

NO. 141, ORIGINAL
IN THE SUPREME COURT OF THE UNITED STATES

STATE OF TEXAS, PLAINTIFF,

v.

STATE OF NEW MEXICO

AND

STATE OF COLORADO,

DEFENDANTS.

OFFICE OF THE SPECIAL MASTER

APPENDIX OF EVIDENCE
IN SUPPORT OF *AMICUS CURIAE* CITY OF EL PASO'S
RESPONSE BRIEF TO THE STATE OF NEW MEXICO'S
MOTIONS FOR PARTIAL SUMMARY JUDGMENT

January 6, 2021

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APPENDIX OF EVIDENCE

The following Exhibits are submitted in support of the City of El Paso's Response Brief to the State of New Mexico's Motions for Partial Summary Judgment, filed on January 6, 2021. El Paso has included in this Appendix items that are cited in its Response Brief, but not already included in the summary judgment record as part of the parties' briefing and appendices. In the chart below, all such items are indexed, with Bates numbers provided where applicable, such as for documents that were deposition exhibits or were produced during discovery. For ease of access, electronic copies of the items indexed in El Paso's Appendix are available at the following Sharefile site:

<https://bickerstaff.sharefile.com/d-s153b3622b145426eb843bce95e9682f3>

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1	Excerpt of 30(b)(6) deposition of USBR (F. Cortez) (August 20, 2020)			68:1-69:18
2	Excerpts of Deposition of Filiberto Cortez, Vol. 1 (July 30, 2020)			24:5-26:17 46:13-20 100:7-101:6 166:12-167:18 169:23-170:20
3	Excerpts of Deposition of Filiberto Cortez, Vol. 2 (July 31, 2020)			268:9-270:5
4	Cortez Deposition Exhibit 20, "Evaluation of Annual Operational Allocations and Deliveries, Rio Grande Project and the Republic of Mexico," 1951- 1978	US0553555	US0553688	
5	Cortez Deposition Exhibit 21, 1985 Operating Agreement	NM_00237424	NM_00237487	
6	Herman Settemeyer Deposition Exhibit 13, Report of the Rio Grande Compact Commission, 2001	NM_00005438	NM_00005493	
7	Cortez Deposition Exhibit 7, 1998 Statement of Garry Rowe, Area Manager for USBR	EBID135222	EBID135260	
8	Cortez Deposition Exhibit 40, Letter to William A. Paddock (2002)	CO-001428	CO-001432	

9	Excerpt of Deposition of Gary Esslinger, Vol. 1 (August 17, 2020)			66:1-16
10	Excerpt of Deposition of Phillip King, Vol. 1 (May 18, 2020)			98:5-16
11	<i>EBID: Litigation on the Lower Rio Grande</i> , Presented to the House Agriculture & Natural Resources Committee (PowerPoint presentation), Feb. 5, 2014, EBID175717			2, 5
12	Letter from James Salopek, EBID Board President, to Pat Gordon (April 29, 2011)	EBID159477	EBID159479	
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Dated: January 6, 2021

Respectfully submitted,

/s/ Douglas G. Caroom

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CITY OF EL PASO'S CERTIFICATE OF SERVICE

This is to certify that on the 6th day of January, 2021, I caused a true and correct copy of the **Response Brief of Amicus Curiae City of El Paso to the State of New Mexico's Motions for Partial Summary Judgment** and of the accompanying **Appendix of Evidence** to be served by e-mail upon all counsel of record and interested parties on the Service List in this matter, attached hereto.

Respectfully submitted,

/s/ Susan M. Maxwell

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IN THE SUPREME COURT OF THE UNITED STATES
BEFORE THE OFFICE OF THE SPECIAL MASTER
HON. MICHAEL J. MELLOY

STATE OF TEXAS, :
 :
 :
 Plaintiff, :
 :
 VS. : Original Action Case
 : No. 220141
 STATE OF NEW MEXICO AND : (Original 141)
 STATE OF COLORADO, :
 :
 Defendants. :

ORAL AND VIDEOTAPED 30(b)(6) DEPOSITION OF
UNITED STATES BUREAU OF RECLAMATION
BY AND THROUGH
FILIBERTO CORTEZ
AUGUST 20, 2020

ORAL AND VIDEOTAPED 30(b)(6) DEPOSITION OF
UNITED STATES BUREAU OF RECLAMATION BY AND THROUGH
FILIBERTO CORTEZ, produced as a witness at the instance
of the Defendant State of New Mexico, and duly sworn,
was taken in the above-styled and numbered cause on
August 20, 2020, from 10:02 a.m. MDT to 1:32 p.m. MDT,
via Zoom videoconference, before PHYLLIS WALTZ, RMR,
CRR, CRC, Texas CSR, TCRR, Louisiana CCR, in and for the
State of Texas, recorded by machine shorthand, pursuant
to the Federal Rules of Civil Procedure and the
provisions stated on the record or attached hereto; that
the deposition shall be read and signed before any
Notary Public.

1 Q. In the 1960s and 1970s, Reclamation provided
2 technical assistance to EBID in considering plans for
3 drilling irrigation wells; is that correct?

4 A. I don't know specifically. I don't have that
5 much information on that.

6 Q. Do you know generally whether Reclamation
7 provided assistance to EBID in evaluating the well
8 drilling plan?

9 A. I don't have any documentation on that, so I
10 really can't say.

11 Q. Are you aware that EBID sometimes, say, before
12 1980 drilled irrigation wells?

13 A. EBID drilled wells?

14 Q. Yes, correct.

15 A. No.

16 Q. We talked last time that EP No. 1 actually
17 does have irrigation wells that it uses, correct?

18 A. Correct.

19 Q. Do you know how many irrigation wells EP No. 1
20 has?

21 A. No, I do not. I know they do have several.

22 Q. If EP No. 1 uses those wells, does it report
23 that information to Reclamation?

24 A. No, it doesn't.

25 Q. Turn back to Deposition Exhibit 1.

1 This is -- this Category L. is "Municipal and
2 industrial transfers of Project water." Again, this is
3 a subject we talked about at length in your last
4 deposition. Do you recall that?

5 A. Yes.

6 Q. One thing we did not discuss was the process
7 of obtaining a Miscellaneous Purposes contract. Are you
8 familiar with those contracts?

9 A. Yes, I am.

10 Q. What is a Miscellaneous Purposes Act contract?

11 A. Well, each project in Reclamation is
12 authorized for specific uses. And the Rio Grande
13 Project was originally only authorized for irrigation;
14 therefore, any other uses of the project facilities or
15 project water would have to come under different --
16 under a separate authorization. In this case, it would
17 be for using project water for municipal and industrial
18 purposes, which is what the miscellaneous project Act
19 allowed.

20 Q. Did Reclamation -- or maybe I should say, did
21 EP No. 1 or the City of El Paso obtain a Miscellaneous
22 Purposes Act contract related to the 2001 implementing
23 contract?

24 A. Yes.

25 Q. Is that 2001 implementing contract itself

1 considered a Miscellaneous Purposes Act contract?

2 A. Yes.

3 Q. In order to -- you indicated that one of the
4 purposes of the Miscellaneous Purposes Act contract is
5 to allow water to be used for purposes other than
6 irrigation. Do I have that correct?

7 A. Correct.

8 Q. Did -- in order to obtain one of those
9 contracts, does Reclamation have to make a determination
10 that the water that would be used for that Miscellaneous
11 Purposes Act contract would not be needed for irrigation
12 purposes?

13 A. Reclamation has to determine that the
14 irrigation function of the project is not impaired or
15 affected by the contract.

16 Q. Did Reclamation make that determination with
17 regard to the 2001 implementing contract?

18 A. Yes.

19 Q. Are there documents that would reflect the
20 evaluation of that issue?

21 A. From what I recall, we had to do an
22 environmental -- environmental study on that to
23 determine what the effect would be. But, also, in the
24 negotiations of the contract, it would have to be
25 verified with the irrigation districts that there was

1 not going to be an effect or a detriment to the
2 irrigation function of the project. And as far as other
3 documents, I -- I would assume there would have been
4 some sort of a tracking of how the contract was
5 negotiated.

6 Q. When you say "an environmental study," do you
7 mean, like, a NEPA required documents?

8 A. Correct.

9 Q. Were you involved in any NEPA process related
10 to the 2001 implementing contract?

11 A. Only in providing the operation details for
12 the project.

13 Q. Did Reclamation produce an EA or an EIS?

14 A. I believe so, yes.

15 Q. Do you know which of those two it was?

16 A. I think it was an EA, but I'm not sure.

17 Q. And it -- best to your recollection, that
18 document would have considered some discussion about
19 whether or not the contract would have impact on the
20 ability to continue with irrigation?

21 A. Correct.

22 Q. When EP No. 1 is placing an order, and we
23 talked about the process earlier, does Reclamation know
24 whether the water will be used for irrigation purposes
25 or by the City of El Paso?

1 A. That is on the order sheet.

2 Q. It indicates --

3 A. It's indicated on the order sheet as to the
4 deliveries to the water treatment plants.

5 Q. I see. So those flow amounts into the water
6 treatment plants should reflect the amount of water that
7 the City of El Paso would be using?

8 A. That's correct.

9 Q. Let's talk about dep- -- well, looking back at
10 Deposition Exhibit 1. I'm going to skip ahead to
11 project operating agreements. Again, we talked about
12 the operating agreement in your previous deposition, and
13 others from Reclamation have discussed it. I do have a
14 few follow-up questions. We discussed last time that
15 the operating agreement uses D-2 to determine the
16 allocation for EP No. 1; is that right?

17 A. It determined the allocation to the irrigation
18 districts, which includes EP No. 1 and EBID.

19 Q. And then I think it's your position that then
20 the diversion ratio is used and then, if necessary,
21 water is transferred from EBID to EP No. 1; do I have
22 that right?

23 A. No, that's not correct.

24 Q. How would you describe that process?

25 A. Well, the process is that we use the amount of

IN THE SUPREME COURT OF THE UNITED STATES
BEFORE THE OFFICE OF THE SPECIAL MASTER
HON. MICHAEL J. MELLO

STATE OF TEXAS)	
)	
Plaintiff,)	
	)	Original Action Case
VS.	)	No. 220141
	)	(Original 141)
STATE OF NEW MEXICO,)	
and STATE OF COLORADO,)	
)	
Defendants.)	

REMOTE ORAL AND VIDEOTAPED DEPOSITION OF
FILIBERTO CORTEZ
JULY 30, 2020
VOLUME 1

REMOTE ORAL AND VIDEOTAPED DEPOSITION of
FILIBERTO CORTEZ, produced as a witness at the
instance of the Defendant State of New Mexico, and
duly sworn, was taken in the above-styled and numbered
cause on July 30, 2020, from 9:20 a.m. to 4:08 p.m.,
before Heather L. Garza, CSR, RPR, in and for the
State of Texas, recorded by machine shorthand, at the
offices of HEATHER L. GARZA, CSR, RPR, The Woodlands,
Texas, pursuant to the Federal Rules of Civil
Procedure and the provisions stated on the record or
attached hereto; that the deposition shall be read and
signed.

1 **MS. MAXWELL:** Jeff, this is Susan
2 Maxwell. I don't know if anyone else is having an
3 issue with AgileLaw, but as I'm looking at the screen,
4 I see only Document 001 and not No. 2 that you've
5 recently loaded. Is anyone else having that? If it's
6 just me, I'll figure out something.

7 **THE WITNESS:** I've got 001 and 002.

8 **MS. MAXWELL:** Okay.

9 **MR. LEININGER:** Thanks, Jeff. I'm back
10 on.

11 **MR. WECHSLER:** Okay. And are you able
12 to see Exhibit 2, Lee?

13 **MR. LEININGER:** Yes.

14 **MR. WECHSLER:** Okay. So, Susan, do you
15 mind if we continue?

16 **MS. MAXWELL:** Oh, absolutely. No,
17 I'll -- I'll figure it out. Thanks.

18 **Q. (BY MR. WECHSLER)** So, Mr. Cortez, I was
19 taking you to that last page, which on the PDF is Page
20 24. We can see that you electronically signed this
21 declaration on April 20th, 2007, and attested that the
22 statements within it were true and correct; is that
23 right?

24 **A.** Correct.

25 **Q.** If you go back, Mr. Cortez, then to the Page

1 21, I want to understand just some of the roles that
2 you've had at Reclamation as we're -- in order to help
3 me understand the subjects that you're familiar with.

4 A. Okay.

5 Q. So starting with Paragraph 2, in 2007, you
6 were the manager for the El Paso Field Division; is
7 that right?

8 A. That is correct.

9 Q. And what is the El Paso Field Division?

10 A. The El Paso Field Division is the office
11 which operated the Rio Grande Project at that time.
12 So that --

13 Q. And -- please. I'm sorry to interrupt.

14 A. Yeah. That involved the management of the
15 reservoirs, negotiations, the dealings with the
16 irrigation districts, water deliveries, making the
17 allocation, anything having to do with the Rio Grande
18 Project.

19 Q. You said that that was true at that time.
20 Has it changed?

21 A. Yes.

22 Q. When did that change?

23 A. I would say somewhere around 2012, 2013.

24 Q. What office is responsible now for the
25 management of the Rio Grande Project?

1 A. It has -- well, mainly coming out of the
2 Albuquerque Area Office. There has been a
3 reorganization, so there are various divisions within
4 the Albuquerque Area Office which manage what are now
5 separate parts of the Rio Grande Project.

6 Q. You are now special assistant to the
7 Albuquerque area manager; do I have that right?

8 A. Correct.

9 Q. When did your position change?

10 A. Right about that time, 2013, 2012.

11 Q. And when it changed, is that when you became
12 the special assistant?

13 A. That's correct.

14 Q. Did your duties and responsibilities change?

15 A. Yes, they did. I became mainly responsible
16 for as an advisory position to the area managers, as I
17 stated before, having to do with historical operations
18 of the Rio Grande Project and then also with the
19 dealings with the International Boundary and Water
20 Commission.

21 Q. What do you mean by the "historical
22 operations"?

23 A. Well, the responsibilities of the project
24 have remained pretty much the same. It's just that
25 other -- other people are responsible for making sure

1 those -- those responsibilities are carried out.

2 Q. I see. Do you know why the Bureau decided to
3 move the responsibilities for the Rio Grande Project
4 from the El Paso Field Division to, largely, the
5 Albuquerque office?

6 A. Mainly reorganization, consolidation.

7 Q. If you continue further down in your
8 declaration, Mr. Cortez, there you say that you were
9 the chief of the Engineering and Contracts Branch of
10 the Rio Grande Project. Do you see that?

11 A. Yes.

12 Q. When were you in that position?

13 A. I would have to take a guess on that, but it
14 would probably have been in the mid '80s.

15 Q. And after that position, is that when you
16 became manager for the El Paso Field Division?

17 A. No. Because that didn't occur until '97.

18 Q. What were your responsibilities as chief of
19 the Engineering and Contracts Branch of the Rio Grande
20 Project?

21 A. It's to do engineering designs on structures
22 and having to do with the distribution system for the
23 Rio Grande Project, canals, laterals, diversion dams
24 and so forth. And, also, to review pertinent requests
25 for crossings of utilities that were going to be

1 effecting the Rio Grande Project facilities.

2 Q. Sounds like you had a position between being
3 chief of Engineering and Contracts and the manager for
4 the El Paso Field Division; is that right?

5 A. That is correct.

6 Q. What position or positions were --

7 A. That -- in that position, I was responsible
8 for water operations, which had to do with management
9 of the reservoir storage and then, also, for releases
10 to deliver to the -- to the districts and to Mexico.

11 Q. If you look at deposition Exhibit 2, again,
12 Mr. Cortez, Paragraph 4 indicates that you were the
13 chief of the Water Operations Branch. Is that the
14 position that you just described?

15 A. Correct.

16 Q. So in order, you were chief of Engineering
17 Contracts, and then you became chief of the Water
18 Operations Branch?

19 A. I -- yes. Correct.

20 Q. I'm going to show you another document
21 related to, I think, the Water Operations Branch. I'm
22 marking it as deposition Exhibit FC3.

23 (Exhibit No. 3 was marked.)

24 A. Okay. Got it.

25 Q. (BY MR. WECHSLER) Do you recognize that

1 debits and credits and deliveries and use of the
2 project under the Compact provisions.

3 Q. During your time at Reclamation, did you
4 regularly attend Rio Grande Compact Commission
5 meetings?

6 A. Yes.

7 Q. Why?

8 A. It was a yearly meeting to determine how the
9 basin was being operated, how the Compact was being
10 complied with, so it was just interest on -- as to how
11 the Compact was going to be effecting the Rio Grande
12 Project.

13 Q. What's the relationship between the Rio
14 Grande Project and the Compact?

15 A. The Rio Grande Project receiving the Texas
16 apportionment under the Compact.

17 Q. You say the Texas apportionment. Where does
18 the water that's delivered to Elephant Butte -- where
19 is that delivered?

20 A. Presently, it's being delivered at Elephant
21 Butte Reservoir.

22 Q. And then what does the project do with that
23 water? To whom is that water delivered by the
24 project?

25 A. That water is then allocated to the project

1 water users.

2 Q. Meaning --

3 A. The usable water is allocated to the project
4 water users.

5 Q. When you say "the project water users," who
6 are you referring to?

7 A. Elephant Butte Irrigation District, El Paso
8 County No. 1 District, and Mexico.

9 Q. And the water that's delivered to Elephant
10 Butte Irrigation District, that's delivered within the
11 State of New Mexico; is that correct?

12 A. I'm sorry. Say it again.

13 Q. The water that is delivered to Elephant Butte
14 Irrigation District, that's delivered within the State
15 of New Mexico?

16 A. That is correct.

17 Q. And the water that goes to the Republic of
18 Mexico, that is used within that country, correct?

19 A. Correct.

20 Q. How much of project supply is used within the
21 State of Texas?

22 A. In what sense are you asking the question
23 when you say "how much"?

24 Q. Well, when you -- an allocation is made in
25 any given year, first, you determine how much water is

1 **allocated to Mexico; is that correct?**

2 A. First, we determine the amount of usable
3 water that's available in storage and --

4 **Q. And then --**

5 A. -- then we determine how much is available
6 for project water users, and a portion of that does go
7 to Mexico.

8 **Q. And what portion of that water ends up going**
9 **to users within the State of Texas?**

10 A. The 57/43 apportionment division, 43 percent
11 going to the users in Texas.

12 **Q. 57 percent goes to users within the State of**
13 **New Mexico?**

14 A. That's correct.

15 **Q. If you turn to Page 4 on deposition Exhibit**
16 **3, and I'm looking at No. 39. Here it**
17 **says, "Responsible for the oversight functions of the**
18 **irrigation districts." Do you see that?**

19 A. Correct.

20 **Q. What does that mean?**

21 A. Under the transfer agreement to the
22 irrigation districts, certain responsibilities were
23 given to the Bureau of Reclamation and then the others
24 were given to the irrigation districts. So we took
25 responsibility of making sure that the

1 Q. Do you know what the outcome of the quiet
2 title lawsuit was?

3 A. I don't believe it's been completed.

4 Q. Do you have an understanding of what stage
5 it's at?

6 A. No, I don't.

7 Q. If you turn to Page 9 of Mr. Rowe's
8 statement, under the -- the very top paragraph, the
9 final sentences of that paragraph read, "Thus, the
10 Compact, instead of leaving the Texas share of the
11 water open for disposition under the general water
12 statutes of Texas, directs that Rio Grande Project
13 water be used to serve lands both in Texas and New
14 Mexico. The water belonging to Texas is definitely
15 committed to the service of the Rio Grande Project."
16 Do you agree with that statement?

17 A. I guess it would be in the definition of
18 water committed to Texas.

19 Q. What does that mean that -- where it
20 says, "Water belonging to Texas is committed to the
21 service of the Rio Grande Project"?

22 A. Again, if we're saying that the water
23 committed to Texas under the Rio Grande Compact is
24 also committed to the Rio Grande Project.

25 Q. The top there says that, "The Texas share" --

1 it says that it directs -- "The Compact directs the
2 Rio Grande Project Water to be used to serve lands
3 both in Texas and New Mexico." Do you see that?

4 A. Yes, I do.

5 Q. Do you agree with that?

6 A. Yes.

7 Q. If you turn to Page 16 of this document,
8 there's a heading, "United States Claims for the Rio
9 Grande Project."

10 A. I have it.

11 Q. And then it says, "The United States claims
12 the right," and it's got some numbered paragraphs. Do
13 you have an understanding of what the United States
14 claims for the Rio Grande Project were?

15 A. Yes.

16 Q. You see what Mr. Rowe has identified three
17 bullet points there. Does that -- is that consistent
18 with your understanding of what the United States
19 claims are?

20 A. Yes.

21 Q. Let me ask you about the final statement here
22 on this same page. It says, "Storage in and releases
23 from the two reservoirs are, of course, made and
24 accounted for in accordance with the Rio Grande
25 Compact." I think that's consistent with what you

1 think we saw earlier in Mr. Kirby's report; is that
2 right?

3 A. Correct.

4 Q. Have you calculated the total amount of water
5 that has been left unused in the reservoir for the
6 period 1979 through 2005?

7 A. No, I have not calculated that specifically.

8 Q. Have you calculated the total amount of water
9 left in storage at the end of the year since the 2008
10 operating agreement was adopted?

11 A. No.

12 Q. If you'd turn to Page 21. And here, again,
13 I'll read it into the record. It says, "In
14 conclusion, it is felt this study firmly establishes
15 the fact that U.S. users left substantial amounts of
16 allocation water in storage to be reallocated to all
17 users in following years and to the considerable
18 benefit of Mexico. It also precludes the
19 incorporation of the unused U.S. allocation into the
20 new allocation procedures that will be formulated for
21 subsequent water-short years. Finally, it establishes
22 a rationale for reserving future unused U.S.
23 allocation water that may be held in storage for U.S.
24 needs in water-short years." What's Mr. Kirby saying
25 here?

1 A. The only thing that I can say is that he is
2 trying to make a case for Mexico that we were going to
3 be protecting the allocation to Mexico.

4 Q. Where he says that, "The study establishes a
5 rationale for reserving future unused U.S. allocation
6 water that may be held in storage for U.S. need in
7 water-short years," what's he talking about in that
8 sentence?

9 A. Just the general operations for all
10 reservoirs in that they do capture water during
11 high-flow years for use during low-flow years.

12 Q. Is -- do you agree with that sentence?

13 A. What portion of it again?

14 Q. The final sentence that, "The study that was
15 conducted here establishes a rationale for reserving
16 future unused U.S. allocation water that may be held
17 in storage for U.S. needs in water-short years."

18 A. Yes. That's the way projects are operated.

19 Q. Let's turn to the next document, which we're
20 jumping ahead a few years. We'll mark that Exhibit
21 21.

22 (Exhibit No. 21 was marked.)

23 Q. (BY MR. WECHSLER) Do you recognize Exhibit
24 21?

25 A. Yes.

1 Q. What is it?

2 A. It's a form of an operating agreement.

3 Q. Was this the first written operating
4 agreement that you had circulated to the districts?

5 A. I can't say that it's the first. It's a form
6 of an operating agreement.

7 Q. If you look at Page 2.

8 A. I have that, yes.

9 Q. Here, you can see this is a transmittal
10 letter dated January 29th, 1985, and I -- I understand
11 it to be transmitting this agreement. Is that your
12 understanding?

13 A. Yes.

14 Q. And it's transmitting it to Steve Reynolds,
15 the New Mexico State Engineer. Do you know why this
16 document was being sent to Mr. Reynolds?

17 A. So he would have the information on what is
18 being contemplated as far as the operations of the Rio
19 Grande Project.

20 Q. And here, it says that the -- the agreement
21 had been -- has been implemented from 1985. What does
22 that mean?

23 A. That this is what is being used on the
24 project for operations and allocation.

25 Q. Then let's just look at a couple of the

1 provisions. Here, you can see on Page 6 is the
2 general purpose. You understand this to be the
3 purpose of this operating agreement?

4 A. Yes.

5 Q. Did you have any role in drafting this
6 operating agreement?

7 A. Yes.

8 Q. What role did you play?

9 A. The analysis of the data that went into the
10 agreement and discussions on what would be the best
11 way to operate the project subsequent to the 1979/1980
12 contracts, which I believe is what is being referenced
13 in this first paragraph.

14 Q. Who was actually responsible for drafting the
15 language?

16 A. Couldn't say specifically, but I'm sure it
17 was a number of people in the project office and in
18 the regional office and anybody that would have any
19 input as to the composition of the document.

20 Q. Turn to Page 7. Under the heading, "D, Rio
21 Grande Compact, 1938."

22 A. "Rio grand Compact, 1938." Yes.

23 Q. I'm looking at the second paragraph under
24 that heading, and it says, "quote, Texas, end quote,
25 for Compact purposes includes Sierra and Dona Ana

1 counties in Mexico as well as El Paso and Hudspeth
2 counties in Texas." Do you see that?

3 A. Yes, I do.

4 Q. Do you know where -- when Reclamation started
5 referring to that section of the Compact as, quote,
6 Texas?

7 A. No, I don't know specifically.

8 Q. Do you agree that that portion of the Compact
9 includes Sierra and Dona Ana counties in New Mexico as
10 well as El Paso and Hudspeth counties in Texas?

11 A. Yes.

12 Q. And then it goes on to say, "This unique
13 feature of the Rio Grande Compact was dictated by the
14 logic of New Mexico making its deliveries to Elephant
15 Butte Reservoir and treating the Rio Grande Project as
16 a unit rather than dividing Texas and New Mexico at
17 their state line." Do you see that?

18 A. Yes.

19 Q. Is that your understanding?

20 A. Yes.

21 Q. I'm just skipping over some things,
22 Mr. Cortez, that we've already talked about so...

23 So if you go to Page 9.

24 A. Okay.

25 Q. In the middle of the paragraph -- the page

IN THE SUPREME COURT OF THE UNITED STATES
BEFORE THE OFFICE OF THE SPECIAL MASTER
HON. MICHAEL J. MELLO

STATE OF TEXAS)	
)	
Plaintiff,)	
	)	Original Action Case
VS.	)	No. 220141
	)	(Original 141)
STATE OF NEW MEXICO,)	
and STATE OF COLORADO,)	
)	
Defendants.)	

REMOTE ORAL AND VIDEOTAPED DEPOSITION OF
FILIBERTO CORTEZ
JULY 31, 2020
VOLUME 2

REMOTE ORAL AND VIDEOTAPED DEPOSITION of
FILIBERTO CORTEZ, produced as a witness at the
instance of the Defendant State of New Mexico, and
duly sworn, was taken in the above-styled and numbered
cause on July 31, 2020, from 9:01 a.m. to 3:25 p.m.,
before Heather L. Garza, CSR, RPR, in and for the
State of Texas, recorded by machine shorthand, at the
offices of HEATHER L. GARZA, CSR, RPR, The Woodlands,
Texas, pursuant to the Federal Rules of Civil
Procedure and the provisions stated on the record or
attached hereto; that the deposition shall be read and
signed.

1 was made throughout the irrigation season?

2 A. I can't speculate.

3 Q. No. 10 is, "Describe the USBR's position
4 regarding the impacts of current Rio Grande project
5 operations on New Mexico and Colorado." Do you see
6 that?

7 A. Yes.

8 Q. Do you know if that is a presentation that
9 was given in August of 2002 to Reclamation?

10 A. I can't recall that we specifically addressed
11 that.

12 Q. Do you have an understanding of why Colorado
13 and New Mexico were requesting that presentation?

14 A. No. Not specific to No. 10.

15 Q. Do you have a general understanding?

16 A. Again, to get a -- an understanding of
17 project operations and that we were operating on the
18 most efficient manner possible.

19 Q. Let's look at deposition -- what I'll mark
20 now as deposition Exhibit 40.

21 (Exhibit No. 40 was marked.)

22 Q. (BY MR. WECHSLER) You can see the first page
23 is a cover letter from a gentleman named William
24 Paddock. Do you know who he is?

25 A. Doesn't sound familiar.

1 Q. I'll represent, he's an attorney working in
2 Colorado. I'm more interested, if you look at -- at
3 Page 2 through 5 is a letter from you to Mr. Paddock,
4 and if you look at the final page, Page 5, you can see
5 that was signed by you. You recognize that as your
6 signature?

7 A. Yes.

8 Q. So if you go back to Page 4, we can see you
9 say, "Thank you for your letter dated February 14,
10 2002, concerning questions about the Bureau of
11 Reclamation's Rio Grande Project water supply and
12 allocation process. We apologize for the tardiness of
13 this response to your letter." Do you recall
14 responding to an inquiry in 2002 about that issue?

15 A. Yes.

16 Q. If you scroll further down on that same page,
17 Page 2 of the exhibit, the first page of the letter,
18 you say, the final partial paragraph, "Finally,
19 contained within the Rio Grande Compact accounting
20 procedures is a worksheet entitled release and spill
21 in project storage." Do you see that?

22 A. Yes.

23 Q. Do you recall that accounting procedure from
24 the Compact?

25 A. Yes.

1 Q. And then you -- you reference at the lower
2 right-hand side of the sheet is a calculation
3 entitled, "Accrued departure from normal release." Do
4 you see that?

5 A. Yes.

6 Q. And you're familiar with that part of the Rio
7 Grande Compact accounting procedures?

8 A. Yes.

9 Q. If we turn then to Page 3, you give some
10 explanation about that. So at the top of the partial
11 paragraph there, you say, "Reclamation interprets this
12 accrued departure from normal release as a measure of
13 how the Rio Grande Project is complying with its
14 obligation to meet yearly demand from the water users
15 of the Rio Grande Project and at the same time comply
16 with the Rio Grande Compact intent to recognize a
17 yearly average of 790,000 acre-feet released from
18 project storage to satisfy water users within the,
19 quote, Texas portion of the Compact." Do you see
20 that?

21 A. Yes.

22 Q. And here, this is a reference to those Rio
23 Grande Compact Commission accounting procedures?

24 A. Correct.

25 Q. Why does Reclamation interpret the accrued

1 departure from normal release in this way?

2 A. Please explain what you mean by consider.

3 Q. Well, I'm asking you to explain more about
4 this interpretation of -- of Reclamation's that you're
5 describing there on Page 3.

6 A. Since the Texas portion of the Compact
7 deliveries are for the Rio Grande Project, the 790 is
8 used to make sure that the remaining articles of the
9 Compact are not imposed on. So it's Texas'
10 obligation.

11 Q. What do you mean that you're complying with
12 the obligation to meet yearly demand from the water
13 users of the Rio Grande Project, and at the same time,
14 comply with the Rio Grande Compact intent to recognize
15 a yearly average of 790,000 acre-feet released?

16 A. The -- I guess you might say the meeting of
17 the two conditions that the project must operate on
18 come from, first, the Compact from north down to the
19 release at Caballo and then also the demands of the --
20 of the project water users starting from Caballo
21 releases all the way down to El Paso. So those --
22 both of those need to be addressed and complied with,
23 because the project was constructed in order to
24 deliver water to the project water users way before
25 the Compact came into effect.

1 Q. And Reclamation interprets that accrued
2 departure provision of the Rio Grande Compact
3 Commission accounting procedures as a measure of that
4 overall issue, right?

5 A. Correct.

6 Q. We talked -- we talked yesterday about the
7 origin of that -- the term which is in quotes in this
8 letter, quote, Texas portion, and my understanding is
9 you don't know the origin of that term; is that right?

10 A. No, I do not.

11 Q. If you'd scroll further down on Page 3 of
12 this exhibit, we can see that you -- you say in the
13 middle of the next paragraph, you're further
14 explaining Reclamation's interpretation here. You
15 say, quote, conversely -- you see the sentence I'm
16 starting to read, Mr. Cortez?

17 A. You're saying the middle of the next
18 paragraph?

19 Q. Right. Closer to the bottom. And there's
20 a -- it starts with the word "conversely" is the
21 section I'm looking at.

22 A. Okay.

23 Q. It's -- there, you say, "Conversely, a
24 positive number is a credit, parens, the average
25 release since the last spill is less than 790,000

1 acre-feet. Reclamation believes as long as the
2 accrued departure from a normal release from project
3 storage since the last spill is at zero or an accrued
4 departure credit, then it is meeting the obligations
5 and intents of both the Rio Grande Compact and the Rio
6 Grande Project." Do you see that?

7 A. Yes.

8 Q. And that's explaining that Reclamation's
9 interpretation of that accounting procedure, right?

10 A. Yes.

11 Q. You -- you continue on Page 2 in that last
12 paragraph, you -- you are quoting from Mr. Hill's
13 testimony and report. Do you see that?

14 A. We're talking about the same paragraph?

15 Q. No. I'm sorry. The next paragraph in the
16 third line, you -- you say, "To further support our
17 interpretation." And there, you're quoting from a
18 report from Raymond Hill. Do you see that?

19 A. Yes, I do.

20 Q. You're familiar with that report from
21 Mr. Hill?

22 A. Yes.

23 Q. A little further down, here's what you quote
24 from it. You say, "He stated, quote, it is apparent
25 from the foregoing that the Rio Grande Compact

1 commissioners at the time of executing the Rio Grande
2 Compact of 1938 anticipated that compliance by
3 Colorado with the schedules of deliveries set forth in
4 Article 3 of that Compact and compliance by New Mexico
5 with the schedules set forth in Article 4 would result
6 in enough water entering Elephant Butte Reservoir to
7 sustain an average normal release of 790,000 acre-feet
8 per year from project storage for use on lands in New
9 Mexico downstream of Elephant Butte Reservoir, and on
10 lands in Texas, and also to comply with obligations of
11 the treaty from 1906 for deliveries of water to
12 Mexico." Do you see that?

13 A. Yes.

14 Q. That was your statement in this letter?

15 A. Yes.

16 Q. That's accurate?

17 A. Yes.

18 Q. If you look to Page 4 of this letter, here in
19 the first full paragraph, the one
20 beginning, "Concerning," you have a -- the last
21 sentence of that paragraph says, "These allotments at
22 the water users canal headings not only include
23 releases from Rio Grande Project storage, but also
24 include any rainfall runoff from tributaries to the
25 Rio Grande, parens downstream of Caballo Dam, return

1 flows from agricultural drains of the Rio Grande
2 Project irrigated lands, and any operational wastes
3 and spills from the Rio Grande Project irrigation
4 distribution systems." Do you see that?

5 A. Yes. Yes, I do.

6 Q. I understand that to be consistent with what
7 you were saying yesterday about what makes up project
8 supply. Do you agree?

9 A. Agree.

10 Q. Let's look at an exhibit -- another exhibit,
11 which I'll mark as deposition Exhibit 41.

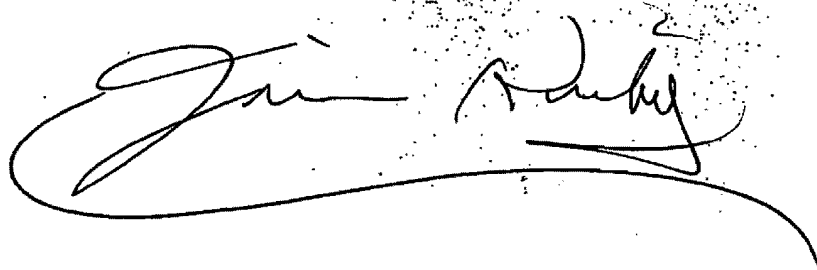
12 MR. WECHSLER: Then, Lee, just
13 anticipating, I'll take a break after this document if
14 that's okay with you.

15 MR. LEININGER: Fine with me. Thank
16 you.

17 (Exhibit No. 41 was marked.)

18 Q. (BY MR. WECHSLER) This, Mr. Cortez, you can
19 see is a memorandum of understanding between the Rio
20 Grande Compact Commission and the United States Bureau
21 of Reclamation. You can see if you look to Page --
22 the final page, that it's -- it's signed by the three
23 commissioners and by Mr. Maxey, who you've been
24 talking about. Do you recognize this document?

25 A. Yeah. Covers several -- several subjects,



EVALUATION OF ANNUAL OPERATIONAL ALLOCATIONS AND DELIVERIES

RIO GRANDE PROJECT AND THE REPUBLIC OF MEXICO

1951 - 1978

July 30, 1981

James W. Kirby, PE

Texas No. 15638

New Mexico No. 1659

EXHIBIT
FC-020

US0553555

EVALUATION OF ANNUAL OPERATIONAL ALLOCATIONS AND DELIVERIES

RIO GRANDE PROJECT AND THE REPUBLIC OF MEXICO

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EVALUATION OF ANNUAL OPERATIONAL ALLOCATIONS AND DELIVERIES

RIO GRANDE PROJECT AND THE REPUBLIC OF MEXICO

1951 - 1978

INTRODUCTION

From about 1915, the inception of the Rio Grande Project, through 1950, there was never a need to allocate or ration irrigation water to the United States users or the Republic of Mexico. During years of insufficient inflow to Elephant Butte Reservoir, there was always ample carry-over storage to fulfill the normal delivery requirements of both users. However, at the end of 1950, the combined storage in Elephant Butte and Caballo Reservoirs was only 396,670 acre-feet. Additionally, the snowpack condition on the watershed in Colorado and northern New Mexico was reported as minimum of record. Accordingly, in 1951, an allocation procedure was invoked limiting the amounts of water that would be delivered to users. Due to a long term continuation of deficient inflows to Project storage, this allocation procedure has been continuous to the present time.

For the period 1951 through 1978 the Rio Grande Project was under Federal operation. The operating agency, the Bureau of Reclamation, set the allocations, released, and delivered the irrigation, municipal, and treaty water allocated to the respective users. Beginning in 1979, one of the United States irrigation districts, the Elephant Butte Irrigation District (E.B.I.D.) of New Mexico, assumed the operation and maintenance of their district. At this time the allocation procedure was changed so that water belonging to United States users would be delivered to each irrigation district's canal headings or state line crossings. Subsequently, the El Paso County Water Improvement

District No. 1 (E.P.C.W.I.D.No.1) assumed responsibility for their operation and maintenance on October 1, 1980. Allocation of United States' water has been made at both districts' canal headings and state line crossings beginning with 1979.

It became necessary to evaluate the new allocation procedure with the historic (i.e. 1951-1978) procedure to assure equity in the distribution of available water between the United States' users and the Republic of Mexico. The historic period was studied by both the Federal agencies involved, the International Boundary and Water Commission (I.B.&W.C.) and the Bureau of Reclamation (Bu.Rec.). These studies still continue by a committee composed of members of the two Federal agencies, the Rio Grande Compact Commission, and representatives of the E.B.I.D. and the E.P.C.W.I.D.No.1. The purpose of this study, originated by the United States irrigation districts, is to evaluate the historic period in considerably more detail than has been done by the Federal agencies. Accordingly, a year-by-year evaluation of hydrology and operating procedures has been made in considerable detail.

DEVELOPMENT OF STUDY

Each year in the historic period, 1951 through 1978, was studied in detail. Evaluations were made of inflow to storage, storage system efficiencies, storage releases, deliveries to the Republic of Mexico, deliveries to United States' users, irrigation system efficiencies, and water leaving the Rio Grande Project. Management decisions made for allocations were reviewed. Deliveries to users were carefully evaluated to determine effects of overused or underused allocations on reservoir storage.

Published records by the United States Geological Survey (U.S.G.S.) were used for the discharge of the Rio Grande at San Marcial (inflow into Elephant Butte Reservoir). Published records by the I.B.&W.C. were used for storages in Elephant Butte and Caballo Reservoirs, discharge of the Rio Grande below Caballo Dam, and deliveries to the Republic of Mexico. Unpublished records from the Bu.Rec. were used for the remainder of the source data. Where source documents were available, comparison was made with published data to verify accuracy. Some errors were found in the published I.B.& W.C. data and corrections made. Particular emphasis was given to quantifying unused allocations of U.S. users, as it has been felt that this question had not been given enough consideration by the Federal agencies.

INFLOW AT SAN MARCIAL

Due to a long-term climatic change, infestation of river channels by phreatophytes, over-diversions by appropriators above San Marcial, and other causes, the discharge of the Rio Grande at San Marcial declined rather drastically in terms of the long-term record. This marked decline began about 1946. However, carry-over storage supplemented by yearly inflow was adequate for a full or normal supply of water to the Rio Grande Project and to the Republic of Mexico through 1950. It had been determined prior to the construction of the Rio Grande Project that about 790,000 acre-feet of water would be required to satisfy the Mexican Treaty of 1906, and to construct an irrigation project in the United States of about 155,000 acres. This amount of water has been generally regarded as the requirement for a full supply for both requirements. TABLE NO. 1 gives the discharge of the Rio Grande at San Marcial for the historic period. It can be seen readily that there was a very substantial deficit for a full supply of water being available to users.

TABLE NO. 1

DISCHARGE OF THE RIO GRANDE AT SAN MARCIAL, NEW MEXICO

Acre-Feet

Year (1)	Discharge (2)
1951	114,128
52	1,003,470
53	260,522
54	215,640
55	264,220
56	136,283
57	1,239,800
58	1,291,860
59	247,460
1960	551,555
61	544,490
62	745,930
63	266,965
64	169,042
65	1,036,340
66	568,830
67	402,810
68	646,950
69	967,590
1970	616,470
71	397,920
72	459,870
73	1,303,360
74	353,450
75	995,820
76	458,320
77	224,344
1978	417,723
Total	15,901,162
Average	567,899

STORAGE SYSTEM ANALYSIS

In the allocation of water to users, most particularly in short years, careful attention necessarily was given to projected or anticipated reservoir losses or gains. In the early years of the historic period the anticipated evaporation loss was overemphasized.

Losses from the reservoirs were to bank storage, evaporation, and evapo-transpiration from vegetation and saturated silt beds. Accretions to the reservoirs were from precipitation, unmeasured side inflow from ephemeral tributaries, return bank storage, and upward leakage from ground water. The water budget study shown on TABLE NO. 2 gives the actual measured gains or losses in each reservoir and the total storage system. The average annual loss from the storage system was 63,213 acre-feet. This is 11.13% of the measured inflow entering the system during the same period.

ALLOCATION OF WATER SUPPLY

The allocation of water to the respective users was made by management and engineering personnel of the Bureau of Reclamation. The allocation procedure involved the assessment of usable storage available for release at Caballo Dam, the expected operating efficiency of the primary river conveyance and the distribution system in the United States, plus the expected operating losses from the system at the lower end of the project. These assumptions were continuously monitored, and as inflow was received, or operating efficiencies were found to be better than expected, an increase in the allocation was made. A year-by-year evaluation was made of the allocation procedures. Generally speaking, they were found to be somewhat conservative. However, several years were definitely over-allocated and delivery commitments were barely met. In the early

TABLE NO. 2
STORAGE SYSTEM GAINS (+) AND LOSSES (-)
Acre Feet

Year (1)	Elephant Butte Reservoir (2)	Caballo Reservoir (3)	Total System (4)
1951	+ 21,367	- 9,626	+ 11,741
52	-115,074	+ 5,026	-110,048
53	+ 21,772	-24,212	- 2,440
54	+ 16,304	+ 3,915	+ 20,219
55	+ 5,513	- 430	+ 5,083
56	+ 12,549	- 8,294	+ 4,255
57	-112,356	+20,977	- 91,379
58	-186,760	-20,615	-207,375
59	- 34,090	-12,808	- 46,898
1960	- 31,399	- 4,459	- 35,858
61	- 34,621	-10,859	- 45,480
62	- 24,619	-20,997	- 45,616
63	- 35,955	+ 2,881	- 33,074
64	- 10,327	+ 3,076	- 7,251
65	- 84,886	- 8,293	- 93,179
66	- 81,421	-13,809	- 95,230
67	- 35,890	+ 3,130	- 32,760
68	- 42,352	-29,484	- 71,836
69	- 85,565	-20,990	-106,555
1970	- 91,195	-38,984	-130,179
71	- 30,126	-28,875	- 59,001
72	- 35,224	+14,547	- 20,677
73	-205,011	-15,480	-220,491
74	- 47,748	-31,320	- 79,068
75	-127,389	-31,441	-158,830
76	- 44,983	-12,121	- 57,104
77	- 23,417	- 2,282	- 25,699
1978	- 40,698	+ 5,472	- 35,226
Totals	-1,483,601	-286,355	-1,769,956
Averages	- 52,986	-10,227	- 63,213

years of the historic period the effect of groundwater pumping was unknown, and overcompensation was assumed which rather profoundly affected the allocation procedure. The allocations, as published by the Bureau of Reclamation, are shown on TABLE NO. 3. In many years there were interim allocations made after the initial allocation and prior to the final allocation. The difference between the initial and final allocations reflects inflow received into storage and changes in operating efficiencies.

TABLE NO. 4 gives the annual and average allocation storage release for the historic period. This record was derived from the discharge of the Rio Grande below Caballo Dam using only the discharge for the months when irrigation releases were being made for either the U.S. users or Mexico. It should be noted that, even in years of full allocation, the full supply release of 790,000 acre-feet was not reached. This fact has been pointed to by others to support the contention that a full allocation can be made at a release less than 790,000 acre-feet.

MEXICAN ALLOCATION AND DELIVERY

TABLE NO. 5 shows the allocation and delivery to the Republic of Mexico under terms of the 1906 Treaty. For the purpose of this tabulation the following formula was used:

$$\text{Mexican allocation} = \frac{\text{Allocation in a.f./ac.}}{3.0241 \text{ a.f./ac.}} \times 60,000 \text{ a.f.}$$

During the period 1951-1957 incl. a slightly different formula was used for deliveries to Mexico which yielded a little more water to Mexico than shown on TABLE NO. 5. This difference was the result of a small error in the calculations made by the Bureau of Reclamation.

It is very important to note that the Mexicans received all of their allocated water during the historic period.

TABLE NO. 3
ALLOCATION OF WATER BY THE BUREAU OF RECLAMATION
Acre-Feet/Acre

Year (1)	Initial Allocation (2)	Final Allocation (3)
1951	1.00	1.75
52	0.21	2.50
53	1.00	1.90
54	0.42	0.50
55	0.21	0.42
56	0.33	0.39
57	0.10	1.17
58	1.75	4.00
59	3.00	3.50
1960	2.25	3.25
61	1.25	2.45
62	1.75	3.25
63	1.85	2.00
64	0.25	0.33
65	0.17	1.85
66	1.75	2.50
67	1.25	1.50
68	1.00	2.00
69	1.33	3.00
1970	2.00	3.00
71	1.50	1.75
72	0.60	0.80
73	1.00	3.00
74	3.00	3.00
75	1.00	3.00
76	2.50	3.00
77	1.00	1.25
1978	0.25	0.75

TABLE NO. 4

ALLOCATION STORAGE RELEASE FROM CABALLO RESERVOIR

Acre-Feet	
Year (1)	Allocation Storage Release (2)
1951	469,000
52	544,500
53	528,900
54	244,030
55	219,060
56	246,000
57	397,300
58	736,100
59	686,400
1960	705,100
61	561,300
62	651,527
63	516,715
64	205,600
65	505,265
66	609,977
67	456,234
68	505,250
69	667,338
1970	660,886
71	498,175
72	260,429
73	616,738
74	640,561
75	580,104
76	679,075
77	416,922
1978	355,856
Total	14,164,342
Average	505,869

TABLE NO. 5

ALLOCATION AND DELIVERIES TO THE REPUBLIC OF MEXICO

Acre-Feet
(Underused Allocation -, Overused Allocation +)

Year (1)	Allocation (2)	Deliveries (3)	Difference (4)
1951	34,721	33,058.6	-1,662.4
52	49,602	49,890	+ 288
53	37,697	37,760	+ 63
54	9,920	10,147	+ 227
55	8,268	8,185	- 83
56	7,772	7,864	+ 92
57	23,148	23,290	+ 142
58	60,000	60,050	+ 50
59	60,000	60,110	+ 110
1960	60,000	60,320	+ 320
61	48,610	48,610	0
62	60,000	60,057	+ 57
63	39,681	39,693	+ 12
64	6,613	6,653	+ 40
65	36,705	36,658	- 47
66	49,602	49,618	+ 16
67	29,761	29,829	+ 68
68	39,681	39,677	- 4
69	60,000	59,884	- 116
1970	60,000	60,065	+ 65
71	34,721	34,847	+ 126
72	15,872	16,077	+ 205
73	60,000	60,000	0
74	60,000	60,050	+ 50
75	60,000	60,052	+ 52
76	60,000	60,172	+ 172
77	24,801	24,824	+ 23
1978	14,880	14,903	+ 23
Totals	1,112,055	1,112,343.6	+ 288.6
Averages	39,716	39,726	+ 10
%	100.00	100.03	0.03

UNITED STATES ALLOCATION AND DELIVERY

TABLE NO. 6 shows the allocation and delivery to United States users. The United States allocation was computed as follows:

$$\text{U.S. Allocation} = 159,650 \text{ ac.} \times \text{Allocation in a.f./ac.}$$

A full allocation, for the purpose of this report, was taken as 3.0241 a.f./ac. regardless of the allocation published by the Bureau of Reclamation. In four of the years in the historic period the allocation to U.S. users exceeded the 3.0241 a.f./ac. value which is considered as a full or normal supply. This fact may be considered as an important historical precedent, but as mentioned previously, a full supply, for the purpose of this report, was computed using 3.0241 a.f./ac. Where the Bureau of Reclamation uses the value of 3.00 a.f./ac. it is taken to mean 3.0241 a.f./ac.

