent?
- 7 Α. They were able to do that if there was enough water in the system to get the reservoir up to elevation 3420, which then precluded any care of the water or additional waters for shortages for the next 11 year.
 - And then you have the rehabilitation project. Ο. That's completed, adding to the life of this reservoir. And the reservoir capacity is increased by approximately 10,000 acre-feet; correct?
 - Yes, sir. Α.

3

4

5

6

8

9

10

12

13

14

15

16

2.4

- All right. Now, during the winter months, 17 Ο. back in 1950 during this period you've been talking 18 19 about, historic operations, am I correct in understanding that once irrigation ends, over the 20 course of the winter months, the only people with water 21 2.2 rights downstream of the reservoir are the people with stock water rights? 23
 - I don't know if that's true, sir. Α.
 - Nobody is irrigating during the winter, Q.

right? No, sir, not to my knowledge. 2 I think you mentioned it was cold during the 3 Ο. winter; right? My understanding is that there are some 4 stock water rights between the reservoir and the 5 Yellowstone River; correct? 6 Yes, sir. 7 Α. And those stock water rights are all 8 year-round 'cause cows need to drink in winter, too; 9 10 right? Yes, sir. 11 Α. 12 And so those water rights would have the Ο. 13 ability to call on the reservoir during the course of 14 the winter and say, release some water for my 15 preexisting stock water right; correct? I would not say in those terms. I'd say we 16 Α. just need to pass the river through. 17 Fair enough. But if there wasn't sufficient 18 Q. water passing through, then they could call your 19 reservoir and say, you need to change your operations 20 21 to make sure I get my water? 2.2 It would be up to the inflow of the reservoir, sir. 23 Okay. I get it. If there was sufficient 24 Ο. water coming in to meet their needs, then you could 25

accommodate them?

3

4

5

6

14

15

16

20

2.2

2.4

- Α. Yes, sir. 2
 - All right. Fair enough. So do I understand, Ο. you're not aware of other rights between the reservoir and the Yellowstone River that could call on the reservoir during the winter months?
- 7 Α. There are other rights, I believe, Fish and Game, that are junior to us. However, they have been 8 accustomed to a pattern of use, and it's a historical 9 pattern over the last 70 years that they should be 10 accustomed to. If we adversely change our operations, 11 then I think they would have a right to complain on 12 13 that.
 - Is the Game and Fish right 1973 or 1978?
 - I believe it was 1978. But I don't know for certain.
- Fair enough. Well, let's finish up on stock 17 Ο. water while I'm thinking of it. One of the things you 18 talked about is Exhibit -- and I'm going to have to ask 19 you to tell me. Which exhibit did you look at that had the list of the various winter release levels? 21 It was a two-page document created by DNRC. Do you have that 23 one in front of you?
 - Would that be Exhibit M284? Yeah, M284. Α.
 - You talked to Mr. Wechsler about M284. Q. Yes.

```
And it has justifications for various numbers that
   people were looking at for winter releases; is that
2.
    fair?
 3
         Α.
              Yes, sir.
4
              Okay. And the very last one, number -- I
5
         0.
    think it's No. 9, says 50 CFS. And that's based on a
6
   memorandum from a guy named Melvin McBeath; right?
7
              McBeath, sir.
8
         Α.
              Thank you. I'm going to hand you, if I may,
9
10
    Exhibit W11 and ask you if that's Mr. McBeath's
   memorandum to which you were referring?
11
              I believe it is.
12
         Α.
13
         O.
              That's an April 16th, 1982, memorandum;
14
    correct?
15
         Α.
              Yes, it is. It's a memorandum dated
16
    April 16, 1982.
17
              Who is it from?
         Ο.
              This is from Melvin F. McBeath.
18
         Α.
              And did he work at -- for the State of
19
         Ο.
    Montana in some capacity?
20
21
         Α.
              Yes, sir. Here he's titled Water Management
2.2
    Bureau.
23
              And who is the memorandum to?
24
         Α.
              It is to Richard L. Bondy, chief of the
    Engineering Bureau.
25
```

```
1
         Q.
              And he worked for the State of Montana, too,
    at the time; right?
2.
              Yes, he did.
 3
         Α.
         Q.
              Is this a record that's kept by the
 4
    Department of Natural Resources and Conservation here
5
    in Montana?
6
              Yes, sir.
7
         Α.
              And you've seen it before?
8
         Ο.
              Yes, I have seen this document.
9
         Α.
10
         Q.
              And I assume you reviewed it in the course of
11
    preparing your opinions for this case?
12
              Yes, I did review it some time ago.
         Α.
              All right.
13
         O.
14
              MR. KASTE: I'd move for the admission of
    Exhibit W11.
15
              MR. WECHSLER: No objection.
16
              SPECIAL MASTER: Exhibit W11 is admitted.
17
                         (Exhibit W011 admitted.)
18
   BY MR. KASTE:
19
20
              All right. Now, at the end of this
         Ο.
21
    memorandum, before the citations to the literature,
2.2
   Mr. McBeath tells Mr. Bondy that it is his estimation,
   based upon professional judgment, that a flow of 50 CFS
23
    would be required to deliver the consumptive flow rate
2.4
    a minimum of 190 miles downstream from the dam.
25
```

```
Therefore, the livestock flow rate claim will be 50 CFS
   with a consumptive annual volume of 29 acre-feet per
2
3
   year.
              Did I read that right?
4
              Yes, sir.
5
         Α.
              Okay. And if I understand your testimony,
6
         0.
    this is Mr. McBeath saying, Mr. Bondy, this is what our
7
    DNRC claim for stock water rights should be; correct?
              Melvin McBeath, at this time, he was with the
9
10
    Water Management Bureau, which was not part of the
    Engineering Bureau. So it looks like he was doing an
11
    evaluation for Mr. Bondy at the time to see, well, if
12
13
   he was going to try to file another right, it would be
14
    in this process.
15
              And if I understood your testimony, you're
16
    saying this right would belong to DNRC, or its
17
   precursor?
              Well, it looks like he was doing this to
18
         Α.
    justify more water for the DNRC.
19
20
              Does DNRC own any cows?
         O.
21
         Α.
              We do not own a cow, sir.
2.2
         Ο.
              Did you own cows in 1982?
23
              I was not there, sir, to check. But I don't
         Α.
   believe we did.
2.4
              All right. Did Mr. McBeath go down and talk
25
         Q.
```

1 | to the irrigators along the Tongue about their needs?

- A. The memo does discuss he went down to meet and talk and discuss this with the water users.
- Q. Okay. And I think it says he interviewed the water users -- this is on page 1 -- and from the data he gathered, he says, "I was able to plot the irrigated land areas on a map of the project, estimate the livestock numbers, and calculate the flow rates and annual volumes."

Did I read that right?

- A. I'm sorry. Where are you on the first page?
- Q. The last full paragraph. Last sentence.
- 13 A. Yes, sir.