It is extremely important to note that, other than 5 early years, the United States users left large quantities of their allocation water unused at the end of the irrigation season. The net total for the historic period was 1,404,560 acre-feet or an annual average of 50,163 acre-feet or 15.70% of their total allocation. These figures represent on-the-farm deliveries.

This unused U.S. allocation was redistributed the following year to all users including Mexico. Since the foregoing undelivered U.S. allocation quantities represent water delivered to farms, a simple computation would indicate that Mexico benefited from the undelivered U.S. allocation as follows:

$$\text{Mexican Benefit} = 1,404,560 \times .110,538 = 155,257 \text{ acre-feet}$$

The .110538 or 11.0538% represents Mexico's entitlement to water as their fraction of the total available supply or allocation. Naturally, some loss factor should be computed in that

TABLE NO. 6

ALLOCATION AND DELIVERIES TO UNITED STATES USERS

Acre-Feet

(Underused Allocation -, Overused Allocation +)

Year (1)	Allocation (2)	Deliveries (3)	Difference (4)
1951	279,388	280,763	+ 1,375
52	399,125	327,219	- 71,906
53	303,335	308,087	+ 4,752
54	79,825	98,725	+ 18,900
55	66,526	79,304	+ 12,778
56	62,535	67,976	+ 5,441
57	186,264	163,180	- 23,084
58	482,798	401,828	- 80,970
59	482,798	404,861	- 77,937
1960	482,798	399,902	- 82,896
61	391,142	322,170	- 68,972
62	482,798	412,672	- 70,126
63	319,300	312,109	- 7,191
64	53,211	58,718	+ 5,507
65	295,352	230,485	- 64,867
66	399,125	300,536	- 98,589
67	239,475	230,598	- 8,877
68	319,300	253,784	- 65,516
69	482,798	365,678	-117,120
1970	482,798	390,231	- 92,567
71	279,388	266,917	- 12,471
72	127,720	118,845	- 8,875
73	482,798	346,300	-136,498
74	482,798	362,327	-120,474
75	482,798	349,853	-132,945
76	482,798	385,292	- 97,506
77	199,562	194,454	- 5,108
1978	119,738	110,920	- 8,818
Totals	8,948,291	7,543,731	-1,404,560
Averages	319,582	269,419	- 50,163
%	100.00	84.30	15.70

carryover water incurred some losses from one year to the next. Even so, Mexico received considerably more than two years full treaty requirement water supply by the fact that U.S. users left a considerable amount of their water in storage at the end of most irrigation seasons during the historic period. This is a vitally important factor in the review of the historic period and its extrapolation into allocation procedures employed after 1978.

Taking the net unused/overused U.S. allocation and dividing it by the operating efficiency experienced during that year, a theoretical storage value is determined. The unused U.S. allocation left in storage for the historic period was 2,158,432 acre-feet. This would indicate an operating efficiency for the historic period of 65.07%. TABLE NO. 7 indicates these year-by-year evaluations. A net adjusted storage at the end of the season is shown on Column (6) on the tabulation indicating what the storage would have been had all of the U.S. water been released.

ADJUSTED RELEASE REQUIREMENT

TABLE NO. 8 establishes a theoretical release requirement from Caballo Reservoir predicated upon both U.S. users and Mexico taking exact delivery of their allocations in each year of the historic period. Of course, due to the reallocation of unused U.S. water the amount of release shown on TABLE NO. 8 (Column 4) was not available. However, it is important to note that in 8 of the 10 years of full final allocation the 790,000 a.f. "normal or full" supply was exceeded. However, since operating efficiency is closely correlated with amounts of water actually released, efficiency increasing as the amount of released water increases, these theoretical requirements are high. However, the point is firmly established that a release requirement for a full or normal supply is or slightly exceeds 790,000 a.f.

TABLE No. 7

UNITED STATES WATER IN STORAGE AT END OF IRRIGATION SEASON

Acre-Feet
(Underused Allocation -, Overused Allocation +)

Year (1)	Unused U.S. Allocation (2)	Operating Efficiency (3)	U.S. Water Left in Storage (4)	Actual Storage End of Season (5)	Net Adjusted Storage (6)
1951	+ 1,375	.6691	+ 2,055	21,820	23,875
52	- 71,906	.6926	-103,820	365,800	261,980
53	+ 4,752	.6539	+ 7,267	91,900	99,167
54	+ 18,900	.4461	+ 42,367	43,440	85,807
55	+ 12,778	.3994	+ 31,993	111,470	143,463
56	+ 5,441	.3083	+ 17,648	26,340	43,988
57	- 23,084	.4693	- 49,188	555,800	506,612
58*	- 80,970	.6275	-129,036	996,970	867,934
59*	- 77,937	.6774	-115,053	577,710	462,657
1960*	- 82,896	.6527	-127,005	388,660	261,655
61	- 68,972	.6606	-104,408	194,740	90,332
62*	- 70,126	.7256	- 96,646	240,550	143,904
63	- 7,191	.6808	- 10,563	98,110	87,547
64	+ 5,507	.3180	+ 17,317	46,020	63,337
65	- 64,867	.5287	-122,691	302,600	179,909
66	- 98,589	.5740	-171,758	307,110	135,352
67	- 8,877	.5708	- 15,552	199,860	184,308
68	- 65,516	.5808	-112,803	267,110	154,307
69*	-117,120	.6377	-183,660	301,950	118,290
1970*	- 92,567	.6814	-135,848	188,860	53,012
71	- 12,471	.6057	- 20,589	34,530	13,941
72	- 8,875	.5181	- 17,130	147,240	130,110
73*	-136,498	.6588	-207,192	695,650	488,458
74*	-120,474	.6594	-182,702	334,900	152,198
75*	-132,945	.7066	-188,147	530,650	342,503
76*	- 97,506	.6560	-148,637	339,310	190,673
77	- 5,108	.5259	- 9,713	130,280	120,567
1978	- 8,818	.3536	- 24,938	105,410	80,472
Totals	-1,404,560		-2,158,432	7,644,790	5,486,358

* Full Allocation by the end of the irrigation season.

Note: San Juan-Chama Project water storage began in December, 1975. At the end of 1975, there was 18,600 acre-feet of this water in storage in Elephant Butte Reservoir. For years 1976, 1977, and 1978, there has been approximately 50,000 acre feet of the San Juan-Chama Project water stored in Elephant Butte Reservoir.

TABLE NO. 8

ALLOCATION STORAGE RELEASE ADJUSTED FOR UNUSED/OVERUSED ALLOCATION

Acre-Feet

(Underused Allocation -, Overused Allocation +)

Year (1)	Allocation Storage Release (2)	Unused/Overused Allocation in Storage (3)	Theoretical Release Requirement (4)
1951	469,000	- 430	469,430
52	544,500	-103,404	647,904
53	528,900	+ 7,363	521,537
54	244,030	+ 42,876	201,154
55	219,060	+ 31,785	187,275
56	246,000	+ 17,946	228,054
57	397,300	- 48,885	446,185
58*	736,100	-128,956	865,056
59*	686,400	-114,891	801,291
1960*	705,100	-126,515	831,615
61	561,300	-104,408	665,708
62*	651,527	- 96,567	748,094
63	516,715	- 10,545	527,260
64	205,600	+ 17,443	188,157
65	505,265	-122,780	628,045
66	609,977	-171,730	781,707
67	456,234	- 15,433	471,667
68	505,250	-112,810	618,060
69*	667,338	-183,842	851,180
1970*	660,886	-135,753	796,639
71	498,175	- 20,381	518,556
72	260,429	- 16,734	277,163
73*	616,738	-207,192	823,930
74*	640,561	-182,626	823,187
75*	580,104	-188,073	768,177
76*	679,075	-148,375	827,450
77	416,922	- 9,669	426,591
1978	355,856	- 24,873	380,729
Totals	14,164,342	-2,157,459	16,321,801
Averages	505,869	- 77,052	582,921

* Full allocation by the end of the irrigation season.

WATER LEAVING THE RIO GRANDE PROJECT

TABLE NO. 9 indicates the total water leaving the Rio Grande Project. The Tornillo Drain and much of the discharge of the Hudspeth Feeder Canal No. 1 represent drainage return flows from the El Paso Valley. The Tornillo Canal at Alamo Alto generally represents waste from the Project's distribution system. The discharge of the Rio Grande at Island Station represents Project operational waste and discharges to the Rio Grande by ephemeral tributaries entering the Rio Grande below Caballo Dam.

SUMMARY AND CONCLUSIONS

Beginning in 1951 a substantial reduction in available irrigation water was experienced for the Rio Grande Project. An allocation procedure was instituted in 1951 that limited the amounts of water that would be delivered to U.S. users. Mexico is limited to a maximum of 60,000 acre-feet by treaty. If the allocation to U.S. users was less than 3.0241 acre-feet per water-right acre, Mexico suffered the same proportional reduction in their treaty requirement. The period of Federal operation, referred to as the historic period, while allocation procedures were in effect was 1951 through 1978.

Beginning in 1979 the E.B.I.D. in the U.S. assumed their operation and maintenance. At that time a new allocation procedure was developed wherein U.S. waters were charged to irrigation districts at their canal headings and state line crossings. Subsequently, the other U.S. irrigation district, the E.P.C.W.I.D.No.1, assumed their operation and maintenance on October 1, 1980. Shortly after the beginning of the 1979 irrigation season inflow to project reservoirs was sufficient for a full supply of irrigation water. Full supply conditions prevailed throughout 1979, 1980, and 1981. Therefore, the new allocation procedure has not been thoroughly developed and tested.

TABLE NO. 9

TOTAL WATER LEAVING THE RIO GRANDE PROJECT

Acre-Feet

Year (1)	Tornillo Canal at Alamo Alto (2)	Hudspeth Feeder Canal No.1 (3)	Tornillo Drain (4)	Rio Grande at Island Station (5)	Annual Total (6)
1951	9,669	19,039	24,063	8,884	61,655
52	10,091	26,183	24,620	5,708	66,602
53	4,496	16,132	23,170	10,100	53,898
54	636	2,379	4,601	6,291	13,907
55	62	118	238	3,272	3,690
56	2	0	0	238	240
57	874	709	0	6,480	8,063
58	16,133	15,315	2,221	50,914	84,583
59	13,993	23,884	17,164	24,862	79,903
1960	13,938	28,231	31,570	31,043	104,782
61	7,622	25,349	28,470	16,012	77,453
62	19,521	38,090	37,550	33,983	129,144
63	10,677	28,509	25,280	9,084	73,550
64	7	1,646	4,062	3,280	8,995
65	4,125	3,900	145	4,582	12,752
66	21,305	21,097	7,854	24,500	74,756
67	4,797	10,891	15,309	5,413	36,410
68	10,716	17,830	16,526	22,287	67,359
69	22,400	47,271	27,460	26,828	123,959
1970	31,946	51,700	35,680	20,478	139,804
71	12,072	22,062	27,300	7,697	69,131
72	7,770	9,568	13,446	19,465	50,249
73	9,757	32,995	22,680	18,888	84,320
74	23,342	52,182	34,490	40,105	150,119
75	22,577	56,010	36,830	20,945	136,362
76	16,542	67,450	43,750	18,346	146,088
77	9,478	21,300	22,790	6,763	60,331
1978	9,645	9,676	10,292	9,274	38,887
Totals	314,193	649,516	537,561	455,722	1,956,992
Averages	11.221	23.197	19,199	16,276	69,893

In the development of a new allocation procedure, the history of the period 1951-1978 was studied in some detail by the Federal agencies. It was felt that their studies were not detailed enough and did not fully recognize all of the aspects of the historic operating period. More specifically, it was felt that the Federal agencies did not recognize the importance of the unused U.S. allocation water. Accordingly, a detailed year-by-year analysis was made of the operations during the historic period. Summary sheets giving the important operational parameters and management decisions are included in this report for each year of the historic period. Additionally, some of these data have been tabulated and extrapolated in the body of the narrative report.

In summary, it is felt that the allocation of available waters in the historic period was fairly made between the U.S. users and the Republic of Mexico. The U.S. users left 1,404,560 acre-feet of their allocated water unused. This was 15.70% of their total allocation during the historic period. Computing this water as water left in storage at the end of the irrigation season the unused U.S. allocation becomes 2,158,432 acre-feet. Since the unused U.S. allocation was re-allocated the following year to all users, Mexico enjoyed a very considerable advantage totaling more than 2 years full treaty allocation over the historic period. Adding the underused allocation of all users computed as storage to the storage release at Caballo Dam, the theoretical amount that would have been released for a full allocation and delivery would have exceeded 790,000 acre-feet in 8 of the 10 years of full allocation in the historic period. Recognizing that if the unused storage water had in fact been released, the operating efficiency would have improved somewhat to the end that approximately 790,000 a.f. storage probably would be barely adequate for a full or normal supply of water to the respective users.

In conclusion, it is felt that this study firmly establishes the fact that U.S. users left substantial amounts of allocation water in storage to be re-allocated to all users in following years and to the considerable benefit of Mexico. It also precludes the incorporation of the unused U.S. allocation into the new allocation procedures that will be formulated for subsequent water-short years. Finally, it establishes a rationale for reserving future unused U.S. allocation water that may be held in storage for U.S. needs in water-short years.

STORAGE SYSTEM ANALYSIS

For Year 1951

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>114,128</u>
Storage, 12/31 preceding year	<u>329,700</u>
Max. Storage <u>330,100</u> Date <u>Jan. 1</u>	
Min. Storage <u>17,600</u> Date <u>Sept. 12</u>	
Storage, 12/31 current year	<u>36,500</u>
Outflow, Rio Grande below Elephant Butte	<u>428,695</u>
Reservoir gains +, losses -	<u>+21,367</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>428,695</u>
Storage, 12/31 preceding year	<u>66,970</u>
Max. Storage <u>172,590</u> Date <u>March 11</u>	
Min. Storage <u>4,220</u> Date <u>Sept. 12</u>	
Storage, 12/31 current year	<u>15,300</u>
Outflow, Rio Grande below Caballo Dam	<u>469,313</u>
Delivered to Bonita Lateral	<u>1,426</u>
Reservoir gains +, losses -	<u>- 9,626</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES -	<u>+ 11,741</u>
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OPERATIONAL ANALYSIS

For Year 1951

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial March 6 Combined Storage 460,850

Interim Conservation Close Down:

Close _____ Open _____

Close _____ Open _____

Final Sept. 12 Combined Storage 21,820

Total Allocation Release from Caballo Reservoir.....469,000

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	20,958	0	20,958	6.68
April	65,310	2,030	67,340	21.46
May	17,184	5,260	22,444	7.15
June	26,325	7,310	33,635	10.72
July	56,813	8,500	65,313	20.81
Aug.	64,442	9,940	74,382	23.70
Sept.	29,731	18.6	29,749.6	9.48
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	280,763	33,058.6	313,821.6	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1951

Acre Feet

ALLOTMENT:

Initial 1.00 a.f./ac. Date Nov. 1, 1950

Final 1.75 a.f./ac. Date July 5, 1951

ALLOCATION:

United States Users

159,650 ac. X 1.75 a.f./ac. 279,388

Mexico

1.75 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 34,721

Total 314,109

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States + 1,375

Mexico - 1,662.4

Total - 287.4

ALLOCATION/CHARGED SUMMARY

For Year 1951

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

313,821.6 / 469,000 X 100 66.91 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S.	+ 1,375	/	.6691	=....	+ 2,055
Mexico	- 1,662.4	/	.6691	=....	- 2,485
Total	- 287.4	/	.6691	=....	- 430

REMARKS:

This was the first year that allocation procedures were employed on the Rio Grande Project. Both reservoirs were virtually drained at the end of the irrigation season. The allocation/use relationship was extremely close. In fact, the 13,350 acre-feet received into Elephant Butte during August probably permitted the final deliveries of allocated water. A default on allocation commitments was almost a reality. The discharge of the Rio Grande at San Marcial was the lowest since records began in 1895.

STORAGE SYSTEM ANALYSIS

For Year 1952

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>1,003,470</u>
Storage, 12/31 preceding year	<u>36,500</u>
Max. Storage <u>423,200</u> Date <u>July 18</u>	
Min. Storage <u>16,300</u> Date <u>March 8</u>	
Storage, 12/31 current year	<u>367,900</u>
Outflow, Rio Grande below Elephant Butte	<u>556,996</u>
Reservoir gains +, losses -	<u>- 115,074</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>556,996</u>
Storage, 12/31 preceding year	<u>15,300</u>
Max. Storage <u>99,730</u> Date <u>June 12 & 13</u>	
Min. Storage <u>2,400</u> Date <u>Sept. 13</u>	
Storage, 12/31 current year	<u>30,300</u>
Outflow, Rio Grande below Caballo Dam	<u>544,734</u>
Delivered to Bonita Lateral	<u>2,288</u>
Reservoir gains +, losses -	<u>+ 55,026</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES -	<u>-110,048</u>
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OPERATIONAL ANALYSIS

For Year 1952

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial March 20 Combined Storage 116,550

Interim Conservation Close Down:

Close _____ Open _____

Close _____ Open _____

Final Sept. 13 Combined Storage 365,800

Total Allocation Release from Caballo Reservoir..... 544,500.

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	3,327	0	3,327	0.88
April	40,427	4,150	44,577	11.82
May	22,992	10,510	33,502	8.88
June	39,162	11,390	50,552	13.41
July	73,779	10,490	84,269	22.35
Aug.	84,379	11,660	96,039	25.47
Sept.	63,153	1,690	64,843	17.19
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	327,219	49,890	377,109	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1952

Acre Feet

ALLOTMENT:

Initial 0.20833 a.f./ac. Date March 7

Final 2.50 a.f./ac. Date Aug. 7

ALLOCATION:

United States Users

159,650 ac. X 2.50 a.f./ac. 399,125

Mexico

2.50 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 49,602

Total 448,727

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States -71,906

Mexico + 288

Total -71,618

ALLOCATION/CHARGED SUMMARY

For Year 1952

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

377,109 / 544,500 X 100 69.26 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S. -71,906 / .6926 = -103,820

Mexico + 288 / .6926 = + 416

Total -71,618 / .6926 = -103,404

REMARKS:

The fact that a full allocation was not made in 1952 probably reflects undue caution by the management of the Rio Grande Project. A major portion of the annual run-off was received into Elephant Butte Reservoir by the end of June. It is interesting to note that substantial amounts of allocation water were left in storage by United States users.

STORAGE SYSTEM ANALYSIS

For Year 1953

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>260,522</u>
Storage, 12/31 preceding year	<u>367,900</u>
Max. Storage <u>378,000</u> Date <u>Jan 3</u>	
Min. Storage <u>87,600</u> Date <u>Sept 11-15</u>	
Storage, 12/31 current year	<u>110,600</u>
Outflow, Rio Grande below Elephant Butte	<u>539,594</u>
Reservoir gains +, losses -	<u>+ 21,772</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>539,594</u>
Storage, 12/31 preceding year	<u>30,300</u>
Max. Storage <u>174,190</u> Date <u>March 11</u>	
Min. Storage <u>4,300</u> Date <u>Sept. 12</u>	
Storage, 12/31 current year	<u>14,100</u>
Outflow, Rio Grande below Caballo Dam	<u>529,137</u>
Delivered to Bonita Lateral	<u>2,445</u>
Reservoir gains +, losses -	<u>- 24,212</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES - - 2,440

OPERATIONAL ANALYSIS

For Year 1953

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial March 10 Combined Storage 485,830

Interim Conservation Close Down:

Close _____ Open _____

Close _____ Open _____

Final Sept. 12 Combined Storage 91,900

Total Allocation Release from Caballo Reservoir..... 528,900

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	31,501	0	31,501	9.11
April	61,995	4,150	66,145	19.13
May	18,408	8,320	26,728	7.73
June	34,000	5,200	39,200	11.33
July	45,359	8,000	53,359	15.43
Aug.	66,537	8,970	75,507	21.83
Sept.	50,287	3,120	53,407	15.44
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	308,087	37,760	345,847	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1953

Acre Feet

ALLOTMENT:

Initial 1.00 a.f./ac. Date Feb. 12

Final 1.90 a.f./ac. Date Aug 17

ALLOCATION:

United States Users

159,650 ac. X 1.90 a.f./ac. 303,335

Mexico

1.90 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 37,697

Total 341,032

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States + 4,752

Mexico + 63

Total + 4,815

ALLOCATION/CHARGED SUMMARY

For Year 1953

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

345,847 / 528,900 X 100 65.39 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S.	+4,752	/	.6539	=....	+ 7,267
Mexico	+ 63	/	.6539	=....	+ 96
Total	+4,815	/	.6539	=....	+ 7,363

REMARKS:

Allocations for 1953 were fairly close. The over-deliveries to United States users probably represented "non-allotment" deliveries of water derived from ephemeral tributaries entering the Rio Grande below Caballo Dam. Subtracting 30,000 acre-feet for estimated sediment encroachment in both reservoirs and applying the operating efficiency factor, there would have been about 40,476 acre-feet of water that could have been delivered to users when the gates at Caballo Dam were closed on Sept. 12.

STORAGE SYSTEM ANALYSIS

For Year 1954

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>215,640</u>
Storage, 12/31 preceding year	<u>110,600</u>
Max. Storage <u>173,700</u> Date <u>March 6 & 7</u>	
Min. Storage <u>9,900</u> Date <u>Aug. 6</u>	
Storage, 12/31 current year	<u>97,600</u>
Outflow, Rio Grande below Elephant Butte	<u>244,944</u>
Reservoir gains +, losses -	<u>+ 16,304</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>244,944</u>
Storage, 12/31 preceding year	<u>14,100</u>
Max. Storage <u>37,790</u> Date <u>March 22</u>	
Min. Storage <u>8,640</u> Date <u>Sept. 5</u>	
Storage, 12/31 current year	<u>17,500</u>
Outflow, Rio Grande below Caballo Dam	<u>244,135</u>
Delivered to Bonita Lateral	<u>1,324</u>
Reservoir gains +, losses -	<u>+ 3,915</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES - + 20,219

OPERATIONAL ANALYSIS

For Year 1954

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial March 20 Combined Storage 194,730

Interim Conservation Close Down:

Close Aug 21 Open Aug. 28

Close Open

Final Sept. 5 Combined Storage 43,440

Total Allocation Release from Caballo Reservoir..... 244,030

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	1,395	0	1,395	1.28
April	34,010	4,190	38,200	35.09
May	8,503	4,180	12,683	11.65
June	13,066	0	13,066	12.00
July	17,715	1,700	19,415	17.83
Aug.	16,727	77	16,804	15.44
Sept.	7,309	0	7,309	6.71
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	98,725	10,147	108,872	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1954

Acre Feet

ALLOTMENT:

Initial 0.4167 a.f./ac. Date March 1

Final 0.50 a.f./ac. Date June 21

ALLOCATION:

United States Users

159,650 ac. X 0.50 a.f./ac. 79,825

Mexico

0.50 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 9,920

Total 89,745

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States + 18,900

Mexico + 227

Total + 19,127

ALLOCATION/CHARGED SUMMARY

For Year 1954

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

108,872 / 244,030 X 100 44.61 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S.	<u>+18,900</u>	/	<u>.4461</u>	=....	<u>+ 42,367</u>
Mexico	<u>+ 227</u>	/	<u>.4461</u>	=....	<u>+ 509</u>
Total	<u>+19,127</u>	/	<u>.4461</u>	=....	<u>+ 42,876</u>

REMARKS:

Probably 1954 was over allocated, but the situation was saved by late summer inflow into Elephant Butte and Caballo Reservoirs. The minimum storage ever recorded since storage began in 1915 in Elephant Butte Reservoir occurred on Aug. 6 with a storage of only 9,900 acre-feet. The water announcement of June 21 stated that no guarantees could be made for delivery after Aug. 1. The over-deliveries to United States users were derived from arroyo water and return flow when gates at Caballo Dam were closed.

STORAGE SYSTEM ANALYSIS

For Year 1955

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>264,220</u>
Storage, 12/31 preceding year	<u>97,600</u>
Max. Storage <u>160,800</u> Date <u>March 19</u>	
Min. Storage <u>62,200</u> Date <u>July 25</u>	
Storage, 12/31 current year	<u>155,000</u>
Outflow, Rio Grande below Elephant Butte	<u>212,333</u>
Reservoir gains +, losses -	<u>+ 5,513</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>212,333</u>
Storage, 12/31 preceding year	<u>17,500</u>
Max. Storage <u>29,810</u> Dates <u>July 31</u> <u>Aug. 1</u>	
Min. Storage <u>3,820</u> Date <u>Sept. 12</u>	
Storage, 12/31 current year	<u>9,100</u>
Outflow, Rio Grande below Caballo Dam	<u>219,127</u>
Delivered to Bonita Lateral	<u>1,176</u>
Reservoir gains +, losses -	<u>- 430</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES - + 5,083

OPERATIONAL ANALYSIS

For Year 1955

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial March 20 Combined Storage 180,460

Interim Conservation Close Down:

Close May 5 Open June 6

Close _____ Open _____

Final Sept. 14 Combined Storage 111,470

Total Allocation Release from Caballo Reservoir..... 219,060

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	2,240	0	2,240	2.56
April	14,667	4,140	18,807	21.50
May	2,736	0	2,736	3.13
June	5,373	0	5,373	6.14
July	11,926	856	12,782	14.61
Aug.	15,163	859	16,022	18.31
Sept.	27,199	2,330	29,529	33.75
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	79,304	8,185	87,489	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1955

Acre Feet

ALLOTMENT:

Initial 0.2083 a.f./ac. Date March 7

Final 0.4167 a.f./ac. Date Sept. 3

ALLOCATION:

United States Users

159,650 ac. X 0.4167 a.f./ac. 66,526

Mexico

0.4167 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 8,268

Total 74,794

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States + 12,778

Mexico - 83

Total + 12,695

ALLOCATION/CHARGED SUMMARY

For Year 1955

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

87,489 / 219,060 X 100 39.94 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S.	<u>+12,778</u>	/	<u>.3994</u>	=....	<u>+ 31,993</u>
Mexico	<u>- 83</u>	/	<u>.3994</u>	=....	<u>- 208</u>
Total	<u>+12,695</u>	/	<u>.3994</u>	=....	<u>+ 31,785</u>

REMARKS:

This was a very critical year. However, 85,220 acre-feet were received into Elephant Butte Reservoir during August. It is somewhat surprising that the allocation was not raised higher than it actually was. There were numerous rains on the Project beginning in July which caused the over-delivery to U.S. users who used "non-allotment" arroyo water and return flow during periods when the gates at Caballo Dam were closed.

STORAGE SYSTEM ANALYSIS

For Year 1956

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>136,283</u>
Storage, 12/31 preceding year	<u>137,500</u>
Max. Storage <u>211,800</u> Date <u>March 12</u>	
Min. Storage <u>22,800</u> Date <u>Sept. 10 & 11</u>	
Storage, 12/31 current year	<u>32,900</u>
Outflow, Rio Grande below Elephant Butte	<u>253,432</u>
Reservoir gains +, losses -	<u>+ 12,549</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>253,432</u>
Storage, 12/31 preceding year	<u>9,100</u>
Max. Storage <u>18,940</u> Date <u>March 18</u>	
Min. Storage <u>3,540</u> Date <u>Sept. 10</u>	
Storage, 12/31 current year	<u>6,800</u>
Outflow, Rio Grande below Caballo Dam	<u>246,140</u> ✓
Delivered to Bonita Lateral	<u>1,298</u>
Reservoir gains +, losses -	<u>- 8,294</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES - + 4,255

OPERATIONAL ANALYSIS

For Year 1956

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial March 18 Combined Storage 224,640

Interim Conservation Close Down:

Close May 2 Open June 5

Close _____ Open _____

Final Sept. 10 Combined Storage 26,340

Total Allocation Release from Caballo Reservoir..... 246,000

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	4,544	0	4,544	5.99
April	25,121	6,330	31,451	41.47
May	2,852	339	3,191	4.21
June	7,883	0	7,883	10.39
July	10,070	860	10,930	14.41
Aug.	8,658	0	8,658	11.42
Sept.	8,848	335	9,183	12.11
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	7,840	7,840	0
Total	67,976	7,864	75,840	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1956

Acre Feet

ALLOTMENT:

Initial 0.3333 a.f./ac. Date March 5
 Final 0.3917 a.f./ac. Date Aug. 24

ALLOCATION:

United States Users

159,650 ac. X 0.3917 a.f./ac. 62,535

Mexico

0.3917 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 7,772

Total 70,307

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States + 5,441

Mexico + 92

Total + 5,533

ALLOCATION/CHARGED SUMMARY

For Year 1956

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

75,840 / 246,000 X 100 30.83 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S.	+	<u>5,441</u>	/	<u>.3083</u>	=....	<u>+ 17,648</u>
Mexico	+	<u>92</u>	/	<u>.3083</u>	=....	<u>+ 298</u>
Total	+	<u>5,533</u>	/	<u>.3083</u>	=....	<u>+ 17,946</u>

REMARKS:

This year, again, was very critical. The allocation was very close and, in fact, may be considered as total. The over-deliveries to United States users were from "non-allotment" arroyo water and return flows.

STORAGE SYSTEM ANALYSIS

For Year 1957

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>1,239,800</u>
Storage, 12/31 preceding year	<u>32,900</u>
Max. Storage <u>776,100</u> Date <u>Dec. 31</u>	
Min. Storage <u>33,100</u> Date <u>Jan. 1</u>	
Storage, 12/31 current year	<u>776,000</u>
Outflow, Rio Grande below Elephant Butte	<u>384,344</u>
Reservoir gains +, losses -	<u>- 112,356</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>384,344</u>
Storage, 12/31 preceding year	<u>6,800</u>
Max. Storage <u>24,880</u> Date <u>Aug. 11</u>	
Min. Storage <u>2,600</u> Date <u>Sept. 22</u>	
Storage, 12/31 current year	<u>13,600</u>
Outflow, Rio Grande below Caballo Dam	<u>397,614</u>
Delivered to Bonita Lateral	<u>907</u>
Reservoir gains +, losses -	<u>+ 20,977</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES -	<u>- 91,379</u>
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OPERATIONAL ANALYSIS

For Year 1957

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial March 20 Combined Storage 88,970

Interim Conservation Close Down:

Close April 30 Open June 5

Close Open

Final Sept. 22 Combined Storage 555,800

Total Allocation Release from Caballo Reservoir..... 397,300

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	737	0	737	0.40
April	7,613	2,020	9,633	5.17
May	0	0	0	0
June	10,587	2,580	13,167	7.06
July	31,956	5,800	37,756	20.25
Aug.	58,534	7,740	66,274	35.54
Sept.	53,753	5,150	58,903	31.58
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	163,180	23,290	186,470	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1957

Acre Feet

ALLOTMENT:

Initial 0.10 a.f./ac. Date March 8

Final 1.1667 a.f./ac. Date Aug. 6

ALLOCATION:

United States Users

159,650 ac. X 1.1667 a.f./ac. 186,264

Mexico

1.1667 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 23,148

Total 209,412

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States - 23,084

Mexico + 142

Total - 22,942

ALLOCATION/CHARGED SUMMARY

For Year 1957

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

186,470 / 397,300 X 100 46.93 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S. - 23,084 / .4693 =..... - 49,188

Mexico + 142 / .4693 =..... + 303

Total - 22,942 / .4693 =..... - 48,885

REMARKS:

After four years of unprecedented minimum inflow into Elephant Butte Reservoir, a large volume of water was received into storage. The spring run-off was somewhat late, however. The allocation of water was surprisingly low in view of mid-summer storage. More surprising was the fact that the United States users did not use all of their allocation.

STORAGE SYSTEM ANALYSIS

For Year 1958

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>1,291,860</u>
Storage, 12/31 preceding year	<u>776,000</u>
Max. Storage <u>1,216,700</u> Date <u>June 25</u>	
Min. Storage <u>690,100</u> Date <u>April 13 & 14</u>	
Storage, 12/31 current year	<u>988,800</u>
Outflow, Rio Grande below Elephant Butte	<u>892,300</u>
Reservoir gains +, losses -	<u>- 186,760</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>892,300</u>
Storage, 12/31 preceding year	<u>11,880</u>
Max. Storage <u>146,000</u> Date <u>Dec. 31</u>	
Min. Storage <u>11,880</u> Date <u>Jan. 1</u>	
Storage, 12/31 current year	<u>146,000</u>
Outflow, Rio Grande below Caballo Dam	<u>736,645</u>
Delivered to Bonita Lateral	<u>920</u>
Reservoir gains +, losses -	<u>- 20,615</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES -	<u>-207,375</u>
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OPERATIONAL ANALYSIS

For Year 1958

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial March 1 Combined Storage 859,890

Interim Conservation Close Down:

Close _____ Open _____

Close _____ Open _____

Final Sept. 25 Combined Storage 996,970

Total Allocation Release from Caballo Reservoir..... 736,100

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	30,407	0	30,407	6.58
April	64,472	4,890	69,362	15.02
May	40,683	13,260	53,943	11.68
June	66,312	13,060	79,372	17.18
July	83,836	9,650	93,486	20.24
Aug.	77,322	9,600	86,922	18.82
Sept.	38,796	9,590	48,386	10.48
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	401,828	60,050	461,878	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1958

Acre Feet

ALLOTMENT:

Initial 1.75 a.f./ac. Date Feb. 14

Final 4.00 a.f./ac. Date Aug. 4

ALLOCATION:

United States Users

159,650 ac. X 3.0241 a.f./ac. 482,798

Mexico

3.0241 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 60,000

Total 542,798

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States - 80,970

Mexico + 50

Total - 80,920

ALLOCATION/CHARGED SUMMARY

For Year 1958

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

461,878 / 736,100 X 100 62.75 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S.	<u>-80,970</u>	/	<u>.6275</u>	=....	<u>-129,036</u>
Mexico	<u>+ 50</u>	/	<u>.6275</u>	=....	<u>+ 80</u>
Total	<u>-80,920</u>	/	<u>.6275</u>	=....	<u>-128,956</u>

REMARKS:

The small initial allotment, in view of the large amount of project storage available at the beginning of the season, would appear to be extremely conservative. However, the management of the Rio Grande Project was largely influenced by the Connover Report (U.S.G.S., W.S.P. No. 1230) which held that extremely large amounts of surface water would be required for a period of several years to replenish ground water that had been pumped. This postulation was later proven to be invalid. Also note that the allocation to United States users was finally set at 4.00 a.f./ac. This amount of water was not used; in fact, the United States users did not use all of the allocation computed on the basis of 3.0241 a.f./ac.

STORAGE SYSTEM ANALYSIS

For Year 1959

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>247,460</u>
Storage, 12/31 preceding year	<u>988,800</u>
Max. Storage <u>988,800</u> Date <u>Jan. 1</u>	
Min. Storage <u>516,100</u> Date <u>Oct. 26, 27, & 28</u>	
Storage, 12/31 current year	<u>586,400</u>
Outflow, Rio Grande below Elephant Butte	<u>615,770</u>
Reservoir gains +, losses -	<u>- 34,090</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>615,770</u>
Storage, 12/31 preceding year	<u>146,000</u>
Max. Storage <u>244,820</u> Date <u>March 2</u>	
Min. Storage <u>21,410</u> Date <u>Sept 14</u>	
Storage, 12/31 current year	<u>60,600</u>
Outflow, Rio Grande below Caballo Dam	<u>687,145</u>
Delivered to Bonita Lateral	<u>1,217</u>
Reservoir gains +, losses -	<u>- 12,808</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES -	<u>- 46,898</u>
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OPERATIONAL ANALYSIS

For Year 1959

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial March 2 Combined Storage 1,186,220

Interim Conservation Close Down:

Close _____ Open _____

Close _____ Open _____

Final Sept. 15 Combined Storage 577,710

Total Allocation Release from Caballo Reservoir..... 686,400

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	55,228	0	55,228	11.88
April	50,667	10,520	61,187	13.16
May	37,328	10,540	47,868	10.29
June	62,830	10,970	73,800	15.87
July	80,136	12,190	92,326	19.86
Aug.	68,514	11,770	80,284	17.27
Sept.	50,158	4,120	54,278	11.67
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	404,861	60,110	464,971	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1959

Acre Feet

ALLOTMENT:

Initial 3.00 a.f./ac. Date Feb. 12

Final 3.50 a.f./ac. Date Aug. 3

ALLOCATION:

United States Users

159,650 ac. X 3.0241 a.f./ac. 482,798

Mexico

3.0241 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 60,000

Total 542,798

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States - 77,937

Mexico + 110

Total - 77,827

ALLOCATION/CHARGED SUMMARY

For Year 1959

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

464,971 / 686,400 X 100 67.74 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S. - 77,937 / .6774 =.... - 115,053

Mexico + 110 / .6774 =.... + 162

Total - 77,827 / .6774 =.... - 114,891

REMARKS:

Although the allocation to United States users was raised to 3.50 a.f./ac. less than the allocation based upon 3.0241 a.f./ac. was used. In fact, substantial amounts of allocated waters were unused by United States users.

STORAGE SYSTEM ANALYSIS

For Year 1960

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>551,555</u>
Storage, 12/31 preceding year	<u>586,400</u>
Max. Storage <u>595,400</u> Date <u>May 2</u>	
Min. Storage <u>384,700</u> Date <u>Oct. 10-13 incl.</u>	
Storage, 12/31 current year	<u>439,600</u>
Outflow, Rio Grande below Elephant Butte	<u>666,956</u>
Reservoir gains +, losses -	<u>- 31,399</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>666,956</u>
Storage, 12/31 preceding year	<u>60,600</u>
Max. Storage <u>145,860</u> Date <u>June 15</u>	
Min. Storage <u>1,460</u> Date <u>Sept. 15 & 16</u>	
Storage, 12/31 current year	<u>16,400</u>
Outflow, Rio Grande below Caballo Dam	<u>705,531</u>
Delivered to Bonita Lateral	<u>1,166</u>
Reservoir gains +, losses -	<u>- 4,459</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES -	<u>-35,858</u>
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OPERATIONAL ANALYSIS

For Year 1960

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial March 2 Combined Storage 715,320

Interim Conservation Close Down:

Close _____ Open _____

Close _____ Open _____

Final Sept 16 Combined Storage 388,660

Total Allocation Release from Caballo Reservoir..... 705,100.

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	56,411	0	56,411	12.26
April	55,475	8,120	63,595	13.82
May	37,779	11,350	49,129	10.67
June	55,537	11,070	66,607	14.47
July	53,226	11,610	64,836	14.09
Aug.	81,993	12,620	94,613	20.56
Sept.	59,481	5,550	65,031	14.13
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	399,902	60,320	460,222	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1960

Acre Feet

ALLOTMENT:

Initial 2.25 a.f./ac. Date Feb. 15

Final 3.25 a.f./ac. Date Aug. 22

ALLOCATION:

United States Users

159,650 ac. X 3.0241 a.f./ac. 482,798

Mexico

3.0241 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 60,000

Total 542,798

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States - 82,896

Mexico + 320

Total - 82,576

ALLOCATION/CHARGED SUMMARY

For Year 1960

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

460,222 / 705,100 X 100 65.27 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S.	- 82,896	/	.6527	=....	-127,005
Mexico	+ 320	/	.6527	=....	+ 490
Total	- 82,576	/	.6527	=....	-126,515

REMARKS:

It is somewhat surprising that the initial allocation was less than 3.0241 a.f./ac. For the third consecutive year the final allocation exceeded the "normal" or "full" allocation of 3.0241 a.f./ac. to U.S. users. Again the United States users, collectively speaking, did not avail themselves of this extra allocation and did in fact use substantially less water than an amount based upon the normal full allocation, i.e. 3.0241 a.f./ac.

STORAGE SYSTEM ANALYSIS

For Year 1961

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>544,490</u>
Storage, 12/31 preceding year	<u>427,800</u>
Max. Storage <u>452,200</u> Date <u>Jan. 31</u>	
Min. Storage <u>183,800</u> Date <u>Sept. 5</u>	
Storage, 12/31 current year	<u>360,900</u>
Outflow, Rio Grande below Elephant Butte	<u>576,769</u>
Reservoir gains +, losses -	<u>- 34,621</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>576,769</u>
Storage, 12/31 preceding year	<u>16,400</u>
Max. Storage <u>114,050</u> Date <u>March 12</u>	
Min. Storage <u>8,640</u> Date <u>Sept. 9</u>	
Storage, 12/31 current year	<u>19,600</u>
Outflow, Rio Grande below Caballo Dam	<u>561,667</u>
Delivered to Bonita Lateral	<u>1.043</u>
Reservoir gains +, losses -	<u>-10,859</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES -	<u>-45,480</u>
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OPERATIONAL ANALYSIS

For Year 1961

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial March 10 Combined Storage 498,410

Interim Conservation Close Down:

Close _____ Open _____

Close _____ Open _____

Final Sept. 10 Combined Storage 194,740Total Allocation Release from Caballo Reservoir..... 561,300

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	36,319	0	36,319	9.79
April	52,596	8,790	61,386	16.55
May	25,413	10,890	36,303	9.79
June	41,033	9,500	50,533	13.63
July	59,115	10,500	69,615	18.78
Aug.	61,429	8,930	70,359	18.98
Sept.	46,265	0	46,265	12.48
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	322,170	48,610	370,780	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1961

Acre Feet

ALLOTMENT:

Initial 1.25 a.f./ac. Date Feb. 20

Final 2.45 a.f./ac. Date Aug. 14

ALLOCATION:

United States Users

159,650 ac. X 2.45 a.f./ac. 391,142

Mexico

2.45 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 48,610

Total 439,752

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States - 68,972

Mexico 0

Total - 68,972

ALLOCATION/CHARGED SUMMARY

For Year 1961

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

370,780 / 561,300 X 100 66.06 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S.	- 68,972	/	.6606	=.....	-104,408
Mexico	0	/	.6606	=.....	0
Total	- 68,972	/	.6606	=.....	-104,408

REMARKS:

The allocation for 1961 was somewhat conservative. Fairly good inflow in terms of storage was received into Elephant Butte Reservoir during August and September. The storage at the end of the irrigation season seems high for a short allocation year, but viewed in terms of the large amount of unused allocation plus the late summer inflows to both reservoirs, the allocation determination does not look too out of context with the conditions that existed.

STORAGE SYSTEM ANALYSIS

For Year 1962

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>745,930</u>
Storage, 12/31 preceding year	<u>360,900</u>
Max. Storage <u>460,900</u> Date <u>May 23</u>	
Min. Storage <u>219,300</u> Date <u>Sept. 6</u>	
Storage, 12/31 current year	<u>390,300</u>
Outflow, Rio Grande below Elephant Butte	<u>691,911</u>
Reservoir gains +, losses -	<u>- 24,619</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>691,911</u>
Storage, 12/31 preceding year	<u>19,600</u>
Max. Storage <u>142,960</u> Date <u>June 8</u>	
Min. Storage <u>19,610</u> Date <u>Jan. 1</u>	
Storage, 12/31 current year	<u>37,600</u>
Outflow, Rio Grande below Caballo Dam	<u>651,949</u>
Delivered to Bonita Lateral	<u>965</u>
Reservoir gains +, losses -	<u>- 20,997</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES -	<u>- 45,616</u>
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OPERATIONAL ANALYSIS

For Year 1962

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial March 5 Combined Storage 492,780

Interim Conservation Close Down:

Close _____ Open _____

Close _____ Open _____

Final Sept. 11 Combined Storage 240,550

Total Allocation Release from Caballo Reservoir..... 651,527

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	51,012	0	51,012	10.79
April	64,476	12,383	76,859	16.26
May	29,775	12,528	42,303	8.95
June	68,329	9,896	78,225	16.55
July	74,229	11,225	85,454	18.07
Aug.	82,101	11,215	93,316	19.74
Sept.	42,750	2,810	45,560	9.64
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	412,672	60,057	472,729	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1962

Acre Feet

ALLOTMENT:

Initial 1.75 a.f./ac. Date Feb. 20

Final 3.25 a.f./ac. Date Aug. 22

ALLOCATION:

United States Users

159,650 ac. X 3.0241 a.f./ac. 482,798

Mexico

3.0241 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 60,000

Total 542,798

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States - 70,126

Mexico + 57

Total - 70,069

ALLOCATION/CHARGED SUMMARY

For Year 1962

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

472,729 / 651,527 X 100 72.56 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S.	- 70,126	/	.7256	=....	- 96,646
Mexico	+ 57	/	.7256	=....	+ 79
Total	- 70,069	/	.7256	=....	- 96,567

REMARKS:

For the fourth time in the history of allocations on the Rio Grande Project, an allocation was made exceeding the 3.0241 a.f./ac. limit which is considered as a full supply. Again, the United States users did not use their allocation as computed on the 3.0241 a.f./ac basis.

STORAGE SYSTEM ANALYSIS

For Year 1963

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>266,965</u>
Storage, 12/31 preceding year	<u>390,300</u>
Max. Storage <u>432,800</u> Date <u>Jan. 31</u>	
Min. Storage <u>66,500</u> Date <u>Aug. 31</u>	
Storage, 12/31 current year	<u>112,000</u>
Outflow, Rio Grande below Elephant Butte	<u>509,310</u>
Reservoir gains +, losses -	<u>- 35,955</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>509,310</u>
Storage, 12/31 preceding year	<u>37,600</u>
Max. Storage <u>103,790</u> Date <u>May 31</u>	
Min. Storage <u>22,910</u> Date <u>April 2</u>	
Storage, 12/31 current year	<u>31,700</u>
Outflow, Rio Grande below Caballo Dam	<u>517,177</u>
Delivered to Bonita Lateral	<u>914</u>
Reservoir gains +, losses -	<u>+ 2,881</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES - - 33,074

OPERATIONAL ANALYSIS

For Year 1963

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial March 5 Combined Storage 518,420

Interim Conservation Close Down:

Close _____ Open _____

Close _____ Open _____

Final Sept. 10 Combined Storage 98,110

Total Allocation Release from Caballo Reservoir..... 516,715

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	63,253	0	63,253	17.98
April	50,780	10,465	61,245	17.41
May	20,872	10,515	31,387	8.92
June	38,915	10,719	49,634	14.11
July	58,176	7,994	66,170	18.81
Aug.	53,119	0	53,119	15.10
Sept.	26,994	0	26,994	7.67
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	312,109	39,693	351,802	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1963

Acre Feet

ALLOTMENT:

Initial 1.85 a.f./ac. Date Feb. 18

Final 2.00 a.f./ac. Date June 27

ALLOCATION:

United States Users

159,650 ac. X 2.00 a.f./ac. 319,300

Mexico

2.00 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 39,681

Total 358,981

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States - 7,191

Mexico + 12

Total - 7,179

ALLOCATION/CHARGED SUMMARY

For Year 1963

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

$$\frac{351,802}{516,715} \times 100 = 68.08\%$$

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S.	-	7,191	/	.6808	=....	-	10,563
Mexico	+	12	/	.6808	=....	+	18
Total	-	7,179	/	.6808	=....	-	10,545

REMARKS:

The allocation for this year would appear to be conservative. Subtracting the unused United States allocation from storage at the end of the irrigation season and considering the inflow to storage reservoirs from summer rains, there could have been a small increase in the allocation by about mid-August.

STORAGE SYSTEM ANALYSIS

For Year 1964

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>169,042</u>
Storage, 12/31 preceding year	<u>112,000</u>
Max. Storage <u>168,600</u> Date <u>March 15 & 16</u>	
Min. Storage <u>42,100</u> Date <u>Sept. 9</u>	
Storage, 12/31 current year	<u>87,300</u>
Outflow, Rio Grande below Elephant Butte	<u>183,415</u>
Reservoir gains +, losses -	<u>- 10,327</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>183,415</u>
Storage, 12/31 preceding year	<u>31,700</u>
Max. Storage <u>34,850</u> Date <u>March 14</u>	
Min. Storage <u>3,720</u> Date <u>Sept. 10</u>	
Storage, 12/31 current year	<u>11,100</u>
Outflow, Rio Grande below Caballo Dam	<u>206,085</u>
Delivered to Bonita Lateral	<u>1,006</u>
Reservoir gains +, losses -	<u>+ 3,076</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES -	<u>- 7,251</u>
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OPERATIONAL ANALYSIS

For Year 1964

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial March 15 Combined Storage 203,000

Interim Conservation Close Down:

Close April 26 Open June 5

Close _____ Open _____

Final Sept 10 Combined Storage 46,020

Total Allocation Release from Caballo Reservoir..... 205,600

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	6,840	0	6,840	10.46
April	13,630	4,971	18,601	28.46
May	0	0	0	0
June	5,088	0	5,088	7.78
July	7,839	845	8,684	13.28
Aug.	10,717	837	11,554	17.68
Sept.	14,604	0	14,604	22.34
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	58,718	6,653	65,371	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1964

Acre Feet

ALLOTMENT:

Initial 0.25 a.f./ac. Date March 9

Final 0.3333 a.f./ac. Date Aug. 13

ALLOCATION:

United States Users

159,650 ac. X 0.3333 a.f./ac. 53,211

Mexico

0.3333 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 6,613

Total 59,824

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States + 5,507

Mexico + 40

Total + 5,547

ALLOCATION/CHARGED SUMMARY

For Year 1964

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

65,371 / 205,600 X 100 31.80 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S.	+	5,507	/	.3180	=....	+ 17,317
Mexico	+	40	/	.3180	=....	+ 126
Total	+	5,547	/	.3180	=....	+ 17,443

REMARKS:

This was a very critical year. The final allocation made on Aug. 13, is the lowest final allocation during the period 1951-1978. The remaining storage at the close of the irrigation season, considering the operating efficiency, was too small for a meaningful re-allocation. The use, over allocation, by United States users was water derived from return flow, operational waste, and possibly arroyo water.

STORAGE SYSTEM ANALYSIS

For Year 1965

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>1,036,340</u>
Storage, 12/31 preceding year	<u>87,300</u>
Max. Storage <u>517,200</u> Date <u>Dec. 31</u>	
Min. Storage <u>88,200</u> Date <u>Jan. 1</u>	
Storage, 12/31 current year	<u>517,200</u>
Outflow, Rio Grande below Elephant Butte	<u>521,554</u>
Reservoir gains +, losses -	<u>- 84,886</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>521,554</u>
Storage, 12/31 preceding year	<u>11,100</u>
Max. Storage <u>55,130</u> Date <u>June 1</u>	
Min. Storage <u>10,000</u> Date <u>Sept. 17</u>	
Storage, 12/31 current year	<u>17,700</u>
Outflow, Rio Grande below Caballo Dam	<u>505,613</u>
Delivered to Bonita Lateral	<u>1,048</u>
Reservoir gains +, losses -	<u>- 8,293</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES -	<u>-93,179</u>
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OPERATIONAL ANALYSIS

For Year 1965

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial March 20 Combined Storage 188,080

Interim Conservation Close Down:

Close April 27 Open June 1

Close _____ Open _____

Final Sept. 17 Combined Storage 302,600

Total Allocation Release from Caballo Reservoir..... 505,265

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	1,193	0	1,193	0.45
April	17,058	4,983	22,041	8.25
May	0	0	0	0
June	35,520	7,426	42,946	16.08
July	63,771	10,801	74,572	27.91
Aug.	69,209	10,872	80,081	29.97
Sept.	43,734	2,576	46,310	17.34
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	230,485	36,658	267,143	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1965

Acre Feet

ALLOTMENT:

Initial 0.1667 a.f./ac. Date March 4

Final 1.85 a.f./ac. Date August 6

ALLOCATION:

United States Users

159,650 ac. X 1.85 a.f./ac. 295,352

Mexico

1.85 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 36,705

Total 332,057

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States -64,867

Mexico - 47

Total -64,914

ALLOCATION/CHARGED SUMMARY

For Year 1965

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

267,143 / 505,265 X 100 52.87 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S. -64,867 / .5287 = -122,691

Mexico - 47 / .5287 = - 89

Total -64,914 / .5287 = -122,780

REMARKS:

The extreme drought conditions of 1964 were reversed by a substantial run-off from the watershed snowpack. The initial allocation was 2.00 acre-inches per acre with a conservation shut down during late April and the entire month of May. The spring run-off was received, as generally expected, during the months April through July. The final allocation could have been substantially higher.

STORAGE SYSTEM ANALYSIS

For Year 1966

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>568,830</u>
Storage, 12/31 preceding year	<u>517,200</u>
Max. Storage <u>573,200</u> Date <u>Feb. 1</u>	
Min. Storage <u>258,400</u> Date <u>Sept. 4</u>	
Storage, 12/31 current year	<u>344,000</u>
Outflow, Rio Grande below Elephant Butte	<u>660,609</u>
Reservoir gains +, losses -	<u>- 81,421</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>660,609</u>
Storage, 12/31 preceding year	<u>17,700</u>
Max. Storage <u>156,410</u> Date <u>June 9</u>	
Min. Storage <u>17,890</u> Date <u>Jan. 1</u>	
Storage, 12/31 current year	<u>53,100</u>
Outflow, Rio Grande below Caballo Dam	<u>610,338</u>
Delivered to Bonita Lateral	<u>1,062</u>
Reservoir gains +, losses -	<u>- 13,809</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES -	<u>- 95,230</u>
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OPERATIONAL ANALYSIS

For Year 1966

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial March 5 Combined Storage 632,220

Interim Conservation Close Down:

Close _____ Open _____

Close _____ Open _____

Final Sept. 18 Combined Storage 307,110

Total Allocation Release from Caballo Reservoir..... 609,977

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	30,542	3,173	33,715	9.63
April	57,180	11,587	68,767	19.64
May	23,669	9,622	33,291	9.51
June	40,695	10,355	51,050	14.58
July	48,336	6,075	54,411	15.54
Aug.	62,752	8,000	70,752	20.20
Sept.	37,362	806	38,168	10.90
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	300,536	49,618	350,154	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1966

Acre Feet

ALLOTMENT:

Initial 1.75 a.f./ac. Date Feb. 16

Final 2.50 a.f./ac. Date Aug. 1

ALLOCATION:

United States Users

159,650 ac. X 2.50 a.f./ac. 399,125

Mexico

2.50 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 49,602

Total 448,727

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States - 98,589

Mexico + 16

Total - 98,573

ALLOCATION/CHARGED SUMMARY

For Year 1966

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

350,154 / 609,977 X 100 57.40 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S. - 98,589 / .5740 = -171,758

Mexico + 16 / .5740 = + 28

Total - 98,573 / .5740 = -171,730

REMARKS:

The allocation for this year was conservative. The allocation in terms of quantities delivered to users could have been approximately 70,000 acre-feet higher. The United States users left a substantial amount of allocated water in storage.

STORAGE SYSTEM ANALYSIS

For Year 1967

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>402,810</u>
Storage, 12/31 preceding year	<u>344,000</u>
Max. Storage <u>366,800</u> Date <u>Jan. 26</u>	
Min. Storage <u>122,900</u> Date <u>Aug. 7</u>	
Storage, 12/31 current year	<u>267,100</u>
Outflow, Rio Grande below Elephant Butte	<u>443,820</u>
Reservoir gains +, losses -	<u>- 35,890</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>443,820</u>
Storage, 12/31 preceding year	<u>53,100</u>
Max. Storage <u>108,480</u> Date <u>March 4</u>	
Min. Storage <u>22,860</u> Date <u>Sept. 17</u>	
Storage, 12/31 current year	<u>42,600</u>
Outflow, Rio Grande below Caballo Dam	<u>456,532</u>
Delivered to Bonita Lateral	<u>918</u>
Reservoir gains +, losses -	<u>+ 3,130</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES -	<u>- 32,760</u>
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OPERATIONAL ANALYSIS

For Year 1967

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial Feb. 27 Combined Storage 456,710

Interim Conservation Close Down:

Close _____ Open _____

Close _____ Open _____

Final Sept. 17 Combined Storage 199,860

Total Allocation Release from Caballo Reservoir..... 456,234

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	65,302	6,482	71,784	27.56
April	19,698	10,634	30,332	11.65
May	15,841	7,772	23,613	9.07
June	20,275	0	20,275	7.78
July	33,802	0	33,802	12.98
Aug.	39,850	1,994	41,844	16.07
Sept.	35,830	2,947	38,777	14.89
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	230,598	29,829	260,427	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1967

Acre Feet

ALLOTMENT:

Initial 1.25 a.f./ac. Date Feb. 13
 Final 1.50 a.f./ac. Date Aug. 21

ALLOCATION:

United States Users

159,650 ac. X 1.50 a.f./ac. 239,475

Mexico

1.50 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 29,761

Total 269,236

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States - 8,877

Mexico + 68

Total - 8,809

ALLOCATION/CHARGED SUMMARY

For Year 1967

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

260,427 / 456,234 X 100 57.08 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S.	-	8,877	/	.5708	=....	-	15,552
Mexico	+	68	/	.5708	=....	+	119
Total	-	8,809	/	.5708	=....	-	15,433

REMARKS:

The allocation for this year was probably conservative. A substantial amount of the first allocation was used for planting. Substantial flood flows reached Elephant Butte Reservoir in August and September. The allocation increase announced on Aug. 21 was probably extremely conservative in view of storage conditions as of that date.

Acre Feet

Inflow @ San Marcial		646,950
Storage, 12/31 preceding year		267,100
Max. Storage <u>343,500</u>	Dates <u>Feb. 29</u> <u>and March 1</u>	
Min. Storage <u>135,700</u>	Date <u>Aug. 1</u>	
Storage, 12/31 current year		333,600
Outflow, Rio Grande below Elephant Butte		538,098
Reservoir gains +, losses -	-	42,352

Inflow from Elephant Butte	538,098
Storage, 12/31 preceding year	42,600
Max. Storage <u>160,380</u> Date <u>July 16</u>	
Min. Storage <u>38,090</u> Date <u>Sept. 21</u>	
Storage, 12/31 current year	44,900
Outflow, Rio Grande below Caballo Dam	505,680
Delivered to Bonita Lateral	634
Reservoir gains +, losses -	- 29,484

TOTAL STORAGE SYSTEM GAINS +, LOSSES - - 71,836

OPERATIONAL ANALYSIS

For Year 1968

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial Feb. 27 Combined Storage 387,980

Interim Conservation Close Down:

Close _____ Open _____

Close _____ Open _____

Final Sept. 20 Combined Storage 267,110

Total Allocation Release from Caballo Reservoir..... 505,250

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	45,753	2,066	47,819	16.30
April	24,967	10,231	35,198	11.99
May	17,146	7,493	24,639	8.40
June	38,423	7,326	45,749	15.59
July	38,319	5,823	44,142	15.04
Aug.	56,229	5,755	61,984	21.12
Sept.	32,947	983	33,930	11.56
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	253,784	39,677	293,461	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1968

Acre Feet

ALLOTMENT:

Initial 1.00 a.f./ac. Date Feb. 12
 Final 2.00 a.f./ac. Date Aug. 15

ALLOCATION:

United States Users

159,650 ac. X 2.00 a.f./ac. 319,300

Mexico

2.00 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 39,681

Total 358,981

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States - 65,516

Mexico - 4

Total - 65,520

ALLOCATION/CHARGED SUMMARY

For Year 1968

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

293,461 / 505,250 X 100 58.08 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S.	- 65,516	/	.5808	=....	-112,803
Mexico	- 4	/	.5808	=....	- 7
Total	- 65,520	/	.5808	=....	-112,810

REMARKS:

The allocation for 1968 was conservative. A substantial inflow from summer floods was received during August. The final allocation made on Aug. 15 was probably too conservative in view of storage conditions. Certainly an additional allocation could have been made about Sept. 1. However, the crops were probably in a late stage of maturation and the additional increase was not necessary. The United States users left substantial amounts of allocated water in storage at the end of the season.

STORAGE SYSTEM ANALYSIS

For Year 1969

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>967,590</u>
Storage, 12/31 preceding year	<u>333,600</u>
Max. Storage <u>528,200</u> Date <u>Dec. 31</u>	
Min. Storage <u>238,500</u> Date <u>Sept. 10</u>	
Storage, 12/31 current year	<u>528,200</u>
Outflow, Rio Grande below Elephant Butte	<u>687,425</u>
Reservoir gains +, losses -	<u>- 85,565</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>687,425</u>
Storage, 12/31 preceding year	<u>44,900</u>
Max. Storage <u>83,370</u> Date <u>June 10</u>	
Min. Storage <u>17,960</u> Date <u>April 1</u>	
Storage, 12/31 current year	<u>43,100</u>
Outflow, Rio Grande below Caballo Dam	<u>667,667</u>
Delivered to Bonita Lateral	<u>568</u>
Reservoir gains +, losses -	<u>- 20,990</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES -	<u>-106,555</u>
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OPERATIONAL ANALYSIS

For Year 1969

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial Feb. 27 Combined Storage 467,260

Interim Conservation Close Down:

Close _____ Open _____

Close _____ Open _____

Final Sept. 22 Combined Storage 301,950

Total Allocation Release from Caballo Reservoir..... 667,338

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	66,752	1,955	68,707	16.14
April	30,851	10,391	41,242	9.69
May	21,995	8,709	30,704	7.21
June	54,510	8,139	62,649	14.72
July	71,336	11,459	82,795	19.46
Aug.	92,806	12,167	104,973	24.67
Sept.	27,428	7,064	34,492	8.11
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	365,678	59,884	425,562	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1969

Acre Feet

ALLOTMENT:

Initial 1.3333 a.f./ac. Date Feb. 14
 Final 3.00 a.f./ac. Date June 25

ALLOCATION:

United States Users

159,650 ac. X 3.0241 a.f./ac. 482,798

Mexico

3.0241 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 60,000

Total 542,798

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States -117,120

Mexico - 116

Total -117,236

ALLOCATION/CHARGED SUMMARY

For Year 1969

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

425,562 / 667,338 X 100 63.77 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S.	<u>-117,120</u>	/	<u>.6377</u>	=....	<u>-183,660</u>
Mexico	<u>- 116</u>	/	<u>.6377</u>	=....	<u>- 182</u>
Total	<u>-117,236</u>	/	<u>.6377</u>	=....	<u>-183,842</u>

REMARKS:

There is nothing particularly significant about allocation procedures for this year. The United States users left a large amount of their allocated waters in storage at the end of the season.

STORAGE SYSTEM ANALYSIS

For Year 1970

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	616,470
Storage, 12/31 preceding year	485,100
Max. Storage <u>544,200</u> Date <u>Feb. 8</u>	
Min. Storage <u>167,400</u> Date <u>Sept. 16</u>	
Storage, 12/31 current year	324,500
Outflow, Rio Grande below Elephant Butte	685,875
Reservoir gains +, losses -	- 91,195

CABALLO RESERVOIR:

Inflow from Elephant Butte	685,875
Storage, 12/31 preceding year	43,100
Max. Storage <u>84,180</u> Date <u>March 9</u>	
Min. Storage <u>20,540</u> Date <u>Sept. 20</u>	
Storage, 12/31 current year	27,800
Outflow, Rio Grande below Caballo Dam	661,232
Delivered to Bonita Lateral	959
Reservoir gains +, losses -	- 38,984

TOTAL STORAGE SYSTEM GAINS +, LOSSES -	-130,179
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OPERATIONAL ANALYSIS

For Year 1970

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial Feb. 23 Combined Storage 614,910

Interim Conservation Close Down:

Close _____ Open _____

Close _____ Open _____

Final Sept. 19 Combined Storage 188,860

Total Allocation Release from Caballo Reservoir..... 660,886

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	2,183	0	2,183	0.48
Mar.	67,839	2,189	70,028	15.55
April	42,945	11,627	54,572	12.12
May	40,134	9,649	49,783	11.06
June	48,069	11,606	59,675	13.25
July	77,521	11,964	89,485	19.87
Aug.	68,256	11,793	80,049	17.78
Sept.	43,284	1,237	44,521	9.89
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	390,231	60,065	450,296	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1970

Acre Feet

ALLOTMENT:

Initial 2.00 a.f./ac. Date Feb. 11

Final 3.00 a.f./ac. Date June 15

ALLOCATION:

United States Users

159,650 ac. X 3.0241 a.f./ac. 482,798

Mexico

3.0241 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 60,000

Total 542,798

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States - 92,567

Mexico + 65

Total - 92,502

ALLOCATION/CHARGED SUMMARY

For Year 1970

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

450,296 / 660,886 X 100 68.14 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S.	- 92,567	/	.6814	=....	-135,848
Mexico	+ 65	/	.6814	=....	+ 95
Total	- 92,502	/	.6814	=....	-135,753

REMARKS:

Allocation procedures appear to have been adequately made for 1970. The initial allocation was somewhat conservative in view of available storage early in the season. However, the allocation was raised to a full allotment in mid June. Again, the United States users left substantial amounts of allocated water in storage at the end of the season.

STORAGE SYSTEM ANALYSIS

For Year 1971

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	397,920
Storage, 12/31 preceding year	324,500
Max. Storage <u>380,000</u> Date <u>Feb. 8</u>	
Min. Storage <u>30,600</u> Date <u>Sept. 7</u>	
Storage, 12/31 current year	177,000
Outflow, Rio Grande below Elephant Butte	515,294
Reservoir gains +, losses -	- 30,126

CABALLO RESERVOIR:

Inflow from Elephant Butte	515,294
Storage, 12/31 preceding year	27,800
Max. Storage <u>75,980</u> Date <u>June 10,11 &12</u>	
Min. Storage <u>3,630</u> Date <u>Sept. 9</u>	
Storage, 12/31 current year	15,100
Outflow, Rio Grande below Caballo Dam	498,451
Delivered to Bonita Lateral	668
Reservoir gains +, losses -	- 28,875

TOTAL STORAGE SYSTEM GAINS +, LOSSES -	- 59,001
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OPERATIONAL ANALYSIS

For Year 1971

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial Feb. 26 Combined Storage 436,810

Interim Conservation Close Down:

Close _____ Open _____

Close _____ Open _____

Final Sept. 8 Combined Storage 34,530

Total Allocation Release from Caballo Reservoir..... 498,175

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	65,764	2,258	68,022	22.54
April	27,122	11,740	38,862	12.88
May	23,538	8,647	32,185	10.67
June	32,541	8,785	41,326	13.69
July	49,660	3,417	53,077	17.59
Aug.	45,911	0	45,911	15.21
Sept.	22,381	0	22,381	7.42
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	266,917	34,847	301,764	100.0

ALLOCATION/CHARGED SUMMARY

For Year 1971

Acre Feet

ALLOTMENT:

Initial 1.50 a.f./ac. Date Feb. 16

Final 1.75 a.f./ac. Date June 2

ALLOCATION:

United States Users

159,650 ac. X 1.75 a.f./ac. 279,388

Mexico

1.75 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 34,721

Total 314,109

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States - 12,471

Mexico + 126

Total - 12,345

ALLOCATION/CHARGED SUMMARY

For Year 1971

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

301,764 / 498,175 X 100 60.57 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S. - 12,471 / .6057 = - 20,589

Mexico + 126 / .6057 = + 208

Total - 12,345 / .6057 = - 20,381

REMARKS:

The allocation for this year was extremely close. In fact, there was probably a small over-allocation, saved by some summer inflow during August and bank storage return from both reservoirs. Had the United States users called out all of their water, the reservoirs virtually would have been drained.

STORAGE SYSTEM ANALYSIS

For Year 1972

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>459,870</u>
Storage, 12/31 preceding year	<u>177,000</u>
Max. Storage <u>301,600</u> Date <u>Dec. 31</u>	
Min. Storage <u>53,200</u> Date <u>Aug. 19</u>	
Storage, 12/31 current year	<u>301,600</u>
Outflow, Rio Grande below Elephant Butte	<u>300,046</u>
Reservoir gains +, losses -	<u>- 35,224</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>300,046</u>
Storage, 12/31 preceding year	<u>15,100</u>
Max. Storage <u>68,070</u> Date <u>Dec. 31</u>	
Min. Storage <u>15,190</u> Date <u>Jan. 1</u>	
Storage, 12/31 current year	<u>68,100</u>
Outflow, Rio Grande below Caballo Dam	<u>260,910</u>
Delivered to Bonita Lateral	<u>683</u>
Reservoir gains +, losses -	<u>+ 14,547</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES - - 20,677

OPERATIONAL ANALYSIS

For Year 1972

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial March 1 Combined Storage 285,280

Interim Conservation Close Down:

Close May 23 Open June 13

Close Aug. 26 Open Sept. 8

Final Sept 12 Combined Storage 147,240

Total Allocation Release from Caballo Reservoir..... 260,429

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	43,850	2,223	46,073	34.15
April	14,130	8,004	22,134	16.41
May	5,256	1,752	7,008	5.19
June	5,013	0	5,013	3.72
July	22,615	3,539	26,154	19.38
Aug.	21,824	559	22,383	16.59
Sept.	6,157	0	6,157	4.56
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	118,845	16,077	134,922	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1972

Acre Feet

ALLOTMENT:

Initial 0.6 a.f./ac. Date Feb. 17
 Final 0.8 a.f./ac. Date June 7

ALLOCATION:

United States Users

159,650 ac. X 0.8 a.f./ac. 127,720

Mexico

0.8 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 15,872

Total 143,592

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States - 8,875

Mexico + 205

Total - 8,670

ALLOCATION/CHARGED SUMMARY

For Year 1972

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

134,922 / 260,429 X 100 51.81 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S.	- 8,875	/	.5181	=....	- 17,130
Mexico	+ 205	/	.5181	=....	+ 396
Total	- 8,670	/	.5181	=....	- 16,734

REMARKS:

The year was characterized by late winter reports of a good snow-pack and optimistic estimates of spring run-off. As it turned out, the spring run-off did not materialize. However, a little over 50 percent of the season's deliveries were made during March and April, reflecting optimism for a good run-off. Very significant amounts of water, in terms of the storage at that time, were received in late August and September. Since the crops were largely made by this time, no increase in the allocation was made.

STORAGE SYSTEM ANALYSIS

For Year 1973

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>1,303,360</u>
Storage, 12/31 preceding year	<u>301,600</u>
Max. Storage <u>794,200</u> Date <u>Dec. 31</u>	
Min. Storage <u>303,600</u> Date <u>Jan. 1</u>	
Storage, 12/31 current year	<u>794,200</u>
Outflow, Rio Grande below Elephant Butte	<u>605,749</u>
Reservoir gains +, losses -	<u>-205,011</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>605,749</u>
Storage, 12/31 preceding year	<u>68,100</u>
Max. Storage <u>130,740</u> Date <u>June 19</u>	
Min. Storage <u>31,310</u> Date <u>Sept. 29</u>	
Storage, 12/31 current year	<u>40,000</u>
Outflow, Rio Grande below Caballo Dam	<u>617,349</u>
Delivered to Bonita Lateral	<u>1,020</u>
Reservoir gains +, losses -	<u>- 15,480</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES - -220,491

OPERATIONAL ANALYSIS

For Year 1973

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial March 9 Combined Storage 475,920

Interim Conservation Close Down:

Close July 17 Open July 20

Close _____ Open _____

Final Sept. 30 Combined Storage 695,650

Total Allocation Release from Caballo Reservoir..... 616,738

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	38,039	1,630	39,669	9.76
April	40,078	11,479	51,557	12.69
May	31,241	6,731	37,972	9.35
June	49,983	9,874	59,857	14.73
July	51,711	11,322	63,033	15.52
Aug.	71,746	11,591	83,337	20.51
Sept.	57,679	7,373	65,052	16.01
Oct.	5,823	0	5,823	1.43
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	346,300	60,000	406,300	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1973

Acre Feet

ALLOTMENT:

Initial 1.00 a.f./ac. Date Feb. 14

Final 3.00 a.f./ac. Date June 4

ALLOCATION:

United States Users

159,650 ac. X 3.0241 a.f./ac. 482,798

Mexico

3.0241 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 60,000

Total 542,798

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States -136,498

Mexico 0

Total -136,498

ALLOCATION/CHARGED SUMMARY

For Year 1973

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

406,300 / 616,738 X 100 65.88 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S.	<u>-136,498</u>	/	<u>.6588</u>	=....	<u>-207,192</u>
Mexico	<u>0</u>	/	<u>.6588</u>	=....	<u>0</u>
Total	<u>-136,498</u>	/	<u>.6588</u>	=....	<u>-207,192</u>

REMARKS:

The initial allocation of 1.00 a.f./ac. was possibly somewhat conservative. However, the allocation was raised to a full supply on June 4, thus permitting mid-to-late season irrigation planning by water users. The United States users left a large amount of their allocated water in storage at the end of the season.

STORAGE SYSTEM ANALYSIS

For Year 1974

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>353,450</u> ✓
Storage, 12/31 preceding year	<u>769,300</u> ✓
Max. Storage <u>866,000</u> Date <u>Feb. 21</u>	
Min. Storage <u>315,700</u> Date <u>Sept. 16</u>	
Storage, 12/31 current year	<u>402,500</u>
Outflow, Rio Grande below Elephant Butte	<u>672,502</u>
Reservoir gains +, losses -	<u>- 47,748</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>672,502</u>
Storage, 12/31 preceding year	<u>40,000</u>
Max. Storage <u>109,240</u> Date <u>July 23</u>	
Min. Storage <u>18,990</u> Date <u>Sept. 17</u>	
Storage, 12/31 current year	<u>39,100</u>
Outflow, Rio Grande below Caballo Dam	<u>640,995</u>
Delivered to Bonita Lateral	<u>1,087</u>
Reservoir gains +, losses -	<u>- 31,320</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES -	<u>- 79,068</u>
----------------------------------------------	-----------------

OPERATIONAL ANALYSIS

For Year 1974

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial March 2 Combined Storage 916,830

Interim Conservation Close Down:

Close _____ Open _____

Close _____ Open _____

Final Sept 16 Combined Storage 334,900

Total Allocation Release from Caballo Reservoir..... 640,561

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	66,601	1,651	68,252	16.16
April	42,800	10,442	53,242	12.61
May	42,057	9,222	51,279	12.14
June	63,576	11,458	75,034	17.76
July	50,935	11,985	62,920	14.90
Aug.	59,724	11,846	71,570	16.94
Sept.	36,631	3,446	40,077	9.49
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	362,324	60,050	422,374	100.00
Total	362,324	60,050	422,374	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1974

Acre Feet

ALLOTMENT:

Initial 3.00 a.f./ac. Date Feb. 14

Final 3.00 a.f./ac. Date _____

ALLOCATION:

United States Users

159,650 ac. X 3.0241 a.f./ac. 482,798

Mexico

3.0241 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 60,000

Total 542,798

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States -120,474

Mexico + 50

Total -120,424

ALLOCATION/CHARGED SUMMARY

For Year 1974

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

$$\frac{422,374}{640,561} \times 100 \dots\dots 65.94 \%$$

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S.	-120,474	/	.6594	=....	-182,702
Mexico	+ 50	/	.6594	=....	+ 76
Total	-120,424	/	.6594	=....	-182,626

REMARKS:

It is interesting to note that with the initial allocation being a full supply at the beginning of the season, the United States users still left a very substantial amount of their allocation in storage at the end of the season.

STORAGE SYSTEM ANALYSIS

For Year 1975

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>995,820</u>
Storage, 12/31 preceding year	<u>402,500</u>
Max. Storage <u>617,200</u> Date <u>Dec. 31</u>	
Min. Storage <u>365,600</u> Date <u>April 26</u>	
Storage, 12/31 current year	<u>617,200</u>
Outflow, Rio Grande below Elephant Butte	<u>653,731</u>
Reservoir gains +, losses -	<u>-127,389</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>653,731</u>
Storage, 12/31 preceding year	<u>39,100</u>
Max. Storage <u>96,120</u> Date <u>June 3</u>	
Min. Storage <u>35,600</u> Date <u>March 6</u>	
Storage, 12/31 current year	<u>80,100</u>
Outflow, Rio Grande below Caballo Dam	<u>580,671</u>
Delivered to Bonita Lateral	<u>619</u>
Reservoir gains +, losses -	<u>- 31,441</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES -	<u>-158,830</u>
----------------------------------------------	-----------------

OPERATIONAL ANALYSIS

For Year 1975

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial Jan. 24 Combined Storage 464,670

Interim Conservation Close Down:

Close Feb. 2 Open Feb. 28

Close Sept. 12 Open Sept. 19

Final Sept. 30 Combined Storage 530,650

Total Allocation Release from Caballo Reservoir..... 580,104

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	1,980	0	1,980	0.48
Feb.	3,097	0	3,097	0.76
Mar.	41,930	21	41,951	10.23
April	42,828	11,646	54,474	13.29
May	45,802	8,721	54,523	13.30
June	53,436	11,597	65,033	15.87
July	60,214	11,225	71,439	17.43
Aug.	65,217	12,152	77,369	18.87
Sept.	35,349	4,690	40,039	9.77
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	349,853	60,052	409,905	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1975

Acre Feet

ALLOTMENT:

Initial 1.00 a.f./ac. Date Jan. 7

Final 3.00 a.f./ac. Date June 16

ALLOCATION:

United States Users

159,650 ac. X 3.0241 a.f./ac. 482,798

Mexico

3.0241 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 60,000

Total 542,798

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States -132,945

Mexico + 52

Total -132,893

ALLOCATION/CHARGED SUMMARY

For Year 1975

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

409,905 / 580,104 X 100 70.66 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S.	<u>-132,945</u>	/	<u>.7066</u>	=....	<u>-188,147</u>
Mexico	<u>+ 52</u>	/	<u>.7066</u>	=....	<u>+ 74</u>
Total	<u>-132,893</u>	/	<u>.7066</u>	=....	<u>-188,073</u>

REMARKS:

The initial allotment may have been somewhat conservative. However, in view of the early release, it probably was not. Again, United States users left a substantial amount of their allocation in storage. There was considerable inflow into Caballo Reservoir from ephemeral tributaries during September as well as significant rains on the project.

STORAGE SYSTEM ANALYSIS

For Year 1976

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	458,320
Storage, 12/31 preceding year	617,200
Max. Storage <u>727,700</u> Date <u>March 7</u>	
Min. Storage <u>285,700</u> Date <u>Sept. 14</u>	
Storage, 12/31 current year	315,800
Outflow, Rio Grande below Elephant Butte	714,737
Reservoir gains +, losses -	- 44,983

CABALLO RESERVOIR:

Inflow from Elephant Butte	714,737
Storage, 12/31 preceding year	80,100
Max. Storage <u>102,230</u> Date <u>Dec. 31</u>	
Min. Storage <u>28,090</u> Date <u>March 8</u>	
Storage, 12/31 current year	102,200
Outflow, Rio Grande below Caballo Dam	679,651
Delivered to Bonita Lateral	865
Reservoir gains +, losses -	- 12,121

TOTAL STORAGE SYSTEM GAINS +, LOSSES - - 57,104

OPERATIONAL ANALYSIS

For Year 1976

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial Jan. 16 Combined Storage 747,610

Interim Conservation Close Down:

Close Sept. 9 Open Sept. 12

Close _____ Open _____

Final Sept. 28 Combined Storage 339,310

Total Allocation Release from Caballo Reservoir..... 679,075

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	11,998	0	11,998	2.69
Feb.	18,041	0	18,041	4.05
Mar.	50,750	0	50,750	11.39
April	48,109	12,057	60,166	13.51
May	54,818	9,009	63,827	14.33
June	49,213	12,575	61,788	13.87
July	50,865	11,027	61,892	13.89
Aug.	66,362	12,127	78,489	17.62
Sept.	35,136	3,377	38,513	8.65
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	385,292	60,172	445,464	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1976

Acre Feet

ALLOTMENT:

Initial 2.50 a.f./ac. Date Jan. 8

Final 3.00 a.f./ac. Date March 2

ALLOCATION:

United States Users

159,650 ac. X 3.0241 a.f./ac. 482,798

Mexico

3.0241 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 60,000

Total 542,798

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States - 97,506

Mexico + 172

Total - 97,334

ALLOCATION/CHARGED SUMMARY

For Year 1976

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

445,464 / 679,075 X 100 65.60 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S.	- 97,506	/	.6560	=....	-148,637
Mexico	+ 172	/	.6560	=....	+ 262
Total	- 97,334	/	.6560	=....	-148,375

REMARKS:

The notable thing about 1976 was the length of the irrigation season. In spite of the longer season, the operating efficiency was rather good. The United States users again left a large amount of allocated water in storage at the end of the season.

STORAGE SYSTEM ANALYSIS

For Year 1977

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>224,344</u>
Storage, 12/31 preceding year	<u>315,800</u>
Max. Storage <u>356,000</u> Date <u>April 17</u>	
Min. Storage <u>119,300</u> Date <u>Aug. 15</u>	
Storage, 12/31 current year	<u>181,400</u>
Outflow, Rio Grande below Elephant Butte	<u>335,327</u>
Reservoir gains +, losses -	<u>- 23,417</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>335,327</u>
Storage, 12/31 preceding year	<u>102,200</u>
Max. Storage <u>141,520</u> Date <u>March 2 & 3</u>	
Min. Storage <u>8,420</u> Date <u>Sept. 10</u>	
Storage, 12/31 current year	<u>17,200</u>
Outflow, Rio Grande below Caballo Dam	<u>417,477</u>
Delivered to Bonita Lateral	<u>568</u>
Reservoir gains +, losses -	<u>- 2,282</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES -	<u>-256,699</u>
----------------------------------------------	-----------------

OPERATIONAL ANALYSIS

For Year 1977

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial March 3 Combined Storage 485,620

Interim Conservation Close Down:

Close _____ Open _____

Close _____ Open _____

Final Sept. 11 Combined Storage 130,280

Total Allocation Release from Caballo Reservoir..... 416,922

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	31,336	938	32,274	14.72
April	24,689	9,777	34,466	15.72
May	21,632	83	21,715	9.90
June	28,393	4,393	32,786	14.95
July	29,071	5,926	34,997	15.96
Aug.	40,710	3,707	44,417	20.26
Sept.	18,623	0	18,623	8.49
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	194,454	24,824	219,278	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1977

Acre Feet

ALLOTMENT:

Initial 1.00 a.f./ac. Date Feb. 7

Final 1.25 a.f./ac. Date May 16

ALLOCATION:

United States Users

159,650 ac. X 1.25 a.f./ac. 199,562

Mexico

1.25 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 24,801

Total 224,363

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States - 5,108

Mexico + 23

Total - 5,085

ALLOCATION/CHARGED SUMMARY

For Year 1977

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

219,278 / 416,922 X 100 52.59 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S.	-	5,108	/	.5259	=....	-	9,713
Mexico	+	23	/	.5259	=....	+	44
Total	-	5,085	/	.5259	=....	-	9,669

REMARKS:

The final allocation may have been conservative. However, taking into consideration the reduction in storage for the San Juan-Chama water (Minimum Pool) stored in Elephant Butte and inflow during August, the allocation was not too far off.

STORAGE SYSTEM ANALYSIS

For Year 1978

Acre Feet

ELEPHANT BUTTE RESERVOIR:

Inflow @ San Marcial	<u>417,723</u>
Storage, 12/31 preceding year	<u>181,400</u>
Max. Storage <u>288,800</u> Date <u>June 11</u>	
Min. Storage <u>90,800</u> Date <u>Sept. 16 & 17</u>	
Storage, 12/31 current year	<u>182,600</u>
Outflow, Rio Grande below Elephant Butte	<u>375,825</u>
Reservoir gains +, losses -	<u>- 40,698</u>

CABALLO RESERVOIR:

Inflow from Elephant Butte	<u>375,825</u>
Storage, 12/31 preceding year	<u>17,200</u>
Max. Storage <u>58,290</u> Date <u>July 14</u>	
Min. Storage <u>14,510</u> Date <u>Sept. 14</u>	
Storage, 12/31 current year	<u>41,900</u>
Outflow, Rio Grande below Caballo Dam	<u>356,173</u>
Delivered to Bonita Lateral	<u>424</u>
Reservoir gains +, losses -	<u>+ 5,472</u>

TOTAL STORAGE SYSTEM GAINS +, LOSSES -	<u>- 35,226</u>
----------------------------------------------	-----------------

OPERATIONAL ANALYSIS

For Year 1978

Acre Feet

IRRIGATION STORAGE RELEASE AT CABALLO DAM:

Initial March 10 Combined Storage 280,910

Interim Conservation Close Down:

Close April 30 Open May 25

Close _____ Open _____

Final Sept. 14 Combined Storage 105,410

Total Allocation Release from Caballo Reservoir..... 355,856

ALLOCATION CHARGED TO USERS:

Month	U.S.	Mexico	Total	% of Total
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	9,168	0	9,168	7.29
April	9,191	2,287	11,478	9.12
May	1,745	0	1,745	1.39
June	18,830	0	18,830	14.96
July	23,208	2,910	26,118	20.76
Aug.	31,009	7,472	38,481	30.58
Sept.	17,769	2,234	20,003	15.90
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	110,920	14,903	125,823	100.00

ALLOCATION/CHARGED SUMMARY

For Year 1978

Acre Feet

ALLOTMENT:

Initial 0.25 a.f./ac. Date Feb. 27
 Final 0.75 a.f./ac. Date Aug. 1

ALLOCATION:

United States Users

159,650 ac. X 0.75 a.f./ac. 119.738

Mexico

0.75 a.f./ac./3.0241 a.f./ac. X 60,000 a.f. .. 14,880

Total 134.618

UNUSED (-)/ OVERUSED (+) CHARGED TO USERS:

United States - 8.818

Mexico + 23

Total - 8.795

ALLOCATION/CHARGED SUMMARY

For Year 1978

Acre Feet

SYSTEM EFFICIENCY FOR SEASON:

Total Charged/Allocation Release X 100 = Efficiency in %

125,823 / 355,856 X 100 35.36 %

UNUSED (-)/OVERUSED (+), ALLOCATION COMPUTED AS STORAGE:

U.S. - 8,818 / 3536 = - 24,938

Mexico + 23 / 3536 = + 65

Total - 8,795 / 3536 = -24,873

REMARKS:

Subtracting the minimum pool storage, the unused allocation in storage belonging to United States users, and estimated sediment encroachment in Caballo Reservoir, a remainder of perhaps 20,000 to 25,000 acre-feet un-allocated water was left in storage. For all practical purposes, the allocation for the year was very close and could be considered a total.

**Rio Grande Project
New Mexico - Texas**

Elephant Butte Irrigation District

**El Paso County Water Improvement
District No. 1**

U.S. Bureau Of Reclamation

Operating Agreement

**EXHIBIT
FC-021**



United States Department of the Interior

BUREAU OF RECLAMATION

RIO GRANDE PROJECT
109 N. OREGON STREET P.O. DRAWER P
EL PASO, TEXAS 79952-0002

IN REPLY
REFER TO: 100

JAN 29 1985

Steve Reynolds
New Mexico State Engineer
Bataan Memorial Building
Santa Fe, New Mexico 87501

Dear Mr. Reynolds:

Enclosed for your information is a copy of the recently completed Operating Agreement for the Rio Grande Project. This Agreement has been implemented for 1985. Required changes to the Agreement will be made following the 1985 irrigation season.

Sincerely,

Roger K. Patterson
Project Superintendent

Enclosure

STATE ENGINEER OFFICE
SANTA FE NEW MEXICO

85 JAN 31 A 8:59

Date _____

OPERATING AGREEMENT
ELEPHANT BUTTE IRRIGATION DISTRICT
EL PASO COUNTY WATER IMPROVEMENT DISTRICT NO. 1
UNITED STATES BUREAU OF RECLAMATION

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Exhibits

No.	Description
1	Rio Grande Project Data
2	Allocation Curve D-1
3	Allocation Curve D-2
4	Water Order Form
5	Strip Maps - Water Measurement Stations
	a. Rincon Valley
	b. Mesilla Valley
	c. El Paso Valley
6	Metering Station Descriptions
7	Written Notification of Allocation Charges
	a. EBID
	b. EPCWID
8	Daily Operational Status

Rio Grande Project
New Mexico - Texas
Operating Agreement

Between

The United States of America, Department of the Interior,
United States Bureau of Reclamation;

The Elephant Butte Irrigation District;
and

The El Paso County Water Improvement District No. 1

I. GENERAL

A. Purpose of Agreement

The purpose of this agreement is to establish standard water delivery and accounting procedures between the operating parties within the Rio Grande Project in the States of New Mexico and Texas. These procedures are established pursuant to Article 6 of Contract No. 9-07-54-X0554 between the United States and the Elephant Butte Irrigation District, and Article 6 of Contract No. 0-07-54-X0904 between the United States and the El Paso County Water Improvement District No. 1.

B. Project Description

A description of the Rio Grande Project is provided on the Project Data sheet enclosed as Exhibit No. 1

C. Project Authorization

Construction of the Rio Grande Project was authorized by the Secretary of the Interior on December 2, 1905, under the provisions of the Reclamation Act, and funds were allocated to initiate construction of the first diversion unit. The Reclamation Act was extended to the entire State of Texas on June 12, 1906, following a partial extension for Engle (Elephant Butte) Dam in 1905.

Congress authorized the construction of Elephant Butte Dam on February 25, 1905, and on May 4, 1907, \$1 million of non-reimbursable funds were appropriated as the State Department's share for allocation by treaty of 60,000 acre-feet of water annually to Mexico.

A contract was executed December 1, 1924, and amended April 1, 1951, between the Bureau of Reclamation and the Hudspeth County Conservation and Reclamation District No. 1. The contract and amendments allowed the District to rent the

waters available at the downstream terminus of the Rio Grande Project for irrigation of some 20,014 acres in Hudspeth County. The rental of these waters is secondary and inferior to the right to use water on the lands of the Rio Grande Federal Irrigation Project.

The Acts of August 29, 1935, and June 4, 1936, authorized the construction, operation and maintenance of a canalization project to regulate and control the available water supply, and resulted in the construction of the Caballo Dam. Non-reimbursable funds for the flood control features of this structure were advanced by the State Department in the aggregate sum of \$1,510,654. Plans were completed during this same period for Elephant Butte Powerplant.

The Act of August 9, 1937, provided for the transfer of the district's interest in development of hydroelectric energy at Elephant Butte Dam to the United States.

On February 16, 1938, a contract approved by the Secretary of the Interior and signed by the Elephant Butte Irrigation District (EBID) and the El Paso County Water Improvement District No. 1 (EPCWID) redefined the allocated irrigable area of the Districts. The water rights acreage of EBID is 90,640 acres. The water rights acreage of EPCWID is 69,010 acres.

The Act of October 27, 1974, provided for the establishment of a 50,000 acre-foot (AF) minimum recreation pool at Elephant Butte Reservoir using San Juan-Chama Water.

D. Rio Grande Compact (1938)

The Rio Grande Compact became the law of Colorado, New Mexico, Texas and the United States when it was ratified by the Congress of the United States in 1939. The purpose of the compact is to equitably divide the waters of the Rio Grande between Colorado, New Mexico, and Texas above Fort Quitman, Texas. The schedules provided in the Compact allow for variances in available water supply by varying the proportion that must be delivered to the respective downstream states. The available supply to the three compact states is determined at key gaging stations as the river exits the snow melt production areas in the Mountains of Colorado and New Mexico with deliveries measured at the Colorado, New Mexico Stateline and Elephant Butte Reservoir.

"Texas" for Compact purposes includes Sierra and Dona Ana Counties in New Mexico, as well as El Paso and Hudspeth Counties in Texas. This unique feature of the Rio Grande Compact was dictated by the logic of New Mexico making its deliveries to Elephant Butte Reservoir and treating the Rio Grande Project as a unit rather than dividing Texas and New Mexico at their stateline.

The schedules in the Compact determine the amount of water to which each state is entitled. Over deliveries are carried as credit water in Elephant Butte Reservoir and can be relinquished by the respective upstream states. Debits are created when an upstream state fails to deliver as required by the Compact schedules. Water in upstream reservoirs must be retained to the extent of the

respective debits and under certain conditions is subject to call by the Texas and/or New Mexico Commissioners. A "spill" at Elephant Butte eliminates all debits and can cause the loss of credits to the extent of the spill. A normal release for "Texas" water users is 790,000 AF of usable water. Usable water is that water available to meet irrigation demands exclusive of credit water and interbasin (transmountain diversion) waters.

E. Definitions

1. Project Water Supply - stored water legally available for release in the Elephant Butte and Caballo Reservoirs and including the legally appropriated waters reaching the bed of the Rio Grande between Caballo Dam and Riverside Diversion Dam.

2. Allocated Water - that portion of the project water supply, as defined in Article E.1. above, which is determined to be available for diversion and use by the Elephant Butte Irrigation District (EBID), the El Paso County Water Improvement District No. 1 (EPCWID) and the Republic of Mexico during any irrigation season. The irrigation season is defined as that period of a year when storage releases are being made from Caballo Reservoir for irrigation purposes.

3. Non-Allocated Water - water in the Rio Grande, during non-irrigation season and after the closing of Caballo Dam, which originates from drain flows and other sources which may be diverted by the irrigation districts for application to irrigable land areas within their boundaries (also known as return flows). All diversions made by the Districts during the nonirrigation season utilizing return flow waters shall not be charged against the Districts' respective allocations.

II. ALLOCATION

A. Procedure

This procedure is used for the allotment and control of the Rio Grande Project water supply. It is required because the Bureau no longer delivers water at the farms, but rather at the Districts' river headings. The procedure provides for an equitable distribution of project water between the U.S. and Mexico consistent with historic operations.

The 1906 Treaty with Mexico requires that Mexico be provided 60,000 AF/yr at the International Dam except in times of extraordinary drought or serious accident to the irrigation system in the United States. The amount delivered to the Mexican Canal (Acequia Madre) shall be furnished in same proportion as the water delivered to lands under said irrigation system in the United States. The first allocation to lands in the United States was made in 1951. An analysis done at that time established 3.024 AF/acre as a full supply to U.S. farms or 482,800 AF (3.024 AF/acre x 159,650 acres) for the full project acreage of 159,650 acres. This analysis was based on the period of 1946 - 1950 during which a full water supply was available and deliveries were considered "normal".

Statistical evaluations of operational records for the period of 1951 through 1978 inclusive have been made. These evaluations have provided graphs, equations, and data that can be used to ensure that future allocations to Mexico and the allocations to the U.S. maintain the historical relationship between the delivery of water to U.S. farms and Mexico. The historical period or relationship is defined as the years 1951-1978 inclusive.