2

3

4

5

6

7

9

10

11

12

14

15

16

- Q. Okay. Have you done, yourself, a quantification of the stock water rights between the Tongue River Reservoir and the Yellowstone River?
- A. No, I have not.
- 18 Q. All right. Fair enough.
- A. And this was not a quantification of stock
 water rights, sir. This was a survey of cattle
 operations. It appears to be an incomplete one because
 he surveyed people that were at the meeting and not
 everyone else.
- Q. Let's turn our attention to minimum winter flows. All right?

```
1
         Α.
              Yes, sir.
              The operating plan says minimum winter flow
2
         Ο.
    for the Tongue River Reservoir currently should be 175
 3
    CFS; right?
4
              Yes, sir.
         Α.
5
              All right. And we can agree that the
         Ο.
6
7
    operating plan sets guidelines; correct?
              Yes, sir.
8
         Α.
              And at times, you have made the decision to
9
         Ο.
10
    vary from those guidelines; correct?
              Most definitely.
11
         Α.
              In fact, you have made the decision at times
12
         Ο.
13
    to store more than the maximum winter capacity;
14
    correct?
15
              Yes, sir, we have.
              And at times you have made the decision to
16
         Ο.
    release less than the minimum winter flow of 175 set
17
    forth in that plan; correct?
18
19
              Yes, sir.
         Α.
20
              All right. And, in fact, if we look at
         Ο.
21
    Montana Demonstrative Exhibit 3, if you look at the
2.2
    last page of that exhibit, if I'm saying that right,
    this chart prepared by Mr. Dalby shows monthly mean
23
24
    discharge of the Tongue River at Tongue River Dam;
```

right?

```
1
         Α.
              Yes, sir.
2
              All right. So that gives us a pretty good
         0.
    idea of the winter flows from the dam; right?
3
         Α.
              Yes, it does.
4
              And we can look, if we want, starting in
5
         0.
    October of 2000 and get a feel for how much water was
6
   being released from the dam in that month.
7
              In that month, it was 270.9 CFS; correct?
8
9
         Α.
              Yes, sir.
10
         Q.
              That represents the monthly mean; yes?
11
         Α.
              Yes.
12
              All right. The next month it was 149.4 CFS;
         Ο.
13
    correct?
14
         Α.
              Correct.
15
         O.
              And so on and so forth. Special Master can
    look at various values. But we do see on occasions in
16
    some of these winter months, particularly after 2001,
17
    we see numbers below 100 CFS over the course of the
18
19
    winter; correct?
20
              Yes, we do.
         Α.
21
         Ο.
              And the lowest one I see is 69.8 CFS in 2005;
2.2
    right?
              That looks like the lowest value on the
23
         Α.
    chart, sir.
24
              All right. So at that time you made the
25
         Q.
```

decision you needed to go that low; right? Α. Yes, sir. 2 And you have the flexibility under the 3 Ο. operating plan to do that; right? 4 Yes, we do. 5 Α. And, in fact, you have provisions in the Ο. 6 7 operating plan for drought; right? I mean, you recognize that's a possibility and give -- have given yourself the flexibility to try and deal with that? 9 Yes. We have flexibility to deal with 10 Α. drought or flood, basically. It's a complex basin, so 11 we have to have some variability. 12 13 All right. But if I understand right, 14 sometimes your predictions about when you need to store 15 and when you don't need to store can be off; fair? Yes, sir. 16 Α. And if I understand right, Wyoming doesn't 17 Ο. 18 get to participate in making decisions about when to store and when not to; right? 19 20 Α. No, sir. 21 I have a quick question about the contract 2.2 between the -- or arrangement between the Tongue River Water Users' Association and the board. I see your 23

to go there and look at it. But it says the rights are

reference on page 7 of your report, and you don't have

24

```
measured where the water leaves the reservoir; do you
    recall that?
 2.
              Not right, sir. Contract shares. I measure
 3
    that at the terminus of the low-level outlet structure.
 4
              So do I understand right that once the water
 5
    leaves the outlet structure, it becomes, in a sense,
 6
 7
    the property of the Water Users' Association?
              In a practical manner of speaking, yes.
 8
    the accurate description of it, it becomes theirs to
 9
    deliver to the end users to carry through the system.
10
              And then are they responsible for any
11
         Q.
    evaporation relation losses that occur between the
12
13
    reservoir and the place where they actually use the
1.4
    water?
              Yes, they establish their loss pattern.
15
              Fair enough. All right. I found a reference
16
         Ο.
    that said in 2006, the peak storage was 73,400
17
    acre-feet in the Tongue River Reservoir; is that
18
19
    correct?
              Say again, sir.
20
         Α.
21
         Ο.
              I understand that the peak storage in 2006,
2.2
    in Tonque River Reservoir was 73,400 acre-feet?
23
              The peak storage in 2006?
         Α.
2.4
         O.
              Yes.
```

Where was that reference from, sir?

25

Α.

So

```
1
         Q.
              Well, I'll show you. I'm going to hand you
   Joint Exhibit 56. That is an annual report of the
2.
   Yellowstone River Compact Commission for 2006; correct?
3
              Yes. It's the Yellowstone River Compact
4
   Commission fifty-fifth annual report, 2006.
5
              Can I ask you to turn to page 10. Well,
6
         Ο.
7
   Roman Numeral X, so page X.
              I'm there, sir.
8
         Α.
              All right. In the last paragraph on that
9
   page, does it say, "Mr. Kevin Smith reported that
10
   Montana was about 6000 acre-feet short of filling the
11
   Tongue River Reservoir this year. The peak storage was
12
13
   about 73,400 acre-feet"?
14
         Α.
              Okay. My mistake, sir. I was off
15
   10,000 feet in my head.
              Is that what the report reflects?
16
         Ο.
              Yes, sir.
17
         Α.
18
              And is that what happened in 2006, the peak
         Ο.
   storage was 73,400 acre-feet?
19
20
         Α.
              I believe it was. I would like to confirm
21
   that to get the actual numbers. The -- from the Table
2.2
    4A end-of-month contents report in 2006 end-of-month
   June was nearly 70,000. So 73,400 is probably
23
2.4
   accurate.
```

25

Q.

All right. Can I get that back from you?

```
on the date you determined fill in 2006, you had 73,400
    acre-feet of water in your reservoir; right?
2.
 3
         Α.
              Yes, sir.
         Q.
              Do you know what peak storage was in 2004?
 4
              Not off the top of my head, sir.
5
         Α.
              I don't either. I was hoping you did.
                                                       Do
6
         0.
7
    you have the operating manual in front of you?
              SPECIAL MASTER: I suppose this is the
8
9
    operating manual, not the operating plan?
10
              MR. KASTE:
                          Correct.
              SPECIAL MASTER: Do you remember which
11
    exhibit number that is?
12
13
              MR. KASTE: I have on my notes on the one
14
   attached.
15
              SPECIAL MASTER: Is it 524, Tonque River Dam
16
    Manual for Operation and Maintenance?
              MR. KASTE: I think so.
17
18
              THE WITNESS: I'm there, sir.
   BY MR. KASTE:
19
20
              Is it Montana 524?
         Ο.
21
         Α.
              It is Montana 524.
2.2
              Would you turn to page 30 of the operating
23
    manual, please. I'm looking at a section that says
    "interaction with other dams"; do you see that?
24
              Yes, sir.
25
         Α.
```

1 Q. Would you read that section, please?

2.

3

4

5

6

7

9

10

11

12

13

14

15

16

17

18

19

20

21

2.2

23

2.4

- A. "Interaction with other dams: There are no major dams upstream or downstream of the Tongue River Dam. Therefore, interaction with other dams is not a concern of the normal operation of the Tongue River Reservoir."
 - Q. Do you not consider the reservoirs in the Tongue River Basin in Wyoming to be major dams?
 - I consider them to be important dams and to their users, major dams. However, in the -- probably the operations of this project, should they fail, they would not fail Tongue River Reservoir. That's -- when we're looking at that comparison to this to make sure that we're not going to either -- if we have to have emergency releases or we have a breach above a dam, we have to make sure we have that dam included in our emergency action plan and other components to make sure they know when something is coming down the pipe so we don't breach them or they activate their emergency action plan and, likewise, above us, if there is a large structure or a structure that should have a major event to come down into the system so we can deal with dam safety issues and make sure that we can contain that flood.
 - Q. All right. Do you take into consideration in

- Cross-Examination by Mr. Kaste the course of your operational decision, the activities of the reservoirs in Wyoming? Or are you just 2. primarily just looking at snowpack? 3 Sir, we are primarily looking at snowpack and 4 weather forecasting. Yes, sir. 5 You have an operations manual and you have an 6 Ο. 7 operation plan? Yes, sir. 8 Α. I was looking through the Montana statutes and the administrative regulations promulgated by DNRC.
- 9 10 And I did not see either a statute or a regulation that 11 tells us how we count the inflows and outflows from a 12 13 reservoir; am I wrong about that?
 - I don't know, sir. I don't think I've ever looked at a statute to see if there's a way to count for inflows or outflows. The water rights are our historical pattern of use in the storage of our reservoir.
 - You keep saying your water right is based on the historical pattern of use. Have you, in your position, heard that beneficial use is the basis for measuring and the limit of the right?
 - Yes, I have heard that, sir. Α.