Curve D-1, enclosed as Exhibit No. 2, illustrates the historic relationship between the water released from storage and the corresponding delivery to farms in the United States and to the heading of the Mexican Canal.

Prior to application of Curve D-1, it is necessary to determine the amount of water in storage available for release. This determination takes into account minimum pool requirements, other non-project waters in storage, and estimated reservoir losses. Reservoir losses include evaporation, bank storage and seepage.

The amount available for irrigation to U.S. river headings is determined from Curve D-2, enclosed as Exhibit No. 3, which shows releases at Caballo vs. Net Diversions from the river (U.S. + Mexico). Mexico's allotment is subtracted from Net Diversions to obtain the amount available to the U.S. The division between the U.S. districts is based on acreage.

It should be noted that Curves D-1 and D-2 are to be used as guides and adjustments may be necessary due to current conditions. A review of the data base will be made annually using the preceding year's data.

The Bureau will make the initial allocation of project water each year by December 1. In years of less than a full allotment, the allocation will be reviewed and updated as determined necessary. A review of the allocation will be made on a monthly basis and in conference with officials of the EBID and the EPCWID no later than the 10th of the following month.

B. Determination of Allotment for Full Supply

This procedure is based on a full supply of 482,800 acre-feet to authorized irrigated lands in the U.S. and a full allocation to Mexico of 60,000 AF for a total of 542,800 AF.

Curve D-1 can be used to determine the historic release requirement necessary to deliver a full supply to U.S. authorized lands and Mexico (542,800 AF). From D-1, the required release from project storage is 780,000 AF. The release for a full supply is not limited to 780,000 AF.

From Curve D-2, the historic Net Diversion at Headings (US and Mexico) for a release of 780,000 AF is 902,000 AF.

Allocation for a full supply:

Delivery to U.S. Headings and to Mexico	=	902,000 AF
Delivery to Mexico	=	<u>60,000 AF</u>
Delivery to U.S. Headings	=	842,000 AF
EBID Delivery to Headings = 56.774% of 842,000 AF	=	478,037 AF
EPCWID Delivery to Headings = 43.226% of 842,000 AF	=	363,963 AF

C. Example for 100% Allotment

Historic Net Diversion requirement for a full supply to authorized irrigated lands in the U.S. and Mexico has been found to be 902,000 AF.

Step 1. From Curve D-2, determine Caballo release required to meet Net Diversion at Headings of 902,000 AF.

Step 2. Determine amount of water in storage available for release.

Total Storage
-Estimated Reservoir Losses
-Minimum Pool
-Storage for Others
=Water in Storage Available for Release

Storage for others is the City of Albuquerque which is limited to a maximum storage of 50,000 AF.

Step 3. If amount of water in storage available for release (from step 2) equals or exceeds release the requirement (from step 1), then the allotment is 100%.

Step 4. Available for Diversions at Headings:

Mexico	60,000 AF
EBID	478,037 AF
EPCWID	363,963 AF

D. Example of Allotment for Less than Full Supply

Note: Final details for determination of allotment during times of less than a full supply are being developed and will be provided upon completion.

III. Water Delivery and Accounting

A. Ordering of Water by the Districts

1. Diversion Points

The diversion points used for the districts are as follows:

<u>EBID</u>	<u>EPCWID</u>
Percha Lateral (Percha Diversion)	East Side Canal ^{1/} (Mesilla Diversion)
Arrey Canal (Percha Diversion)	La Union East Canal ^{1/} (From West Side Canal)
Irrigations from Leasburg Canal above Gaging Station (From Leasburg Canal)	La Union West Canal ^{1/} (From West Side Canal)
Leasburg Canal (Leasburg Diversion)	Franklin Canal (American Diversion)
California Extension (From Rio Grande)	City of El Paso (From Franklin Canal)
Del Rio Lateral (Mesilla Diversion)	Riverside Canal (Riverside Diversion)
East Side Canal (Mesilla Diversion)	
West Side Canal (Mesilla Diversion)	
Pumps	^{1/} These are diversion points for the EPCWID. These irrigation facilities are within and are operated by the EBID.

2. Normal Orders

Each District operating official will determine the water requirements, in cubic feet per second, for the respective headings and delivery points for each individual District. These requirements will be furnished to the Bureau by 10:00 am each Tuesday and Friday of the irrigation season. The Bureau will tabulate and evaluate these orders, considering river losses or accretions, by no later than 11:00 am. Before 11:30 am of each order day, the Bureau will notify the operating officials of each District of the change in the release rate of flow at Caballo Dam.

3. Special Orders

Special orders resulting from emergencies or other unforeseen events which require adjustment of deliveries to District diversions may be submitted as desired by the Districts to the Bureau. The District operating official will specify the change in cfs and give the time for the change. Releases will be adjusted as required to meet the order and the Districts notified. Cuts requested by the EBID will begin when diversions are adjusted, but water charges will continue until the travel time from the Caballo Dam to the particular diversion is met unless the EPCID can use the water. Changes in orders will not be made for amounts less than 50 cfs.

B. Delivery of Water by the Bureau

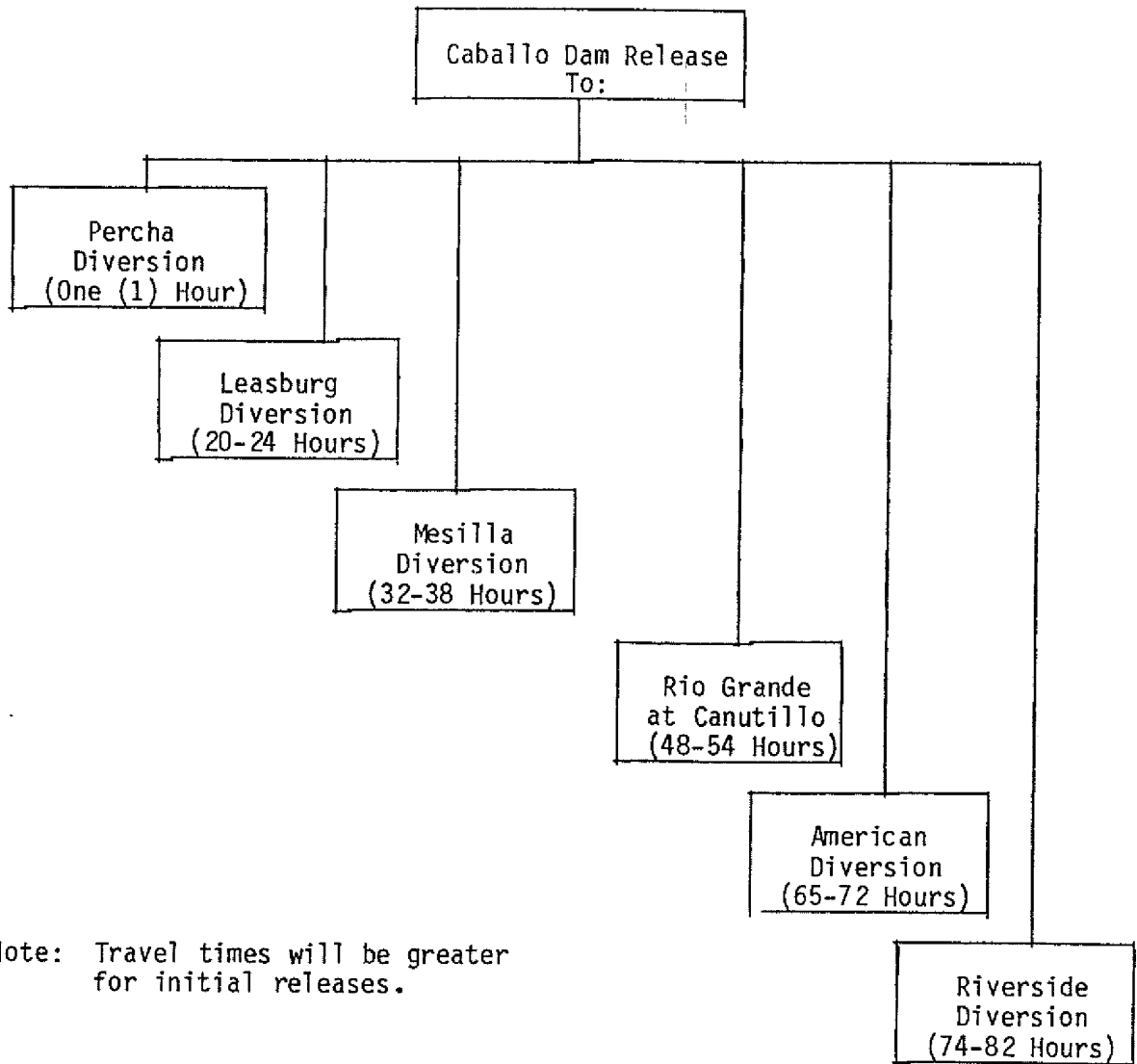
1. Release Determination

As outlined in Article III., A., 2. and 3., the Bureau will determine the rate of flow to be released from Caballo Dam for regular orders. For special orders, the Bureau will determine the adjusted rate of flow from Caballo Dam and notify the Districts of the change in rate of flow and the time of such change. The Bureau will notify the Districts when the rate of flow at Caballo Dam is changed for Mexico giving the time and rate of flow of such change. An example of water ordering procedure is shown on Exhibit No. 4

2. Travel Times

Approximate travel times to diversions are shown on the table below (Based on 450 cfs release):

Travel Times to Rio Grande Diversions



3. Sharing of Shortages

Flows at Riverside Heading occasionally drop below the order of the EPCWID. When this flow is 100 CFS or more below the District's order and the District cannot tolerate the shortage, the following method of sharing the shortage between EBID and EPCWID will be implemented.

As directed by the Bureau, the EBID will release additional water through wasteways equal to one half of the amount short at Riverside. The Bureau will release an equal quantity at Caballo for diversion by EBID. EBID will be given credit for the additional water released at the wasteway to help relieve the shortage.

Example: EPCWID order = 500 CFS

	<u>Conditions at time of shortage</u>	<u>Conditions after changes</u>
Flow at Riverside Heading	300 CFS	400 CFS
Flow in Wasteway #32	20 CFS	120 CFS
Release at Caballo	1200 CFS	1300 CFS*

* Change required to reconstitute the EBID order. Additional release to meet EPCWID order may be required.

C. Measurement Stations

The location of water measurement stations for the Rio Grande Project is shown on the strip maps attached as Exhibit No. 5. A written description for each station is provided as Exhibit No. 6. No changes in the number or operation of water measuring stations relating to water accounting for the Districts will be made by the Bureau without prior consultation with the District or Districts that are involved.

D. Accounting

Water accounting is done by the Bureau generally following procedures as outline in USGS water supply paper 2175.

Rating tables for metering stations are determined annually from current meter measurements or more frequently if necessary.

1. EBID

Charges to EBID are made using the following diversion points:

Arrey Canal
Percha Lateral

Irrigations from Leasburg Canal above gaging station (provided by EBID)

Leasburg Canal

California Lateral (provided by EBID)

West Side Canal (NM portion)
East Side Canal (NM portion)
Del Rio Lateral

Duran Pump from River
Greenwood Pump from River

Credit will be given for sluice water ordered far enough in advance so that it can be used to meet downstream deliveries. The District must specify the canal, wasteway, quantity, and time period to be utilized for the sluicing. The sluice water request will be part of the normal order.

An example written notification of allocation charges for EBID is attached as Exhibit No. 7a.

Charges to the Districts from the West Side Canal will be computed as follows:

West Side Canal Heading	=	A
La Union West Heading	=	B
La Union East Heading	=	C
EPCWID Portion of B	=	B_T
EPCWID Portion of C	=	C_T

The EPCWID portion of B and C is based on the ratio of EPCWID's order to the total order. This percentage is then applied to the actual flows at B and C to derive B_T and C_T

A 15% transportation loss is used between A and the state line of which 1/3 or 5% is used between B and C and the state line.

$$\text{EPCWID} = B_T + C_T - 5\% (B_T + C_T)$$

$$\text{EBID} = A - (B_T + C_T) - 15\% (B_T + C_T)$$

2. EPCWID

Charges to EPCWID are made using the following diversion points:

3 points east - since 1983
since 1979 since district took over

{	EPWID	—	East Side Canal (Texas portion)
	{	EBID	—
—		La Union West Canal (Texas portion)	
—		Franklin Canal	
—		City of El Paso Water Treatment Plants	
			Riverside Canal

Ascarate wasteway discharges to the Rio Grande are subtracted from allocation charges made at the diversion points.

An example written notification of allocation charges for EPCWID is attached as Exhibit No. 7b.

3. Explanation of Stateline Charges

a. East Side Canal - A measurement station was constructed by the Bureau on the Three Saints Lateral near the New Mexico-Texas state line. Flows past this gage will be charged against EPCWID. The District reserves the right to evaluate this measuring device or others that may be installed for accuracy.

EBID charges for East Side Canal will be as follows:

EBID charges for East Side Canal = Flow at East side Canal Heading - Flow at Stateline in Three Saints Lateral (charged to EPCWID) - Transportation loss of 20% X EPCWID charge.

b. West Side Canal - Diversions made into the West Side Canal are for both the EBID and the EPCWID. Flows are measured at the headings of the West Side, La Union East and La Union West Canals by the Bureau.

4. Diversions by the City of El Paso

The City of El Paso diverts water from the Franklin Canal for use in the William Elvius Robertson and B.J. Umbenhauer Water Treatment Plants (WTP). The City's water rights are based on 2,000 acres of land owned and approximately 3,720 acres of land leased by the City. The allocation to the City of El Paso is made by the EPCWID under the terms of the several contracts between the City and the District.

In addition to the water allocation described above, the City is entitled to divert any water in the Rio Grande which is excess to project needs and cannot be diverted by Hudspeth, as determined by the Project Superintendent.

If the City is diverting less than their full capacity of about 70 cfs, and if there is a spill below Riverside Dam or Riverside Canal Wasteway Nos. 1 and 2, the City will be notified by the Bureau of Reclamation and the diversion at the WTP can be increased by an amount not to exceed the amount spilled. The Bureau of Reclamation will notify the City when the spill has ceased and the water is no longer available. The additional amount of water diverted in this manner will not be charged against the allotment for the City of El Paso.

5. Transport of Water to Hudspeth

The amount of water at Riverside Diversion Dam is occasionally in excess of the EPCWID's order. This is due to a number of factors including climatic conditions, arroyo flows, and over release by the Bureau. The EPCWID will not be charged for water exceeding their order by amount set forth in the following table unless they choose to divert it for their use. Otherwise, the excess water (up to system capacity) will be transported through the EPCWID's system and delivered to Hudspeth, less system losses of 20%. This will result in more beneficial use of the water than if it were left in the river to be diverted by Hudspeth. The designated route for such water will be from Riverside Diversion Dam through the Riverside Canal and Riverside Extension Canal and into The Fabens Waste Channel at the Tornillo Canal Heading. The water will be measured at Riverside Heading and at the point of discharge to the Fabens Waste Channel. A travel time of 14 hours will be used.

The table below shows allowable deviations from requested water order at the Riverside Canal diversion:

<u>EPCWID Order (CFS)</u>	<u>Permissible Departure from Order (Range CFS)</u>
100	50-150
200	150-250
300	250-350
400	350-450
500	450-550
600	540-660
700	630-770
800	720-880
900*	810-990

*Canal Capacity

Any deviation from the Franklin Canal or City of El Paso water orders will have an effect on the amount of water arriving at the Riverside Canal Heading.

Under contract dated April 27, 1951, with the Bureau of Reclamation, the Hudspeth District is entitled to the use of return flows, operational waste and drainage flows leaving the Rio Grande Project through the Tornillo Canal, the Fabens waste channel at the diversion point of the Hudspeth Feeder No. 1, and the Tornillo Drain outlet. Payment for the rental of said water is based upon the acreage irrigated in the Hudspeth District modified if the amount of water available for diversion during the period March 1 - September 30 is less than 5.0 acre-feet per acre of land actually irrigated in the Hudspeth District during the year.

6. Early Water Order by One District

When one District orders water earlier than the other, charges to that District will be the Caballo Dam release plus drains and sewage effluent or at the normal diversion points, whichever is the larger amount. Once the irrigation season starts for both Districts, charges will be made as described by paragraphs III-D-1 and III-D-2, above. In years of less than a full allotment, the districts will make every effort to start the irrigation season at the same time.

7. End of Irrigation Season

After the gates at Caballo Dam have been closed, allocated water will be charged to the Districts until such time that the stored water is no longer available at their respective headings. This time interval will be limited to the actual run down time, but in no case will exceed the upper time limits as given in Article III.B.2.

IV. Exchange of Information

A. Allocation Water Charges

The Bureau will provide the EBID and the EPCWID written notification of allocation water charges by the 10th of each following month. A sample notification for each District is attached. (Exhibits No. 7a and No. 7b.)

Monthly hydrographic data on the use of allocated water are to be given to each District by the 10th calendar day of the following month. Any subsequent corrections or adjustments to these data will be furnished promptly to the Districts by the Bureau. Upon requests by either District, the Bureau will furnish copies of current meter measurements, rating tables, water stage recorder charts, meter readings, computations or other information requested to evaluate the accuracy of charges. Annual tabulations of water records, including reservoir information, will be furnished by the Bureau to the Districts, in final form, by the 1st of March of the following year.

B. Communications

1. The Bureau will provide timely information of any unusual circumstances which could affect the water deliveries to the Districts or Mexico.

2. The EBID and EPCWID will immediately notify the Bureau concerning ditch breaks, unusual operating conditions, climatic conditions, or other major disruptions to orderly irrigation operations.

3. The Bureau will provide river status information daily to the Districts (see Exhibit 8 Daily Operational Status). Additional information or assistance may be requested anytime during the Bureau's operating hours. Any requests for information or assistance during nonoperating hours should be limited to emergencies and not routine items.

4. The project water operations office and field operating hours during the irrigation season will be as follows:

	<u>Office</u>	<u>Field</u>
Weekdays	6:00 am to 4:30 pm	NM: 6:00 am to 6:00 pm TX: 6:00 am to 2:30 pm
Weekends	(None)	NM: 6:00 am to 2:30 pm TX: 6:00 am to 2:30 pm

5. Information or assistance is available anytime during operating hours or in emergency situations during nonoperating hours at:

(915)541-7745

(Phone calls to this number are automatically transferred after operating hours to the home of the river operations manager).

If unable to obtain assistance in emergency situations during nonoperating hours at (915)541-7745, please telephone the following individuals, in order:

1st Max Sierra	(915)751-3398
2nd Rey Sanchez	(915)598-8708
3rd David Overvold	(915)592-5168

C. Information from EBID to Bureau

EBID will provide the Bureau the following:

1. Water orders on Tuesday and Friday by 10:00 am
2. Precipitation and wasted data daily by 10:00 am
3. Irrigation deliveries from Leasburg Canal above gaging station and the California Extension Lateral by 5th of each month
4. Crop report information by December 15, each year
5. Water charges to the farms by December 15, each year

D. Information from EPCWID to Bureau

EPCWID will provide the Bureau with the following:

1. Water orders on Tuesday and Friday by 10:00 am
2. Waste report by the 5th of each month
3. Crop report information by January 15th, each year
4. Water charges to the farms by January 15th, each year.

E. Meetings of Watermasters

The watermasters from the Districts and the Chief of the Bureau Water Operations Branch will meet at least monthly or as mutually determined during the irrigation season to discuss operations.

These meetings may be attended by other personnel from the District or Bureau as necessary. These meetings are intended to maintain open lines of communication and provide more efficient operation of the system .

F. Annual Operating Plan

The Bureau will prepare an annual operating plan (AOP) each year for the Rio Grande Project. The AOP will summarize data on the past year's operation and forecast for the upcoming year. Such data will include reservoir inflows and outflows and contents, river diversion by each District and Mexico, acres irrigated and farm deliveries, and river and distribution system efficiencies. A draft will be provided by the Bureau to the Districts by February 1 of each year for review and comments. District comments will be due by February 15. The final document will be distributed by March 15 to:

1. EPCWID
2. EBID
3. HCCRD
4. IBWC
5. Bureau
6. Rio Grande Compact Commissioner for Texas

G. Monthly Water Distribution Sheets

Each year the Bureau prepares monthly water distribution sheets summarizing water operations by each District. These forms will be completed and a copy provided to EBID, EPCWID and HCCRD by February 1 of each year.

H. Monthly Water Supply and Condition Report

Beginning the 1st of the month after adoption of this agreement and continuing on a monthly basis, the Bureau agrees to issue a written notice concerning the water supply conditions on the Rio Grande Project and the Upper Rio Grande Basin. This notice will include, but not be limited to, the following:

1. Storage in Elephant Butte and Caballo Reservoirs
2. Amount of non-project water storage
3. Amounts of project water stored above Elephant Butte in the Upper Rio Grande Basin
4. General watershed conditions as to snowpack and soil moisture assessments during the winter season
5. Current release from Elephant Butte Caballo Reservoir
6. Current inflow to Elephant Butte and Caballo Reservoir

I. Updating of Operating Agreement

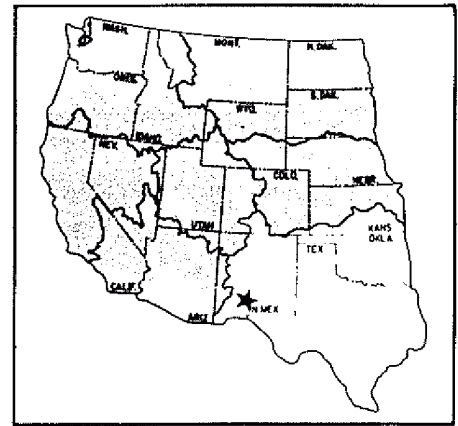
The EBID and EPCWID and the Bureau will meet annually, or more frequently if requested by one of the three parties, to review this operating agreement. The agreement may be modified as determined to be necessary. No unilateral departure from this agreement is permitted.

Should there be a significant change in hydrologic parameters affecting the allotment computations and/or procedures outlined in this agreement, any party to the agreement may request reevaluation of hydrologic conditions with changes made to the method of determining allocations as mutually agreed.

Rio Grande Project

New Mexico: Dona Ana, Sierra, and Socorro Counties
Texas: El Paso County

Southwest Region
Bureau of Reclamation

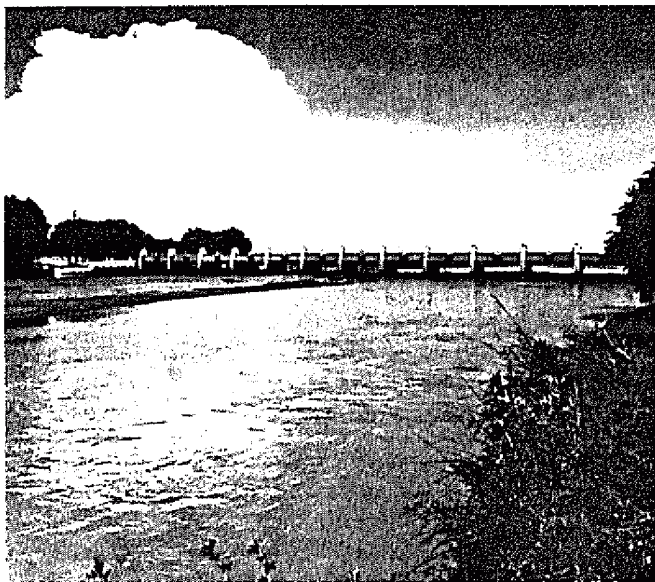


The Rio Grande Project furnishes a full irrigation water supply for about 178,000 acres of land, and electric power for communities and industries in the area. Drainage water from project lands provides a supplemental supply for about 18,000 acres in Hudspeth County, Tex. Project lands occupy the river bottom land of the Rio Grande Valley in south-central New Mexico and west Texas. About 60 percent of the lands receiving water are in New Mexico; 40 percent are in Texas.

Physical features of the project include Elephant Butte and Caballo Dams, 6 diversion dams, 139 miles of canals, 457 miles of laterals, 465 miles of drains, and a hydro-electric powerplant. The project is operated as two divisions: The Water and Land Division, and the Power and Storage Division.

PLAN

Storage for the project is provided in the Elephant Butte and Caballo Reservoirs. Water used for winter power generation at Elephant Butte is held in Caballo Reservoir



Mesilla Diversion Dam

for irrigation use during the summer. Diversions for project irrigation are made at four points on the Rio Grande below the storage reservoirs.

Elephant Butte Dam, Reservoir, and Powerplant

Elephant Butte Dam and Reservoir (originally called Engle Dam) on the Rio Grande, 125 miles north of El Paso, Tex., can store 2,210,298 acre-feet¹ of water to provide irrigation and year-round power generation. This is a concrete gravity dam 301 feet high and 1,674 feet long including the spillway. It contains 618,785 cubic yards of concrete. The dam was completed in 1916, but storage operation began in 1915.

The power system consists of a 24,300-kilowatt hydro-electric powerplant at Elephant Butte Dam. A system consisting of 490 miles of 115-kilovolt transmission line and 11 substations totaling 81,750 kilovolt-amperes, which was developed and operated by the Rio Grande Project until 1977, has been sold to a private electric company.

Caballo Dam and Reservoir

The Caballo Dam and Reservoir are on the Rio Grande 25 miles downstream from Elephant Butte Dam. The dam is an earthfill structure 96 feet high and 4,590 feet long, and has a capacity of 343,990 acre-feet of water. Water discharged from the Elephant Butte Powerplant during winter power generation is impounded at Caballo Dam for irrigation use during the summer.

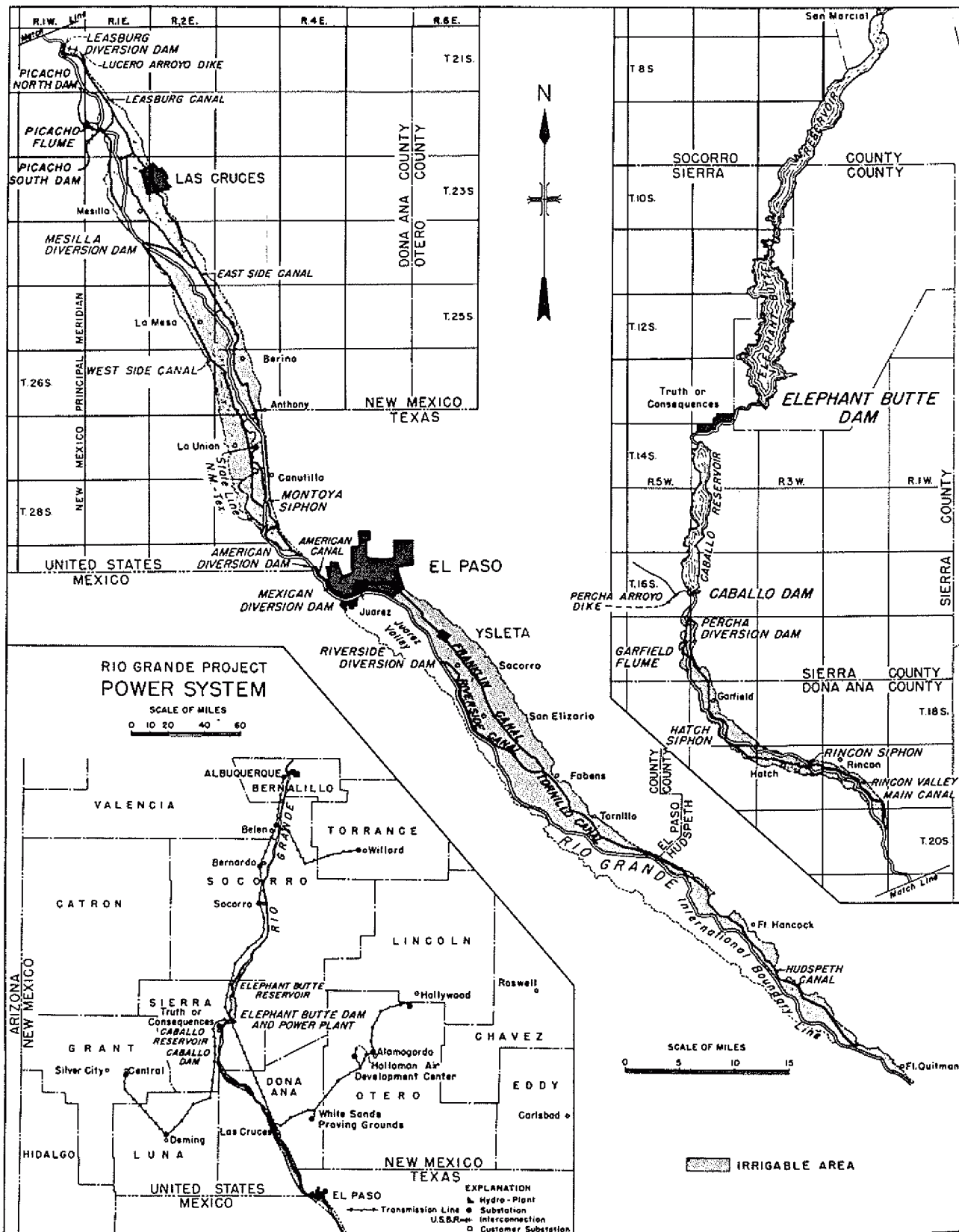
Percha Diversion Dam and Canal System

Percha Diversion Dam is on the Rio Grande, 2 miles downstream from Caballo Dam. It diverts water into the Rincon Valley Main Canal. The dam is a concrete ogee weir with embankment wings.

The Rincon Valley Main Canal, which carries water for the irrigation of 16,260 acres in the Rincon Valley, is

¹1981 silt survey correction.

Rio Grande Project



Rio Grande Project

28.1 miles long, and has an initial capacity of 350 cubic feet per second. The canal crosses over the Rio Grande in the Garfield Flume and under the river in the Hatch and Rincon Siphons.

Leasburg Diversion Dam and Canal System

Leasburg Diversion Dam, on the Rio Grande 62 miles north of El Paso at the head of Mesilla Valley, is a concrete ogee weir with embankment wings. This structure diverts water into the Leasburg Canal for the upper 31,600 acres of the Mesilla Valley irrigation system.

Leasburg Canal, which conveys irrigation water to Mesilla Valley, is 13.7 miles long and has an initial capacity of 625 cubic feet per second. Picacho North and Picacho South Dams provide flood protection to part of the Leasburg Canal system by blocking two arroyos northwest of Las Cruces, N. Mex.

Mesilla Diversion Dam and Canal System

Mesilla Diversion Dam, on the Rio Grande 40 miles north of El Paso, is a low concrete weir, radial gate structure, 22 feet high, flanked by levees. This structure diverts water into the East Side and West Side Canals for the lower 53,650 acres of the Mesilla Valley irrigation system.

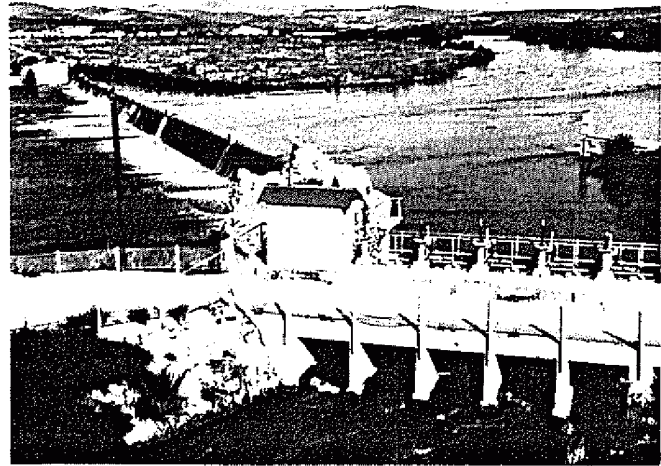
East Side Canal is 13.5 miles long and has an initial capacity of 300 cubic feet per second. West Side Canal is 23.5 miles long and has an initial capacity of 650 cubic feet per second. Near its terminus, the West Side Canal system crosses under the Rio Grande in the Montoya Siphon.

American Diversion Dam and Canal System

American Diversion Dam, on the Rio Grande 2 miles northwest of El Paso and immediately above the point where the river becomes the international boundary line, diverts irrigation water to El Paso Valley. The 18-foot-high dam is a radial-gate structure between earthfill dikes. It is operated by the American Section of the International Boundary and Water Commission to regulate delivery of water to Mexico in accordance with treaty provisions.

American Canal, also constructed and operated by the American Section of the International Boundary and Water Commission in connection with the American Diversion Dam, carries water 2.1 miles from the dam to the head of Franklin Canal. The canal capacity is 1,200 cubic feet per second.

Franklin Canal, which conveys water to El Paso Valley, is 28.4 miles long, has an initial capacity of 325 cubic



Leasburg Diversion Dam

feet per second, and serves 17,000 acres in the upper portion of the valley. It was privately constructed about 1889, and was acquired by the Bureau of Reclamation in 1912 to become one of the project's main canals.

Riverside Diversion Dam and Canal System

Riverside Diversion Dam, the southernmost project diversion point, is on the Rio Grande 15 miles southeast of El Paso, and diverts water into the Riverside Canal. This 17.5-foot-high, radial-gate concrete structure has a flood bypass weir and is flanked by river levees.

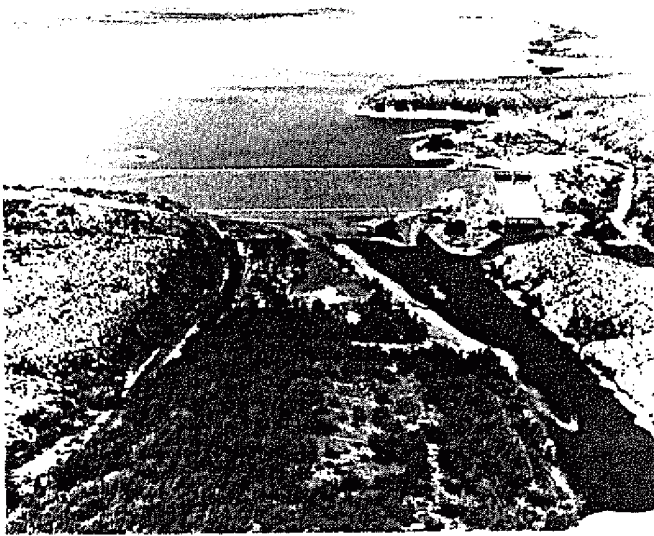
Riverside Canal is 17.2 miles long, has an initial capacity of 900 cubic feet per second, serves 39,000 acres in the lower portion of the valley, and carries any available surplus through to the Hudspeth District. Tornillo Canal, a continuation of Riverside Canal, is 12 miles long and has an initial capacity of 325 cubic feet per second.

DEVELOPMENT

Early History

There is evidence that the mild climate, rich soil, and easily accessible irrigation water of the Rio Grande Valley have attracted human habitation for many hundreds of years. When the Spanish explorers arrived in the valley in the first half of the 16th century, the Pueblo Indians were irrigating crops, using primitive methods which continued until the early part of the 20th century.

Between 1840 and 1850, various areas of the valley were irrigated by constructing canals and simple diversion structures at strategic points along the Rio Grande. These structures could not withstand the river in flood,



Caballo Dam

and were a source of continual annoyance until they were supplanted by more modern diversion structures.

Investigations

About 1890, extensive settlement and irrigation development in southern Colorado, in addition to that which had already taken place in central New Mexico, depleted the normal summer flow of the Rio Grande, causing the river to be dry at El Paso for more frequent and longer periods. Several small and local storage developments were proposed, but conflicting interests, including Mexico's claims for loss of water based on ancient prior right, prevented the culmination of any of them. These conflicting interests were resolved in 1904 when it was reported that a reservoir could be created by construction of a dam at Elephant Butte which would provide sufficient water to meet all requirements.



Riverside Diversion Dam

The Rio Grande Project was among the first to receive attention after the passage of the Reclamation Act in 1902. Investigation surveys were begun on the project in 1903 and a feasibility report was made in 1904.

Authorization

Construction of the Rio Grande Project was authorized by the Secretary of the Interior on December 2, 1905, under the provisions of the Reclamation Act, and funds were allocated to initiate construction of the first diversion unit. The Reclamation Act was extended to the entire State of Texas on June 12, 1906, following a partial extension for Engle (Elephant Butte) Dam in 1905.

Congress authorized the construction of Elephant Butte Dam on February 25, 1905, and on May 4, 1907, \$1 million of nonreimbursable funds were appropriated as the State Department's share for allocation by treaty of 60,000 acre-feet of water annually to Mexico. Additional project works authorized under congressional action include Caballo Dam, a combined flood-control and power-regulating structure, and the Elephant Butte power development.

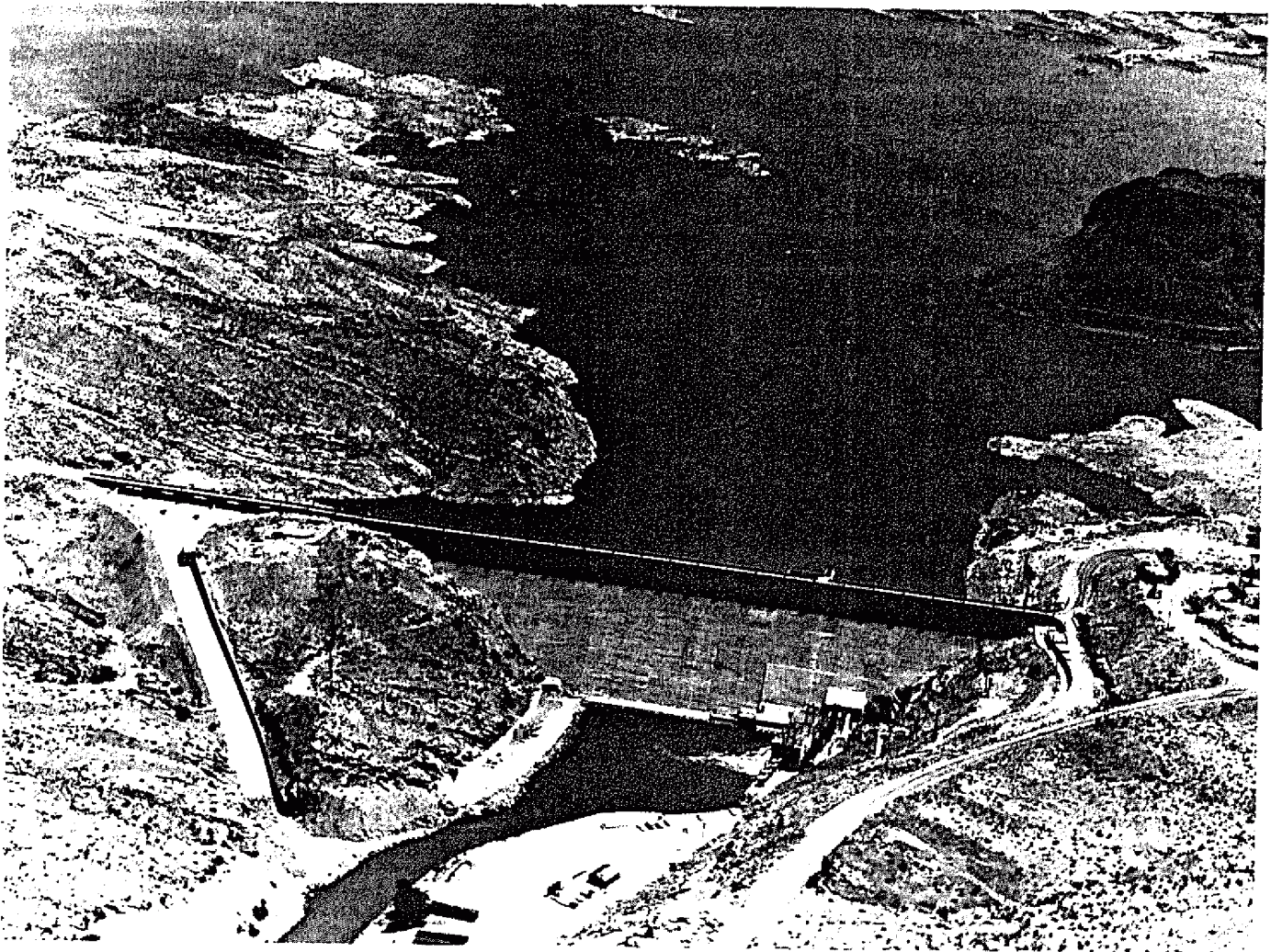
Construction

Construction was begun in 1906 on Leasburg Diversion Dam and Canal. The dam and 6 miles of canal were completed in 1908.

Construction of Elephant Butte Dam was begun in 1908 but progress was delayed when difficulty in obtaining reservoir land developed. Construction of the dam began again in 1912 and was completed in 1916; storage operation began in January 1915.

The Franklin Canal was constructed in 1889-90 by El Paso Irrigation Company, was purchased by the Bureau of Reclamation in 1912, and was enlarged in 1914-15. Additional project works, consisting of Mesilla Diversion Dam and the East Side and West Side Canals, Percha Diversion Dam and Rincon Valley Canal, and an extension of Leasburg Canal were constructed during 1914-19.

In 1917-18, contracts were entered into for the construction of distribution laterals and a drainage system in addition to storage and diversion works. A critical seepage condition had developed because of the rising groundwater table, and construction of the drainage system, which was begun in 1916, was expedited. During 1918-29, reconstruction and extension of old community ditches, and construction of new laterals to form a complete irrigation distribution and drainage system were in progress. Improvements have been added from time to time since 1930.



Elephant Butte Dam

Caballo Dam was included as a flood control unit in the Rio Grande Rectification Project and part of its cost was allocated to that purpose. It made year-round power generation at Elephant Butte Dam possible and part of the cost was allocated to that purpose, but it also provided replacement for storage lost at Elephant Butte due to silt deposition. This dam was built in 1936-38, followed by construction of the Elephant Butte Powerplant in 1938-40. Construction of the power transmission system, begun in 1940, was completed in 1952.

Operating Agencies

Operation and maintenance in the New Mexico portion of the project area is directed by the Elephant Butte Irrigation District. The Bureau's Rio Grande Project Office directs operation and maintenance of Elephant Butte Dam and Powerplant, Caballo Dam, Percha Arroyo Dike, Picacho North and South Dams, and reserved works consisting of Percha, Leasburg, Mesilla, and Riverside Diversion Dams. El Paso County Water

Improvement District No. 1 operates and maintains the Texas portion of the project area.

BENEFITS

Irrigation

The project is divided into some large family-owned and many small farming units. Principal crops are cotton, alfalfa, vegetables, pecans, and grain.

Recreation

Elephant Butte Reservoir has a surface area of 36,897 acres at conservation pool water surface elevation 4407.0. Located midway between Albuquerque, N. Mex., and El Paso, Tex., in scenic semidesert mountain terrain, it is popular throughout the entire Southwest for boating, fishing, and swimming. Cabin sites, boat rental, and fishing tackle are available.

Rio Grande Project

Caballo Reservoir has a surface area of about 11,500 acres. In rough desert terrain 17 miles south of Truth or Consequences, N. Mex., it provides an all-year recreation program of picnicking, boating, and fishing.

PROJECT DATA

Land Areas (1981)

Irrigable area:	
Full irrigation service	178,196 acres
Supplemental irrigation service provided from project drainage water under Warren Act contract	18,342 acres
Total	196,538 acres
Number of irrigated farms	4,927

Area Irrigated and Crop Value

Year	Area irrigated, acres	Crop value, dollars
1968	147,512	41,077,177
1969	152,369	38,958,946
1970	155,416	35,112,514
1971	148,650	38,763,356
1972	139,956	42,006,232
1973	148,270	59,410,412
1974	150,723	62,409,624
1975	151,162	66,879,431
1976	152,727	88,025,016
1977	147,012	86,560,215
1978	139,544	90,976,372
1979	146,073	102,006,345
1980	145,785	136,670,577
1981	146,728	143,024,963

Facilities in Operation

Storage dams	2
Diversion dams	6
Canals	139 mi
Laterals	457 mi
Drains	465 mi
Powerplants	1

Climatic Conditions

Annual precipitation	7.8 in
Temperature:	
Maximum	111 °F
Minimum	-16 °F
Mean	64 °F
Growing season	247 days
Elevation of irrigable area	3500-4100.0 ft

Settlement

Number of persons served with project water (1981):	
Farm irrigation service	17,121
Municipal water service (est)	426,700
Other water service ²	31,369
Total	475,190

²Urban and suburban, residential, commercial, and industrial lands.

Gross Power Generation

Fiscal Year	Elephant Butte Powerplant (kWh)	Fiscal Year	Elephant Butte Powerplant (kWh)
1968	46,409,800	1976	73,502,500
1969	47,616,700	*	19,591,500
1970	68,594,800	1977	34,095,600
1971	54,367,200	1978	30,385,100
1972	21,287,500	1979	61,923,000
1973	45,458,000	1980	92,464,500
1974	81,846,600	1981	85,389,900
1975	59,000,500		

*Transition Quarter

ENGINEERING DATA

Water Supply

RIO GRANDE

Drainage area at San Marcial, N. Mex.	24,760 mi ²
Elephant Butte Reservoir	25,960 mi ²
Caballo Reservoir	27,260 mi ²
Annual discharge at San Marcial, N. Mex.:	
Maximum (1941)	2,831,000 acre-ft
Minimum (1951)	114,100 acre-ft
Average	905,700 acre-ft
Average annual diversion, 1938-78 ³	617,000 acre-ft

³Normal annual release from Caballo Reservoir in accordance with Rio Grande Compact is 790,000 acre-ft.

Storage Facilities

ELEPHANT BUTTE DAM⁴

Type: Concrete gravity

Location: On the Rio Grande 4 mi east of Truth or Consequences, N. Mex.

Construction period: 1912-16. Spillway channel below dam added in 1921 and modified in 1947, service outlet deflectors added in 1944, powerplant added in 1940.

Date of closure (first storage): 1915

Reservoir, Elephant Butte:

Average annual inflow, 1895-1955	905,700 acre-ft
Total capacity to El. 4407 ⁵	2,110,298 acre-ft
Active capacity	2,060,000 acre-ft
Surface area at El. 4407	36,897 acres

Dimensions:

Structural height	301 ft
Hydraulic height	197 ft
Top width	18 ft
Maximum base thickness	228 ft
Crest length	1,674 ft
Crest elevation	4414.0 ft
Total volume	618,785 yd ³

Spillway: Uncontrolled concrete ogee weir and concrete-lined chute at right end of dam, with four 10-ft-diameter circular openings through base of weir, each controlled by one cylindrical gate.

Crest length	295 ft
Crest elevation	4407.0 ft
Capacity at El. 4415:	
Weir	26,000 ft ³ /s
Conduits	8,750 ft ³ /s
Outlet works: All located through dam near left abutment.	

⁴All elevations refer to project datum; add 43.3 feet for sea level.

⁵Original total constructed capacity 2,634,800 acre-ft.

Service: Four conduits, each controlled by one 60-in balanced valve.
 Sluicing: Two conduits, each controlled by one 47- by 60-in slide gate.
 Power: Six penstock openings leading to 73-in steel penstocks that join in pairs at the face of the dam to form three 96-in penstocks leading to powerplant.

Capacity:

Service at El. 4407 5,300 ft³/s
 Sluicing at El. 4317 2,200 ft³/s
 Power at El. 4407 2,100 ft³/s

Foundation: Hard, sound, fissured sandstone in irregular beds, containing pockets and interbedded strata of friable shale and numerous small springs throughout foundation area.

Special treatment: Cement grout curtain beneath upstream cutoff trench, special grouting of fissures and springs.

Mass concrete: Crushed rock and rock screenings blended with sand for aggregate; cement a blend of portland (52%) and pulverized sandstone (48%); natural temperature control; quarried stones amount to 15% of total volume.

Volume excluding spillway 605,200 yd³

Maximum size aggregate 3.5 in

Massive rock, maximum weight 8 tons per piece placed in green concrete.