14

15

16

17

18

19

20

21

2.2

23

24 All right. Fair enough. Now, when the dam O. was rehabilitated and prior to that, the State of 25

```
Montana and United States of America entered into a
    compact with the Northern Cheyenne Tribe which you
 2
    testified about; correct?
 3
         Α.
              Yes, sir.
 4
              Okay. And you understand that the Northern
 5
         Ο.
    Cheyenne Tribe Compact can't change anything in the
 6
 7
    Yellowstone River Compact; correct?
              MR. WECHSLER: Objection, Your Honor.
 8
    calls for a legal conclusion.
 9
10
              MR. KASTE: Your Honor. I'm pretty sure he
11
    read portions of the contract and opined during
    Mr. Wechsler's exam.
12
13
              MR. WECHSLER: Whether or not the Northern
14
    Cheyenne Tribe might impact the Yellowstone River
15
    Compact is a different and legal question.
16
              SPECIAL MASTER: Unfortunately, the question
17
   has now gone past me on the screen.
18
              MR. KASTE:
                          It doesn't matter. I'll ask a
19
   different question.
20
              SPECIAL MASTER: Okay. Appreciate that.
   BY MR. KASTE:
21
2.2
              The Northern Cheyenne Tribe Compact, which
    you did read to us, it contemplates that some years
23
    there will not be a fill of the reservoir; some years
2.4
```

there will be shortages; right?

- A. I'd have to revisit, but I think that might be right.
 - Q. Well, in fact, it makes a provision for sharing on a pro rata data basis of shortages between the tribe and state?
 - A. Yes, it does.

3

4

5

6

13

14

17

18

19

20

21

2.2

23

24

- Q. All right. Since the dam has been rehabilitated and with the promulgation of the Northern Cheyenne Tribe Compact, has that made it more difficult for the board or the DNRC now, whichever group you want me to call it, to meet contract demands of the Tongue River Reservoir Water Users' Association?
 - A. Are you asking that since the enlargement, do we have more difficulties in meeting our obligations?
- 15 | O. Yes.
- 16 A. No, sir.
 - Q. No? Isn't it true that as a result of those negotiations, the state gave up 10,000 acre-feet of water to the tribe?
 - A. I don't know if that's -- would be considered as a true statement. There was, between the storage of the reservoir and the contract allocations, the issue did come into carryover water. We lost or we transferred probably 9 or 10,000 acre-feet of water, carryover water, to satisfy the Northern Cheyenne Tribe

```
Compact.
2
         Ο.
              Well, let's look at page 11 of your rebuttal
             That's M4.
 3
    report.
4
         Α.
              M4?
5
         Q.
              Yes.
              Getting organized, sir. Please bear with me.
6
         Α.
    Found it, sir.
7
              Page 11.
8
         Ο.
              Yes, sir.
9
         Α.
10
         Q.
              First full paragraph, last sentence, would
    you please read that?
11
              "In other words, starting in 1999, Montana
12
         Α.
13
    and the association sacrificed over 10 percent of the
14
    original storage that was previously used as a source
    of water to meet contractual needs."
15
              All right. And that happened after 1950;
16
         Q.
    right?
17
              What happened after 1950, sir?
18
         Α.
19
              The Northern Cheyenne Tribe Compact and the
         Ο.
20
    rehabilitation and the sacrifice you just described
   happened after 1950?
21
2.2
         Α.
              Yes, sir.
23
              All right. So do we now agree that a lot of
    things happened since 1950?
24
              Again, there's been a lot of things going on
25
         Α.
```

```
1 for the last 70 years. But the historic operations are 2 still very close to similar to the same.
```

- Q. That raises an interesting point. How much did it cost to build your dam in 1999?
- 5 A. You want me to provide you a relatively good 6 answer?
 - Q. Generally.

3

4

7

17

18

19

20

21

2.2

25

Construction of the three phases, the first 8 phase was approximately 6 to 7 million. The second 9 phase was approximately 7.5 million. The third phase 10 was, I believe, 18 to \$20 million. And that's the 11 construction cost. Engineering costs for feasibility 12 13 studies, geotechnical investigations, design, analysis, 14 and then construction documentation and then construction oversight was probably another 9 to 9 and 15 a half, \$10 million. 16

Then we had some ancillary projects, state parks, T & Y fish screen -- T & Y diversion fish screen, is a more appropriate discussion. And there were some other environmental work of purchasing conservation easements on various ranches and some other work.

- Q. I got into the hundreds of millions of dollars. Am I --
 - A. I think really it comes out in that

```
1 48 million to 50 million range. And then with, of 2 course, all the staff time on top of that.
```

- Q. Forty-eight to fifty million. I can't add.
 I've made that clear.
- So you spent 48 to \$50 million to run your 6 reservoir exactly the same way as you did before?
- 7 A. Is that a question, sir?
- Q. It's rhetorical, I guess. Let me try a different one.
- After spending all this money, you intended
 to run the reservoir somewhat differently; right?
- A. We intended to run this reservoir, sir, to
 meet our contractual needs and to also honor and meet
 our requirements under the Northern Cheyenne Tribe
 Compact.
- Q. Sure. You intended to store more water and use more water; right?
- 18 A. Yes, the firm annual yield is larger on this 19 project.
- Q. In fact, you still have the environmental impact statement in front of you?
- 22 A. Yes, sir.
- Q. Exhibit M335. I changed my mind. I don't want to go into that.
- But it says, essentially, that, doesn't it?

```
That the point of rehabilitating the reservoir, in and
    amongst the series of other concerns about safety, is
 2.
    to create a larger reservoir that could create a larger
 3
    firm annual yield to meet increasing demands; fair?
 4
              Yes, sir.
         Α.
 5
                          Thank you very much. I have no
              MR. KASTE:
 6
 7
    further questions.
              SPECIAL MASTER: Okay.
                                      Thank you, Mr. Kaste.
 8
    I have some questions. And I wonder whether or not the
 9
10
    court reporter would like to take a five-minute finger
11
   break?
12
              THE REPORTER: We can do it after yours,
13
    after your questions.
14
                          EXAMINATION
   BY SPECIAL MASTER:
15
              So I have a variety of questions.
16
    again, a lot of these questions are background
17
18
    information for me so that I have a better
    understanding of the context within which to understand
19
    your direct testimony and then the cross-examination.
20
21
    So I want to start with some questions that will help
2.2
   me have a better understanding of the relationship
23
   between the State Water Project Board on the one hand
24
    and the Tongue River Water Users' Association on the
    other.
25
```

So is the Tongue River Water Users'

Association a private entity or public entity?

A. They're a not-for-profit corporation.

Private, sir.