Average net water-cement ratio by weight:

Interior concrete 0.80

Exterior concrete 0.65

Cement content:

Interior concrete 1.0 bbl/yd³

Exterior concrete 1.4 bbl/yd³

Contraction joints: Transverse joints spaced at 80- to 160-ft intervals below and 35 to 56.5 ft above El. 4312; faces coated with heavy oil, alternate blocks poured after initial cooling of adjacent blocks.

CABALLO DAM^a

Type: Zoned earthfill

Location: On the Rio Grande 17 mi south of Truth or Consequences, N. Mex.

Construction period: 1936-38

Date of closure (first storage): 1938

Reservoir, Caballo:

Average annual inflow, 1938-55 739,340 acre-ft

Total capacity to El. 4182 343,990 acre-ft

Active conservation capacity 183,990 acre-ft

Surface area at El. 4182 11,613 acres

Dimensions:

Structural height 96 ft

Hydraulic height 86 ft

Top width 35 ft

Maximum base width 660 ft

Crest length 4,590 ft

Crest elevation 4190.0 ft

Total volume 1,243,644 yd³

Spillway: Concrete-lined open channel in left abutment, controlled by two 50- by 22.5-ft radial gates.

Elevation top of gates (includes 1.5-ft splash plate) 4183.5 ft

Crest elevation 4161.0 ft

Capacity at El. 4182 30,000 ft³/s

Outlet works: Concrete-lined tunnel through left abutment controlled by two 6- by 7.5-ft high-pressure slide gates. A 30-in-diameter steel pipe located below tunnel invert and extending from gate chamber, controlled by one 30-in gate valve, serves the Bonita Lateral.

Capacity at El. 4182 5,000 ft³/s

Foundation: Gorge cut in compact red clay-bound conglomerate refilled with river deposits.

Special treatment: Cement grout curtain beneath cutoff walls; supplemental grouting of abutments.

PICACHO NORTH DAM

Type: Zoned earthfill

Location: On the North Branch of Picacho Arroyo about 5 mi northwest of Las Cruces, N. Mex.

Construction period: 1954

Reservoir, Picacho North:

Total capacity 790 acre-ft

Dimensions:

Max. structural height 42 ft

Top width 20 ft

Maximum base width 209 ft

Crest length 1,600 ft

Crest elevation 3942.0 ft

Total volume 155,200 yd³

Spillway: Open cut emergency spillway, about 500 ft west of south end of dam.

Crest length 200 ft

Crest elevation 3938.0 ft

Outlet works: Uncontrolled 42-in-diameter concrete conduit through base of dam.

Capacity at El. 3938 283 ft³/s

PICACHO SOUTH DAM

Type: Zoned earthfill

Location: On the South Branch of Picacho Arroyo about 5 mi northwest of Las Cruces, N. Mex.

Construction period: 1953-54

Reservoir, Picacho South:

Total capacity 460 acre-ft

Dimensions:

Max. structural height 29 ft

Top width 15 ft

Maximum base width 145 ft

Crest length 1,600 ft

Crest elevation 3945.0 ft

Total volume 86,920 yd³

Spillway: Emergency spillway consists of uncontrolled, riprap-lined open channel in right end of dam.

Crest length 100 ft

Crest elevation 3942.0 ft

Outlet works: Uncontrolled 36-in-diameter concrete conduit through base of dam.

Capacity at El. 3941 170 ft³/s

LUCERO DIKE

Type: Random earthfill

Location: On the Lucero Arroyo 14 mi north of Las Cruces, N. Mex.

Construction period: 1951

Capacity 475 acre-ft

Dimensions:

Max. structural height 21 ft

Top width 12 ft

Maximum base width 93 ft

Crest length 4,845 ft

Crest elevation 3934.0 ft

Total volume 101,475 yd³

Spillway: Rectangular chute at west end of dike.

Crest length 10 ft

Crest elevation 3930.0 ft

Rio Grande Project

Outlet works: Uncontrolled concrete conduit through base of dike.
Capacity at El. 3930

140 ft³/s

Diversion Facilities

PERCHA ARROYO DIKE*

Type: Rock-faced earthfill
Location: On Percha Arroyo, 1 mi west of Caballo Dam.
Year completed: 1939

Dimensions:

Structural height 29 ft
Hydraulic height 10 ft
Total crest length 2,489 ft
Crest elevation 4200.0 ft
Volume 193,000 yd³

Spillway: None

Headworks: Flood diversion channel, no gates, highway bridge and drop chute into Caballo Reservoir.

Diversion capacity 30,000 ft³/s

*Dike constructed to divert storm runoff into Caballo Reservoir; no direct connection with irrigation system.

PERCHA DIVERSION DAM

Type: Concrete ogee weir, embankment wings
Location: On the Rio Grande, about 2 mi south of Caballo Dam.

Year completed: 1918

Dimensions:

Structural height 18.5 ft
Hydraulic height 8 ft
Weir crest length 350 ft
Total crest length 2,720 ft
Crest elevation 4103.0 ft
Volume 43,200 yd³

Spillway: Overflow weir, 2 radial sluice gates, each 20- by 8-ft.

Headworks: Rincon Valley Main Canal headworks at west abutment: 8 slide gates, each 4.3 by 3.75 ft.

Diversion capacity 350 ft³/s

LEASBURG DIVERSION DAM

Type: Concrete ogee weir, embankment wings.
Location: On the Rio Grande, about 15 mi northwest of Las Cruces, N. Mex.

Year completed: 1907. Crest raised 1.25 ft in 1919.

Dimensions:

Structural height 10 ft
Hydraulic height 7 ft
Total crest length, dam, including weir 2,865 ft
Weir crest length 600 ft
Weir crest elevation 3922.25 ft
Volume 22,500 yd³

Spillway: Overflow weir, 3 slide sluice gates, each 5 by 8 ft.

Capacity⁷ 17,000 ft³/s

Headworks: Leasburg Canal headworks at abutment; 7 slide gates 5 by 6.75 ft.

Diversion capacity 625 ft³/s

MESILLA DIVERSION DAM

Type: Concrete weir, radial gate structure
Location: On the Rio Grande, 6 mi south of Las Cruces, N. Mex.

Year completed: 1916. Crest raised 1.66 ft in 1940.

Dimensions:

Structural height 22 ft
Hydraulic height 10 ft
Weir crest length 303 ft
Crest elevation 3819.83 ft
Volume 2,900 yd³

Spillways: Nine radial gates, each 21.58 by 6 ft; 4 radial gates, each 21.58 by 8.42 ft.

Capacity⁷ 15,000 ft³/s

Headworks: Canal headworks at each abutment. 8 slide gates, each 4.33 by 3.75 ft at west end; 6 slide gates, each 4.33 by 3.75 ft at east end.

Diversion capacity

West side 650 ft³/s
East side 300 ft³/s

AMERICAN DIVERSION DAM*

Type: Radial gate structure between river levees

Location: On the Rio Grande at El Paso, Tex.

Year completed: 1938

Dimensions:

Structural height 18 ft
Hydraulic height 5 ft
Weir crest length 286 ft
Crest elevation 3683.5 ft
Volume 2,900 yd³

Spillway: Thirteen radial gates, each 20 by 7.5 ft

Capacity⁷ 12,000 ft³/s

Headworks: American Canal headworks at east abutment; 2 radial gates, each 20 by 11 ft.

Diversion capacity 1,200 ft³/s

RIVERSIDE DIVERSION DAM

Type: Concrete weir, radial gate structure

Location: On the Rio Grande, 15 mi south-east of El Paso.

Year completed: 1928

Dimensions:

Structural height 17.5 ft
Hydraulic height 8 ft
Weir crest length 267 ft
Crest elevation 3621.07 ft
Volume 2,500 yd³

Spillway: Six radial gates, each 16 by 8.17 ft, overflow weir.

Capacity⁷ 11,000 ft³/s

Headworks: Riverside Canal headworks at east abutment; 5 radial gates, each 16 by 6 ft.

Diversion capacity 900 ft³/s

⁷These are the flood discharges which the International Boundary and Water Commission is using for the Rio Grande Channelization Project at the indicated points and are not necessarily the maximum which the dams will pass safely, nor which they were designed to pass.

*American Diversion Dam and Canal constructed and operated by American Section, International Boundary and Water Commission, United States-Mexico, for the diversion and allocation of water in accordance with treaty between the United States and Mexico.

Carriage Facilities

RINCON VALLEY MAIN CANAL

Location: From Percha Diversion Dam generally southeast along Rio Grande.

Construction period: 1916-19

Length 28.1 mi
Diversion capacity 350 ft³/s

Typical maximum section in earth:	
Bottom width	22 ft
Side slopes	2:1
Water depth	4.2 ft
Typical maximum section, concrete lined:	
Bottom width	14 ft
Side slopes	1.5:1
Water depth	4.2 ft
Lining thickness	4 in

GARFIELD FLUME (RINCON VALLEY MAIN CANAL)

Location: Rio Grande, about 4 mi south of Percha Diversion Dam.	
Description: Steel truss structure carrying twin barrels.	
Construction period: 1917-18	
Length	800 ft
Diameter: No. 156 Hess flume	
Capacity	320 ft ³ /s

HATCH SIPHON (RINCON VALLEY MAIN CANAL)

Location: Rio Grande, about 13 mi south of Percha Diversion Dam.	
Description: Reinforced concrete	
Construction period: 1918	
Length	650 ft
Diameter	6 ft
Capacity	200 ft ³ /s

RINCON SIPHON (RINCON VALLEY MAIN CANAL)

Location: Rio Grande, 21 mi south of Percha Diversion Dam.	
Description: Reinforced concrete	
Construction period: 1918-19	
Length	550 ft
Diameter	5 ft
Capacity	150 ft ³ /s

LEASBURG CANAL

Location: From Leasburg Diversion Dam on the Rio Grande about 15 mi northwest of Las Cruces, N. Mex., generally southeast along the river.	
Construction period (first 6 mi): 1906-08. Extended to 11 mi in 1915-16. Constructed to present length and capacity in 1921-22.	
Length	13.7 mi
Diversion capacity	625 ft ³ /s
Typical maximum section in earth:	
Bottom width	34 ft
Side slopes	1:1
Water depth	4 ft

EAST SIDE CANAL

Location: From Mesilla Diversion Dam on the Rio Grande about 6 mi south of Las Cruces, generally southeast along the river.	
Construction period (first 10.5 mi): 1914-15. Constructed to present length and capacity in 1918-19.	
Length	13.5 mi
Diversion capacity	300 ft ³ /s
Typical maximum section in earth:	
Bottom width	24 ft
Side slopes	1.5:1
Water depth	3.2 ft

WEST SIDE CANAL

Location: From Mesilla Diversion Dam on the Rio Grande about 6 mi south of Las	
--------------------------------------------------------------------------------	--

Cruces, generally southeast along the river.
Construction period (first 14.4 mi): 1914-15.
Constructed to present length and capacity in 1920.

Length	23.5 mi
Diversion capacity	650 ft ³ /s
Typical maximum section in earth:	
Bottom width	52 ft
Side slopes	1.5:1
Water depth	3 ft
Typical maximum section, concrete lined:	
Bottom width	52 ft
Side slopes	1.5:1
Water depth	3 ft
Lining thickness	4 in

AMERICAN CANAL

Location: From American Diversion Dam near El Paso, southeast along the Rio Grande to beginning of Franklin Canal.

Construction period: 1937-38	
Length	2.1 mi
Diversion capacity	1,200 ft ³ /s
Typical maximum section, concrete lined:	
Bottom width	12 ft
Side slopes	1.5:1
Water depth	8.75 ft
Lining thickness	3 in

FRANKLIN CANAL

Location: From end of American Canal, near El Paso, generally southeast along the Rio Grande.

Construction period: Privately constructed in 1889-90. Purchased by Reclamation in 1912 and enlarged in 1914-15.	
Length	28.4 mi
Diversion capacity	325 ft ³ /s
Typical maximum section in earth:	
Bottom width	24 ft
Side slopes	1.5:1
Water depth	5 ft
Typical maximum section, concrete lined:	
Bottom width	16 ft
Side slopes	0.5:1
Water depth	5 ft
Lining thickness	4 in

RIVERSIDE CANAL

Location: From Riverside heading on the Rio Grande near Ysleta, Tex., generally southeast along the river.

Construction period: 1927-40	
Length	17.2 mi
Diversion capacity	900 ft ³ /s
Typical maximum section in earth:	
Bottom width	84 ft
Side slopes	1.5:1
Water depth	4 ft

TORNILLO CANAL

Location: From end of Riverside Canal near Fabens, Tex., generally southeast along the Rio Grande.

Construction period: 1923-24	
Length	12 mi
Diversion capacity	325 ft ³ /s
Typical maximum section in earth:	
Bottom width	26 ft
Side slopes	1.5:1
Water depth	5.4 ft

Rio Grande Project

Power Facilities

ELEPHANT BUTTE POWERPLANT

Location: At toe of Elephant Butte Dam.

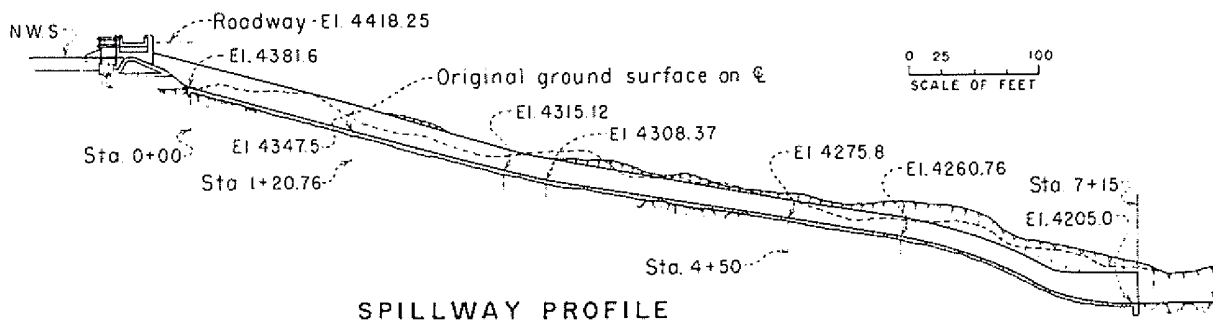
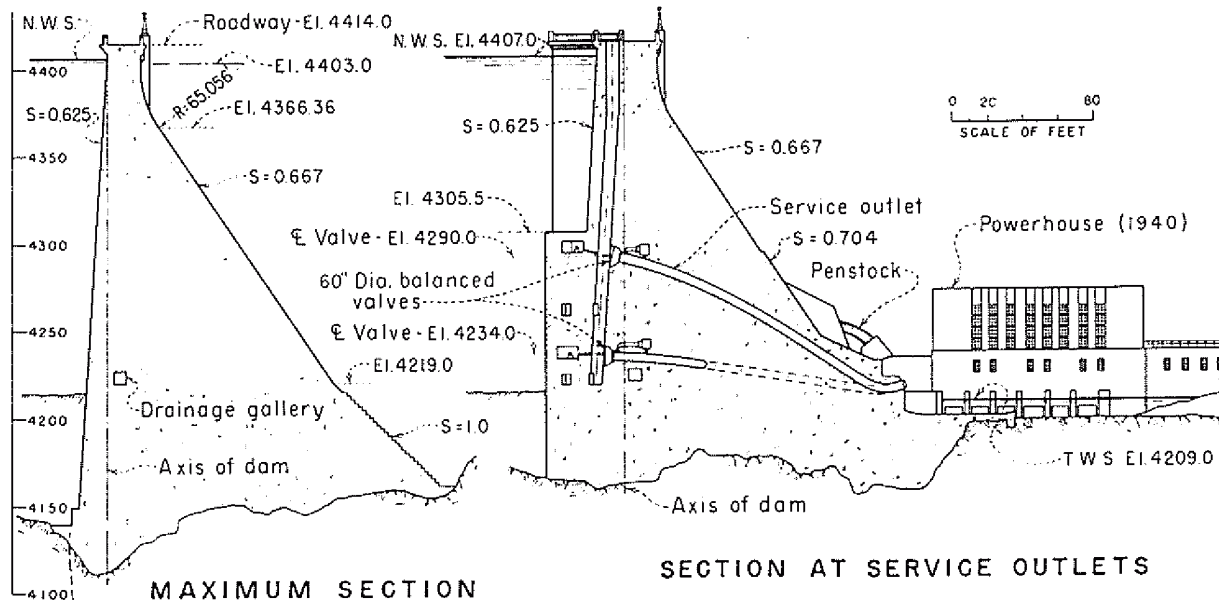
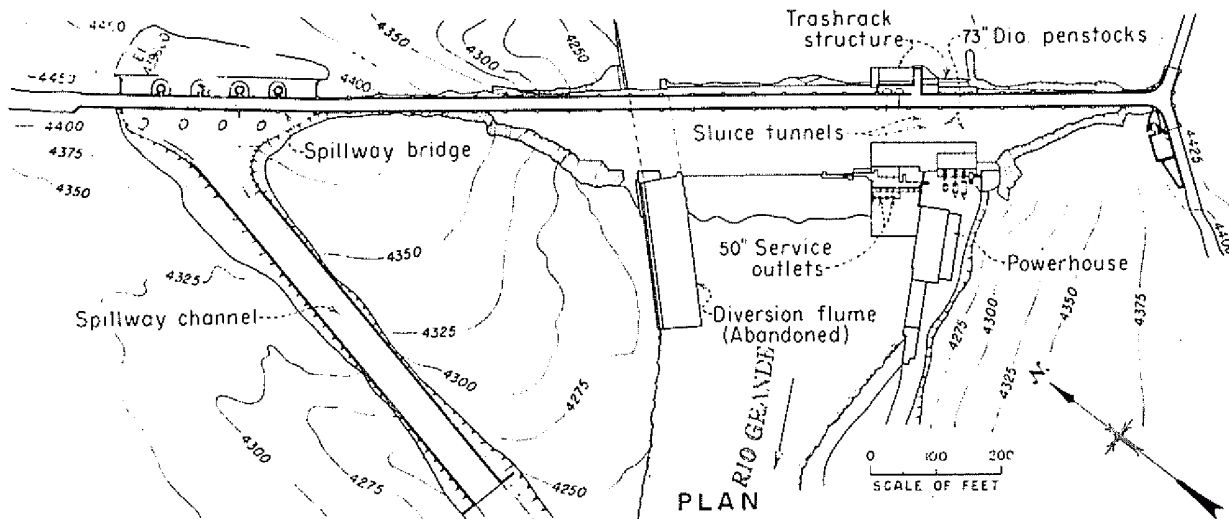
Year of initial operation: 1940

Year last generator placed in operation: 1940

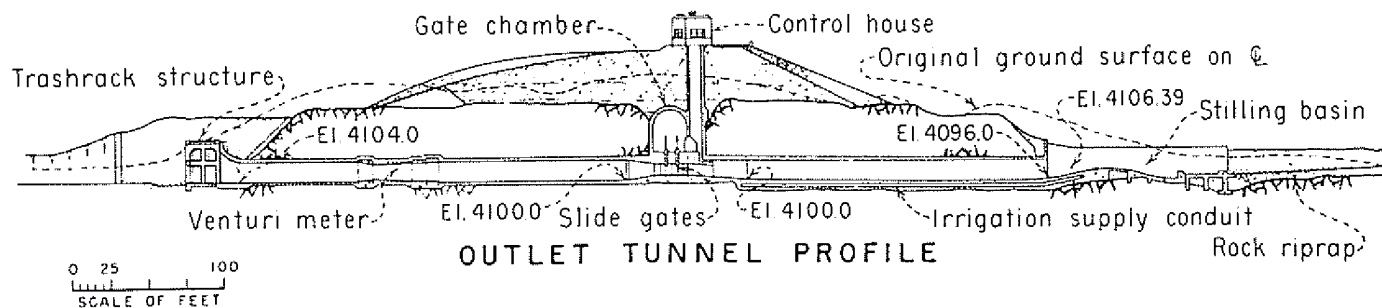
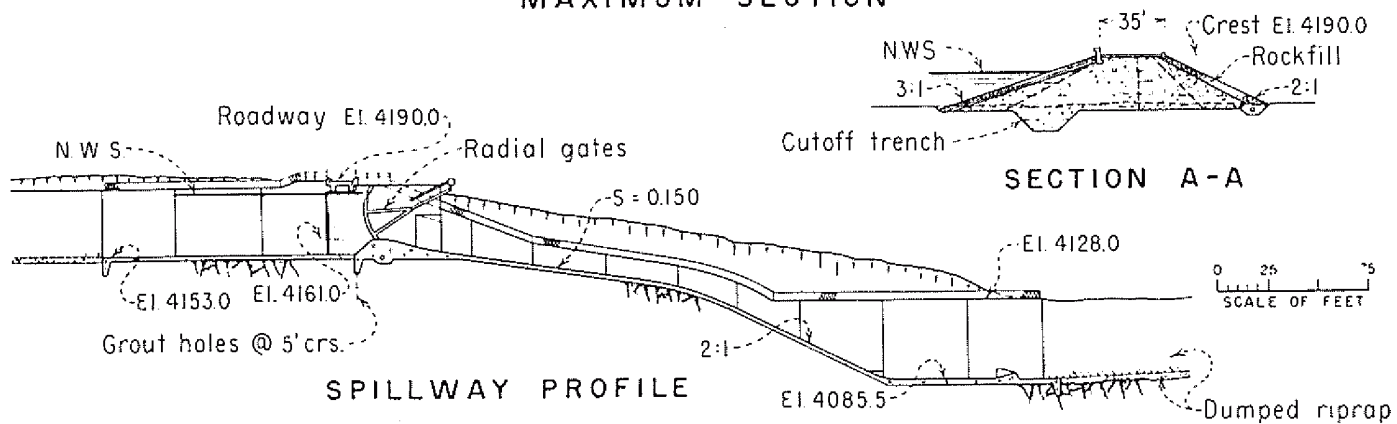
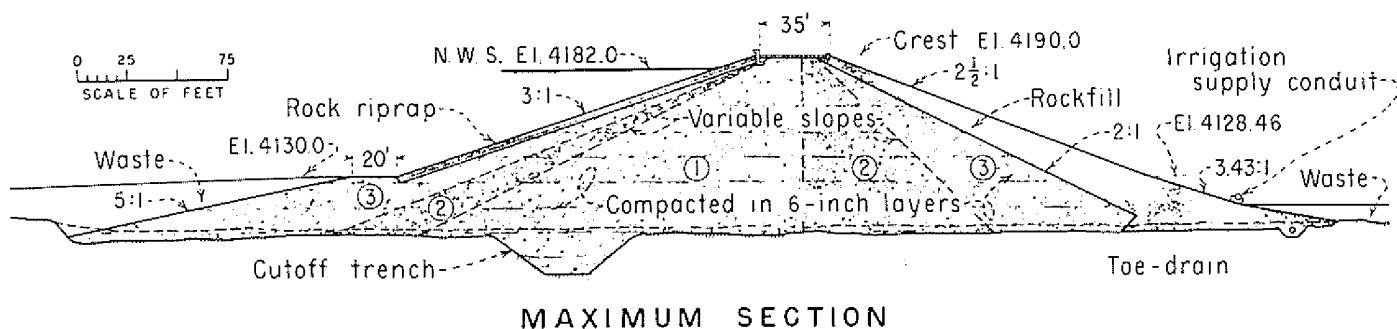
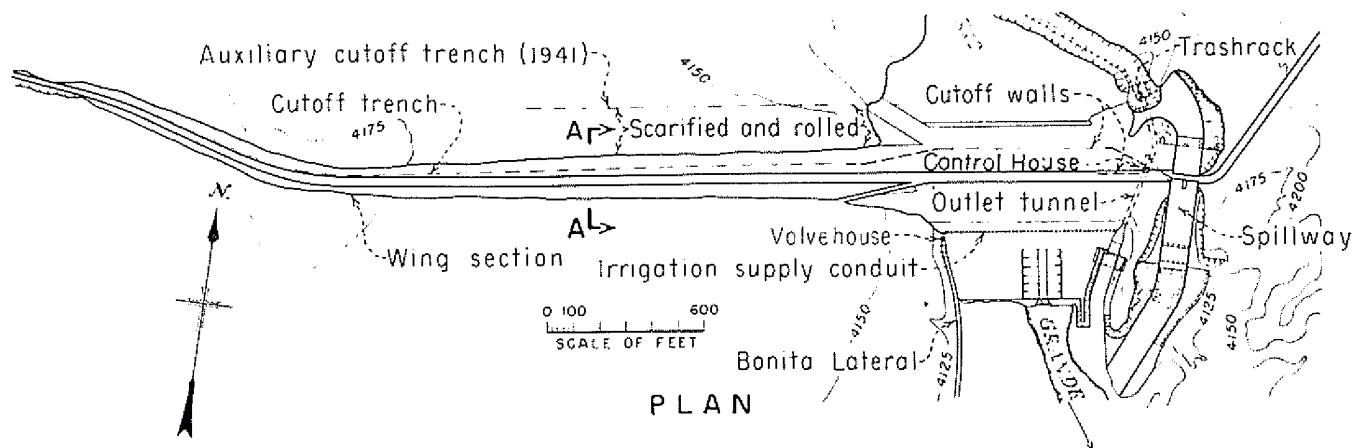
Nameplate capacity 24,300 kW

Number and capacity of generators (3) 8,100 kW

Maximum head 203 ft

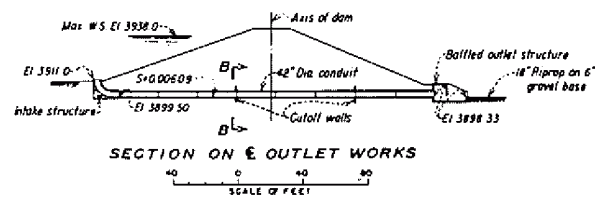
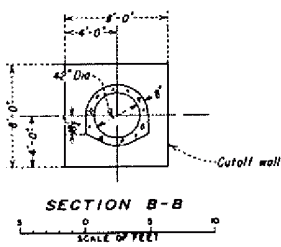
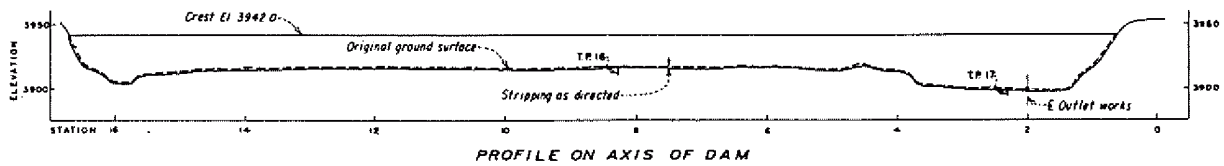
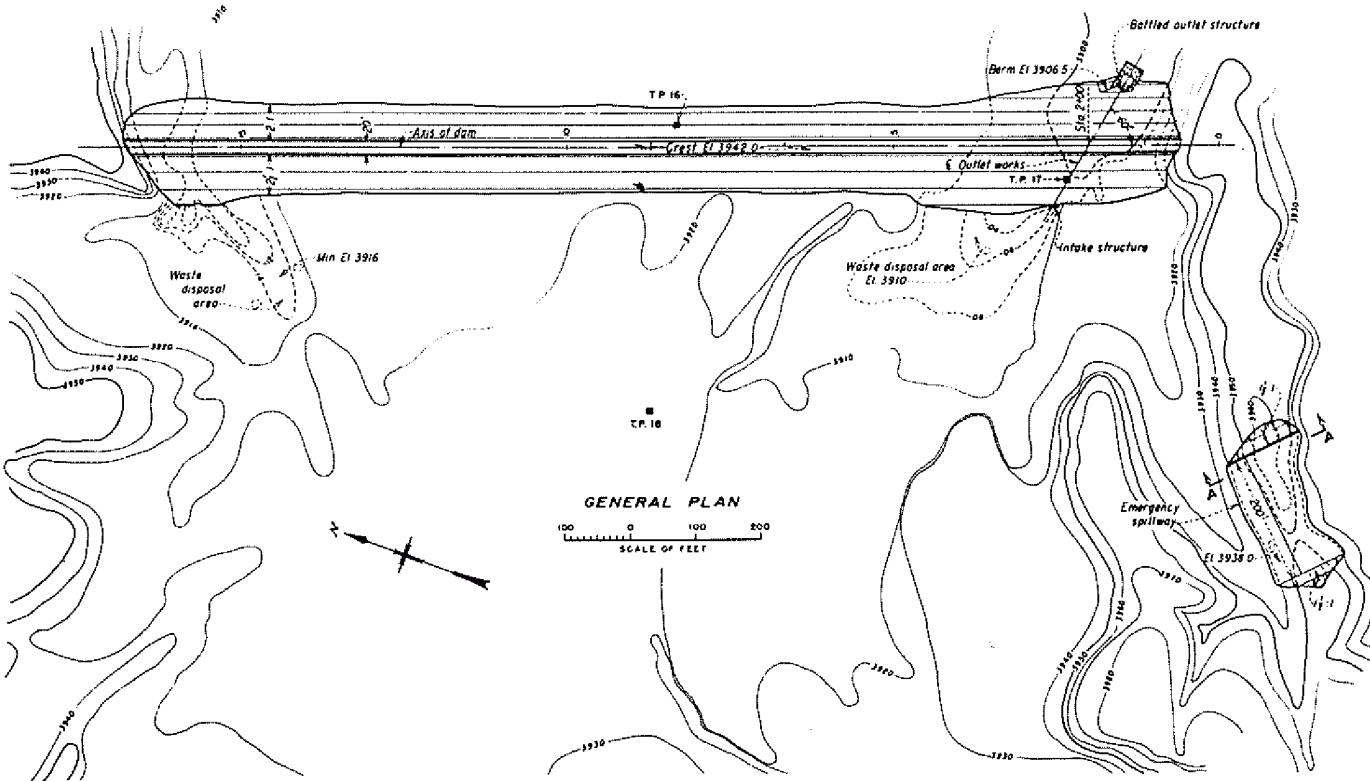


Elephant Butte Dam, Plan and Sections



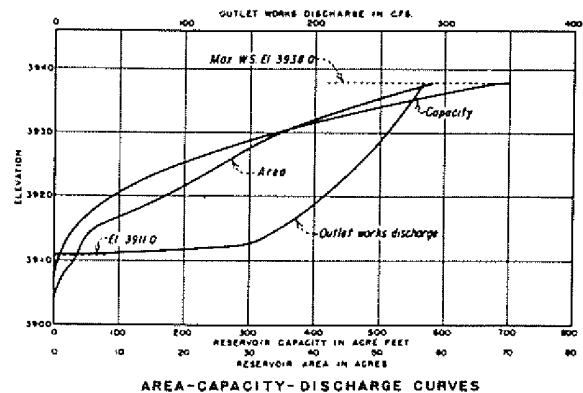
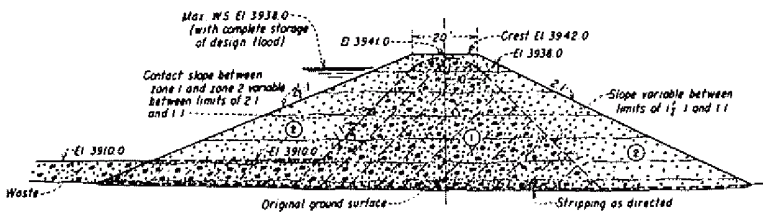
Caballo Dam, Plan and Sections

Rio Grande Project

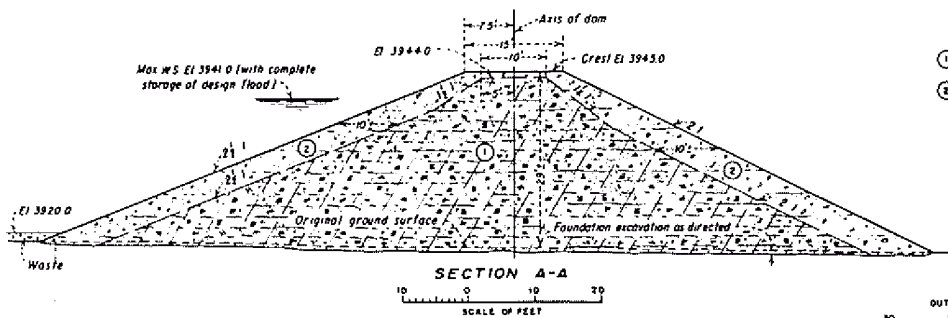
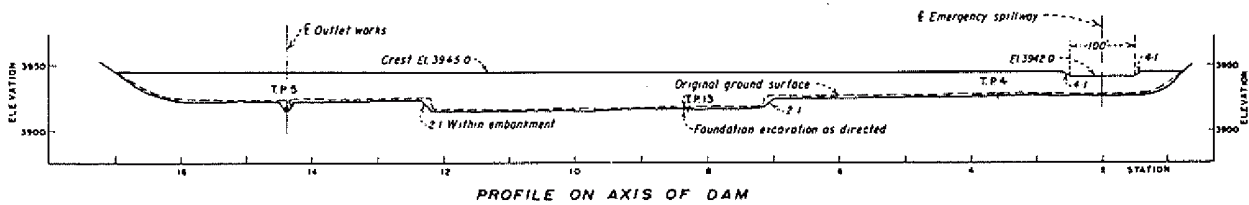
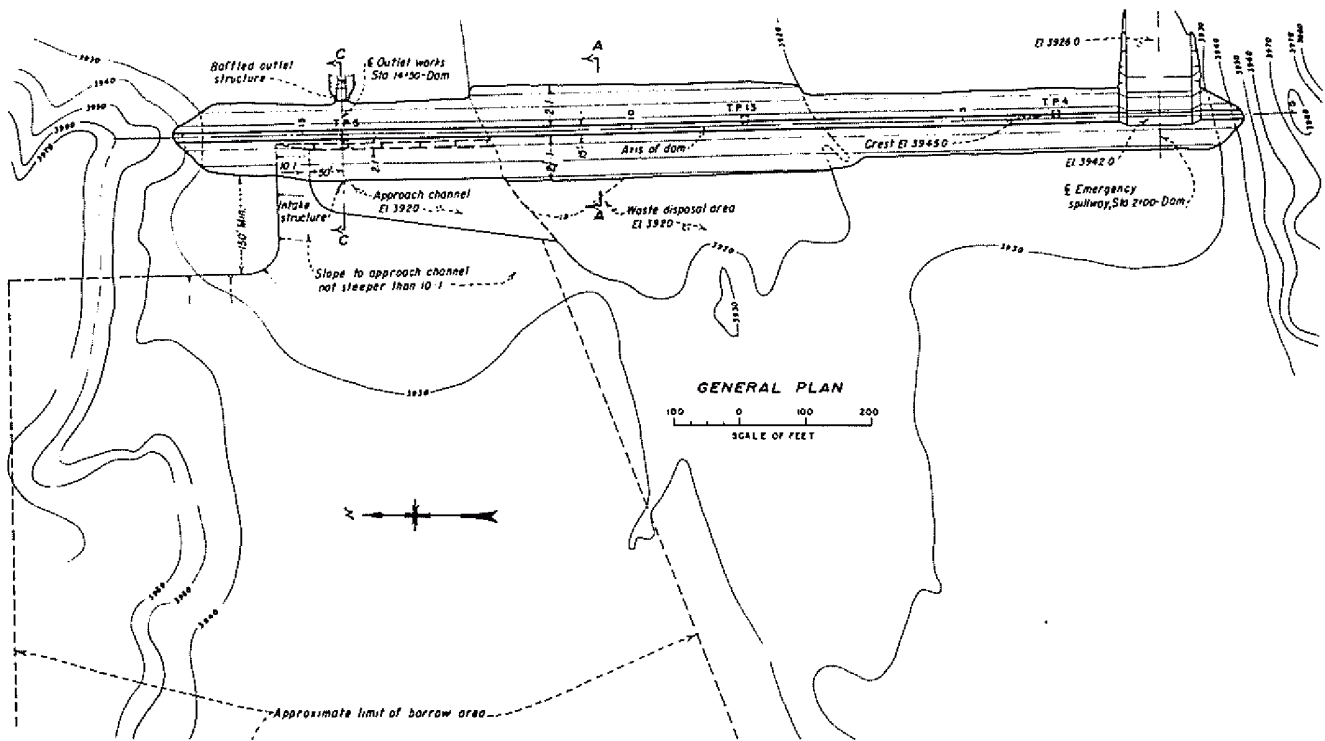


EMBANKMENT EXPLANATION

- ① Selected clay, silt, sand and gravel compacted by tamping rollers to 6-inch layers
- ② Selected sand and gravel compacted by crawler type tractors to 6-inch layers

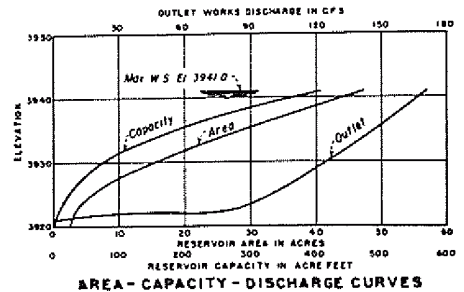
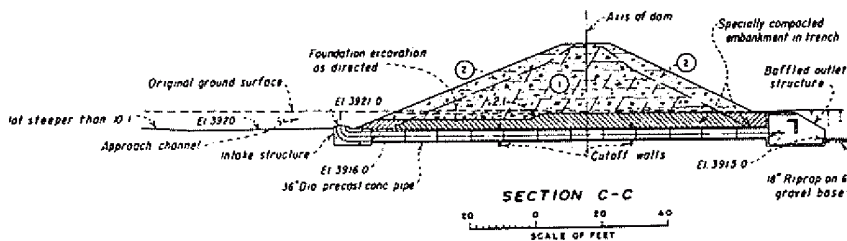


Picacho North Dam, Plan and Sections



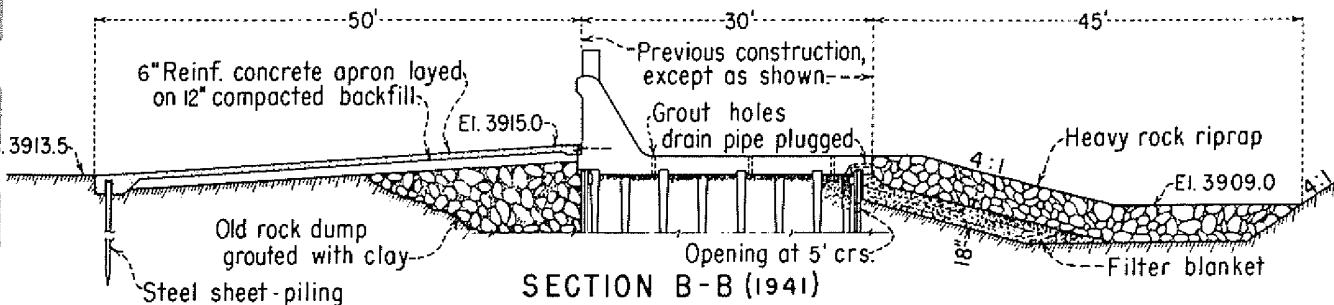
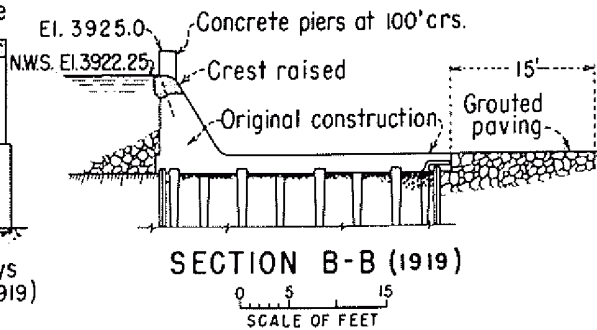
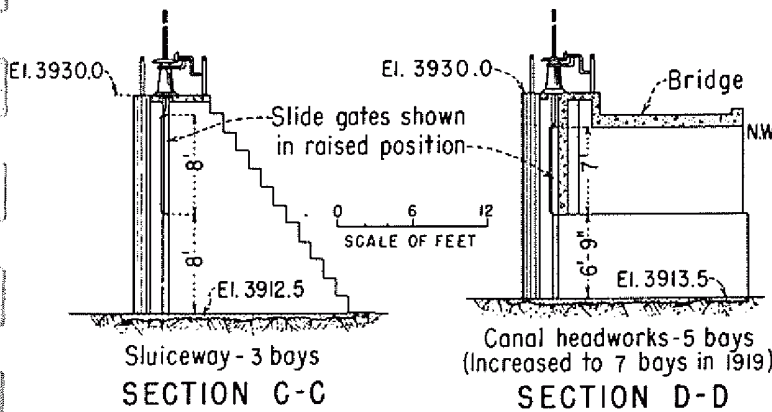
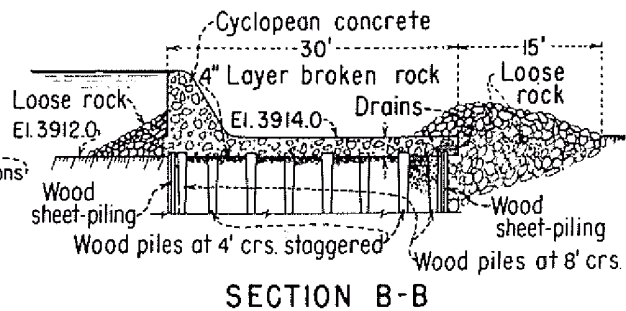
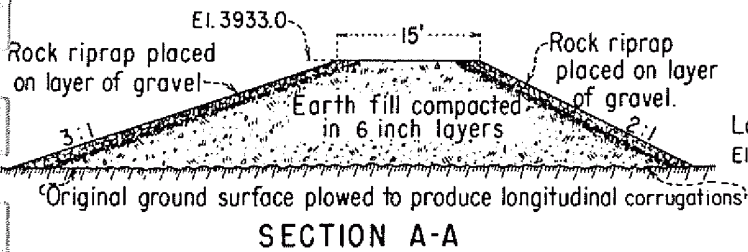
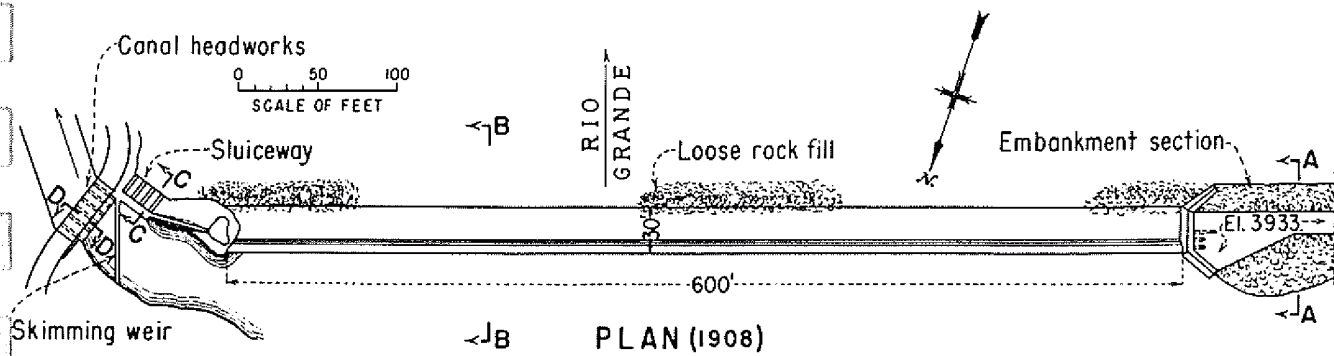
EMBANKMENT EXPLANATION

- ① Selected clay, silt, sand and gravel compacted by tamping rollers to 6-inch layers
- ② Selected sand, gravel and cobbles compacted by crawler type tractor to 12-inch layers

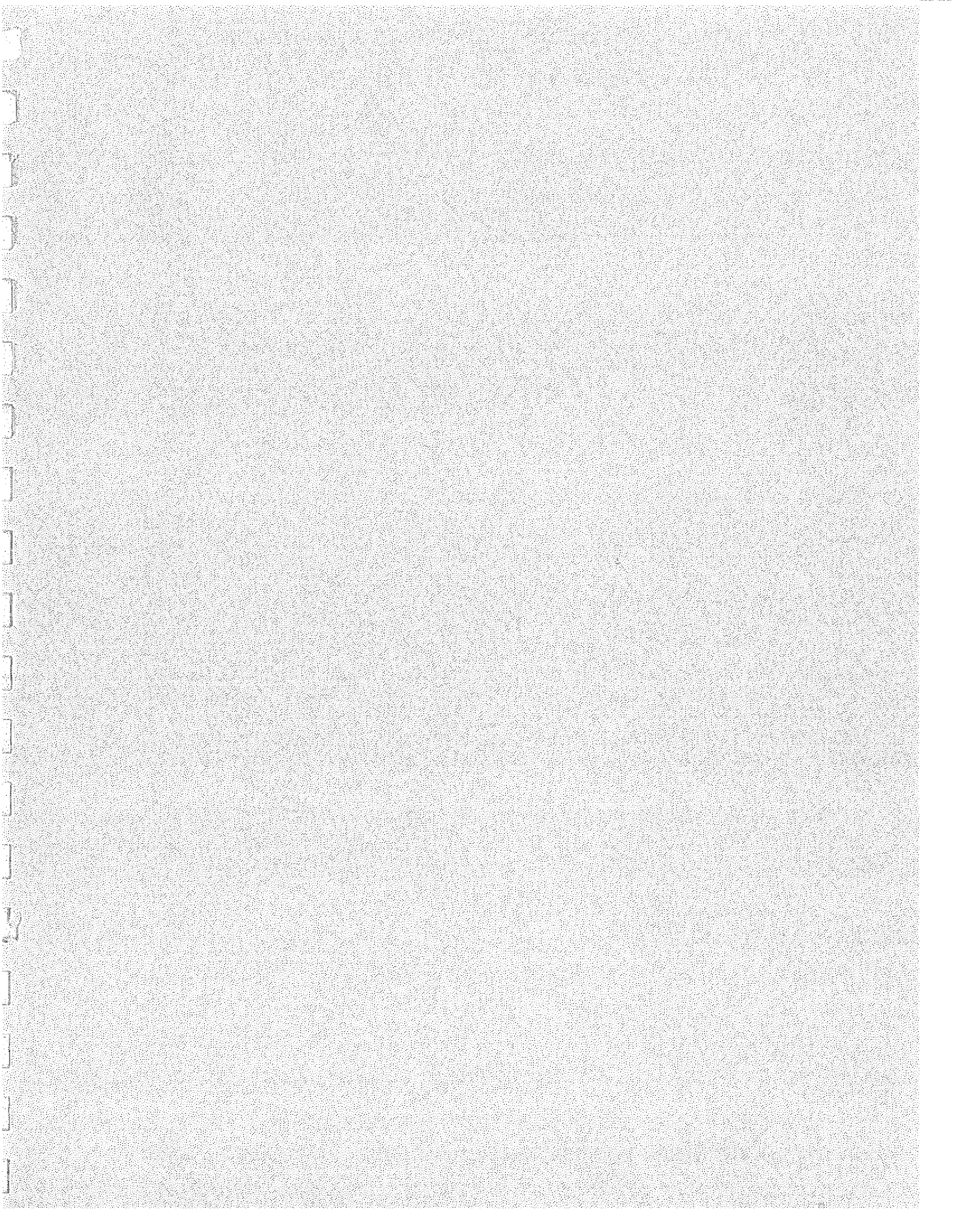


Picacho South Dam, Plan and Sections

Rio Grande Project



Leasburg Diversion Dam, Plan and Sections



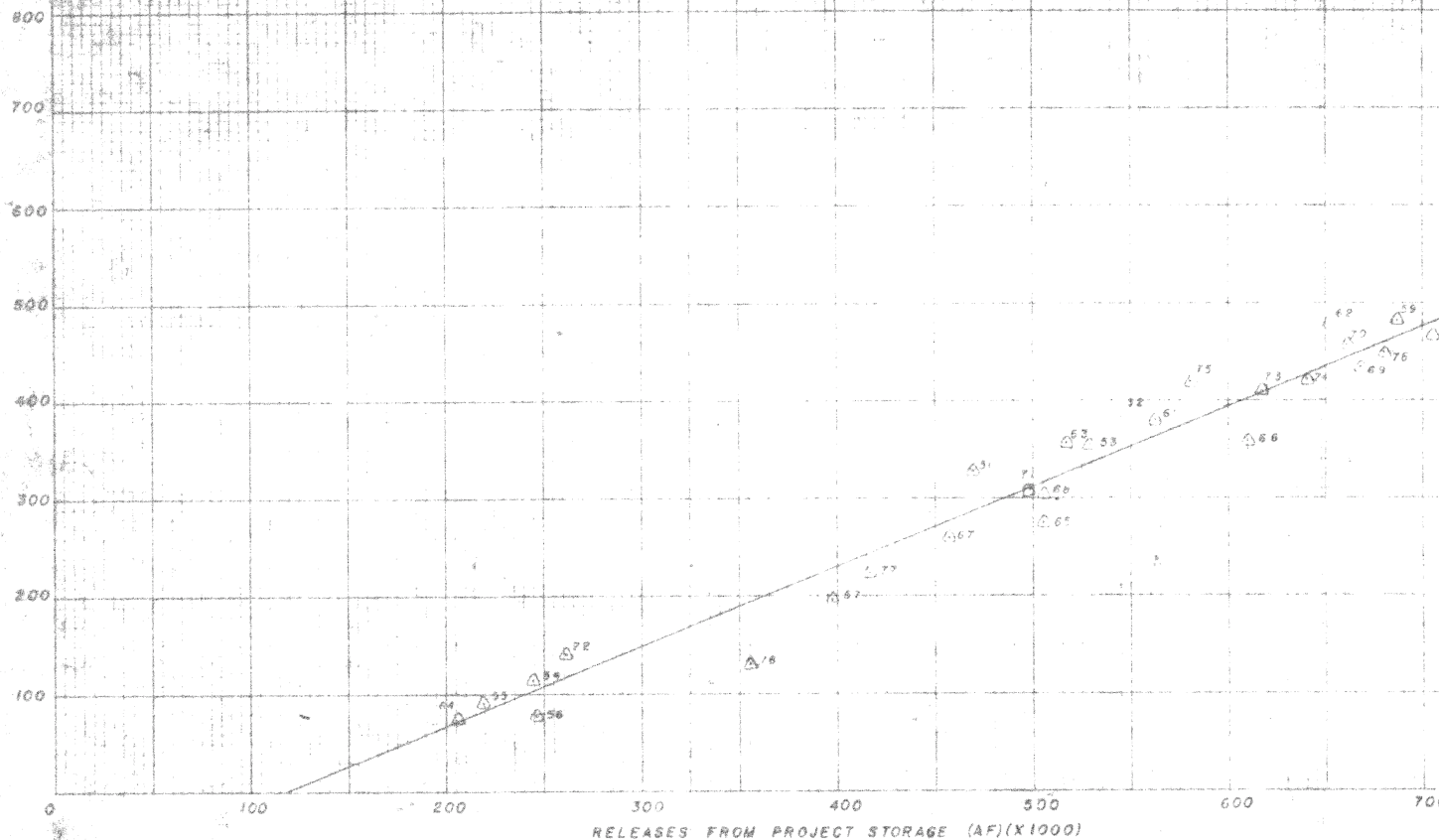
DATA FOR CURVE D-1

<u>YEAR</u>	<u>STORAGE RELEASE (ACRE FEET)</u>	<u>TOTAL DELIVERED (ACRE FEET)</u>
1951	469,450	327,695
52	543,975	388,333
53	528,628	354,155
54	244,165	114,169
55	219,157	90,719
56	246,140	78,324
57	397,103	195,562
58	737,125	467,249
59	687,414	480,643
1960	705,162	469,247
61	561,697	379,540
62	651,941	477,711
63	517,172	356,527
64	206,085	72,559
65	505,598	275,292
66	610,341	359,427
67	456,517	259,119
68	505,691	302,873
69	667,669	434,375
1970	661,125	458,284
71	498,375	309,659
72	260,911	141,448
73	617,461	409,619
74	640,843	425,245
75	580,617	419,283
76	679,676	449,036
77	416,496	223,277
78	355,850	130,972

TOTAL ANNUAL DISCHARGE IN ACRE FEET

<u>YEAR</u>	<u>FRANKLIN CANAL</u>	<u>ASCARATE WASTEWAY</u>	<u>RIVERSIDE CANAL</u>
1951	87,830	-----	110,020
52	86,580	-----	124,124
53	86,050	-----	113,153
54	43,330	-----	27,687
55	38,615	2,233	19,209
56	36,128	2,054	19,298
57	69,081	6,233	44,021
58	113,100	43,620	198,304
59	135,530	39,695	194,896
1960	145,100	52,285	202,906
61	130,170	53,970	139,183
62	132,823	55,380	205,265
63	113,912	46,655	130,637
64	47,337	5,634	23,160
65	71,274	13,787	106,199
66	105,903	30,675	159,568
67	99,786	42,395	131,601
68	79,752	24,161	124,394
69	105,523	39,875	206,300
1970	117,830	50,596	200,998
71	82,983	32,845	155,920
72	45,406	20,207	84,474
73	72,937	19,194	190,250
74	86,319	19,878	235,980
75	81,093	25,742	228,020
76	83,973	19,422	259,470
77	67,550	26,340	134,900
78	51,522	19,676	97,180

TOTAL DELIVERED TO U.S. FARMS AND MEXICO (AF) (X 1000)



NOTES

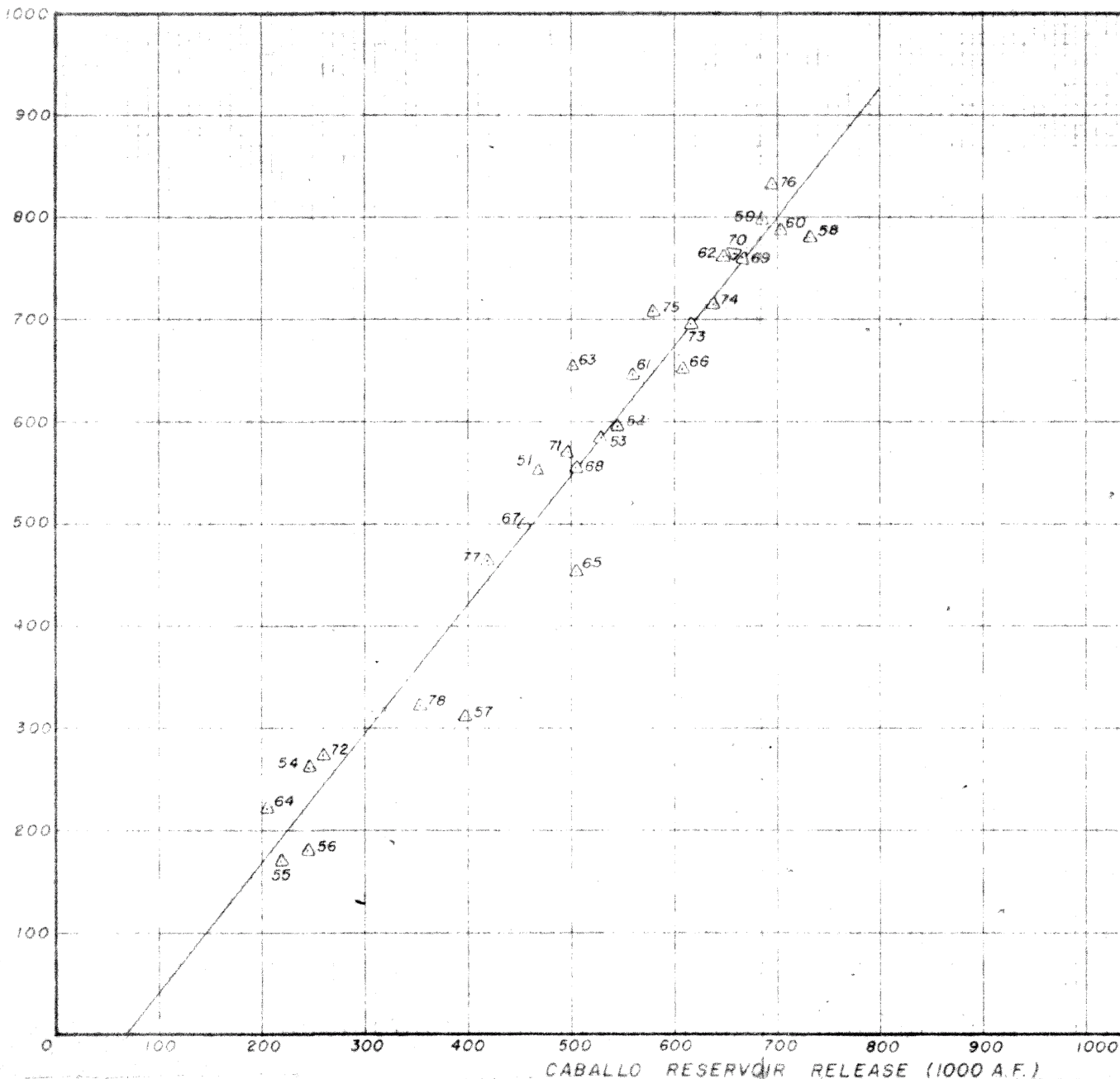
Correlation coefficient = .9781057684
Y-intercept = -102914.4105
Slope = .827803247
Std. Dev. of Del. = 1257.40

REGRESSION LINE CORRECTED TO REFLECT THE OMISSION OF 1960 DATA	
ALWAYS THINK SAFETY	
DEPARTMENT OF THE INTERIOR NATURAL AND FOREST RESOURCES SERVICE RIO GRANDE PROJECT-NEW MEXICO-TEXAS	
REGRESSION ANALYSIS OPERATIONAL PATTERNS 1951-78	
DRONE: M. LEVANS	SUBMITTER: J. J. [illegible]
TRACED: [illegible]	RECORDED: [illegible]
CHECKED: [illegible]	APPROVED: [illegible]
PALO, PEAR	PCB 80, 800

EXHIBIT 2

CURVE-D1

NET DIVERSIONS AT HEADINGS (1000 A.F.)



NOTES

Y-Intercept = -86064.42/9637
 Slope = 1.26679752058
 Correlation Coefficient = 0.97637032024/
 Net Diversions = U.S. and Mexican Diversions
 at headings for irrigation season

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF RECLAMATION	
RIO GRANDE PROJECT, NEW MEXICO-TEXAS	
PROJECT IRRIGATION DIVERSIONS	
DESIGNED	SUBMITTED
DRAWN M. EVANS	RECOMMENDED
CHECKED	APPROVED
EL PASO, TEXAS DEC. 12, 1963 23-503-B308	

EXHIBIT 3 CURVE D-2

Data for Curve D-2

<u>Year</u>	<u>Release From</u> <u>Storage</u> <u>(AF)</u>	<u>Net Diversion</u> <u>at Headings</u> <u>(AF)</u>
1951	469,300	552,921
52	544,700	595,965
53	529,100	583,127
54	244,100	260,125
55	219,100	170,787
56	246,100	179,539
57	397,600	311,814
58	736,600	779,288
59	687,100	796,726
60	705,500	785,993
61	561,700	645,102
62	651,900	764,848
63	517,200	653,062
64	206,100	220,484
65	505,600	452,822
66	610,300	649,992
67	456,500	501,058
68	505,700	552,308
69	667,700	757,769
70	661,200	763,173
71	498,500	569,558
72	200,700 - 260,900	271,477
73	617,300	693,030
74	641,000	716,796
75	580,700	706,064
76	679,700	831,325
77	417,500	461,345
1978	356,200	320,173

PROJECT WATER ORDER

Order for period from _____ to _____ Date: _____

Upper Valley Water Order EBID and EPCWID No. 1	Lower El Paso Valley EPCWID No. 1 Water Order
<u>Arrey Canal</u> _____ cfs	<u>Franklin Canal</u> _____ cfs
<u>Leasburg Canal</u> _____ cfs	<u>City of El Paso</u> _____ cfs
<u>California Lateral</u> _____ cfs	<u>Riverside Canal</u> _____ cfs
<u>Del Rio Lateral</u> _____ cfs	<u>Total Lower Valley</u> _____ cfs
<u>East Side Canal</u> _____ cfs	
<u>Three Saints East Lateral</u> _____ cfs	<u>Total Project Water Order</u>
<u>West Side Canal</u> _____ cfs	<u>Upper Valley</u> _____ cfs
<u>La Union West</u>	<u>Lower Valley</u> _____ cfs
<u>New Mexico</u> _____ cfs	<u>Mexico</u> _____ cfs
<u>Texas</u> _____ cfs	<u>Total Water Ordered</u> _____ cfs
<u>Total</u> _____ cfs	<u>Less Drain Water to River</u> _____ cfs
<u>La Union East</u>	<u>Plus River Loss</u> _____ cfs
<u>New Mexico</u> _____ cfs	<u>Release from Caballo</u> _____ cfs
<u>Texas</u> _____ cfs	<u>Flow Meter Setting</u> _____ cfs
<u>Total</u> _____ cfs	<u>Time</u> _____ <u>Date</u> _____
<u>Total Upper Valley</u> _____ cfs	<u>Ordered by</u> _____

Caballo Readings

Date _____ Time _____

Hydrographer _____
(Initials)

Discharge _____ cfs

Gage Height _____

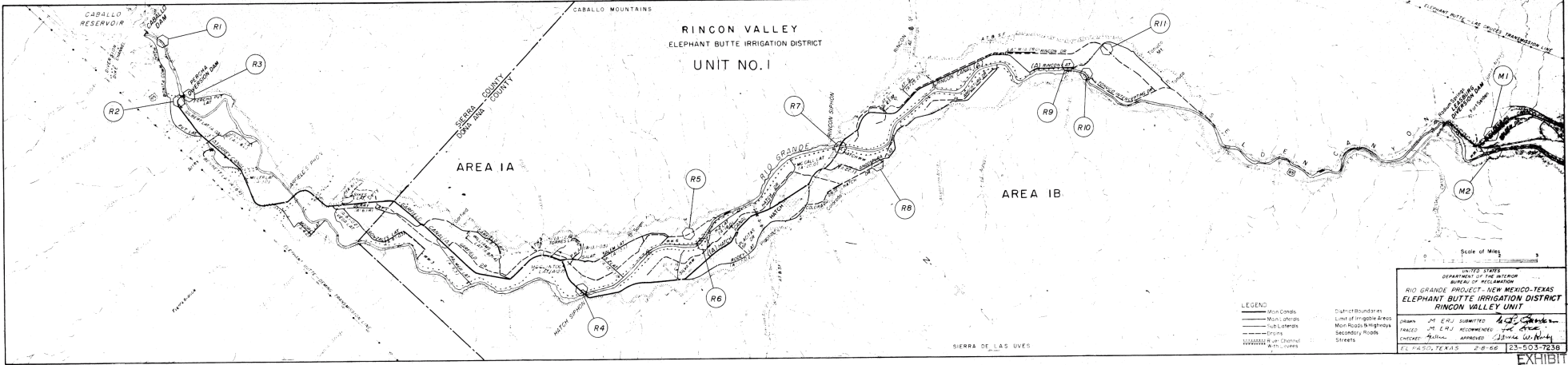
Flow Meter CFS _____

East Gate _____

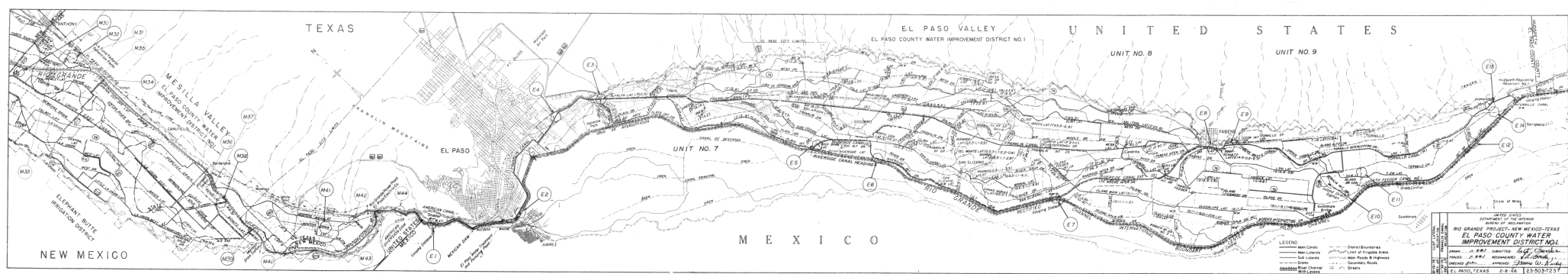
West Gate _____

Elevation _____

Exhibit 4







Rio Grande Project Metering Stations

The metering stations described below are used by this project for water measurement and accounting:

Rincon Valley

R1 - Rio Grande Below Caballo - located on the east side of the river and approximately 0.8 mile downstream of Caballo Dam. This measurement station contains a metering cart and cable across the Rio Grande and a CMP shelter with recorder.

Measurements are done as requested by Water Operations, and flows are continuously recorded.

R2 - Arrey Canal - The metering bridge is located just downstream of the canal heading and the CMP shelter and recorder are located just downstream of the Percha State Park bridge crossing.

Measurements are done twice/weekly and flows are continuously recorded (when canal is in use).

R3 - Percha Lateral - The lateral water flow is measured just downstream of the lateral heading and the CMP shelter with recorder are located downstream of the metering RC Box culvert.

Measurements are done twice/weekly and flows are continuously recorded (when lateral is in use).

R4 - Wasteway No. 5 at Hatch Siphon - This wasteway is located upstream of the Hatch Siphon at the Rio Grande. The station includes a metering bridge and a CMP shelter with recorder.

The flow is metered when the wasteway is in use and continuously recorded during the irrigation season.

R5 - Garfield Drain - located north of the US Hwy 85 bridge, three miles north of Hatch, New Mexico, and west of the highway on the drain channel. This station contains a metering bridge and CMP shelter with recorder.

Measurements are done once/monthly and flows are continuously recorded.

R6 - Rio Grande at Hatch - located approximately three miles north of Hatch, New Mexico and west of US Hwy 85 bridge on the right side of the river channel. The station contains a CMP shelter with recorder.

The flows are continuously recorded. No metering is done.

Exhibit #6

R7 - Wasteway No. 16 at Rincon Siphon - located downstream on the river channel from the A.T. & S.F. Railroad crossing the Rio Grande approximately two miles east of Hatch, New Mexico.

Measurements are done when W.W. is in use. Flows are continuously recorded.

R8 - Hatch Drain - located on the drain upstream of US Hwy 85 approximately 2½ miles east of Hatch, New Mexico. This station contains a metering bridge and a CMP shelter with recorder.

Measurements are done twice/monthly and flows are continuously recorded.

R9 - Wasteway No. 18 from Rincon Lateral - located approximately eight miles east of Hatch, New Mexico, north of US Hwy 85, and on the left side of the Rio Grande. The station contains a metering bridge and a CMP shelter with recorder.

Measurements are done when W.W. is in use. Flows are continuously recorded.

R10 - Rio Grande at Hayner Bridge - located approximately eight miles east of Hatch, New Mexico on the Rio Grande just upstream of the Tonuco River crossing. Station contains a recorder and CMP shelter.

Flows are continuously recorded.

R11 - Rincon Drain - located approximately eight miles east of Hatch, New Mexico, one mile north of the Tonuco River crossing, and downstream of the intersection of the Rincon Lateral and Rincon Drain. Station contains a metering bridge and a CMP shelter with recorder.

Measurements are done twice/monthly and flows are continuously recorded.

Mesilla Valley

M1 - Leasburg Canal - located approximately 1½ miles from the canal heading and approximately ½ mile east from the intersection of Fort Selden Road (from US I-25) and US Hwy 85. Station contains a metering bridge and a CMP shelter with recorder.

Measurements are done twice/weekly and flows are recorded when the canal is in use.

M2 - Rio Grande at Leasburg Canal - located approximately 1½ miles downstream of Leasburg Diversion Dam on the river channel just downstream of W.W. No. 1. Station contains a metering cart and cable across the river channel, and a CMP shelter with recorder.

Measurements are made twice/monthly and flows are continuously recorded.

M3 - Selden Drain - located approximately 3.5 miles south of Radium Springs, New Mexico and just east of U.S. Hwy 85, immediately upstream of the intersection of Kerr Lateral with the drain. Station contains a CMP shelter (no recorder). Metering is done from the existing adjacent bridge.

This station is not being used at this time due to lack of flows.

M4 - Wasteway No. 5 - located approximately five miles north of Las Cruces, New Mexico and one mile south of the intersection of NM Hwy 430 and US Hwy 85, on the left side of the river channel. Station contains a metering bridge and a CMP shelter with recorder.

Measurements are done when W.W. is in use. Flows are continuously recorded.

M5 - Wasteway No. 8 - located approximately three miles west of Las Cruces, New Mexico on the left side of the river approximately two miles west of US Hwy 85. Station contains a metering bridge and a CMP shelter with recorder.

Measurements are done when W.W. is in use. Flows are continuously recorded.

M6 - Picacho Drain - located approximately 2.0 miles northwest from Mesilla Diversion Dam, west of the Rio Grande, and just downstream from the Nusbaum Lateral inflow into the Picacho Drain. Station contains a metering bridge and CMP shelter (no recorder).

This station is not being used at this time due to lack of flows.

M7 - Mesilla Diversion Dam - located on the Rio Grande approximately six miles southwesterly from Las Cruces, New Mexico. Station is upstream of the dam and contains a cinder block shed with a stilling well and recorder. Station is on the right (west) side of the river channel. An electronic digital encoder is also available. (Tel: (505)526-0985)

Recorder only.

M8 - West Side Canal - located west off the Mesilla Diversion Dam. Station is located approximately $\frac{1}{4}$ mile downstream of the canal heading and contains a metering bridge and CMP shelter with recorder.

Measurements are done twice/weekly and flows are continuously recorded.

M9 - East Side Canal - located east off the Mesilla Diversion Dam. Station is located approximately $\frac{1}{4}$ mile downstream of the canal heading. Station contains a metering bridge and CMP shelter with recorder.

Measurements are done twice/weekly and flows are continuously recorded.

M10 - Del Rio Lateral - located east off the Mesilla Diversion Dam. Station is located approximately $\frac{1}{2}$ mile downstream of the lateral heading and contains a metering bridge and CMP shelter with recorder.

Measurements are done twice/weekly and flows are continuously recorded.

M11 - Rio Grande Below Mesilla - located approximately $\frac{3}{4}$ of a mile downstream of Mesilla Diversion Dam on the Rio Grande. Station contains metering cart and cable across river channel and CMP shelter with recorder. This is also an IBWC station.

M-12 - Wasteway No. 15 - located approximately 200 feet upstream of the left (east) of the river levee and 1.6 miles downstream from the New Mexico State Hwy No. 28 bridge crossing of the Rio Grande. Station contains a metering bridge, a 42-inch diameter CMP pipewell and a recorder. This is also an IBWC station.

Measurements are done when W.W. is in use. Flows are continuously recorded.

M13 - Santo Tomas River Drain - located approximately 3.4 miles downstream of the New Mexico State Hwy No. 28 bridge crossing and 0.8 miles upstream of the Mesquite-San Miguel Road bridge crossing the Rio Grande. The station is on the west side of the river on the Santo Tomas River Drain upstream of the culvert through the levee. Station contains a meter bridge, a 12-inch diameter PVC pipe well and a recorder. This is also an IBWC station.

Measurements will be done upon flow changes or at least twice a month (except the initial three months of operation). Flows are continuously recorded.

M14 - Wasteway No. 25 - located approximately 3.5 miles downstream of the New Mexico State Hwy No. 28 bridge crossing and 0.7 mile upstream of the Mesquite-San Miguel Road bridge crossing the Rio Grande. The station is on the west side of the river on the tail end of the Santo Tomas River Lateral on the river side of the lateral embankment. Station contains a metering bridge and a 12-inch diameter PVC pipe well and a recorder. This is also an IBWC station.

Measurements are done when W.W. is in use. Flows are continuously recorded.

M15 - Wasteway No. 26 - located approximately 1½ miles west of Mesquite, New Mexico on the right side of the river off the Upper Chamberino Lateral and just downstream of the river crossing the Mesquite-San Miguel state road. Station contains CMP shelter with recorder. This is also an IBWC station.

Measurements are done when W.W. is in use. Flows are continuously recorded.

M16 - Brazito River Lateral Wasteway - located on the east side and 0.7 mile downstream of the Mesquite-San Miguel Road bridge crossing the Rio Grande. The station is on the tail end of the Brazito River Lateral and is downstream of the river levee. Station contains a metering bridge, a 12-inch diameter PVC pipe well and a recorder.

Measurements are done when W.W. is in use. Flows are continuously recorded.

M17- Wasteway No. 18 - located approximately 1½ miles northwest from Vado, New Mexico on the left (east) side of the river. This station is just upstream where the wasteway crosses Del Rio Drain and downstream of the railroad tracks. Station contains a metering bridge, a CMP shelter and a recorder. This is also an IBWC station.

Measurements are done when W.W. is in use. Flows are continuously recorded.

M18 - Rio Grande at Vado Bridge - This is presently an IBWC station measured by their U.S. Section.

M19 - Del Rio Drain - located approximately three miles south of Mesquite, New Mexico and north of Vado, New Mexico. Station is just west off US Hwy 85 and 125 feet downstream of the Vado Mesquite Road crossing Del Rio Drain. Station contains metering bridge and CMP shelter with recorder. This is also an IBWC station.

Measurements are done twice/monthly and flows are continuously recorded.

M20 - Wasteway No. 19 - located between a fork formed by the river on the west and the A.T. & S.F. railroad and approximately 2.0 miles northwesterly from Berino, New Mexico. The wasteway station is approximately 500 feet from the Three Saints Lateral and wastes this lateral into the Rio Grande. Station contains a metering bridge and a CMP recorder shelter. This is also an IBWC station.

Measurements are done when W.W. is in use. Flows are continuously recorded.

M21 - Wasteway No. 30 - located downstream of the New Mexico State Road 226 from Berino, and downstream of the river levee between the Chamberino East Lateral and the Rio Grande. Station contains a metering bridge and a 12-inch diameter pipe well.

Measurements are done when W.W. is in use. Flows are continuously recorded.

M22 - La Mesa Drain - located approximately $2\frac{1}{2}$ miles west of Berino, New Mexico, west of the river, and $\frac{1}{2}$ mile from W.W. No. 31. Station contains a metering bridge, CMP shelter and recorder. This is also an IBWC station.

Measurements are done twice/monthly. Flows are continuously recorded.

M23 - Wasteway No. 31 - located approximately $2\frac{1}{2}$ miles southwest of Berino, New Mexico, west of the river, and 3 miles downstream from the intersection of the river with State Hwy 226 (Berino to Chamberino). Station contains a CMP shelter, recorder, and metering bridge. This is also an IBWC station.

Measurements and water flows are recorded during irrigation season.

M24 - Wasteway No. 20 - located on the east side of the Rio Grande and wastes the Three Saints West Lateral. This wasteway is approximately 1.6 miles upstream of the Anthony bridge crossing the Rio Grande. Station contains a metering bridge and a 12-inch diameter PVC pipe well. This is also an IBWC station.

Measurements are done when W.W. is in use. Flows are continuously recorded.

M25 - Wasteway No. 31B - located approximately 0.5 mile upstream of the Anthony bridge crossing and on the west side of the Rio Grande. This wasteway is on the tail end of the Jimenez Lateral and is upstream of the river levee. Station contains a metering bridge, a 12-inch diameter PVC pipe well and a recorder. This is also an IBWC station.

Measurements are done when W.W. is in use. Flows are continuously recorded.

M26 - Wasteway No. 21 - located approximately 0.5 mile upstream and on the east side of the Rio Grande. This wasteway is on the tail end of the Three Saints West Lateral and is 300 feet upstream of the river levee. Station contains a metering bridge, a 12-inch diameter PVC pipe well and a recorder. This is also an IBWC station.

Measurements are done when W.W. is in use. Flows are continuously recorded.

M27 - La Union West Canal - located approximately three miles west of Anthony, New Mexico just downstream of the canal heading. Station contains a metering bridge and CMP shelter with recorder.

Measurements are done twice/weekly and flows are continuously recorded when canal is in use.

M28 - La Union East Canal - located approximately three miles west of Anthony, New Mexico just downstream of the canal heading. Station contains a metering bridge and CMP shelter with recorder.

Measurements are done twice/weekly and flows are continuously recorded when canal is in use.

M29 - Three Saints East - located approximately 0.3 mile upstream of the intersection of the Three Saints Lateral and FM1905 from Anthony. Station contains a ramp flume, CMP housing and recorder.

Measurements are done weekly and flows are continuously recorded during irrigation season.

M30 - Wasteway No. 32 - located approximately two miles west of Anthony, New Mexico, on the right side of the river, and just downstream of New Mexico State Hwy 225. Station contains a metering bridge and CMP shelter with recorder. This is also an IBWC station.

Measurements are done when W.W. is in use. Flows are continuously recorded during irrigation season.

M31 - Wasteway No. 23A - located approximately 1.4 miles upstream of the Anthony bridge crossing and on the east side of the Rio Grande. This wasteway is on the tail end of the Texas Lateral and downstream of a culvert in the wasteway. Station contains a 12-inch diameter PVC pipe well and a recorder. This is also an IBWC station.

Measurements are done when W.W. is in use. Flows are recorded continuously.

M32 - East Drain - located approximately two miles south of Anthony, New Mexico and west of US Hwy 80A. Station contains a metering bridge and CMP shelter with recorder.

Measurements are done twice/monthly. Flows are continuously recorded.

M33 - Wasteway No. 32A - located 2.0 miles upstream of the Anthony bridge crossing and on the west side of the Rio Grande. This wasteway is on the tail end of the Rowley Lateral and just upstream of the river levee. Station contains a metering bridge, a 12-inch PVC pipe well and a recorder. This is also an IBWC station.

Measurements are done when W.W. is in use. Flows are continuously recorded.

M34 - Rio Grande at Vinton Bridge - located 0.7 mile north of Vinton. Station contains a 42-inch diameter CMP pipe well and recorder. This is also an IBWC station.

Measurements are done from the bridge weekly and flows are continuously recorded.

M35 - Wasteway No. 32B - located west and downstream of the Vinton bridge crossing the Rio Grande. Station is on the tail end of the Vinton Cutoff Lateral and just downstream of the river levee. Station contains a metering bridge, 12-inch diameter PVC pipe well and a recorder. This is also an IBWC station.

Measurements are done when W.W. is in use. Flows are continuously recorded.

M36 - Wasteway No. 34 - located just downstream of the Montoya Siphon and is on the tail end of the Canutillo Lateral. Station contains a metering bridge, a 12-inch diameter PVC pipe well and a recorder. This is also an IBWC station.

Measurements are done when W.W. is being used. Flows are continuously recorded.

M37 - Wasteway No. 34A - located approximately 0.6 mile upstream of the Combined La Union Lateral and on the west side of the Rio Grande. Station contains a metering bridge, a 12-inch diameter PVC pipe well and a recorder. This is an IBWC station.

Measurements are done when W.W. is being used. Flows are continuously recorded.

M38 - Wasteway No. 35 - located $3\frac{1}{2}$ miles downstream from Canutillo, Texas on the right side (west) of the Rio Grande. Station contains a metering bridge and CMP shelter with recorder. This is also an IBWC station.

Measurements are done when W.W. is in use. Flows are continuously recorded.

M39 - Wasteway No. 35C - located just downstream and on the west side of the Rio Grande. Station is on the tail end of the Schutz Lateral and upstream of the river levee. Station contains a metering station, a 12-inch diameter PVC pipe well and a recorder. This is also an IBWC station.

Measurements are done when W.W. is in use. Flows are continuously recorded.

M40 - Wasteway No. 36 - located at the tail end of the Montoya Lateral A and on the east side of the Rio Grande. Station contains a metering bridge downstream of the river levee, a 12-inch PVC pipe well and a recorder. This is also an IBWC station.

Measurements are done when W.W. is in use. Flows are continuously recorded.

M41 - Montoya Drain - located in the Upper Valley, Texas, approximately two miles downstream of Country Club Road on the Montoya Drain. Station contains a metering bridge and CMP shelter with recorder.

Measurements are done twice/monthly and flows are continuously recorded.

M42 - Wasteway No. 38 - located just downstream of the Sunland Park Road on the Montoya Main Lateral. Station contains a metering bridge, a 12-inch diameter PVC pipe well and a recorder. This is also an IBWC station.

Measurements are done twice/monthly during irrigation season. Flows are continuously recorded when lateral is in use.

M43 - Montoya Intercepting Drain - station located on the east side of the Rio Grande and downstream of the race track road. Station contains a metering bridge, a 12-inch diameter PVC pipe well and a recorder. This is also an IBWC station.

Measurements are done twice monthly and flows are continuously recorded.

M44 - Rio Grande at El Paso (Courchesne Bridge) - This is an IBWC station run by the U.S. Section.

M45 - Rio Grande at Canutillo - located approximately 1.0 mile north of Canutillo, Texas and on the right and west side of the Rio Grande. Station contains a CMP shelter with recorder.

No measurements are done. Flows on the river are continuously recorded.
El Paso Valley

E1 - American Canal - located off Paisano Drive on canal concrete lined channel just downstream of the Paisano Siphon and ASARCO plant. Station belongs to the IBWC. Station contains metal housing with metering structure. An electronic digital encoder is located upstream of this station and across Paisano from the ASARCO plant. (Tel: (915)544-9799)

Measurements are done once/weekly by the IBWC hydrographers and flows are continuously recorded.

E2 - Franklin Canal - located parallel to the Rio Grande and adjacent to the Stanton Street International Bridge. Station contains a metering bridge, CMP shelter, and a recorder.

Measurements are done twice/weekly. Flows are continuously recorded.

E3 - Ascarate Wasteway - located on the wasteway channel between the Franklin Canal and Alameda Avenue. Station contains a metering bridge CMP shelter with recorder.

Measurements are done twice/weekly. Flows are continuously recorded.

E5 - Riverside Canal - located on the right side (south) and approximately 800 feet downstream of the canal heading. Station contains a metering bridge and a cinder block house with stilling well, recorder, and electronic digital encoder. (Tel: (915)859-6424)

Measurements are done twice/weekly. Flows are continuously recorded when canal is in use.

E6 - Riverside Canal Wasteway No. 1 - located on the right side of the canal just south of the Bosque Park. Wasteway is from Riverside Canal to the Rio Grande. Station contains a CMP shelter and recorder. The channel of the wasteway south of the river levee contains a metering bridge and CMP shelter with recorder.

Measurements at the channel in the river are done when wasting. Flows are recorded when wasting.

E7 - Riverside Canal Wasteway No. 2 - located downstream from Riverside Canal Wasteway No. 1, at a point where the canal channel departs from the river levee, approximately 2½ miles northwest of Cuadrilla, Texas. Station contains a metering bridge and CMP shelter with recorder on the Rio Grande Channel. A recorder is attached to the canal wasteway.

Measurements are done on the wasteway when in use. Flows are continuously recorded.

E8 - Waste Drain - located on the Waste Drain Channel just west of U.S. Hwy 20 at Fabens, Texas. Station is downstream on the waste channel Fabens-Island Road crossing. Station contains a metering bridge and CMP shelter with recorder.

Measurements are done twice/weekly. Flows are continuously recorded.

E9 - Fabens Waste Channel - located southeast of Fabens, Texas, downstream on the waste channel from the Tornillo Canal Heading and the Cook-Schultz Lateral inlet intersection. Station contains a metering bridge and CMP shelter with recorder.

Measurements are done twice/weekly. Flows are continuously recorded.

E10 - Waste Channel Below Tornillo Wasteway - Located on the Fabens Waste Channel below the Tornillo Canal Wasteway and the Tornillo-Caseta Road. Station contains a metering bridge and CMP shelter with recorder.

Measurements are done twice/weekly (when in use). Flows are continuously recorded.

E11 - Island Drain Connection - located on Island Drain Connection just upstream of Tornillo Drain Interception and off Henderson Road. Station contains a metering bridge and CMP shelter with recorder.

Measurements are done twice/weekly. Flows are continuously recorded.

E12 - Hudspeth Feeder Canal No. 1 - located on the Hudspeth Canal No. 1 approximately six miles downstream from the Guadalupe-Caseta Road and International Bridge into Caseta, Mexico. Station contains a metering bridge and CMP shelter with recorder.

Measurements are done twice/weekly. Flows are continuously recorded.

E13 - Tornillo Canal at Alamo Alto - located approximately one mile east of Alamo Alto, Texas on the canal channel adjacent to U.S. Hwy 20 Alternate. Station contains a metering bridge and CMP shelter with recorder.

Measurements are done when necessary. Flows are continuously recorded.

E14 - Tornillo Drain - located on drain channel just downstream and 800 feet from the Alamo Alto Drain inlet, approximately ½ mile southeast of Alamo Alto, Texas. Station contains a metering bridge and CMP shelter with recorder.

Measurements are done twice/monthly. Flows are continuously recorded.



United States Department of the Interior

WATER AND POWER RESOURCES SERVICE

RIOGRANDE PROJECT
100 N OREGON STREET, P.O. DRAWER P
EL PASO, TEXAS 79952

IN REPLY
REFER TO 410

OCT 21 1983

Mr. Bill Saad, Treasurer-Manager
Elephant Butte Irrigation District
P. O. Drawer A
Las Cruces, New Mexico 88001

Dear Mr. Saad:

Enclosed is the tabulation of the water charges and the net deliveries to the Elephant Butte Irrigation District for the 1983 irrigation season.

The allocation water charged for the season was 414,069 acre-feet, which left a balance of 383 acre-feet.

Sincerely yours,

David P. Overwood

FOR

Roger K. Patterson
Project Superintendent

Enclosure

EXHIBIT **7A**

NM_00237481

Water Allocation Charges to the
Elephant Butte Irrigation District
1983 Irrigation Season
Acre-feet

	<u>Gross Diversions</u>		<u>Deliveries to Texas</u>		<u>Net Deliveries to EBID</u>	
	Month	To Date	Month	To Date	Month	To Date
Arrey Canal	7,800	82,320	0	0	7,800	82,320
Percha Lateral	91	691	0	0	91	691
Leasburg Canal*	17,498	126,629	0	0	17,498	126,629
Eastside Canal	9,638	63,579	609	4,344	9,029	59,235
Del Rio Lateral	490	3,388	0	0	490	3,388
Westside Canal**	27,659	187,693	6,345	45,237****	21,314	142,456
Pumped from River***	16	426	0	0	16	426
	-----	-----	-----	-----	-----	-----
TOTAL	63,192	464,726	6,954	49,581****	56,238	415,145
Credited Waste to District					0	1,076
Net Allocation Charge						414,069
Allocation						414,452
Balance						383

*Includes charges for the irrigations above the metering station and for the California Extension; also, included are two days' charges in October.

**Includes diversions through October 7 for E.P.C.W.I.D.#1 water order.

***Greenwood pumpage. Duran pump is not included in monthly charges, only in "to date" column.

****Includes bypass and sluice water through W.W. #32.



United States Department of the Interior

WATER AND POWER RESOURCES SERVICE

RIO GRANDE PROJECT
100 N. OREGON STREET, P.O. DRAWER P
EL PASO, TEXAS 79902

IN REPLY
REFER TO 410

OCT 21 1983

Mr. Edd Fifer, General Manager
El Paso County Water Improvement
District No. 1
294 Candelaria
El Paso, Texas 79907

Dear Mr. Fifer:

Enclosed is a tabulation of the water charges and deliveries to the El Paso County Water Improvement District No. 1 for the 1983 Irrigation Season. Also enclosed is a preliminary waste report from September 1 through October 7, 1983.

The allocation water used for the season was a total of 256,034 A.F. Of the 315,548 A.F. allocated to your district, 59,514 A.F. were not used.

Sincerely yours,

David P. Overwold

FOR Roger K. Patterson
Project Superintendent

Enclosures

EXHIBIT 7B

NM_00237483

Water Allocation Charges to the
El Paso County Water Improvement District No. 1
1983 Irrigation Season
Acre-Feet

	<u>September 1 through October 7 Deliveries</u>	<u>Total Deliveries To Date</u>
Charges for Initial Release (Our letter dated March 2, 1983)		8,259
Deliveries to Mesilla Valley, Texas by both Districts	6,954	37,965
City of El Paso	2,300	17,475
Franklin Canal	13,120	82,807
Riverside Canal	27,340	155,633
Less Ascarate Wasteway	6,160	38,290
Total Deliveries	43,554	263,849
*Socorro Ponds into Riverside Canal	0	- 3,480
Gross Allocation Charge	43,554	260,369
Credited Waste to District	- 2,690	- 4,335
Net Allocation Charge	40,864	256,034
Allocation		315,548
Balance		59,514

*This figure is to be deducted as this was previously charged as allocated waters and included 409 A.F. charged as part of the initial release.

Waste Report for the
El Paso County Water Improvement District No. 1
September 1 through October 7, 1983

Acre-Feet

Allotment Operational Waste from El Paso Valley Irrigation System

<u>Station</u>	<u>Waste</u>	<u>Credit</u>	<u>Total to Date</u>	
			<u>Waste</u>	<u>Credit</u>
Riverside Dam (Estimated)	1,838	863	4,817	1,593
Riverside W.W. #1	0	0	0	0
Riverside W.W. #2	232	24	1,418	284
Tornillo Canal Heading Waste into Waste Channel	0	0	0	0
Tornillo W.W. #1	2,101	889	13,192	1,948
Tornillo Canal at Alamo Alto	5,560	2,510	17,026	3,562
I-341 to Waste Channel	0	0	0	0
Guadalupe to Border Drain	0	0	0	0
T-216 to Hudspeth Feeder Canal No. 1	0	0	0	0
T-520 to Hudspeth Feeder Canal No. 1	0	0	0	0
Mesilla Valley & El Paso Valley Total	9,731	4,286	36,453	*7,387

Surface Water Leaving the Project

		<u>Total to Date</u>
Riverside Dam (Estimated)	1,838	4,817
Riverside W.W. #1	0	0
Riverside W.W. #2	232	1,418
Hudspeth Feeder Canal No. 1	7,460	40,127
Tornillo Canal at Alamo Alto	5,560	17,026
Tornillo Drain	3,758	20,011
T-216 Lateral	0	0
T-520 Lateral	0	0
Total	18,848	83,399

*Includes 1,596 acre-feet credited to City of El Paso

COMPUTATION SHEET

BY R. Sanchez	DATE 1985	PROJECT RGP	SHEET 1 OF				
CHKD BY M. Sierra	DATE 1985	FEATURE Daily Operational Status					
DETAILS							
A. Reservoirs(AF):							
Date	Elephant Butte Storage	Elev.	Caballo Storage	Elev.	Combined Storage	EB Rel.	
Diff.							
Precipitation	Net Capacity		Unfilled Cap.		Water Debt		
Rincon	EB		Comb. S.		Debt		
Mesilla	Cab _____		SJ/Cha. _____		Un. C. _____		
	Stored		RGP		Space _____		
El Paso	Flood _____		Net C. _____		D. Pd. _____		
	Net C.		Un. C.				
B. Project Water Order(CFS):							
Date	U.V	L.V	Mex	Total	Caballo Dam F.M.	Rel.	Meter
Order							
Order							
C. River Diversions(CFS):							E. L.V. Outlook
Date	Arrey	Leasb.	E.S.	W.S.	Del Rio	Cal.	
Order							B. Mes Returns _____
Order							Total Order _____
Pres. Div.							Outlook _____
F. Waste							
Date	Franklin	Asc.W.W	Net F.	El Paso	R.S.	F. & R.S.	EBID: _____
Order							_____
Order							EPCWID: _____
Pres. Div.							_____
D. River Status:							G. Distribution
	B. Leas.	B. Mes.	Vin/Can	Amer. C.	B. Mex. D.	_____ =	
Flow						_____ AF; _____ %	
Obsr. Time							
Notes:							

REPORT
of the

**RIO GRANDE COMPACT
COMMISSION**

2001

6

**TO THE GOVERNORS OF
Colorado, New Mexico and Texas**

EXHIBIT

Settemeyer 013

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Errata Sheet for the 2000 Report of the Rio Grande Compact Commission

On page 31 make the following changes:

1. For "Actual Spill," add footnote number 4 that reads, "Adopted March 22, 2001, made effective January 1, 2001.
2. Change paragraph "b" from 2,040,000 acre-feet to 1,998,400, from 2,015,000 acre-feet to 1,973,400. Change "1988 acre-capacity table" to "1999 area-capacity table."

Errata Sheet for the 2000 Report of the Rio Grande Compact Commission

On page 31 make the following changes:

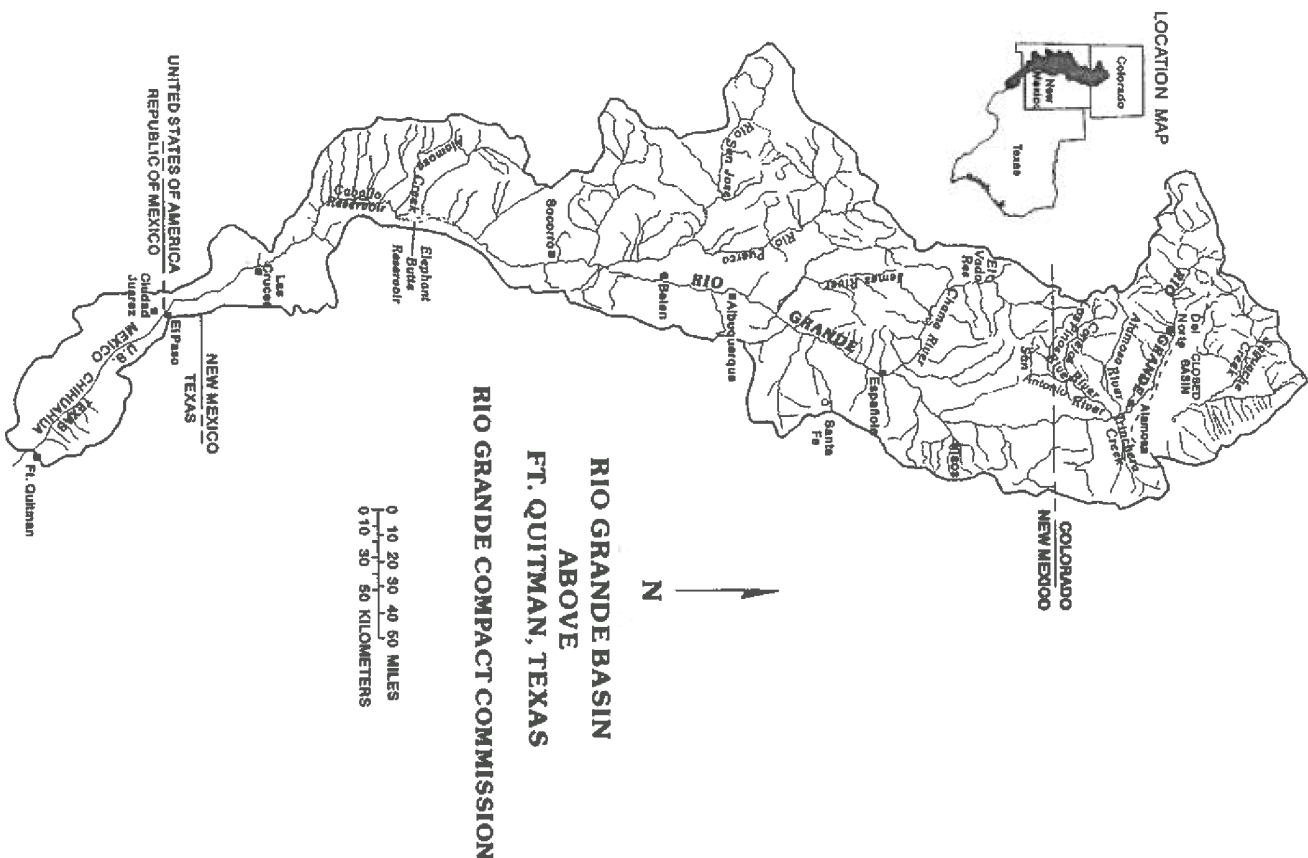
1. For "Actual Spill," add footnote number 4 that reads, "Adopted March 22, 2001, made effective January 1, 2001.
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**RIO GRANDE COMPACT COMMISSION
COLORADO TEXAS NEW MEXICO**

March 21, 2002

The Honorable Gary Johnson
Governor of the State of New Mexico
Santa Fe, New Mexico

The Honorable Rick Perry
Governor of the State of Texas
Austin, Texas

The Honorable Bill Owens
Governor of the State of Colorado
Denver, Colorado

Honorable Governors:

The 63rd Annual Meeting of the Rio Grande Compact Commission was held in Santa Fe, New Mexico, on March 21, 2002.