2.2

- Q. And the water right for the water which you store in the Tongue River Reservoir, is the water right held by the State Water Project Board?
- A. The water right is held by, I believe, the Water Resources Division now. And we act for the state as the owner in the Projects Bureau.
- Q. And then does the Tongue River Water Users' Association contract with the Water Resources Division for the supply of water from the reservoir?
- A. Yes, sir. The underlying -- there are two different contracts. This is the water marketing agreement between -- it was the board at that time, the State Water Conservation Board and the association where they marketed a block of water to the board and then they marketed it to the end users.
- Q. And then what is the purpose of the subscription agreement that you showed earlier?
- A. The subscription and pledge agreement, this is a feature of the original construction of the project because they set it up to sell shares of stock in a company. And each share was valued at what would

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be an acre-foot of water. So the subscription and pledge agreement was an additional promise that these contract holders would make payments back on -- based on those number of shares to pay back the bonds of the construction for the Public Works Administration.
```

- Q. So the way that it was originally set up was that you would have the water right held by the state, a contract between the state and the association for the actual delivery of water, and then individual users would subscribe to shares in the association?
 - A. Yes, sir.

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- Q. And your subscription would entitle you to one acre-foot of water per share that you owned?
 - A. Yes, sir.
 - O. And is that still the arrangement today?
- A. Yes, sir. We're nothing if consistent with these forms that were created back in 1937.
- Q. And this gets back to the question which Mr. Kaste asked a moment ago. But where is it that under -- under the contract does the state deliver the water at a particular point to the association?
- A. The state considers the water delivered to the association when it leaves the structure, when it leaves the dam in the low-level outlet. And then the association -- the association is responsible for the

delivery of the shares to the appropriate end users.

- Q. And I'll ask other questions regarding the association later. So let me turn, then, to an area which I would still love some additional information on, which is the actual right of storage. So let me approach this in several different directions.
- So since you've been part of the State Water Project Board or its predecessor, have you constructed any new instream reservoirs?
 - A. Sadly, no, sir.

- Q. Okay. So let me ask, then, the question: Do you understand, from reservoirs that were constructed prior to the time that you joined the State Water Projects Board, in constructing a reservoir, what, if any, legal or administrative steps the state needed to take -- or let me rephrase that -- the state would take in order to actually store water in that reservoir?
 - A. Today, sir? Or at the time these --
- Q. What is your understanding of what the rule is today?
- A. Today, I believe we can, if we can show
 physical and legal availability and we can show that it
 have a -- if we can show that we have a market to
 market to -- and I don't know if we would have to
 actually have some market or letters of intent in hand

```
to go to get the new water right. But upon
    construction of that project, it would be perfected.
 2
    It would be good, then.
 3
              So the state, then, would obtain a -- an
 4
    appropriate right for the water to store in the
 5
    reservoir?
 6
 7
         Α.
              Yes, sir. But -- 'cause they would have
    shown they had a market to market it to and have to
 8
   have shown physical and legal availability to store the
 9
    water without adversely affecting juniors or seniors.
10
              If you could turn to Exhibit M526, which is
11
         Q.
    the amended stipulation. And, again, I have some
12
13
    questions in here which I think will help me in better
14
    understanding the nature of the storage right in
15
   Montana.
              So first of all, do you know what the Bureau
16
    of Reclamation's -- I'm sorry.
17
              I'm getting there, sir. I'm going from 525
18
         Α.
    to 527, which is not real promising for me, sir.
19
20
              So, again, this is Exhibit M526. And this
         Ο.
21
    was the amended stipulation.
              Found it, sir.
2.2
         Α.
              So the first question, again, this is
23
24
    background. Do you know why the Bureau of
   Reclamation -- what the Bureau of Reclamation's
25
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```
interest was in the adjudication which led them to
   actually seek, to clarify what their right was?
2
              Sir, I think the issue was that they
 3
         Α.
   misunderstood our application because we're storing two
4
   rights in the reservoir. And they saw the 137,000 and
5
   knew that the reservoir's at 79,000. And they -- and
   our calculations are based on a 69 or 70,000 value.
7
   And it just didn't add up for them. And I think
   they -- in the discussions, I think they assumed
9
   everything was tied into the state right and not with
10
   any of the tribal right.
11
              So let me clarify. So what you just told me
12
13
   is what the nature of the objection was by the Bureau
14
   of Reclamation?
15
         Α.
              Yes, sir.
              Do you know why the Bureau of Reclamation
16
   even had an interest in this particular right?
17
              We were informed that the Bureau of
18
         Α.
   Reclamation had an interest on behalf -- to protect the
19
```

- Q. Okay. So then if you turn to page 2 -
 22 actually, let me ask you one other question: I assume

 23 that at the time that this stipulation was drafted,

 24 that you saw it at some point?
 - A. Yes, sir.

interests of the tribe.

20

- Q. And that was in your role as -- at this point in time you were the director of the State Water
 Projects Board?
 - A. Bureau chief of the State Water Projects.
 - Q. Bureau chief?

2.2

- A. We no longer have a board, sir.
- Q. Okay. And then on page 2 in the second paragraph, at the very end of that second paragraph it says, "Such appropriations by the board" -- and this is talking about appropriations for the project -- "by the board for State Water Conservations Projects were not subject to the statutory requirements for appropriation of water on decreed streams."

So do you know what that's referring to?

- A. Sir, I think we'd have to fall back -- I'd like to talk to my counsel, but that would fall underneath the Title 89. That was created by our board originally back in 1933 and 1934 'cause they were given broad powers to acquire and obtain lands and to build these projects and to take the water rights to -- as part of that Public Works Administrator. They had to put in that statute in order to meet the requirements of the federal government to show that they had the means to build projects in a fast manner.
 - Q. So if you look at paragraph 3, it notes that

the claim that this particular stipulation is part of
is for the sale water that is diverted into storage for
later releases; is that correct?

A. Yes, sir.

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- Q. So are there two, then, separate rights under Montana law? One right is to store; the other right is to then sell the water which is diverted into storage?
- A. Sir, that -- and I'm a little bit confused on that one. That is, I would say, almost the same. It's the same right. It's storage for sale. I say it's a separate right, but the end purpose of the right or the beneficial use for the state at this is the sale to the association.
- Q. So in the adjudication of the Yellowstone
 River system that this stipulation is part of, does the
 state have just one claim, which is the claim for the
 sale of water that is diverted into storage?
 - A. It does now, sir.
 - Q. It does have just this one?
- 20 A. I believe so, yes, sir.
 - Q. Okay. So there's no separate -- there's no separate claim with respect to storage? It's just for the actual sale of water that is diverted into storage?
 - A. Yes, sir. And the abstracts that define the right is the last two pages of that document. And it

```
describes the water right itself. Actually, it's the
   last three pages of the document, the abstract of the
2.
  water right that has the specifics to it.
3
```

- And if you look on page 3, there's a 4 discussion at the bottom of page 3 of the 1937 appropriation as amended. And I assume this is the same as in paragraph 2; there's a discussion of a declaration of intent to store, control, and divert all appropriated water of 1937 as amended in 1938?
- 10 Α. Yes, sir.

5

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2.2

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2.4

- 11 Q. And have you ever seen the 1937 appropriation? 12
 - I have not reviewed that document.
- 14 One of the things I noticed at the bottom of O. 15 page 3 is that it talks about the description of the general service area in the 1937 appropriation; is that 16 correct? 17
- Yes, sir. 18 Α.
 - Do you know whether -- have you ever seen any Ο. reference to whether or not in the 1937 appropriation, there was any reference to how much water could be sold pursuant to that appropriation?
 - No, sir. Α.
 - You haven't seen any --O.
- I haven't seen that. And typically on the 25 Α.