The Commission reviewed its prior reports and the current reports of the Secretary and the Engineer Advisers relative to streamflow at Compact gaging stations and storage in reservoirs in 2001. The Commission found that:

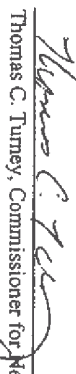
- (a) Deliveries of water at the Colorado-New Mexico state line by Colorado amounted to 300,300 acre-feet in 2001 and the scheduled delivery for the year was 313,700 acre-feet.
- (b) Deliveries of water into Elephant Butte Reservoir by New Mexico, as measured by the Elephant Butte Effective Supply, amounted to 416,400 acre-feet in 2001 and the scheduled delivery for the year was 494,900 acre-feet.
- (c) The actual release of usable water from Project Storage was 788,000 acre-feet.

The Commission agreed to the accounting of accrued credits for 2001, as follows:

- (1) The Commissioners found that the accrued credit for deliveries by Colorado at the Colorado-New Mexico State Line was 10,100 acre-feet on January 1, 2002.
- (2) The Commissioners found that the accrued credit for deliveries by New Mexico at Elephant Butte Dam was 155,700 acre-feet on January 1, 2002.
- (3) The Commissioners found that the accrued departure from normal release from Project Storage as of January 1, 2002 was a credit of 77,900 acre-feet.

The Commission reviewed the cost of operation and found that the expenses of the administration of the Rio Grande Compact were \$169,296 in the fiscal year ending June 30, 2001. The United States bore \$57,439 of this total; the balance of \$111,857 was borne equally by the three States party to the Compact.

Respectfully,


Thomas C. Turney, Commissioner for New Mexico


Joe G. Hanson, Commissioner for Texas


Harold D. Simpson, Commissioner for Colorado

**REPORT OF THE ENGINEER ADVISERS
TO THE RIO GRANDE COMPACT COMMISSIONERS**

February 22, 2002

COMPACT ACCOUNTING

The Engineer Advisers to the Rio Grande Compact Commissioners have reviewed the streamflow and reservoir storage records and other pertinent data and have determined the scheduled and actual deliveries, and release of Usable Water during calendar year 2001. The Engineer Advisers adjusted accrued credit balances as of January 1, 2001, to reflect correction of errors in Bureau of Reclamation (Reclamation) Elephant Butte Reservoir evaporation data and delayed application by Reclamation of revised equations for sediment accumulation in Abiquiu, Cochiti, and Jemez Canyon Reservoirs as further described below.

As determined by the Engineer Advisers, the corrected balances as of January 1, 2001, scheduled and actual deliveries, and release of usable water for the year 2001 are as follows:

(a) Deliveries by Colorado at the Stateline:	
Balance as of January 1, 2001	27,000 acre-feet
Scheduled delivery	313,700 acre-feet
Actual delivery at Lobos plus 10,000 acre-feet	300,300 acre-feet
Reduction of credit on account of evaporation	3,500 acre-feet
Accrued credit January 1, 2002	10,100 acre-feet
(b) Deliveries by New Mexico at Elephant Butte Dam:	
Balance as of January 1, 2001	269,100 acre-feet
Scheduled delivery	494,900 acre-feet
Actual delivery	416,400 acre-feet
Reduction of credit on account of evaporation	34,900 acre-feet
Accrued credit January 1, 2002	155,700 acre-feet
(c) Project Storage and releases:	
Accrued departure (credit) as of January 1, 2001	75,900 acre-feet
Actual release of usable water	786,000 acre-feet
Accrued departure (credit) as of January 1, 2002	77,900 acre-feet

Usable water in Project Storage exceeded 400,000 acre-feet for the entire year.

The Engineers Advisers met in Santa Fe from February 20 through February 22 to prepare the 2001 Compact water accounting and to discuss continuing and new issues in preparation for the 2002 meeting of the Rio Grande Compact Commission (Commission). The Engineer Advisers requested and received the participation of Reclamation, the U.S. Army Corps of Engineers (Corps), and the U.S. Fish and Wildlife Service (Service) in part of that meeting to discuss in detail their specific water-related activities in the basin.

CONTINUING ISSUES

This section of the report addresses issues previously addressed by the Engineer Advisers or the Commission. It reflects information obtained by the Engineer Advisers subsequent to the 2001 Commission meeting, including information obtained in the reports of Federal agencies at the 2002 Engineer Advisers meeting.

Sedimentation in Upper and Middle Rio Grande Reservoirs in New Mexico

Sediment surveys were conducted in 1998 for Abiquiu, Cochiti and Jemez Canyon Reservoirs, which are primarily flood control reservoirs owned and operated by the Corps. Based on the sediment surveys, Reclamation subsequently revised the sediment accumulation equations and area-capacity tables for use in daily operations and water accounting models. The area-capacity tables derived from the 1998 surveys were made effective January 1, 1999. Reclamation's 1999 water accounting reflected the revised area-capacity tables but did not reflect the revised sediment accumulation equations. Reclamation and the Engineer Advisers agreed at the 2000 meeting of the Engineer Advisers, and again at the 2001 meeting, that Reclamation was to apply the new sediment accumulation equations retroactively to January 1, 1999.

Instead, Reclamation used the old sediment accumulation equations in the 1999 and 2000 accounting, which estimated excess sediment accumulation in Abiquiu, Cochiti and Jemez Canyon Reservoirs. In December 2000, Reclamation corrected the excess sediment accumulation calculations resulting from continued use of the old equations and coordinated with the Corps to release approximately 5,000 acre-feet of excess native Rio Grande storage, some of which carried over into January 2001.

Associated corrections were required to Reclamation's native Rio Grande and San Juan-Chama water accounting for the three reservoirs for 1999 and 2000. Reclamation made those corrections in early 2002. These reservoir storage accounting corrections in turn resulted in a reduction in New Mexico's accrued credit as of January 1, 2001, of 1,600 acre feet as calculated by the Engineer Advisers. This reduction was incorporated into the 2001 accounting.

URGWOM Accounting Model

The Commission approved a resolution in 2001 that provided approval for Reclamation's use of the Upper Rio Grande Water Operations Model (URGWOM) accounting module, subject to the following conditions: (1) that Reclamation provide the Compact states with timely access to the URGWOM accounting model and its associated data and results, (2) that Reclamation work with the Engineer Advisers to perform a review and documentation of the procedures for Compact accounting documentation of Rio Grande and San Juan-Chama Project water, and (3) that Reclamation work with the Engineer Advisers to quantify evaporation accounting errors for the period from 1993

through 1998 for accumulated credits of New Mexico and Colorado. It is the opinion of the Engineer Advisers that Reclamation has fulfilled those conditions, or has made satisfactory progress towards their fulfillment, as discussed below.

The URGWOM model team established an FTP (file-transport protocol) website in 2001 and placed updated model input data on the website approximately weekly. The states may access the data and use it to operate a copy of the URGWOM model to analyze the water accounting produced by Reclamation.

The Engineer Advisers and Reclamation met in person or held conference calls on several occasions in 2001 and planned their comprehensive documentation of Rio Grande Compact accounting procedures. The Engineer Advisers compiled the historic Engineer Adviser Reports, Commission meeting minutes, and Commission resolutions, and prepared complete sets for each state and Reclamation. Reclamation completed an internal file search for Compact accounting documents and indicated that these documents soon will be provided to the three states. The Engineer Advisers and Reclamation also prepared a proposed Memorandum of Understanding (MOU) between the Commission and Reclamation that formally describes the duties, roles, and responsibilities of each party in the water accounting, reporting, and documentation of the waters of the Rio Grande Basin above Fort Quinman, Texas, in accordance with the Compact. The Engineer Advisers recommend Commission approval and adoption of the MOU. The proposed MOU provides that the Engineer Advisers and Reclamation will prepare a manual describing the historic and current accounting procedures and that Reclamation and the Engineer Advisers will formally review the accounting and reporting procedures for potential modifications and enhancements every five years, or more frequently if necessary.

Reclamation reported in 1999 that its internal review of evaporation data at Elephant Butte Reservoir for the period 1993 through 1998 found arithmetic and transcription errors. The accounting procedures use gross calculated evaporation rates and precipitation on the reservoir surface, in accordance with the Rules and Regulations for Administration of the Compact, to adjust the amounts of Colorado's and New Mexico's credit water in storage in Elephant Butte Reservoir for evaporative losses. Consequently, the calculation of credit water and Usable Water in Project Storage, as reported in the Reports of the Commission, was in error for the periods 1993 to 1995 and 1997 to 1999. No credit water was in storage in 1996 due to Arenal Spill in 1995. Reclamation and the Engineer Advisers quantified the errors, which were determined to be partially offsetting, and found that the impact to Compact accounting was significant only for 1997. The Engineer Advisers found the resulting required correction to be a reduction of 100 acre-feet in New Mexico's accrued credit status at the end of 2000. This correction was incorporated into the 2001 accounting provided at the beginning of this report.

During presentation by Reclamation of its 2001 accounting the Engineer Advisers found that

the URGWOM accounting module continued to calculate the accumulation of sediments in Jemez Canyon Reservoir during the months that the reservoir had no water in storage. The Engineer Advisers requested Reclamation make the necessary changes to its sediment accumulation equations so that the modeled accumulation of sediment and depletion of available storage space is stopped when reservoirs contain no stored water.

Sedimentation in Rio Grande Project Reservoirs

Sediment surveys were conducted in 1999 and 2000 for Elephant Butte and Caballo Reservoirs. Based on the sediment surveys, Reclamation revised the area-capacity tables for the two reservoirs effective January 1, 2001. Decreased project storage capacity due to sedimentation since the last survey in 1988 was 41,652 acre-feet (top of conservation pool) for Elephant Butte Reservoir and 4,838 acre-feet (top of conservation pool) for Caballo Reservoir. The Commission adopted changes at its March, 2001 meeting, effective January 1, 2001, to the Rules and Regulations for Administration of the Compact (Paragraph b of the section entitled "Actual Spill") to reflect the decrease in storage capacity in Elephant Butte and Caballo Reservoirs. The remarks for Elephant Butte and Caballo Reservoirs will be revised in the 2001 annual report of the Commission to reflect the reduction in storage capacity in the section entitled "Storage in Reservoirs. Reservoirs in Rio Grande Basin in New Mexico".

Compliance by Federal Agencies with State Water Law and Regulations

The Commission approved a resolution in 2001 that requested the Corps, Reclamation and Service to comply with state law by obtaining permits from the appropriate state agencies for any water related actions that result in new or additional river depletions. The Engineer Advisers discussed with the Corps, Reclamation and Service permitting and water rights issues related to creation or restoration of wetlands and riverine or riparian habitat and related environmental projects in 2001 and again in 2002. In 2001, Federal agency representatives acknowledged the need to comply with applicable state water laws regarding these projects. New Mexico reports Federal agencies are inconsistent in submitting applications for permits to comply with New Mexico's requirements to obtain permits for riparian and riverine habitat restoration projects that increase consumption of water. Federal agencies are planning or constructing numerous habitat restoration projects.

Elephant Butte Pilot Channel Project

The Commission approved resolutions in 2000 and 2001 requesting Reclamation to continuously extend and maintain a constructed pilot channel from San Marcial through the sediment delta to the active reservoir pool in Elephant Butte Reservoir as the reservoir recedes. Reclamation has not succeeded in constructing and maintaining such a channel to the reservoir pool. New Mexico asserts

that maintaining an active river channel from San Marcial through the sediment delta to Elephant Butte Reservoir is crucial to New Mexico's ability to make Compact deliveries.

The pilot channel as designed incorporates side channel weirs, constructed as areas of low constructed height in the pilot channel spoil bank levees. The side channel weirs and other channel features were requirements of the Endangered Species Act (ESA) Section 7 consultation between Reclamation and the Service regarding the construction of the pilot channel. In addition, Reclamation has also constructed culverts and side channel weirs through the spoil bank levee that is the west bank of the Rio Grande just downstream of the current terminus of the Low Flow Conveyance Channel. These features were requirements of ESA Section 7 consultation between Reclamation and the Service regarding construction of a previous pilot channel in that reach.

New Mexico asserts the culverts and side channel weirs are de facto surface water points-of-diversion that divert water from the pilot channel and spread it out over the Elephant Butte Reservoir sediment delta, which until recently was inundated but now is exposed. New Mexico asserts that these unpermitted diversions result in significant depletions and losses of water, impairing New Mexico's Compact deliveries and making less water available for Rio Grande Project use. New Mexico and Reclamation agreed that more discussion is needed as this project progresses.

The pilot channel failed sometime during the snowmelt runoff period from late April through May 2001, resulting in the spreading of water into the sediment delta with high attendant evaporative losses. The location of the failure was at a side channel weir constructed at a bend in the channel. Sinuosity of the channel through the sediment delta is another pilot channel feature required of Reclamation through the ESA consultation.

Reclamation temporarily halted construction of the pilot channel during the spring runoff period of 2001. Reclamation resumed construction of the pilot channel in October 2001. At the 2002 meeting of the Engineer Advisers, Reclamation estimated that the pilot channel would be extended to Nogal Canyon, the originally planned project downstream terminus, sometime by the fall of 2002. By that time the upstream edge of the reservoir pool will be approximately five miles downstream, based on current projections by Reclamation. Reclamation reported that they have initiated design and permitting work associated with a new phase of the project to extend the pilot channel past Nogal Canyon. The New Mexico Engineer Adviser inquired of Reclamation what its response would be if New Mexico proposed to contract with a private sector construction firm to construct portions of the pilot channel. Reclamation's Albuquerque Area Office Manager said he would welcome such assistance.

Reclamation's oral and computer graphic presentation of the pilot channel construction at the Engineer Advisers meeting contained little detail. The Engineer Advisers requested a more substantive presentation from Reclamation, including maps showing progress in constructing the channel, at the 2002 Commission meeting.

Endangered Species Act Section 7 Consultations

The Commission approved resolutions in 2000 and 2001 requesting that the Federal agencies involved in ongoing ESA Section 7 river operations consultations with the Service bring them to prompt conclusion as required by law. -

The river operations consultation was successfully concluded with the issuance of the June 29, 2001, Programmatic Biological Opinion on the Effects of Actions Associated with the U.S. Bureau of Reclamation's, U.S. Army Corps of Engineers' and Non-Federal Entities' Discretionary Actions Related to Water Management on the Middle Rio Grande, New Mexico (Programmatic Biological Opinion) that was a companion to the Conservation Water Agreement between the State of New Mexico and the United States (discussed below) executed that same date.

Low Flow Conveyance Channel Design, Construction, Operation and Maintenance.

Reclamation staff affirmed the need for its proposed project to relocate the river channel, and the intervening Low Flow Conveyance Channel, to the west side of the valley floor downstream from San Marcial. The need is critical due to the problems associated with the elevated channel floor caused by sedimentation in the river channel and the resulting diminishing channel capacity, which is less than the two-year frequency flood event. An uncontrolled breach of the river channel will occur if the channel is not relocated to the lower elevation flood plain area from its current elevated location on the east margin of the flood plain. Reclamation staff informed the Engineer Advisers that Reclamation submitted a Biological Assessment regarding the realignment project to the Service in May 2001, with copies to the Engineer Advisers, and is currently continuing its consultation with the Service. The elapsed time to date since the submittal of the Biological Assessment substantially exceeds the time allowed by federal regulation for completion of such consultations unless the Service and Reclamation have agreed to extend it for a specific time period or the Director of the Service has taken action to extend it in order to obtain additional data. Reclamation is consulting on the bottom-up realignment alternative with an initial Low Flow Conveyance Channel (LFCC) capacity of 500 cubic feet per second (cfs).

The Commission's April 11, 2001, resolution addressing this project documents that Reclamation informed the Commission at its regular annual meeting on March 22, 2001, that the Final Environmental Impact Statement (EIS) for this project was expected to be completed by the summer of 2001. The resolution also requested that the replacement LFCC be constructed with a 2000 cfs capacity and further requested that Reclamation keep the Commission informed through the Engineer Advisers of any additional difficulties in implementing the project and provide a quarterly update on project activities, problems, and results. Reclamation staff informed the Engineer Advisers at the 2002 meeting that the Final EIS would not be completed until conclusion of its ESA Sec-

tion 7 consultation with the Service. The Engineer Advisers have not received progress reports from Reclamation over the last year.

Reclamation informed the Engineer Advisers of ESA conflicts with the planned relocation of the LFCC. An area of concentrated Southwestern willow flycatcher nests now exists in the proposed location of the relocated Low Flow Conveyance Channel. Water from the current Low Flow Conveyance Channel outfall, located many miles upstream of the reservoir pool, now flows overland through this nesting area. Reclamation said the current plan is to construct the new LFCC to this area, allow the channel discharge to flow overland two to three miles through the nesting area, and then recollect the water into a second segment of constructed LFCC. The Engineer Advisers questioned the efficiency and usefulness of this plan. The Engineer Advisers also questioned the lower planned capacity of 500 cfs, as opposed to the capacity of 2000 cfs requested by the Commission's resolution. Reclamation staff responded that since it does not have current plans to divert water from the river to the LFCC, the higher capacity is not warranted and that LFCC capacity is needed only for drainage. The alternatives currently being formulated for analysis as part of the Upper Rio Grande Water Operations Review and EIS are based on the existing authorities of Reclamation, which include a Low Flow Conveyance Channel capacity of 2000 cfs.

Reclamation also stated that budget to construct this project is not currently available or planned.

Water Resource Development Act Section 729 Comprehensive Planning Study

The Corps provided an update on the on-going Section 729 authority, which authorizes the Corps to perform Basin wide Rio Grande studies. The Corps has conducted public meetings and met with the Engineer Advisers regarding potential projects that might be implemented. The Engineer Advisers recommended to the Corps that the Corps concentrate on the improvement of channel capacities of the Rio Grande from Cochiti Reservoir to Elephant Butte Reservoir based on information provided relating to the continuing decreasing channel capacity of the Rio Grande.

New Mexico reported to the Engineer Advisers that it has entered into a cost sharing agreement with the Corps under its Section 729 authority to initiate a water resources investigation in the reach of the Rio Grande between San Acacia and Elephant Butte Reservoir. This study includes groundwater observation wells and surface water staff gages throughout the reach to characterize the shallow groundwater system and surface water/groundwater interactions. New Mexico is currently working on an Environmental Assessment, access agreements with landowners, and Scopes of Work for the project.

YEAR 2001 OPERATIONS

Middle Rio Grande Endangered Species Conservation Pool Operations

The Commission approved a resolution in 2001 that established the Middle Rio Grande Endangered Species Conservation Pool (Conservation Pool). By adoption of that Resolution, the Commission gave its advice and consent to a deviation from normal operations of the Corps Middle Rio Grande Project Reservoirs, as specified by the Flood Control Act of 1960 (Public Law 86-645), to allow for Conservation Pool operations for a term of not more than three years. The Resolution also reserved for the State of Texas the right to rescind its approval of the Resolution on March 21, 2002 and again on March 20, 2003, if Texas were to determine that it has been or will be harmed by the departure from normal operations of the reservoirs.

A Conservation Water Agreement (CWA) was executed on June 29, 2001 between the State of New Mexico and the United States that set limitations and conditions on the storage and release operations of the Conservation Pool. The CWA will expire December 31, 2003. Up to 100,000 acre-feet of native Rio Grande water may be captured and released from Abiquitu and Jemez Canyon Reservoirs during 2001 through 2003 for Rio Grande Compact management and federal ESA purposes. A maximum of 30,000 acre-feet of Conservation Pool water, plus any carryover amounts unused in previous years, may be used in any one calendar year.

A total of 58,814 acre-feet was captured in the Conservation Pool during 2001, with 51,188 acre-feet captured in Abiquitu Reservoir and 7,627 acre-feet captured in Jemez Canyon Reservoir. The bulk of this storage was captured during the peak snowmelt runoff month of May. Releases from the Conservation Pool commenced on July 2, 2001 and continued through the end of October at a combined rate of approximately 100 cfs from both reservoirs. Due to a structural problem with the bulkhead guides at Jemez Canyon Reservoir it became necessary to drain that reservoir completely in October. Releases from the Conservation Pool in 2001 totaled 25,624 acre-feet. Evaporative and unidentified losses totaled 6,246 acre-feet, leaving 26,945 acre-feet in storage at the end of 2001, all in Abiquitu Reservoir.

The water accounting of the Conservation Pool was performed in accordance with the Rules and Regulations of the Compact.

Supplemental Water Program Operations

The supplemental water program is intended to provide additional water for endangered species needs. Reclamation's draft report identifies five aspects of the program as defined in the March 2001 Final Rio Grande Supplemental Water Programmatic Environmental Assessment, including San Juan-Chama water leases, concurrence with waiver requests for delayed delivery of San Juan-Chama Project water from Heron Reservoir to project contractors, LFCC water management options, off-channel interim storage of water at refuges, and use of groundwater wells. Reclamation leased 9,255 acre-feet of San Juan-Chama water from six contractors in 2001 and released 4,990 acre-feet of allocated but uncontracted San Juan-Chama water from Heron Reservoir for a total of 14,245

acre-feet. All of this water was provided to the Middle Rio Grande Conservancy District (MRGCD) prior to the end of April, 2000, in partial repayment of the 20,900 acre-feet of water Reclamation owed to MRGCD as specified in the August 2, 2000 Agreed Order Resolving Plaintiffs' Motion for Preliminary Injunction in *Minnow v. Martinez* (now *Minnow v. Keys*).

Reclamation operated pumps at four locations during 2001 to pump an estimated (by Reclamation) 25,000 acre-feet of water from the LFCC to the Rio Grande. Reclamation applied for a permit and received an emergency authorization from the New Mexico Office of the State Engineer for this pumping operation. New Mexico advised that Reclamation did not install flow meters on the pumps as required by the authorization.

Conservation Pool water was used to assist in meeting minimum and target flows below San Acacia Diversion Dam and at the San Marcial gaging station. Flows below San Acacia Diversion Dam were consistently at or above 100 cfs, and therefore consistently exceeded the 50 cfs target flow established by the June 29, 2001, Programmatic Biological Opinion. Flows at the San Marcial gage also consistently exceeded the applicable minimum and target flows, which vary with time of year. Reclamation staff indicated that they were assisted by the MRGCD in meeting the minimum and target flows.

Jemez Canyon Reservoir Sediment Control Pool

The agreements between the New Mexico Interstate Stream Commission (NMISC) and the Corps and between the NMISC and the City of Albuquerque governing the existence and operation of the Jemez Reservoir sediment control pool expired as of December 31, 2000 and the ownership of the remaining San Juan-Chama Project water (approximately 4,500 acre-feet at the end of 2000) in the sediment control pool reverted back to the City of Albuquerque as of January 1, 2001. This water was released in June and July 2001 at the request of the City. The Corps currently anticipates that the reservoir will thereafter be operated as a normally dry flood control facility following the expiration of the CWA at the end of 2003.

REPORTS OF THE FEDERAL AGENCIES

Representatives of Reclamation, Corps, Service, and U.S. Geological Survey presented reports to the Engineer Advisers on February 21, 2001. The Engineer Advisers specifically requested in writing prior to the meeting discussion by Reclamation and the Service of the impacts of the ESA on Reclamation's productivity and effectiveness in carrying out its traditional river maintenance, water conveyance, and water salvage activities and ways those impacts might be mitigated. The Engineer Advisers subsequently have invited the Regional Directors of Reclamation and the Service to attend the 2002 Commission meeting for discussion of these issues.

Upper Rio Grande Basin Water Operations Review and EIS

Reclamation, Corps and NMISC signed a Memorandum of Agreement in January 2000 to conduct the review and EIS. This project is a five-year effort that will evaluate alternatives for more efficient operations of Federal water storage and flood control facilities under existing authorities to meet the increasing demands on the upper Rio Grande. Compliance with the National Environmental Policy Act (NEPA) and the ESA will be provided. The agencies are currently holding a series of public meetings throughout the planning region to present and obtain public comment regarding alternatives that they propose to evaluate in the EIS.

Caballo Dam Structural Repairs

Reclamation informed the Engineer Advisers that repairs to Caballo Dam associated with concrete cracking of the spillway structure center pier and design deficiencies in the radial gate structures are almost complete. The temporary restriction, which results in a temporary reduction in Project Storage capacity of 93,244 acre-feet in Caballo Reservoir operating levels, was imposed in December 2000 and is still in place. Reclamation indicated that the construction would be completed and the restriction will be lifted in the near future.

Rio Grande Project Storage Projections

Reclamation discussed their Rio Grande Project water allocations for 2002. Reclamation indicated that an initial allocation was made on December 17, 2001 that included a 20.8 percent reduction in full supply. Reclamation revised this allocation on January 29, 2002 to reflect a 12.8 percent reduction. Reclamation advised the Engineer Advisers that they anticipate revising this allocation near the end of February to reflect approximately a 6 percent reduction in available supply and anticipated that by the end of March 2002 a full water supply will be available to Rio Grande Project water users. The Engineer Advisers expressed concern with this allocation procedure since it did not reflect any inflow estimates for the year while including evaporation projections. Such a procedure is inconsistent and leads to misconceptions of the amount of available Project water. The Engineer Advisers requested Reclamation, which made no commitment, to revise their procedures to use all available information, including projected inflows, to provide the basis of the annual Rio Grande Project water allotment.

Reclamation presented projections of reservoir operations for Elephant Butte and Caballo Reservoirs based on February 1, 2002, snowmelt runoff forecasts for March-July 2002. The projections indicate that Elephant Butte Reservoir storage would be drawn down to approximately 334,000 acre-feet by the fall of 2002. This level of Elephant Butte Reservoir storage would be the lowest since 1978. Approximately 166,000 acre-feet of this storage is accrued credit of New Mexico and Colorado. Reclamation stated that if current conditions persist that the 2003 irrigation allotment

from Project Storage would be less than a full allotment.

Upper Rio Grande Water Operations Model

The RiverWare simulation software that is the basis of URGWOM now operates on a personal computer platform. That is pertinent to historic concerns of Commission members that the software previously only operated on a UNIX workstation. Reclamation personnel demonstrated the model showing simulated hydrographs above Elephant Butte Reservoir. This demonstration showed that low peak flow runoff that is projected to occur at Lobatos and Otowi likely will not allow any additional storage of water for the Conservation Pool in 2002.

Middle Rio Grande Project Channel Maintenance

Reclamation personnel provided an extensive presentation regarding the status of Reclamation's channel maintenance program. In summary, Reclamation representatives said that the river channel is in a failed condition in many locations due to inadequate funding, restrictions and conditions on maintenance work imposed for compliance with the ESA, and delays in completion of consultations with the Service for compliance with Section 7 of the ESA. Reclamation described the impending failure of the river levees as the result of river channel migration into the levee toe at numerous locations and severely restricted channel capacity. Reclamation stated that current channel flow capacity is reduced from the historic capacity of 22,000 cfs to a current capacity of 3,800 cfs with a projected future capacity in five years of 2,000 cfs. Reclamation has identified 25 critical sites on the river where the mean annual flood cannot be safely passed without threat of a levee failure. The probable damage from levee failure is high because sedimentation has elevated the river channel above the adjacent valley floor throughout the Middle Rio Grande. Reclamation showed graphic simulations of flooded areas resulting from levee toe erosion failures and provided rough estimates of additional depletions of water associated with levee failures at current problem areas. Reclamation personnel stated that ESA restrictions prevent adequately stabilizing the channel to keep it from endangering the levee. Additionally, the number of sites that Reclamation is able to address in any one year has dropped by one-half (from ten to five per year) since 1995 and is projected to decline further through 2005. The conclusion of the presentation was that this failed condition will worsen because the failed sites that require maintenance are growing in number, the costs and complexity of maintenance needs at each site are generally greater, and the budget for this work is flat, resulting in a steadily increasing number of sites of impending levee failure.

The Engineer Advisers discussed with Reclamation the delays associated with Section 7 consultation in addressing historic channel failures and current channel problems. These delays have been reduced, perhaps partially due to the programmatic compliance efforts, from the 18 months required to complete NEPA and ESA compliance activities. It appears NEPA and ESA compliance

delays recently have been short for projects to restore endangered species habitat but the same expeditious treatment has not yet occurred for work at critical maintenance sites.

Reduction in effectiveness and productivity of Reclamation's channel maintenance responsibilities is an impact that should be addressed in the Rio Grande silvery minnow critical habitat rule EIS now being prepared by the Service. Failure of the levee and channel, in addition to causing damaging flooding, could also severely impact conveyance of flows through the Middle Rio Grande to Elephant Butte Reservoir, increase depletions of water in the Middle Rio Grande, and impair water supplies for water users below Elephant Butte Dam. The Engineer Advisers recommend that the Commission formally request that the Service and Reclamation describe these impacts explicitly and report to the Commission the plans of these two federal agencies to mitigate and minimize these impacts. An uncontrolled breach of the levee system could potentially dewater a significant portion of the river channel resulting in the mortality of the endangered Rio Grande silvery minnow.

Los Lunas Habitat Restoration Project

This project consists of habitat restoration for the Rio Grande silvery minnow and the Southwestern willow flycatcher of approximately 40 acres near Los Lunas, New Mexico. The project would provide for overbank flooding at flows above 2500 cfs and the creation of low velocity riverine habitat in side channels by removal of jetty jacks and lowering of the river banks in the area. Section 7 consultation concurrence was received from the Service one week after submittal of the Biological Assessment for this project. Net depletions aspects of this project were discussed. Reclamation's Albuquerque Area Office Manager said Reclamation may not have the resources to offset its additional depletions of water associated with its ESA compliance actions and projects.

Santa Ana Habitat Restoration Project

This restoration project, located at the confluence of the Jemez River with the Rio Grande, involves realignment and widening of the river channel and stabilization of the river channel grade with "gradient restoration facilities" installed by Reclamation, and by the Corps under a separate but related effort.

Rio Grande Silvery Minnow

Reclamation staff reported briefly on monitoring of the Rio Grande silvery minnow status that it has funded. Current monitoring shows increased numbers throughout the Middle Rio Grande compared to the previous year but numbers are much lower than in 1995, which was followed by the very dry year of 1996.

The Service gave a report on silvery minnow rescue operations for 2001. There were four events where the river flow became intermittent below San Acacia Dam for channel lengths ranging

from 200 feet to five miles. The Service reported that a total take of three of the species was charged against the limit of 250 annually set by the Incidental Take Statement in the Programmatic Biological Opinion. The Service reported that during 2001 silvery minnows were found at all 19 sampling locations in the Middle Rio Grande. During 2001 no minnows from captive populations were released to the Rio Grande. In January 2002, 11,000 marked minnows reared in captive propagation facilities were released to the river below San Acacia. The Service also reported on silvery minnow captive populations: The Dexter National Fish Hatchery holds approximately 81,000 minnows, the USGS Biological Resources Division facility at New Mexico State University holds 3,900 minnows, and the Albuquerque Biological Park holds 4,000 minnows.

Vegetation Management at Elephant Butte and Caballo Reservoirs

New Mexico annually provides cooperative funding for this program, which currently relies on mowing, with the goal of reduction of non-beneficial consumption of water. Two years ago Reclamation requested and New Mexico provided additional funding for a herbicide control pilot program. The Environmental Assessment for this pilot program remains in progress following a review of a draft by New Mexico in June 2001.

Jemez Canyon Reservoir Bulkhead Repairs

The Corps reported on the status of repairs to the Jemez Canyon Reservoir bulkhead guides for the gates. The need for repairs resulted in the October 2001 release of all remaining Conservation Pool water in Jemez Canyon Reservoir. Repairs are currently scheduled to be completed in early to mid-March 2002. The Corps reported that they would not be able to store water under the CWA until after the migratory sandhill cranes that over-winter in the Middle Rio Grande depart the area (usually around March 10th). After the CWA expires the reservoir will be operated to pass-through inflow when not in flood control operations until such time as the URGWOPS review and EIS are complete.

San Acacia Levee Project

The Corps is currently estimating revised schedules and costs for the San Acacia Levee project. This project would rehabilitate 55 miles of levee between San Acacia and Bosque Del Apache including raising or relocating the railroad bridge at San Marcial. The Conservation Agreement requires New Mexico to share in the cost of relocation of the railroad bridge. The Corps could not assure that the project would be initiated before the Conservation Agreement expired.

May Spike Release from Jemez Canyon and Cochiti Reservoirs

The Corps deviated from normal operations of Cochiti and Jemez Canyon Reservoirs in April and May 2001 to create a spike flow as part of an agreement with Jemez Pueblo to allow for later

storage in Jemez Canyon Reservoir under the Conservation Water Agreement. In a 48-hour period from May 21 to 23, 2001 the Corps released a spike of approximately 1,600 cfs (about 1,300 cfs above the inflow) from Jemez Canyon Reservoir. This release, coupled with the release of a spike of approximately 4,100 cfs from Cochiti Reservoir (about 1,000 cfs above the inflow), resulted in a roughly 5,000 cfs peak flow through the Albuquerque reach, which the Corps desired to obtain to assist in the realization of the Santa Ana river restoration project objectives. The water from the release consisted of native water stored by the Corps in April and May and was not part of the CWA. The Corps did not seek the advice and consent of the Commission for deviation of the normal operations for Jemez Canyon and Cochiti Reservoirs specified in PL 86-645, as explicitly required by that law.

Programmatic Biological Opinion

The Service reported on the Programmatic Biological Opinion issued on June 29, 2001. The Programmatic Biological Opinion concluded in a jeopardy opinion for the silvery minnow and flycatcher, but also developed a Reasonable and Prudent Alternative with 14 elements. These elements included: flow requirements for specific areas, required habitat creation/restoration activities, and funding requirements for reintroduction of the silvery minnow. The Service reported that the operations with respect to the Programmatic Biological Opinion for 2001 were successful. All target flows had been met and habitat restoration activities were underway.

Silvery Minnow Critical Habitat Designation and EIS

The Service's critical habitat designation was found to be inadequately supported by a Federal District Court in November 2000. The court required the Service to prepare an economic impact analysis and EIS to analyze the impacts of critical habitat designation as required by the ESA. The Service reported that the draft EIS should be issued in March 2002. The Service noted that the area under study for critical habitat now includes the entire Rio Grande and the Pecos River. The Engineer Advisers expressed concern about the potential critical habitat including international border areas. The Engineer Advisers also inquired whether the economic impact analysis would address the costs and impacts associated with: water depletions due to habitat restoration or creation activities, loss of crops due to water shortage from minnow activities, damage due to flooding if channel capacity and levee flood protection are allowed to deteriorate, and damage to states if water is undeliverable to Compact measuring points. Service representatives noted that they had not been advised that such economic costs were important or would be addressed. The Engineer Advisers noted that the Silvery Minnow Recovery Team had not been convened to provide preparation and review of the EIS despite written requests to the Service by the states that the recovery team be a part of the study and initial indications by the Service that it would use the recovery team as a NEPA interdisciplinary


team. The only meeting of the recovery team occurred on September 12, 2001, when air travel was impossible, and was not subsequently rescheduled by the Service.

Rio Grande Cutthroat Trout

The Service reported that on November 8, 2001, a settlement had been reached in a lawsuit regarding listing of the Rio Grande Cutthroat Trout as a threatened or endangered species under the ESA. The settlement requires that a Candidate Status Review be completed on the species. The preliminary decision was published in the Federal Register in December 2001 for a 60-day comment period. Due to the court ordered Internet blackout of the Interior Department, and the inability of individuals or organizations to submit email comments as directed in the public notice, it is likely that an additional 30-day comment period, until March 29, 2002, will be allowed.

BUDGET

The Engineer Advisers reviewed the Cost of Operation for the year ending June 30, 2001 and the Budget for Fiscal Year ending June 30, 2003. The Engineer Advisers found that the expenses for the administration of the Rio Grande Compact for the year ending June 30, 2001 were \$169,296. The United States bore \$57,439 of this total, with the balance of \$111,857 borne equally by the three states. The proposed budget for the fiscal year ending June 30, 2003 indicates a total of \$183,674 will be spent for administration.


Steven E. Vandiver
Engineer Adviser for Colorado


Norman Gaume
Engineer Adviser for New Mexico


Heinrich Settemeyer
Engineer Adviser for Texas

MEMORANDUM OF UNDERSTANDING

between the

RIO GRANDE COMPACT COMMISSION

and the

UNITED STATES BUREAU OF RECLAMATION

To formally describe the duties, roles and responsibilities of each agency in the water accounting, reporting and documentation of the waters of the Rio Grande Basin above Fort Quitman, Texas, in accordance with the Rio Grande Compact.

1.0 RECITALS AND PURPOSE

WHEREAS, the States of Colorado, New Mexico, and Texas are signatory States to the Rio Grande Compact (the Compact) with an effective date of May 31, 1939; and

WHEREAS, the Congress of the United States gave consent to the Compact with the passage of PL 76-96; and

WHEREAS, the President of the United States approved the Compact on May 31, 1939; and

WHEREAS, the U.S. Bureau of Reclamation (Reclamation) owns and/or operates several project works in the Rio Grande Basin including Piaroso Reservoir of the San Luis Valley Project on the Conejos River, the Closed Basin portion of the San Luis Valley Project on the Rio Grande, Azcoia Tunnel and Heron Reservoir of the San Juan-Chama Project on the Rio Chama, El Vado Reservoir of the Middle Rio Grande Project on the Rio Chama, and Elephant Butte and Caballo Reservoirs of the Rio Grande Project on the Rio Grande; and

WHEREAS, PL 87-483, which authorized the initial stage of the San Juan-Chama Project, required the development of the details of San Juan-Chama Project operation essential to the accounting of diverted San Juan and Rio Grande flows; and

WHEREAS, all works constructed and/or operated by Reclamation in the Rio Grande Basin are required to be operated at all times in conformance with the Compact; and

WHEREAS, strict and accurate water accounting of both native Rio Grande water and all transmountain diversions is necessary to ensure that all Reclamation project works are operated in conformance with the Compact; and

WHEREAS, such accounting procedures were developed by Reclamation, the Rio Grande Compact Commission (the Commission), the signatory States and other affected parties and agencies and approved by the Assistant Secretary of Interior on March 8, 1963, and published that same year by Reclamation in the report entitled "Accounting of Water San Juan-Chama Project, Colorado-New Mexico", and

WHEREAS, the accounting procedures were further refined in Reclamation's report of March 18, 1974, entitled "San Juan-Chama Project, Colorado-New Mexico Water Accounting and Operational Plan, Rio Grande Basin," and formally transmitted to the Commission by Reclamation's Regional Director by letter of March 19, 1974; and

WHEREAS, such accounting procedures were successfully implemented and performed by Reclamation and the signatory States for many years; and

WHEREAS, numerous modifications to the accounting procedures have been authorized by the Commission and implemented by Reclamation since 1974, and

WHEREAS, there is currently no organized documentation of these accounting modifications nor is there a comprehensive documented description of the current accounting procedures used by Reclamation.

NOW, THEREFORE, the purpose of this agreement is to clarify and formally articulate the details of the duties, roles and responsibilities of each party for the water accounting, reporting, and documentation of the waters of the Rio Grande Basin above Fort Quitman, Texas, in accordance with the Compact.

2.0 Pertinent Data

2.1 Definitions

The following definitions provide clarification on the data and procedures used for Compact accounting.

Raw Data: Raw data are the description, measurement, and quantification of water volumes and fluxes. Table 1 contains a list of raw data required for current Compact accounting. Examples of raw data include stream flow gage readings, pan evaporation measurements, precipitation gage readings, reservoir elevations, etc.

Accounting Data: Accounting data is information describing and quantifying the delivery, use, movement, transfer, and storage of water within the Rio Grande Basin. Examples of accounting data include deliveries of San Juan-Chama (SJC) water from Heron Reservoir to a downstream storage pool, deliveries by Colorado to New Mexico at the Colorado-New Mexico state line, and deliveries by New Mexico to Texas at Elephant Butte Reservoir. Most accounting data are usually calculated values derived from an

approved method.

Calculated Values: Calculated values are numerical results of approved accounting methods. Examples of calculated values include, but are not limited to, tributary inflow above Heron Reservoir, demand for the permanent San Juan-Chama recreation pool at Cochiti Reservoir, the amount of San Juan-Chama water required at Otowi gage to offset the effects of storage at Nambé Falls Reservoir, the Conejos Index Supply, the Otowi Index Supply, and the Elephant Butte Effective Supply.

Approved Method: An approved method is a method of performing a calculation or accounting procedure formally approved by the Commission. The adjustment of New Mexico's and Colorado's Compact Credit water stored in Elephant Butte Reservoir for loss due to evaporation is an example of an approved method.

Constant Value: A constant value is a value used in a calculation defined by an approved method. The constant value typically represents a portion of a physical system or reflects a value used in an accounting calculation defined by an approved method. An example of a constant value is the 2.0 percent loss factor currently used to describe losses in San Juan-Chama water transported from Heron Reservoir to the Otowi Index gage. The Commission must approve constant values prior to their use in an approved method.

2.2 Raw Data Sources and Responsible Collecting Agency

Compact accounting of native Rio Grande water and San Juan-Chama Project and other transmountain diversions incorporates raw data from a number of different sources. This section describes the types, sources, and the agency responsible for collecting and providing the raw data required for Compact accounting. A number of state, federal and local agencies that are not party to this agreement are responsible for collecting and providing raw data used in Compact accounting. This agreement does not in any way address how such raw data is collected, reviewed, maintained or made available for Compact accounting by other agencies not party to this agreement, except to note that the U. S. Geological Survey (USGS), acting as Secretary to the Commission per the Rules and Regulations for Administration of the Rio Grande Compact as amended February 22, 1948, is responsible for preparing a summary of the raw data needed to perform the Compact accounting.

Table 1 attached to this Memorandum of Understanding provides a listing of all raw data required for Compact accounting and the agency that is responsible for its collection.

3.0 Roles and Responsibilities

3.1 U.S. Bureau of Reclamation

The roles and responsibilities of the U.S. Bureau of Reclamation as related to Compact accounting and the Commission are to:

- Collect, compile and provide various data required for Compact accounting as indicated in Table 1.
- Prepare the annual water accounting report to the Engineer Advisers to the Commission that provides details on water accounting for the San Juan-Chama Project, the San Luis Valley Project, and information on the Upper Rio Grande Water Operations Model (URGWOM) and other related water accounting matters. This report will be submitted to the Engineer Advisers as a draft for review and comment no later than three weeks prior to each February's regularly scheduled meeting of the Engineer Advisers.
- Meet with the Engineer Advisers at their annual meeting to resolve any questions regarding the accounting and assist the Engineer Advisers to prepare the annual Compact accounting for Commission approval.
- Disseminate to the Commission and all interested parties, on a monthly basis, provisional San Luis Valley Project and San Juan-Chama Project water accounting data throughout the year.

3.2 Engineer Advisers/Rio Grande Compact Commission

The Engineer Advisers to the Commission, as representatives of their respective States, are responsible for collecting and providing various data as indicated in Table 1. As a collective body, the Engineer Advisers are responsible for reviewing and preparing the annual Compact accounting for Commission approval. This includes review of both the annual water accounting report produced by Reclamation and the draft compilation of Compact accounting prepared by the USGS. The Compact accounting is then presented to the Commission for formal approval as part of the annual report of the Engineer Advisers. Upon approval, the accounting is then published in the annual report of the Commission to the Governors of Colorado, New Mexico and Texas.

4.0 Communications and Coordination

4.1 Protocols

Reclamation and the States will review the adequacy of the processes for water accounting information exchange and the sufficiency of the information exchanged, on a regular basis, but not less than annually. This review will evaluate the amount and frequency of information provided by each entity, with the goal of adjusting information exchange to meet the needs of all parties. Agreed-upon outcomes of the reviews will be

documented in writing. All raw data and water accounting data required for Compact accounting that is collected or produced by any of the signatories to this agreement will be made available to the other signatories upon written or verbal request.

Reclamation and the States will work on establishing more face-to-face and/or phone communications in between the regularly scheduled yearly Engineer Advisers and Commission meetings. The goal of such communications is to address questions and concerns on a more frequent basis.

4.2 Water Accounting Documentation Report

Reclamation and the States will cooperatively conduct a Compact water accounting documentation project during the 2002 calendar year. This project will concurrently review and document the basis for both native Rio Grande and San Juan-Chama Project water accounting, and will thoroughly detail and describe all the accounting data, calculated values and constant values, and approved methods that are involved in the water accounting. The goal of the project will be to present a comprehensive final report to the Commission at its annual 2003 meeting. The report will include a section on quality assurance/quality control protocols for all future Compact water accounting.

Reclamation and the States will ensure that all agreed-upon actions related to water accounting are documented. Such documentation will be specific for water accounting for the Compact. All parties will agree to water accounting documentation before finalization.

5.0 Protocols for Implementing Future Changes to Approved Methods

The details of the approved methods for water accounting may require adjustments predicated upon changing conditions, changes in project plans, operations and water usage, and improvement in engineering and hydrologic knowledge and data. When the necessity of such an adjustment to an approved method is identified, Reclamation and the Commission will investigate and study the technical basis for the adjustment. A report or technical memorandum detailing the adjustment will be prepared by the agency proposing the adjustment and submitted to the Engineer Advisers to the Commission prior to the annual meeting of the Advisers in February. The Engineer Advisers will review the adjustment, and, if deemed appropriate, shall recommend approval of the adjustment by the Commission. No accounting adjustments will be implemented without the prior approval of the Commission.

Review of Compact water accounting procedures will be performed both informally and formally. Reclamation and the signatory States will meet every five years from the date of Commission approval of this Memorandum of Understanding to formally review all Compact accounting procedures and will document the results of this review. This Memorandum of Understanding will be revised as necessary at those times.

IN WITNESS WHEREOF, the parties have caused this instrument to be duly executed.

RIO GRANDE COMPACT COMMISSION

Hal D. Simpson
Commissioner for Colorado

Date: March 21, 2002

Thomas C. Turney
Commissioner for New Mexico

Date: March 21, 2002

Joe G. Hanson
Commissioner for Texas

Date: March 21, 2002

U.S. BUREAU OF RECLAMATION

Ken Maxey
Area Manager, Albuquerque Area Office

Date: March 21, 2002

RESOLUTION

OF THE

RIO GRANDE COMPACT COMMISSION

REGARDING THE NEED FOR FEDERAL AGENCIES TO APPLY FOR STATE PERMITS
IN COMPLIANCE WITH STATE WATER LAW AND REGULATIONS

March 21, 2002
Santa Fe, New Mexico

WHEREAS, the states of Colorado, New Mexico, and Texas entered into the Rio Grande Compact, signed in 1938, regarding the waters of the Rio Grande above Fort Quitman Texas; and

WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and

WHEREAS, the U.S. Army Corps of Engineers (Corps) and the U.S. Bureau of Reclamation (Reclamation) operate and maintain water storage and conveyance facilities on the Rio Grande which may include habitat restoration projects; and

WHEREAS, New Mexico reports that such federal activities have the potential to create new or additional depletions and could affect future New Mexico deliveries to the Rio Grande Project, and

WHEREAS, New Mexico reports that neither the Corps nor Reclamation have applied for permits as requested in the April 11, 2001 Resolution of the Rio Grande Compact Commission.