```
appropriation, it would be to store all the
unappropriated waters to market. The rights were filed
typically before the projects were built. So it would
get the rights, they would form an association to
commit to pay back the construction costs, and they
would then have the authority to get the funding to
build the projects.
```

- Q. So would the -- and this is just as a general matter. Would the declarations of intent to store, control, and divert, those would be actually filed before the construction of the reservoir?
- A. Yes, sir.

2.2

- Q. And do you know whether any additional steps were then taken after the actual construction of the reservoir?
- A. I don't believe any other additional issues were taken with the filings, except this one did have an amended amendment in 1938, still prior -- prior to final completion of the construction of the project that more had to deal with repayment issues and some other items on the funding.

And we have cases where we had assumed volumes for construction and actual projects might be larger or might be smaller depending on how it actually officially got built. We had one project that was

```
literally stopped in mid-construction. And the
   association demanded to enlarge it. So it was enlarged
2.
   another 50, hundred feet. And then they walked away
3
   from that project. And the state had it.
4
5
              But, you know, it was quite an interesting
   read on the historical perspective of this because
6
7
   there were about 50 or 60 projects under this very
   program. And they were built primarily between 1935,
   1936, and 1940 when World War II hit. And a lot of
9
10
   this work was done very fast. And some of the
   references refer back to, follow the shortages of
11
   engineers or trained water professionals and surveyors
12
13
   to get the work done.
14
              It was fairly fast and furious when they did
15
   the setup of all these projects.
16
         Ο.
              And so if you -- I'm going to ask basically
   the same question again. But in the case of the claim,
17
   the stipulation refers to, which is the claim as part
18
   of the adjudication, the claim itself, talks about a
19
   water marketing contract for up to 40,000 acre-feet.
20
21
   And it specifically talks about that's the amount of
2.2
   water to be diverted for use; that's correct?
              Yes, sir.
23
         Α.
24
              But you don't know whether or not prior to
         Ο.
   this particular claim there was any document with
25
```

1 respect to the appropriation right for the storage that 2 referred to any particular amount of water to be used?

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- A. I believe the original appropriation, talking to my counsel, is it's tied to build a project for marketing the contents of the reservoir. The issue was -- the issue was to market as much shares as they could on each project because then it made it easier to pay that project off.
- Q. So, again, there would be no specific -there would be no reference to a specific number but
 instead, marketing whatever the contents were that were
 stored?
 - A. That is my understanding, sir.
- Q. If you turn to paragraph 8, which is on page 4, it says at the very top, "The volume issue you remark includes the statement, 'No determination of stored volume and evaporation necessary to provide the historic sale volume has been made.'"

Do you know what that's a reference to?

- A. Sir, I believe that is when we first filed our amendments to our water right. The adjudications staff reviewed it and put that issue remark on our document.
- Q. And then at the bottom it notes, "The DNRC Adjudication Bureau reexamined and determined the

```
volume guideline of 127,324 acre-feet based on claimant
    contact with SWPB.
                        This volume included one complete
 2.
    fill, partial refill for carryover storage, and
 3
    evaporation losses."
 4
              So the Adjudication Bureau is a separate
 5
    entity from your portion of the agency; correct?
 6
 7
         Α.
              Yes, sir. Again, it's -- we're slightly the
    odd duck out because we're regulated and managed by
 8
    following these other guidelines within other bureaus
 9
    within the same division. So they're our sister
10
    bureaus; however, there are firewalls between us.
11
    sometimes the DNRC logo does not get separated between
12
13
    the two bureaus when people look at DNRC, and treat us
14
    as a separate entity.
15
         Ο.
              So this particular case talks about one
    complete fill, a partial refill, and evaporative
16
    losses. And I've heard you separately talk about
17
    filling as to 1.5 times capacity. And I think I heard
18
    you refer once to twice the capacity.
19
20
              If you're trying to figure out, in your role
21
    as bureau chief, how much water you can store in a
2.2
    reservoir, how do you figure that out?
              Sir, we have a lot of historical records.
23
    And on these trials, we try ensure we have enough water
24
    to meet the contractual obligations year after year
25
```

after year. It's not just making opportunity. are -- we have to make sure we have bad years covered. 2 My predecessors have kind of worked this out 3 prior to my getting on board, but it's a statement that 4 works well. They would look at a full filling of the 5 reservoir. And then it's the delivery of the contract 6 7 while dealing with storage evaporative losses and then making full contract deliveries and then allowing an 8 opportunity to make a partial refill back up into the 9 winter level, flood elevation that we have established. 10 And that provides us -- when the Adjudication 11 Bureau wanted to have our volumes tied to the storage, 12 13 that was a way for us to work through those numbers to 14 make sure it was sufficient enough for us to have 15 carryover for the next year's contracts. What this does not include is the winter 16 Those are not considered in any of these 17 flows. volumes. 18 They are separate. 19 And, again, in trying to figure out what the Ο. total amount of storage rights are for a particular 20 21 reservoir, are there a set of rules somewhere that you 2.2 look at? Sir, to my knowledge, this is something 23 Α. that's been developed over the years within the State 24 Water Projects Bureau itself. And one of the 25

sideboards on this whole feature is that all of our projects were built in the 1930s and some of them in 2. the 1950s or one in 1960. The sideboards that really 3 control here is our priority date. Because once we get 4 our spring runoff flows for storage and spring runoff 5 flows drop, we are basically done storing. Because 6 everyone is senior to us in most every stream system. 7 Or at least the predominant number of irrigators downstream are senior to us. 9 The additional water comes from -- I almost 10 hate to use this term, sir, but when we have free flow 11 conditions, i.e. precipitation event, thunderstorm 12 13 comes through or other issues that cause a large influx 14 of water, we'll then have an opportunity to put water into our reservoir and catch and fill some. And this 15 allows us to do that. 16 And so in determining what the total 17 amount -- what the volume guideline is for a particular 18 reservoir, what you're relying upon, then, is a set of 19 unwritten practices over time? 20 21 Α. Sir, they become formalized and actually become more formalized and written within the State 2.2 Water Projects. A lot of this was based off of a trial 23 case that was one of our state water projects called 24 the Painted Rocks Reservoir. And the Painted Rocks 25

```
case was tried and heard in the Water Court of Montana.
   And it was recognized, the original right of our
2
   projects, and recognized the actual use of the projects
 3
   for sale, storage for sale to an association who, in
4
   turn, delivered within a service area.
5
              And the method that would determine to deal
6
   with the fill and refill issues at Painted Rocks was
7
   then accepted by the Water Court. And then that became
   a formalized process within our bureau to apply to our
9
10
   other projects.
              So, in fact, the Painted Rocks decision is
11
         Q.
   mentioned in paragraph 7 on page 3; is that correct?
12
13
   That's the same one?
14
              Yes, sir.
                         That is the same one.
         Α.
15
         Ο.
              Other than that particular decision, are
    there any written documents?
16
              Not that I'm aware of. But that doesn't mean
17
         Α.
   a lot, sometimes, when it comes to legal issues, sir.
18
19
              So if you have a reservoir that you're
         Ο.
   operating right now and you want to expand the size of
20
   that reservoir --
21
2.2
         Α.
              Yes, sir.
23
              -- do you need to take any steps pursuant to
   Montana rules and laws?
24
25
         Α.
              Yes, sir.
```

Q. And what are those?

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- Unlike Tongue River where we had the compact 2 Α. to satisfy, we have done that very thing at our Middle 3 Creek project. We enlarged the reservoir. And the 4 issues go through, of course, the environmental 5 compliance documentation, the issues of showing yield 6 7 that you can -- that the water is physically available and legally available for the time period that it --8 9 that you can store the water. And you apply for a water permit and -- for that new water. And it will 10 have the priority date at the time you apply for that 11 12 permit. And the process goes to ensure that you are 13 not adversely affecting other seniors or juniors in the 14 system.
 - Q. So if you originally have an amount of water that you're storing, and since the reservoir was originally constructed, there are additional appropriators that have come along and appropriated water, when you expand the storage capacity, is that additional capacity then junior to the appropriators who have come along that middle period?
 - A. Downstream per se, downstream of a project, yes. If we have these rights where the volumes -- and you raise your spillway crest so you're physically storing additional water, you have to address the

1 issues of if they are relying on that, if they are
2 relying on the spring flood flows, to what volume, and
3 to what flow rate to account -- so you could fill your
4 reservoir.

2.2

Typically, I'd say some of the caveats, if you have people coming in downstream of you and then you raise a reservoir, the issue is not so much going to adversely affect the senior of you because you'll be storing when the water is available. And it will be runoff when people are not trying to take water on a lot of these systems.

- Q. And in this particular case, as Mr. Kaste was going over, one of the things that has occurred is that you are now delivering more water than you were originally delivering for use to the Tongue River Water Users' Association; is that correct?
- A. There is more water committed. The compact water has not been delivered, really. I think there was one year they delivered 2000 acre-feet, perhaps. But other than that, there has been no compact water delivered out of the system. So it's just been the 40,000 shares.
- Q. Right. I want to come back and talk in a moment about the Northern Cheyenne water. But I want to stick with, as Mr. Kaste pointed out, the original

contract, you were supplying 32,000 acre-feet of water 1 and later you agreed to provide 40,000 --2 Yes, sir. 3 Α. Ο. -- acre-feet of water. 4 So are there other reservoirs where the 5 amount of water that you've contracted to deliver have 6 increased over time? 7 We have increased the contract amounts on two 8 of our other projects. One is Deadman's Basin. 9 the other one is East Fork of Rock Creek. Deadman's 10 Basin is an off-stream storage facility in the 11 Musselshell River, which is in central Montana. 12 Ι 13 believe the contracts went from 26,000 shares. 14 market up to 40,000 shares now, 40,400, I believe. And 15 the East Fork of Rock Creek system, I believe, went from, I want to say, 16,000 to 26 or 27,000 shares. 16 And in both of those cases, was the expansion 17 Ο. done -- in both of those cases, did you increase the 18 amount of contracted deliveries without expanding the 19 size of the reservoir? 20 21 Α. Correct, sir. The reservoir stayed the same. 2.2 In both of those cases, did the new 23 contractual deliveries have the same appropriation date as the original contracted deliveries? 24 25 Α. Yes, sir.

```
1
         Q.
              Okay.
                    So a couple quick questions about
   sedimentation. Do you ever actually remove
2.
   sedimentation from any of your reservoirs?
3
              No, sir. That's a very expensive
4
5
   proposition, Tongue River -- every river has
   sedimentation. But it is a very expensive proposition
6
7
   and water will be very valuable to make that possible.
   Or as is done mostly, to my knowledge, is done more for
   transportation commerce.
9
10
         Ο.
              Okay. And then I want to turn now to the
   various winter flows. I think probably Exhibit 524 is
11
12
   the best exhibit to use in this particular context.
13
              Can you show me which one.
14
              524 is the Tongue River Dam Manual for
         O.
15
   Operation and Maintenance. And Mr. Kaste was asking
16
   about that, if that helps you know which stack that's
   to be in.
17
              I have a feeling we'll go into that. I can't
18
         Α.
   say I lost it this quickly, can I, sir?
19
20
              No, it's up there somewhere.
         Ο.
21
         Α.
              I have it.
2.2
         Q.
              So I want to ask some questions about page
23
   21.
24
         Α.
              Yes.
```

25

Q.

So earlier, I understood you to say that

1 there were a variety of reasons why you have the 175
2 CFS minimum outlet discharge; is that correct?

A. Yes, sir.

2.2

Q. If you look on page 21 under "minimum outlet discharge," it says, "The minimum flow to be maintained at the dam outlet to help maintain the fishery in Tongue River will generally be the inflow or 175 CFS, whichever is less."

And my question is: Do you know why it only refers to fisheries here?

- A. Yes, sir. Because it was just an editing of my staff members putting it together. And they were copying things from the operating plan from the advisory committee that was established. And that's the one that got in there. It is for the health of the river, is for the icing issues and the stock water and others. I think the person must have been in tune with fisheries that day when he copied that section over.
- Q. Okay. And then let me ask a different question on that. If you think about all the various purposes you've talked about in terms of stock water and fish and wildlife, avoiding the river icing over, is there one factor that has determined that number of 175 with the others also being helped as part of that 175? In other words, is there one that determines the

minimum amount?

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Sir, that is a good question. And it Α. would -- I would have to sit back and reflect on that issue. The -- disregarding all the reasons why for the health of the river and the ice and other items, there is also the issue of setting a flow, a median flow, target flow, if you would, to ensure that you have room in your reservoir to use for either catching the spring runoff or mitigating a peak of a flood event in the springtime. And that's actually another reason for that number. It's a median flow as well that deals well with the basin characteristics so when we get into the spring runoff conditions as well, from a physical or practical matter of dam operations, that we won't be overly full in February or early March.

And we'll also take an opportunity to -- that opportunity with that flow level of 175, that also provides us an opportunity on the median years to be able to draft the reservoir in March because we'll probably be gaining volume. And again, as it states in there, for the wet years, we can draft and still have opportunity to make room for inflow in the runoff.

Q. So let me ask this question in a slightly different way, which is: If you look at all the other various documents that, for example, talk about stock

```
watering needs, there are a variety of other numbers,
   but other than in this document and ones that come
 2.
    after it, never 175. So do you know how the 175 was
 3
    specifically determined?
 4
              Sir, I don't know how specifically -- why
 5
    that 175 was specifically determined. That was back
 6
    and forth in negotiations with the Bureau of
 7
   Reclamation, the Northern Cheyenne Tribe, and the state
   back in '99 and 2000 when they were reviewing and
 9
10
    setting up the operating plan to meet the needs of the
    settlement act.
11
              The Tongue River final environmental impact
12
13
    statement had recommended 150 CFS. And the operating
14
    plan -- the committee at the time went through and
15
    edited and came through with 175.
              So I would have to refer back to the minute
16
    notes and go through everything on that to get to that
17
18
   number.
19
              But based on what you recall right now, you
         O.
   do not remember why 175 was adopted, for example,
20
    rather than 150?
21
2.2
         Α.
              No, sir.
              And it says here that the minimum outlet
23
24
    discharge will generally be the inflow or 175 CFS,
    whichever is less. So does that mean that you
25
```

1 generally set the minimum outlet discharge at 175
2 unless the inflow into the reservoir is less than 175?

- A. Yes, sir. On the typical years, it's -- it would be running the river through the system.
- Q. And when you were talking to Mr. Kaste, I understood you to say that there are times when you will vary from even the lesser of 175 inflow; is that correct?
 - A. Yes, sir.

2.2

- Q. What goes into that determination?
- A. If we are losing storage out of the reservoir and we're already at a low pool elevation, sometimes in the winter months, the upstream gauge, the state line gauge, will ice over. So we will not have that tool to help us to keep track of inflow to outflows. So we have to manage it via, like, a weekly running average of elevations to find out if we're drafting or not. We do have the monitoring set up, and we do have it set up realtime now. But it takes time to determine if you are losing storage or if you're gaining storage.

So if you're losing storage, we would lower our gauge to match that, to balance that out. Or, as we brought up earlier, if we have -- if we come out of a drought year and we're going into the next year and it's not looking very good, the forecasting from the

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National Weather Service and the actual SNOTEL sites,
and even anecdotal mention was, conversations with the
water users, we'll hear from people recreating from
people in the mountains on how far up the trail they
can drive before they have to unload their snowmobiles
or whatever, then we'll lower the gates to minimize
releases. Because we have, then, an idea that we might
not be getting that much more water through the system.
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- Q. So as a general matter, then, you start out with the proposition that the minimum outlet discharge or the inflow of 175 CFS, whichever is less; correct?
 - A. Yes, sir.

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- Q. And then one reason you will adjust that is that you might be concerned that you're actually releasing water. So if you fear you might be releasing some water, then at that point, you might decide to reduce the minimum outlet discharge?
 - A. Yes, sir.
- Q. And sometimes if it's been a -- coming out of a drought year and looking ahead, do you think that, again, it might be a drought year, you -- in that situation, might also reduce the number for the minimum outlet discharge?
 - A. Most definitely, sir.
 - Q. Are there any other major factors that you

take into account?

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You know, again, it's a difficult thing to 2 forecast that far in advance in a basin like that. 3 That seems to be the primary -- well, for instance, 4 today, we're talking today amongst ourselves, we are 5 probably going to raise our outflows to 350 CFS or 6 7 maybe a little higher. We have gained 6 or 7000 acre-feet in our storage, or more, in the last three weeks. And we're sitting about 58,000 acre-feet of 9 storage right now. But it's all due to a pretty big, 10 wet storm event that came through the system and all of 11 us are kind of paying the price of. 12

So those, again, trying to react to the system. And it's nice that it happened now and not in the middle of wintertime when the river is iced down below. 'Cause now we can release the waters and try to get down so we have storage left for an anticipated runoff event.

- Q. Okay. And then turning to the various discussions in 1982 regarding stock watering. And these are Exhibits M310 and M284. And then also the exhibit that Mr. Kaste gave you, W11.
 - A. I have two of the three, sir.
- Q. I'm not going to have detailed questions about all of these. So if you can't find them all,

it's probably not going to matter. I've got the last one, sir. 2 Α. 3 Ο. Okay. So could you explain again why these memoranda were prepared? 4 Sir, I believe the Wyoming Exhibit W11, it 5 appears to me that this was, again, I believe the State 6 7 Water Projects Bureau made a request of a different bureau to evaluate and see what we could file a claim for for stock water. I don't know if that was 9 10 necessary, but apparently they thought so at the time. And the reason I don't know why it would have ever been 11 necessary is the State of Montana doesn't irrigate and, 12 13 the State of Montana does not water stock. 14 Mr. Kaste said, we sell water. 15 So to see something like that, I think it's 16 going through, and they're trying to make our rights look like other rights in the state, I suppose, to what 17 18 they really were and really are, which is projects were built for storage for the purpose of sale. 19 20 The Montana 310 exhibit --21 Ο. Since this is -- actually, while we're on 2.2 M310 --23 Yes, sir. Α. 24 -- since this is a three-page document by Ο. itself, do you know who prepared this? 25

- A. Do you remember which was the other exhibit number for that document, sir? 'Cause I have a three-page -- this one is only two pages. I have the other one, which is three.
 - Q. My copy of M310 is three pages.
 - A. I have it, sir.
 - Q. Okay.

2.2

- A. This would have been prepared by the State Water Conservation Board, but I don't know who within that organization.
 - Q. And similarly, do you know who prepared M284?
- A. No, I don't, sir. And these are documents that I could probably go back to a file and find where they were and work that through. But this appears to be documentation -- this is four years after the 1978 flood. And the state went after -- went to the state legislature to go after funding and authority to take action on getting the projects repaired. I think at that time, they calculated that the project had a 1 in 10 chance of failure if they saw a 20-year event.

They were very concerned with it. And part of the discussions in the 1980 presentations to the legislature was to rehabilitate the project and try to address the compact issues at that time. So this might all be part and parcel of the State's initial

- 1 investigation and the throes of trying to figure out
 2 how large to build a new reservoir if they could and to
 3 what extent the water would be used for.
 - Q. I'm going to have you -- do you know whether or not the DNRC ever pursued any claim based on these documents?
 - A. I'm sorry, sir?

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Q. So let me go back. So if you look at Exhibit W11, it actually first starts out, "The purpose of this memo is to document the manner in which the claim of existing water rights for the Tongue River Reservoir project was developed." So this gets back into the questions that you were discussing with Mr. Kaste.

But do you know whether there was any new claim asserted as part of this?

- A. No, I'm not aware, sir.
- Q. Okay. Then on Exhibit M4, which is your rebuttal testimony, if you look at your Figure 3, which is a daily mean outflows for the Tongue River.
 - A. Yes, sir.
- Q. And one of the things that you noted was that the daily mean for winter months for the 1991 and 1999 period, the 2001 to 2012 period is frequently below the daily mean for the 1942 to 1950 period; is that correct?

1 A. Yes, sir.

2.2

- Q. And you suggested earlier that one of the things that that indicates was that you were being more conservative during this period?
 - A. Yes, sir.
- Q. So for the period of time that you were involved with the Tongue River Reservoir, do you know what went into your decisions to actually have outflows that were lower in these years than they were for some earlier historical periods?
- A. One of the primary considerations, sir, is we did have four years of drought. It also appeared year 2005 in between 2004 and 2006, was just as bad, if not worse than the winter months. But we had precipitation events that generated the flows to fill the reservoir.

And so the operations, you know, were keyed into that of making minimal releases and keeping an eye on the mountain snowpack and everything else that we could evaluate to try and make sure we met our obligations.

And as pointed out, we cannot always

100 percent hit that mark. But we do what we can and
using the most scientific and detailed approach that we
can and not ever discounting the generations of
landowners down below us that have seen this for a long

time and their evaluations. I say they have a very vested interest in making sure the project fills to make their deliveries.

- Q. So this is just really another way of asking that same question. But when you were saying you were being more conservative during this period of time, what do you mean by "conservative"?
- A. We did not set the gate at 175 and walk away. We made sure that if we did not have the available water or if we did not think we had the water available coming down the system, that we lowered our gates down to make sure we were delivering less -- or that's the wrong term. That we were trying not to draft north of us. We were trying to either store what we could without going below 75 CFS.
- Q. And I assume for all of the various reservoirs that you operate, to the degree they're on the main stem of a -- or they're an in-river reservoir, you're actually taking flood risks into account in the way in which you're managing it?
 - A. Yes, sir.

2.2

- Q. And is that part of your standard practice?
- A. Yes, sir. And that's how the operation manuals are also set up, that's the min and max pool elevation requirements are somewhat established over

1 | time empirically to help with that as well.

- Q. Then on Exhibit M316. So if it helps, it's the Operating Plan for the Tongue River Reservoir.
- 4 A. Okay. Sorry. If you don't mind, I'll use 5 525.
 - Q. So if you turn to page A5 of that.
- 7 A. Yes, sir.

- Paragraph 4, you were discussing this earlier 8 Ο. with Mr. Wechsler. It talks about March 1st of each 9 year, you do an evaluation of the reservoir. And it 10 notes in the second half that if the reservoir 11 elevation is lower than average and conditions indicate 12 13 the potential for a dry, low runoff spring, that, first 14 of all, DNRC will inform the Advisory Committee of the 15 potential for a water shortage that year. And then it goes on to say, "The Advisory Committee will implement 16 a storage plan to minimize the impact of such a 17 18 shortage."
- Can you explain what goes into that storage plan?
- A. Yes, sir. Discussions go into working with
 the parties and with the association and with the
 tribal members to look at what water is marketed that
 year, for what purposes. And the -- a big component of
 the mitigation for a dry year is to set how many shares

1 we're not going to deliver. Because we do have some
2 carryover water.

So we establish where we want to go to in the reservoir pool, depending on what the needs are that year and how much of a shortage is relied to -- or that we need to implement for the contracts and for the Northern Cheyenne Tribe water.

- Q. So does the storage plan involve how much water you're actually going to release for release for use that year?
 - A. Yes, sir.

2.2

- Q. Does it also involve the way in which you will then control how much water you permit as an outflow for the remainder of the year?
- A. What we probably end up doing is we say we'll release this water. Again, we cannot affect the decreed water or the water that's senior to us coming to the system after runoff. So that will have to pass through. But it -- we probably will deliver our contract water and compact water if any was to be delivered and probably reestablish a follow-up meeting on a monthly basis or bimonthly basis to evaluate the conditions and changing conditions to evaluate what we're going to run into fall and winter the next year.

And then we then, yes, deal with the issue of

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making recommendations for releases or for pass through
   for the following water year until we get back up to a
2.
 3
   good storage.
              Okay. And just one final, really quick set
4
   of questions. Did you say earlier that the Northern
5
   Cheyenne Tribe has only taken stored water in a couple
6
7
   of years since the compact was negotiated?
              Yes, sir. And that would be the compact
8
   water; not their water marketing contract.
9
10
         0.
              Okay. And what, if any, implications has
   that had for the way in which you actually operated the
11
   reservoir?
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13
              We always end up with more carryover in the
14
   fall because that water has not been delivered to any
15
   user.
16
         Q.
              Okay.
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              SPECIAL MASTER: Those are my questions.
18
              Mr. Kaste?
19
                      RECROSS-EXAMINATION
20
   BY MR. KASTE:
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         Ο.
              I want to clarify and make sure I understood
2.2
    this correctly. The Advisory Committee gets together
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   at, say, the beginning of the irrigation year and
   decides what percentage of the shares are going to be
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   delivered in a given year and then what amount will be
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maintained for carryover?

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The discussions would -- I'm sorry, 2 The discussions would imply to talk to the Mr. Kaste. association, since Art Hayes would be president of the 4 association, to work out -- I say prioritizing uses of the system. And Art would probably have to talk to his other board members and discuss what water is available, look at what shortages we have. And it's not going to be just, we're opening on a meeting, and here it is, the number is this. There's going to be some discussions and back and forth. 11

And a follow-up on that would definitely be, make arrangements and plans for these are the possible shortages coming up for the year. Now let's evaluate how spring runoff happens. Let's evaluate and see what storms come through the basin. Because a perfect example is in 2005, we had a really bad winter that year. And I think up until March we were really not looking for anything to come down the system. And I do not remember specifically, sir, but I'm almost certain that we probably had these discussions about, what are we going to do this next year for shortages? And then in May, we filled and spilled. And rather for two or three weeks, I believe.

So it's -- yes, we'll make those

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determinations. But at that time, it's, like anything
in that basin, that we probably would have to set up
regular meetings to make sure that we're catching the
changes that are coming down the pipe.
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2.2

- Q. What I'm trying to get my head around is that maybe early in the summer after you understand where you're going to be, if you say you're at capacity, maybe 50,000, the parties get together and they make a decision, we want to keep 20 or 25,000 acre-feet in this reservoir for carryover. And the rest we're going to divide amongst the tribe and water users and these proportions to their shares; do I have that right?
 - A. Yes. That sounds appropriate.
- Q. Okay. And I just hadn't heard, before the Special Master got to it, anybody explain that there was a conscious decision to maintain a certain level of carryover as opposed to what I thought was happening was that you were reacting to the demand of the shareholders saying -- and it just turned out that you had this much left.
- A. To clarify, I think it's at the end of 2001 or 2002 years, all water was -- all contract water was delivered. The only water left in the system, in the reservoir was, I think, Northern Cheyenne Tribe Compact water. And that's after all the shortages were pro

1 rata. 2 The decision to be made is if people are going to say we can gamble, we would like to use what 3 shares we can and go, or the decision of, okay, we 4 should leave some here because we're looking at a dry 5 weather pattern. In 2004 that was sort of more of the 6 decision, or 2005, we're a little bit concerned. 7 And so you try to stretch out the effects for 8 9 a longer period of time. 10 Q. Sure. I'm just, like I said, trying to clarify my confusion about the way in which carryover 11 is established. And like I said, my assumption was 12 13 that the shareholder said, I want mine, I want mine, 14 and what you had left after they said that was what you 15 carried over. But it appears the process is proactive in that you do try and make some determinations on the 16 front end about what you should keep for the next year; 17 18 right? 19 Yes, sir. And dealing with the system, we try to measure from the top down on the system from the 20 shares and the deliveries. 21 2.2 Q. Thank you. 23 You're welcome. Α. BY SPECIAL MASTER: 2.4 25

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1
         Q.
              One other quick question. This was in your
   original expert testimony, which is M3. I just had a
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   question on page 6. So it's the second paragraph under
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   Northern Cheyenne Water Right. You say, "Studies and
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   data gathered for the NCT Compact negotiations
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   determined that current flows in the Tonque River were
6
   not sufficient to satisfy decreed water rights and the
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   amounts of water that had been reserved for historic
   tribal and non-tribal water rights."
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              So my first question is: What do you mean by
   the word "reserved"?
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              My understanding, sir, is that's back to the
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         Α.
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   satisfy their original water rights for the Indian
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   tribe and reservations.
              So you're talking about here they were
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         Ο.
   reserved in the sense that federal reserved water
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   rights refer to reserved rights?
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18
         Α.
              Yes, sir.
19
              Okay. And then also you discuss here both
         Ο.
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   tribal rights and non-tribal water rights. So were
21
   there any non-tribal water rights that you're aware of
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    that were reserved?
              Sir, I'm drawing a blank here. I know that
23
         Α.
   there was reservations for some junior rights, DFWP and
24
   stuff.
           But I don't think that's what it's talking
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about. But I'm drawing a blank right now, sir.
              Okay.
                     Thanks. And when you're talking about
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         Ο.
    reserves in connection with historic pattern, you're
 3
   not talking about the state reserving, but you're
 4
    talking about the Federal Government reserving rights
 5
   pursuant to the law of federal Indian reserved water
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    rights?
              Yes, sir.
 8
         Α.
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         Ο.
              Okay.
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              SPECIAL MASTER: So, Mr. Wechsler?
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              MR. WECHSLER: Yes, sir.
              SPECIAL MASTER: Do you think that you could
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   do the redirect today, or would you prefer to do it
14
    first thing in the morning?
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              MR. WECHSLER: I'm happy to start today. I
    don't think I'd be able to finish. And so, perhaps,
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   Mr. Smith is getting tired. I don't...
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              SPECIAL MASTER: Or perhaps the court
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    reporter is getting tired.
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              MR. WECHSLER: Perhaps she is getting tired.
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              SPECIAL MASTER: So let's go off the record
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    and just huddle here for a second.
                        (Discussion held off the
23
24
                        record.)
              SPECIAL MASTER: So we can go back on the
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So let's adjourn for the day, and my apologies
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    record.
    to Mr. Smith because he's going to have to come back
2
    another day, and also my apologies to Mr. Hayes who has
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4
   been sitting there dutifully every day and will have to
    come back tomorrow for his testimony.
5
              But we will adjourn for today, and we will
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    start up again at 9:00 a.m. tomorrow morning. And I'm,
7
    again, going to be pulling together all my papers.
    everyone can either be seated or go on your way. Have
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10
    a great evening.
                        (Trial Proceedings recessed at
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                        4:35 p.m., October 24, 2013.)
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1 REPORTER'S CERTIFICATE 2. I, Vonni R. Bray, a Certified Realtime 3 Reporter, certify that the foregoing transcript, consisting of 240, is a true and correct record of the 4 proceedings given at the time and place hereinbefore mentioned; that the proceedings were reported by me in 6 machine shorthand and thereafter reduced to typewriting using computer-assisted transcription. 8 9 I further certify that I am not attorney for, 10 nor employed by, nor related to any of the parties or attorneys to this action, nor financially interested in 11 this action. 12 13 IN WITNESS WHEREOF, I have set my hand at Laurel, Montana, this 11th day of February, 2014. 14 15 16 17 Vonni R. Bray, RPR, CRR 18 P. O. Box 125 Laurel, MT 59044 19 (406) 670-9533 - Cell (888) 277-9372 - Fax 20 vonni.bray@gmail.com 21 22 23 2.4