NOW, THEREFORE, BE IT RESOLVED THAT the Rio Grande Compact Commission again requests the above federal agencies to comply with state law by obtaining permits from the appropriate state agencies for any water-related actions that result in new or additional river depletions; and

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Secretary of the Interior; the Commissioner, Regional Director, and Albuquerque Area Office Manager of Reclamation; the Director, Regional Director, and the New Mexico Ecological Services Field Office Supervisor of the U. S. Fish and Wildlife Service, and the Commander, Division Engineer, and District Engineer of the U. S. Army Corps of Engineers.

Hal D. Simpson
Commissioner for Colorado

Thomas C. Turney
Commissioner for New Mexico

Joe G. Hanson
Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION

THE DEVELOPMENT OF AN APPROPRIATE METHODOLOGY FOR DETERMINING
THE ANNUAL ALLOCATION OF USABLE WATER IN RIO GRANDE PROJECT STORAGE

March 21, 2002
Santa Fe, New Mexico

WHEREAS, the states of Colorado, New Mexico, and Texas entered into the Rio Grande Compact, signed in 1938, regarding the waters of the Rio Grande above Fort Quitman, Texas; and

WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and

WHEREAS, the Rio Grande Compact obligates New Mexico to deliver water to Elephant Butte Reservoir for use by the Rio Grande Project according to an inflow-outflow schedule based on the Otowi Index Supply; and

WHEREAS, the waters of the Rio Grande Project are used to meet the United States treaty obligation to the Republic of Mexico and provide a water supply for Southern New Mexico and Texas downstream of Elephant Butte Reservoir and above Ft. Quitman, Texas; and

WHEREAS, Reclamation determines the annual allocation for Elephant Butte Irrigation District (EBID) and El Paso Water Improvement District No. 1 (EP No.1); and


WHEREAS, Reclamation's current procedure for determining the annual allocation for EBID and EP No. 1 does not include all parameters necessary to accurately determine projected reservoir storage; and


WHEREAS, the dissemination of inaccurate allotments causes unnecessary hardships to the water users of Southern New Mexico and Texas along the Rio Grande downstream of Elephant Butte Reservoir and above Ft. Quitman, Texas.

NOW, THEREFORE, BE IT RESOLVED THAT the Rio Grande Compact Commission hereby requests that the Bureau of Reclamation work cooperatively with the Engineer Advisers to develop procedures for determining the annual allotments of water supply in accordance with the Rio Grande Compact.

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Commissioner, Regional Director, and Albuquerque Area Office Manager of Reclamation.


Hal D. Simpson
Commissioner for Colorado


Thomas C. Turney
Commissioner for New Mexico


Joe G. Hanson
Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION

THE CONTINUING NEED FOR THE U.S. BUREAU OF RECLAMATION
TO CONTINUOUSLY EXTEND AND MAINTAIN A PILOT CHANNEL THROUGH
THE DELTA OF ELEPHANT BUTTE RESERVOIR TO THE ACTIVE RESERVOIR POOL
AS THE RESERVOIR RECEDES

March 21, 2002
Santa Fe, New Mexico

WHEREAS, the states of Colorado, New Mexico, and Texas entered into the Rio Grande Compact, signed in 1938, regarding the waters of the Rio Grande above Fort Quitman, Texas; and

WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and

WHEREAS, New Mexico reports that water conveyance facilities and maintenance of the active channel of the Rio Grande are important to New Mexico's compliance with its Rio Grande Compact delivery obligations; and

WHEREAS, the U.S. Bureau of Reclamation (Reclamation) is continuing to construct a temporary channel to connect the river channel at the head of Elephant Butte Reservoir, through the reservoir sediment delta, to the active reservoir pool; and

WHEREAS, Reclamation's projections of reservoir operations for Elephant Butte and Caballo Reservoirs for 2002 indicate that Elephant Butte Reservoir will be drawn down an additional 40 feet in elevation by the fall of 2002 and that the active reservoir pool will reside near the southern end of the narrows; and

WHEREAS, Reclamation currently anticipates that, due to equipment and permitting problems, the pilot channel will not be completed through the sediment delta connecting the river channel with the active reservoir pool during 2002; and

WHEREAS, the Engineer Advisers report that a functional channel through the sediment delta to the reservoir pool is important to New Mexico's delivery of water to the Rio Grande Project.

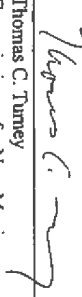
NOW, THEREFORE, BE IT RESOLVED that the Rio Grande Compact Commission requests that Reclamation continue to extend and maintain the constructed channel from San Marcial through the sediment delta to the active reservoir pool in Elephant Butte reservoir as the reservoir recedes, thereby maintaining an active river channel to the reservoir pool at all times; and

BE IT FURTHER RESOLVED that the Rio Grande Compact Commission supports full continued funding of the above project; and

BE IT FURTHER RESOLVED that the U.S. Bureau of Reclamation is requested to promptly inform the Rio Grande Compact Commission through the Engineer Advisers of any difficulties in implementing the project and that Reclamation provide the Engineer Advisers a quarterly update on project activities, problems, and results; and

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Secretary of the Interior, the Commissioner, Regional Director, and Albuquerque Area Office Manager of Reclamation; and the Director, Regional Director, and the New Mexico Ecological Services Field Office Supervisor of the U. S. Fish and Wildlife Service.


Hal D. Simpson
Commissioner for Colorado


Thomas C. Turney
Commissioner for New Mexico


Joe G. Hanson
Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REGARDING
THE U.S. BUREAU OF RECLAMATION
MAINTAINING THE MIDDLE RIO GRANDE FLOODWAY

March 21, 2002
Santa Fe, New Mexico

WHEREAS, the states of Colorado, New Mexico, and Texas entered into the Rio Grande Compact, signed in 1938, regarding the waters of the Rio Grande above Fort Quitman Texas; and

WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and

WHEREAS, New Mexico reports that operation and maintenance of federal water conveyance facilities are important to New Mexico's compliance with its Rio Grande Compact delivery obligations; and

WHEREAS, the U.S. Bureau of Reclamation (Reclamation) on February 21, 2002 reported to the Engineer Advisers that the number of critical maintenance sites, defined as a location where the floodway levee is likely to fail under the mean annual flood (2.3 year return period), within the middle Rio Grande valley was approximately 25 sites; and


WHEREAS, Reclamation anticipates that the number of critical sites will continue to increase;

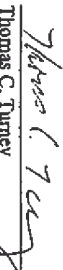
NOW, THEREFORE, BE IT RESOLVED that the Rio Grande Compact Commission recommends and requests that Reclamation maintain the middle Rio Grande floodway such that effective drainage and efficient transport of water can be achieved; and

BE IT FURTHER RESOLVED that the Rio Grande Compact Commission supports full funding for maintenance of the middle Rio Grande floodway for the above purpose; and

BE IT FURTHER RESOLVED that the Rio Grande Compact Commission requests that Reclamation promptly inform the Rio Grande Compact Commission through the Engineer Advisers of any additional difficulties in implementing maintenance activities and that Reclamation provide the Engineer Advisers an update at the 2003 Engineer Advisers meeting on project activities, problems, and results; and

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Secretary of the Interior, and the Commissioner, Regional Director, and Albuquerque Area Office Manager of Reclamation.


Hal D. Simpson
Commissioner for Colorado


Thomas C. Turney
Commissioner for New Mexico


Joe G. Hanson
Commissioner for Texas

RESOLUTION
of the
RIO GRANDE COMPACT COMMISSION
REGARDING A PHYSICAL ASSESSMENT,
THE OPPORTUNITIES FOR IMPROVED
MANAGEMENT OF THE WATER RESOURCES
OF THE BI-NATIONAL RIVER BASIN
PROPOSED BY THE NATURAL HERITAGE INSTITUTE

March 21, 2002

WHEREAS, the allocation of the water of the Rio Grande between the United States and Mexico is governed by two treaties between the two countries, the 1906 treaty for waters above Ft. Quitman, Texas and the 1944 treaty for waters below Ft. Quitman, Texas; and

WHEREAS, the States of Colorado, New Mexico, and Texas entered into the Rio Grande Compact, signed in 1938, which allocated among the States all the waters of the Rio Grande above Fort Quitman, Texas; and

WHEREAS, existing water supplies do not normally meet the existing demands in the Rio Grande Basin above Fort Quitman and each State will defend its rights granted by the Rio Grande Compact to use the waters apportioned thereby for the benefit of its citizens; and

WHEREAS, the need to manage and conserve the water supplies of the Rio Grande Basin for the benefit of present and future generations is well understood, however, that management and conservation must be done within the constraints and allocations of existing Treaties and the Compact; and

WHEREAS, it was agreed and understood among the parties to both the Treaty and the Compact that the waters of the Rio Grande, above Fort Quitman, Texas, would be fully utilized to benefit mankind in seeking to produce successful economies in this water-short region; and

WHEREAS, the description of the study proposed by the Natural Heritage Institute contains numerous statements that do not take into full account long standing legal and contractual relationships of which citizens of Texas, New Mexico and Colorado have relied on for many generations; and

WHEREAS, the States of Texas, New Mexico, and Colorado, as well as the United States Government, are seeking to resolve a wide variety of issues that affect the way in which the Rio Grande system is operated, which efforts are extremely complicated and costly; and

WHEREAS, a proposal to conduct parallel investigations will be singularly complicated, expensive, and time consuming; and

WHEREAS, past descriptions of the proposed physical assessment have strongly suggested an intention to utilize the study as a basis to redefine or alter the Treaties with Mexico

and the Rio Grande Compact, which could likely have the effect of adversely affecting existing water users in the Rio Grande Basin, above Fort Quitman, Texas; and

WHEREAS, the Rio Grande Compact Commission provides the mechanism for entities and organizations to discuss and negotiate their differences and allows for consideration of the feasibility of new water management and control technology; and

WHEREAS, federal and state money should not be contributed to this proposed study.

NOW, THEREFORE, BE IT RESOLVED that the Rio Grande Compact Commission hereby requests that the States of Texas, New Mexico, and Colorado, as well as agencies of the Federal Government, decline to support or participate in the study entitled "A Physical Assessment of the Opportunities for Improved Management of the Water Resources of the Bi-National River Basin" proposed by the Natural Heritage Institute; and

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission is requested to transmit copies of this Resolution to the Secretary of Interior, the Commissioner of the Bureau of Reclamation, the Secretary of the Army (Corps of Engineers), the Commissioner for the International Boundary and Water Commission, and the Congressional delegations of the three States.

Dated this 21st day of March 2002.


Harold D. Simpson, Commissioner for Colorado


Joe G. Hanson, Commissioner for Texas


Thomas C. Turney, Commissioner for New Mexico

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REGARDING
NEED FOR THE U.S. BUREAU OF RECLAMATION
TO DESIGN, CONSTRUCT, OPERATE, AND MAINTAIN THE LOW FLOW
CONVEYANCE CHANNEL FROM SAN ACACIA TO THE ACTIVE RESERVOIR POOL IN
ELEPHANT BUTTE RESERVOIR AT THE 2000 CFS OPERATIONAL DESIGN

March 21, 2002
Santa Fe, New Mexico

WHEREAS, the states of Colorado, New Mexico, and Texas entered into the Rio Grande Compact, signed in 1938, regarding the waters of the Rio Grande above Fort Quitman Texas; and

WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and

WHEREAS, New Mexico reports that operation and maintenance of federal water conveyance facilities including the Low Flow Conveyance Channel are important to New Mexico's compliance with its Rio Grande Compact delivery obligations; and

WHEREAS, the U.S. Bureau of Reclamation (Reclamation) on February 21, 2002 reported to the Engineer Advisers on the status of their Low Flow Conveyance Channel (LFCC) Modification project; and

WHEREAS, Reclamation is now proposing to reconstruct the LFCC from San Marcial to Elephant Butte Reservoir at a 500 cfs design capacity which is contrary to the historical channel capacity of 2000 cfs; and

WHEREAS, Reclamation also proposes to discharge the waters of the reconstructed LFCC into a marsh area currently occupied by Southwestern willow flycatchers well before the logical terminus of the LFCC and then re-gather the discharged water; and

WHEREAS, Reclamation's proposal directly conflicts with the April 11, 2001 Resolution of the Rio Grande Compact Commission; and

WHEREAS, the Rio Grande Compact Commission contends that Reclamation's proposal, if implemented, would effectively negate operation of the LFCC, and could negatively impact the ability of the Low Flow Conveyance Channel to effectively drain and efficiently transport the waters of the Rio Grande to Elephant Butte Reservoir; and


NOW, THEREFORE, BE IT RESOLVED that the Rio Grande Compact Commission recommends and requests that Reclamation design, construct, operate, and maintain the reconstructed LFCC from

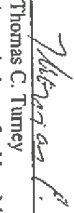
San Marcial to the active reservoir pool at Elephant Butte Reservoir at the 2000 cfs operational design such that effective drainage and efficient transport of water can be achieved; and

BE IT FURTHER RESOLVED that the Rio Grande Compact Commission supports full funding for modifications to the Low Flow Conveyance Channel at a 2000 cfs capacity all the way to the reservoir pool; and

BE IT FURTHER RESOLVED that the Rio Grande Compact Commission requests that Reclamation promptly inform the Rio Grande Compact Commission through the Engineer Advisers of any additional difficulties in implementing the project and that Reclamation provide the Engineer Advisers a quarterly update on project activities, problems, and results; and

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Secretary of the Interior, and the Commissioner, Regional Director, and Albuquerque Area Office Manager of Reclamation.


Hal D. Simpson
Commissioner for Colorado


Thomas C. Turney
Commissioner for New Mexico


Joe G. Hanson
Commissioner for Texas

RESOLUTION OF THE RIO GRANDE COMPACT COMMISSION REGARDING THE USE OF THE ACCOUNTING MODULE OF THE UPPER RIO GRANDE OPERATIONS MODEL FOR RIO GRANDE COMPACT ACCOUNTING PURPOSES

April 11, 2001
Albuquerque, New Mexico

WHEREAS, the states of Colorado, New Mexico, and Texas entered into the Rio Grande Compact, signed in 1938, regarding the waters of the Rio Grande above Fort Quitman, Texas; and

WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and

WHEREAS, Rio Grande Compact and San Juan-Chama Project annual water accounting is conducted using data collected by the U.S. Geological Survey (USGS), the U.S. Army Corps of Engineers (Corps), the Bureau of Reclamation (Reclamation), and the States of Colorado and New Mexico; and

WHEREAS, Reclamation systematically collects relevant data and prepares annual accounting of Rio Grande and San Juan-Chama Project reservoir operations, streamflow, and water deliveries for review and use by the Engineer Advisers to the Rio Grande Compact Commission in preparing the annual Rio Grande Compact accounting; and

WHEREAS, Reclamation has developed and continues to use a separate FORTRAN program for each reservoir to provide accounting information of native Rio Grande and San Juan-Chama waters; and

WHEREAS, the Bureau of Reclamation, the Corps, and the USGS in 1996 began to develop the Upper Rio Grande Water Operations Model (URGWOM) using the RiverWare software program, for the simulation of middle Rio Grande basin reservoir operations; and

WHEREAS, URGWOM contains an accounting module that has been applied for Rio Grande Compact accounting purposes; and

WHEREAS, accounting errors made in the process of employing the FORTRAN programs are reduced when using the URGWOM accounting module because the newer software has superior features and is easier to use; and

WHEREAS, the URGWOM accounting module was tested by comparing its results to the daily accounting FORTRAN programs currently in use, satisfactorily reproduced the accounting results of years 1995, 1996 and 2000, and resulted in the identification of data errors made in using the


FORTRAN program based accounting that otherwise would not have been revealed; and


WHEREAS, Reclamation recommends and requests that the Rio Grande Compact Commission approve Reclamation's use of URGWOM for Rio Grande Compact and San Juan-Chama Project water accounting purposes and abandonment of the previous accounting software and methods that URGWOM replaces.


NOW, THEREFORE, BE IT RESOLVED that the Rio Grande Compact Commission hereby approves the use of the URGWOM accounting module in producing the accounting data needed by the USGS for use in the Rio Grande Compact accounting process subject to the following conditions:

1. Reclamation fulfill its commitments made during the February 2000 meeting of the Engineer Advisers to the Rio Grande Compact Commission to work with the Engineer Advisers to complete during 2001: a) review and documentation of the procedures for Rio Grande Compact accounting of Rio Grande and San Juan-Chama Project water; and b) quantification of the evaporation accounting error for the period 1993 through 1998 for accumulated credits of New Mexico and Colorado; and
2. Reclamation provide the three Compact States timely access to the URGWOM accounting module and its associated data and results, using a file transfer protocol, or FTP, site to be updated at least weekly; and

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Albuquerque Area Office Manager of Bureau of Reclamation and the District Engineer of the Albuquerque District of the Corps of Engineers.


Hal D. Simpson
Commissioner for Colorado


Thomas C. Turney
Commissioner for New Mexico


Joe G. Hanson
Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REGARDING THE NEED FOR FEDERAL AGENCIES TO APPLY FOR STATE
PERMITS IN COMPLIANCE WITH STATE WATER LAW AND REGULATIONS

April 11, 2001
Albuquerque, New Mexico

WHEREAS, the states of Colorado, New Mexico, and Texas entered into the Rio Grande Compact, signed in 1938, regarding the waters of the Rio Grande above Fort Quitman, Texas; and

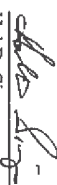
WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and


WHEREAS, the U.S. Army Corps of Engineers (Corps) and the U.S. Bureau of Reclamation (Reclamation) operate and maintain water storage and conveyance facilities on the Rio Grande; and


WHEREAS, Reclamation, the Corps, the U.S. Fish & Wildlife Service, and other parties are planning and, in some cases, conducting aquatic and riparian habitat restoration activities; and

NOW, THEREFORE, BE IT RESOLVED THAT the Rio Grande Compact Commission hereby requests the above federal agencies to comply with state law by obtaining permits from the appropriate state agencies for any water-related actions that result in new or additional river depletions; and

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Secretary of the Interior, the Commissioner, Regional Director, and Albuquerque Area Office Manager of Reclamation; the Director, Regional Director, and the New Mexico Ecological Services Field Office Supervisor of the U. S. Fish and Wildlife Service, and the Commander, Division Engineer, and District Engineer of the U. S. Army Corps of Engineers.


Hal D. Simpson
Commissioner for Colorado


Thomas C. Turney
Commissioner for New Mexico


Joe G. Hanson
Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REGARDING
THE CONTINUING NEED FOR THE U.S. BUREAU OF RECLAMATION
TO CONTINUOUSLY EXTEND AND MAINTAIN A PILOT CHANNEL
THROUGH THE DELTA OF ELEPHANT BUTTE RESERVOIR TO THE ACTIVE
RESERVOIR POOL AS THE RESERVOIR RECEDES

April 1, 2001
Albuquerque, New Mexico

WHEREAS, the states of Colorado, New Mexico, and Texas entered into the Rio Grande Compact, signed in 1938, regarding the waters of the Rio Grande above Fort Quitman, Texas; and

WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and


WHEREAS, New Mexico reports that water conveyance facilities and maintenance of the active channel of the Rio Grande, particularly in the San Acacia reach, are important to New Mexico's compliance with its Rio Grande Compact delivery obligations; and


WHEREAS, the U.S. Bureau of Reclamation (Reclamation) is currently constructing a temporary channel to connect the river channel at the head of Elephant Butte Reservoir, through the reservoir sediment delta, to the active reservoir pool; and


NOW, THEREFORE, BE IT RESOLVED that the Rio Grande Compact Commission requests that Reclamation continue to extend and maintain the constructed channel from San Marcial through the sediment delta to the active reservoir pool in Elephant Butte Reservoir as the reservoir recedes, thereby maintaining an active river channel to the reservoir pool at all times; and

BE IT FURTHER RESOLVED that the U.S. Bureau of Reclamation is requested to promptly inform the Rio Grande Compact Commission through the Engineer Advisers of any difficulties in implementing the pilot channel construction project and that Reclamation provide the Engineer Advisers a quarterly update on project activities, problems, and results; and

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Secretary of the Interior, the Commissioner, Regional Director, and Albuquerque Area Office Manager of Reclamation; and the Director, Regional Director, and the New Mexico Ecological Services Field Office Supervisor of the U. S. Fish and Wildlife Service.


Hal D. Simpson
Commissioner for Colorado


Thomas C. Turney
Commissioner for New Mexico


Joe G. Hanson
Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REGARDING THE NEED FOR CONCLUSION
OF THE BUREAU OF RECLAMATION'S AND U.S. CORPS OF ENGINEERS'
ONGOING CONSULTATIONS WITH U.S. FISH AND WILDLIFE SERVICE
UNDER SECTION 7 OF THE ENDANGERED SPECIES ACT
REGARDING RIO GRANDE OPERATIONS

April 11, 2001
Albuquerque, New Mexico

WHEREAS, the states of Colorado, New Mexico, and Texas entered into the Rio Grande Compact, signed in 1938, regarding the waters of the Rio Grande above Fort Quitman, Texas; and

WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and

WHEREAS, New Mexico reports that water salvage and conveyance facilities located in the Middle Rio Grande Valley and maintenance of the channel of the Rio Grande have facilitated its delivery of water under the Rio Grande Compact, and that the future of such projects and facilities are uncertain while deliberation over wildlife habitat in the region continues; and

WHEREAS, the U.S. Army Corps of Engineers (Corps) and the U.S. Bureau of Reclamation (Reclamation) operate and maintain water storage and conveyance facilities on the Rio Grande; and

WHEREAS, the U. S. Fish and Wildlife Service (Service) in 1994 listed the Rio Grande silvery minnow as an endangered species under the Endangered Species Act (ESA) and further designated critical habitat for the species in 1999; and

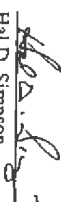
WHEREAS, the ESA Section 7 requires federal agencies to consult with the Service regarding federal actions that might affect endangered species; and

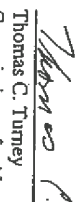
WHEREAS, the ESA Section 7 consultations described above have not been completed; and


NOW, THEREFORE, BE IT RESOLVED THAT the Rio Grande Compact Commission requests that the Federal agencies involved in the ESA Section 7 consultations initiate, as appropriate, and bring the formal consultations to prompt resolution in accordance with the time limits set by federal regulation; and

BE IT FURTHER RESOLVED that Reclamation and the Corps assist the State of New Mexico in mitigating and offsetting any restrictions placed on the Federal agencies discretionary actions with regard to Rio Grande water storage and conveyance facilities operations that might reduce the water supply available for use within New Mexico above Elephant Butte Reservoir.

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Secretary of the Interior, the Commissioner, Regional Director, and Albuquerque Area Office Manager of Reclamation, the Director, Regional Director, and the New Mexico Ecological Services Field Office Supervisor of the U. S. Fish and Wildlife Service, and the Commander, Division Engineer, and District Engineer of the U. S. Army Corps of Engineers.


Hal D. Simpson
Commissioner for Colorado


Thomas C. Turney
Commissioner for New Mexico


Joe G. Hanson
Commissioner for Texas

RESOLUTION
(OF THE
RIO GRANDE COMPACT COMMISSION
REGARDING
THE STORAGE OF NATIVE NEW MEXICO RIO GRANDE WATER IN U.S. ARMY
CORPS OF ENGINEERS MIDDLE RIO GRANDE PROJECT RESERVOIRS

April 11, 2001
Albuquerque, New Mexico

WHEREAS, the states of Colorado, New Mexico, and Texas entered into the Rio Grande Compact, signed in 1938, regarding the waters of the Rio Grande above Fort Quitman, Texas; and

WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and

WHEREAS, the U.S. Army Corps of Engineers (Corps) and the U.S. Bureau of Reclamation (Reclamation) operate and maintain water storage and conveyance facilities on the Rio Grande; and

WHEREAS, litigation under the federal Endangered Species Act, Cause No. 99-CIV-1320, styled *Minnow v. Martinez*, filed in the United States District Court for the District of New Mexico in Albuquerque, New Mexico, was initiated in late 1999 on the middle Rio Grande in New Mexico seeking protection for the endangered Rio Grande silvery minnow; and

WHEREAS, New Mexico has recently proposed in an offer of settlement of *Minnow v. Martinez* to make available for lease by Reclamation, for a period of three years, a total of 100,000 acre-feet of New Mexico's native Rio Grande water and to establish a Middle Rio Grande Endangered Species Conservation Pool (Conservation Pool) in the Corps' Middle Rio Grande Project Reservoirs; and

WHEREAS, New Mexico proposes to capture and store native Rio Grande water during 2001 through 2003 at times when Rio Grande flows are in excess of downstream diversion demands in New Mexico above Elephant Butte Reservoir; such water, if not stored, would have flowed downstream to Elephant Butte Reservoir and contributed to New Mexico's compact delivery; and

WHEREAS, the native Rio Grande water that New Mexico stores in the Middle Rio Grande Endangered Species Conservation Pool would be released at a sufficient flow rate to maintain flow at points in the Rio Grande critical for the silvery minnow, with total releases over the three-year term not to exceed 90,000 acre-feet, with no more than 30,000 acre-feet (plus any carryover water from the prior year) released in any one calendar year; and

WHEREAS, the Flood Control Act of 1960 (Public Law 86-645) requires the advice and consent of the Rio Grande Compact Commission for any departure from the normal operation schedules of the Corps' Middle Rio Grande Project Reservoirs; and


NOW, THEREFORE, BE IT RESOLVED that, in accordance with the Flood Control Act of 1960 (Public Law 86-645), the Rio Grande Compact Commission hereby favorably advises and consents

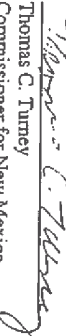
to the departure from normal operation schedules of the Corps' Middle Rio Grande Project Reservoirs for a term of not more than three years to allow the operation of the Middle Rio Grande Endangered Species Conservation Pool as described above; and

BE IT FURTHER RESOLVED that by approval of this resolution, the States of Colorado and Texas in no way change the obligations of New Mexico under the Rio Grande Compact.

BE IT FURTHER RESOLVED PROVIDED, HOWEVER, that the State of Texas reserves the right to rescind its approval of this resolution on March 21, 2002, and again on March 20, 2003, if Texas determines that Texas has been or will be harmed by the departure from normal operation schedules, by providing written notice of the rescission of its approval to the States of Colorado and New Mexico through each state's respective Rio Grande Compact Commissioner.

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Secretary of the Interior; the Commissioner, Regional Director, and Albuquerque Area Office Manager of Reclamation; the Director, Regional Director, and the New Mexico Ecological Services Field Office Supervisor of the U.S. Fish and Wildlife Service; and the Commander, Division Engineer, and District Engineer of the U.S. Army Corps of Engineers.


Hal D. Simpson
Commissioner for Colorado


Thomas C. Turney
Commissioner for New Mexico


Joe G. Hanson
Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REGARDING

NEED FOR THE U.S. BUREAU OF RECLAMATION
TO DESIGN, CONSTRUCT, OPERATE, AND MAINTAIN THE LOW FLOW
CONVEYANCE CHANNEL FROM SAN ACACIA TO THE ACTIVE RESERVOIR
POOL IN ELEPHANT BUTTE RESERVOIR AT A 2000 CFS OPERATIONAL DESIGN

April 11, 2001

Albuquerque, New Mexico

WHEREAS, the states of Colorado, New Mexico, and Texas entered into the Rio Grande Compact, signed in 1938, regarding the waters of the Rio Grande above Fort Quitman, Texas; and

WHEREAS, Article VI of the Rio Grande Compact provides for annual computation of all credits and debits of Colorado and New Mexico; and

WHEREAS, New Mexico reports that operation and maintenance of federal water conveyance facilities including the Low Flow Conveyance Channel are important to New Mexico's compliance with its Rio Grande Compact delivery obligations; and

WHEREAS, the U.S. Bureau of Reclamation (Reclamation) on September 8, 2000 submitted a Draft Environmental Impact Statement (DEIS) for the Low Flow Conveyance Channel Modification to the Engineer Advisers for review and comment; and


WHEREAS, the DEIS provides analysis of four alternatives for the future of the Low Flow Conveyance Channel south of San Marcial; and

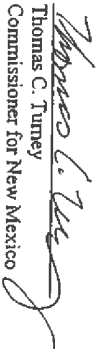
WHEREAS, Reclamation indicated to the Compact Commission at the March 22, 2001 compact annual meeting that the Final Environmental Impact Statement should be completed by the summer of 2001; and


NOW, THEREFORE, BE IT RESOLVED that the Rio Grande Compact Commission requests that Reclamation take all appropriate steps to implement construction and operation of the Low Flow Conveyance Channel in accordance with a 2000 cfs design capacity to the active reservoir at Elephant Butte Reservoir; and

BE IT FURTHER RESOLVED that the Rio Grande Compact Commission requests that Reclamation promptly inform the Rio Grande Compact Commission through the Engineer Advisers of any additional difficulties in implementing the project and that Reclamation provide the Engineer Advisers a quarterly update on project activities, problems, and results; and

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Secretary of the Interior, and the Commissioner, Regional Director, and Albuquerque Area Office Manager of Reclamation.


Hal D. Stimpson
Commissioner for Colorado


Thomas C. Tunney
Commissioner for New Mexico


Joe G. Hanson
Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
TO EXCLUDE ACONITA RESERVOIR FROM COMPACT ACCOUNTING

March 23, 2000
El Paso, Texas

WHEREAS, annual accounting of the allocation of the waters of the Rio Grande between the States of Colorado, New Mexico, and Texas under the Rio Grande Compact requires the change in water stored in reservoirs constructed since 1929 to be considered in the calculation of index supplies; and

WHEREAS, the Rio Grande Compact provides that the Commissioner for Texas may demand the release of water from storage reservoirs constructed after 1929 to the amounts of accrued debits of Colorado and New Mexico; and

WHEREAS, Aconita Reservoir is a small reservoir on the San Fidel Arroyo, constructed in 1938 with an original capacity of 850 acre feet and capacity, based on a 1956 sediment survey, of 650 acre-feet, that stores water diverted from the Rio San Jose; and

WHEREAS, Aconita Reservoir, which has been empty for many years, was observed in June 1999 to be essentially full; and

WHEREAS, the Acoma Pueblo did not provide reservoir storage data for 1999 for Aconita Reservoir; and

WHEREAS, the Rio Grande Compact water accounting for 1999 included an estimation that water stored in Aconita Reservoir had increased 600 acre feet; and

WHEREAS, release of water in storage from the Aconita Reservoir in response to a demand from the Texas Commissioner for release of water stored in reservoirs constructed since 1929 would be futile with regard to contributing flow to the Rio Grande and Elephant Butte Reservoir due to the large distance separating Aconita Reservoir from the Rio Grande and Elephant Butte Reservoir and the ephemeral nature of the Rio Puerco and its tributary the Rio San Jose; and

WHEREAS, the Rio Grande Compact Commission has previously excluded annual water accounting from other small reservoirs.

NOW, THEREFORE, BE IT RESOLVED THAT the Rio Grande Compact annual water accounting exclude Aconita Reservoir storage effective January 1, 2000.


Harold D. Simpson, Commissioner for Colorado


Thomas C. Turney, Commissioner for New Mexico


G. Hanson, Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
SUPPORTING A COMPREHENSIVE PLANNING STUDY
OF THE REACH OF THE RIO GRANDE EXTENDING FROM
SAN ACACIA DIVERSION DAM TO ELEPHANT BUTTE RESERVOIR
UNDER
THE WATER RESOURCES DEVELOPMENT ACT SECTION 729

March 23, 2000
El Paso, Texas

WHEREAS, the Rio Grande Compact obligates New Mexico to deliver Rio Grande water to below Elephant Butte Dam according to an inflow outflow schedule based on the Otowi index supply; and

WHEREAS, New Mexico is entitled to deplete annually a maximum of 405,000 acre feet of the Otowi index supply and must deliver the remainder of the index supply to below Elephant Butte Dam; and

WHEREAS, New Mexico's compliance with its delivery obligations under the Rio Grande Compact is necessary to meet the United States treaty obligation to Mexico and provide the majority of water supply for Southern New Mexicans and Texans living along the Rio Grande downstream of Elephant Butte Reservoir and above Ft. Quitman, Texas; and

WHEREAS, the protection of the health and safety of the people who live in the Rio Grande basin require that the channel of the Rio Grande be maintained both to deliver water to Elephant Butte Reservoir and to avoid or reduce the adverse impacts from floods; and

WHEREAS, the history of water deliveries by New Mexico to Elephant Butte Reservoir shows that construction authorized by the Flood Control Acts of 1948 and 1950 of the Middle Rio Grande Project, including the Low Flow Conveyance Channel and the Rio Grande Floodway in the reach of the Rio Grande from the San Acacia Diversion Dam to Elephant Butte Reservoir, and subsequent operations and maintenance of these and associated water drainage and salvage facilities, have been important to New Mexico's compliance with its Rio Grande Compact delivery obligations; and

WHEREAS, the U. S. Fish and Wildlife Service (Service) in 1994 listed the Rio Grande silvery minnow as an endangered species under the Endangered Species Act and further designated critical habitat for the species in 1999 to include the reach of the Rio Grande from San Acacia Diversion Dam to the San Marcial railroad bridge; and

WHEREAS, most of the remaining population of the Rio Grande silvery minnow exist in the reach of the Rio Grande downstream of San Acacia Diversion Dam; and

WHEREAS, the reach of the Rio Grande from San Acacia Diversion Dam to Elephant Butte Reservoir supports several nesting pairs of the endangered Southwestern willow flycatcher; and

WHEREAS, the aggraded channel of the Rio Grande in this reach is confined to the east side of the floodplain by a levee constructed from sand that has been continuously raised and augmented as the river channel has aggraded and Reclamation indicates that this sand levee is inadequate to reliably contain the river under flood conditions; and

WHEREAS, the channel of the Rio Grande in the San Marcial area has aggraded substantially historically, including more than 12 feet of sediment deposition from 1979 to 1987, due to the high sediment load of the Rio Grande in this reach, causing the channel of the Rio Grande to be on the order of ten feet higher than the floodplain to the west of the channel; and

WHEREAS, the San Marcial Railroad Bridge has been raised previously due to sediment deposition in the bed of the river under the bridge; and

WHEREAS, the San Marcial Railroad Bridge now has inadequate space underneath it to pass flood flows exceeding about 6000 cubic feet per second without submergence and damage or risk to the bridge, causing an immediate need to raise it again; and

WHEREAS, operation of the Low Flow Conveyance Channel in its historic mode such that all river flows were diverted to the Low Flow Conveyance Channel when river flows were less than 2000 cubic feet per second has been discontinued due in part to endangered species habitat concerns; and

WHEREAS, an uncontrolled breach of the levee below San Marcial, where the river channel is on the order of ten feet higher than the floodplain to the west, would destroy that portion of the Low Flow Conveyance Channel and cause the waters of the river to spread out over the floodplain and be depleted rather than delivered to Elephant Butte Reservoir; and

WHEREAS, such an avulsion would also dry up or threaten existing riparian habitat including Southwest Willow Flycatcher nesting sites and kill Rio Grande silvery minnow existing in the Rio Grande channel downstream from the location of the avulsion; and

WHEREAS, drainage of the flood plain above Elephant Butte Reservoir is impaired, contributing to excessive water depletion by open water evaporation and phreatophytes, consequently diminishing compact deliveries; and

WHEREAS, proliferation of exotic, invasive phreatophytes has displaced native riparian habitat and is also causing waste of water; and

WHEREAS, the U. S. Fish and Wildlife Service recommends that an ecosystem restoration approach be the framework and basis of efforts by the signatories of the ESA Collaborative Process Memorandum of Understanding to address compliance with the Endangered Species Act while protecting New Mexico's economic water uses and compact deliveries; and

WHEREAS, the Water Resources Development Act, Section 729, authorizes comprehensive water resources investigations; the Corps of Engineers has budgeted in FY2001 to initiate such a study in the Rio Grande specifically addressing endangered species, water delivery, and flood control needs; the New Mexico Interstate Stream Commission is seeking substantial additional federal funding and has budgeted necessary matching funds for a comprehensive evaluation of the San Acacia to Elephant Butte Reservoir reach of the Rio Grande conditioned on full recognition by the Corps of Engineers and other study sponsors of the limits of water supply in this desert region, specifically including New Mexico's need to maintain economic uses of water in the Middle Rio Grande while meeting its Rio Grande Compact delivery obligations.

NOW, THEREFORE, BE IT RESOLVED THAT the Rio Grande Compact Commission finds that federal projects and facilities that have been important to convey water to Elephant Butte Reservoir and to assist New Mexico in making its Rio Grande Compact deliveries have impaired function due to sedimentation and river aggradation and due to constraints imposed by the federal government associated with the Endangered Species Act; and

BE IT FURTHER RESOLVED that the Rio Grande Compact Commission supports the State of New Mexico's initiative for a comprehensive federal study of the San Acacia to Elephant Butte Reservoir reach of the Rio Grande under the Water Resources Development Act, Section 729, to prepare a plan for physical improvements to habitat, the river and associated water conveyance, drainage, and salvage facilities in order to comply with the Endangered Species Act while managing water depletions and sediment, conveying Compact deliveries, minimizing unnecessary evapotranspiration and waste of water, and continuing irrigation uses of water in this critical reach.


Harold D. Simpson, Commissioner for Colorado


Thomas C. Turney, Commissioner for New Mexico


Joe G. Hanson, Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REQUESTING CONCLUSION
OF THE BUREAU OF RECLAMATION'S AND U.S. CORPS OF ENGINEERS'
PROGRAMMATIC CONSULTATION WITH U.S. FISH AND WILDLIFE SERVICE
UNDER SECTION 7 OF THE ENDANGERED SPECIES ACT
REGARDING RIO GRANDE OPERATIONS

March 23, 2000
El Paso, Texas

WHEREAS, the Rio Grande Compact obligates New Mexico to deliver Rio Grande water to below Elephant Butte Dam according to an inflow outflow schedule based on the Orovi index supply; and

WHEREAS, New Mexico is entitled to deplete annually a maximum of 405,000 acre feet of the Orovi index supply and must deliver the remainder of the index supply to below Elephant Butte Dam; and

WHEREAS, New Mexico's compliance with its delivery obligations under the Rio Grande Compact is necessary to meet the United States treaty obligation to Mexico and provide the majority of water supply for Southern New Mexicans and Texans living along the Rio Grande downstream of Elephant Butte Reservoir and above Ft. Quitman, Texas; and

WHEREAS, the protection of the health and safety of the people who live in the Rio Grande basin require that the channel of the Rio Grande be maintained both to deliver water to Elephant Butte Reservoir and to avoid or reduce the adverse impacts from floods; and

WHEREAS, the history of water deliveries by New Mexico to Elephant Butte Reservoir shows that operation and maintenance of water salvage and conveyance facilities in the Middle Rio Grande Valley and maintenance of the channel of the Rio Grande are essential to New Mexico's compliance with its Rio Grande Compact delivery obligations; and

WHEREAS, under various existing legal authorities, and subject to allocation of supplies and priority of water rights under the Rio Grande Compact and the laws of the states, the U.S. Corps of Engineers (Corps) and U.S. Bureau of Reclamation (Reclamation) operate and maintain water storage and conveyance facilities on the Rio Grande to 1) store and deliver water; 2) assist New Mexico in meeting Rio Grande Compact delivery obligations; 3) provide flood protection and

sediment control, and comply with existing law, contract obligations, and international treaty, and

WHEREAS, the U. S. Fish and Wildlife Service (Service) in 1994 listed the Rio Grande silvery minnow as an endangered species under the Endangered Species Act and further designated critical habitat for the species in 1999, and

WHEREAS, the Endangered Species Act in section 7 requires federal agencies to consult with the Service regarding federal actions that might affect endangered species, and

WHEREAS, Reclamation and the Corps in recent years have not timely completed section 7 consultations with the Service regarding annual plans to operate water storage and conveyance facilities prior to completion of the actions that were the subject of the consultations, and

WHEREAS, Reclamation and the Corps determined in 1998 that they would proceed with a multiple year programmatic section 7 consultation covering their Rio Grande water operations actions and discretionary authority, and

WHEREAS, an initial biological assessment submitted by Reclamation and the Corps to the Service in May 1998 to initiate that section 7 consultation was subsequently withdrawn and was replaced by another biological assessment submitted to the Service in October 1999, and

WHEREAS, Reclamation and the Service informed the Rio Grande Compact Engineer Advisers on February 22, 2000, that informal discussions were occurring regarding the Corps and Reclamation's biological assessment but that neither formal section 7 consultation nor preparation by the Service of the required biological opinion had commenced as of that date, and

WHEREAS, the Corps indicated its intention that formal section 7 consultation commence immediately upon submittal by Reclamation and the Corps of the biological assessment in October 1999, and

WHEREAS, representatives of Reclamation and the Corps and the Service did not indicate, in response to questions from the Engineer Advisers, when the formal section 7 consultation would commence or be completed, and

WHEREAS, lack of initiation or conclusion of formal consultation and prolonged informal consultation has and will continue to limit Reclamation's and the Corps effectiveness in continuing their historic and essential Rio Grande operations activities and exacerbate the uncertainty of the constraints on these activities associated with compliance with the Endangered Species Act.

NOW, THEREFORE, BE IT RESOLVED THAT the Rio Grande Compact Commission requests that the Federal agencies involved in the ESA section 7 consultation initiate and bring the formal consultation to a prompt resolution in accordance with the time limits set by federal regulation, and

BE IT FURTHER RESOLVED that Reclamation and the Corps assist the Rio Grande Compact Commission and the State of New Mexico in mitigating and offsetting any restrictions placed on the Federal agencies' discretionary actions with regard to Rio Grande water storage and conveyance facilities operations that might reduce the water supply available for use within New Mexico above Elephant Butte Reservoir and interfere with New Mexico's ability to convey Rio Grande water through the Middle Rio Grande Valley to meet its delivery obligations to below Elephant Butte Dam.


Harold D. Simpson, Commissioner for Colorado


Thomas C. Turney, Commissioner for New Mexico


Joe G. Hanson, Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REGARDING
THE NEED FOR THE BUREAU OF RECLAMATION TO
CONTINUOUSLY EXTEND AND MAINTAIN A PILOT CHANNEL THROUGH THE
DELTA OF ELEPHANT BUTTE RESERVOIR TO THE RESERVOIR POOL

March 23, 2000
El Paso, Texas

WHEREAS, the Rio Grande Compact obligates New Mexico to deliver Rio Grande water to below Elephant Butte Dam according to an inflow outflow schedule based on the Otowi index supply; and

WHEREAS, New Mexico is entitled to deplete annually a maximum of 405,000 acre feet of the Otowi index supply and must deliver the remainder of the index supply to below Elephant Butte Dam; and

WHEREAS, New Mexico's compliance with its delivery obligations under the Rio Grande Compact is necessary to meet the United States treaty obligation to Mexico and provide the majority of water supply for Southern New Mexicans and Texans living along the Rio Grande downstream of Elephant Butte Reservoir and above Ft. Quitman, Texas; and

WHEREAS, the history of water deliveries by New Mexico to Elephant Butte Reservoir shows that operation and maintenance of water conveyance facilities and maintenance of the active channel of the Rio Grande, particularly in the San Acacia to Elephant Butte Reservoir reach, are important to New Mexico's compliance with its Rio Grande Compact delivery obligations; and

WHEREAS, the Rio Grande Compact Commission emphasized the importance of maintaining a river channel connection through the Elephant Butte Reservoir delta to the reservoir pool in its discussions with Bureau of Reclamation representatives at the 1999 annual compact commission meeting; and

WHEREAS, the Rio Grande main river channel currently ends before it reaches the reservoir pool and the channel divides into several distributary channels, with the result that water and sediment are no longer being efficiently transported into the reservoir, aggravating both unnecessary losses of water and aggradation of the river channel; and

WHEREAS, Reclamation anticipated conducting river channel maintenance to reconnect the river channel to the reservoir pool during the winter of 1999-2000 but this work was not approved by the U.S. Fish and Wildlife Service (Service) due to Endangered Species Act issues; and

WHEREAS, until recently, neither the New Mexico Interstate Stream Commission nor the Engineer Advisors nor the Rio Grande Compact Commission were aware that unresolved Endangered Species Act issues were being discussed and the lack of approval from the U. S. Fish and Wildlife Service was preventing important maintenance of this portion of the river channel; and

WHEREAS, the Reclamation's projections of snow melt runoff and operations of Elephant Butte and Caballo Reservoirs, as discussed with the Engineer Advisers at their annual meeting, indicate that Elephant Butte Reservoir will be drawn down to approximately 1,000,000 acre-feet by fall 2000.

NOW, THEREFORE, BE IT RESOLVED THAT the Rio Grande Compact Commission requests that Reclamation continuously extend and maintain a pilot channel(s) from San Marcial through the sediment delta to Elephant Butte lake as the reservoir recedes, thereby maintaining an active river channel to the lake at all times.

BE IT FURTHER RESOLVED that Reclamation quickly resolve any remaining project issues with the U.S. Fish and Wildlife Service such that the pilot channel maintenance activities can commence.

BE IT FURTHER RESOLVED that Reclamation promptly inform the Rio Grande Compact Commission through the Engineer Advisors of any additional difficulties in implementing the pilot channel project and that, upon implementing the project, Reclamation keep the Engineer Advisors fully informed of the project progress, results, and problems.


Harold D. Simpson, Commissioner for Colorado


Thomas C. Turney, Commissioner for New Mexico


Joe G. Hanson, Commissioner for Texas

RIO GRANDE COMPACT COMMISSION REPORT RIO GRANDE COMPACT

The State of Colorado, the State of New Mexico, and the State of Texas, desiring to remove all causes of present and future controversy among these States and between citizens of one of these States and citizens of another State with respect to the use of the waters of the Rio Grande above Fort Quitman, Texas, and being moved by considerations of interstate comity, and for the purpose of effecting an equitable apportionment of such waters, have resolved to conclude a Compact for the attainment of these purposes, and to that end, through their respective Governors, have named as their respective Commissioners:

For the State of Colorado
For the State of New Mexico
For the State of Texas

M. C. Hinderlider
Thomas M. McClure
Frank B. Clayton

who, after negotiations participated in by S. O. Harper, appointed by the President as the representative of the United States of America, have agreed upon the following articles, to-wit:

ARTICLE I

(a) The State of Colorado, the State of New Mexico, the State of Texas, and the United States of America, are hereinafter designated "Colorado," "New Mexico," "Texas," and the "United States," respectively.

(b) "The Commission" means the agency created by this Compact for the administration thereof.

(c) The term "Rio Grande Basin" means all of the territory drained by the Rio Grande and its tributaries in Colorado, in New Mexico, and in Texas above Fort Quitman, including the Closed Basin in Colorado.

(d) The "Closed Basin" means that part of the Rio Grande Basin in Colorado where the streams drain into the San Luis Lakes and adjacent territory, and do not normally contribute to the flow of the Rio Grande.

(e) The term "tributary" means any stream which naturally contributes to the flow of the Rio Grande.

(f) "Transmountain Diversion" is water imported into the drainage basin of the Rio Grande from any stream system outside of the Rio Grande Basin, exclusive of the Closed Basin.

(g) "Annual Debits" are the amounts by which actual deliveries in any calendar year fall below scheduled deliveries.

(h) "Annual Credits" are the amounts by which actual deliveries in any calendar year exceed scheduled deliveries.

(i) "Accrued Debits" are the amounts by which the sum of all annual debits exceeds the sum of all annual credits over any common period of time.

(j) "Accrued Credits" are the amounts by which the sum of all annual credits exceeds the sum of all annual debits over any common period of time.

(k) "Project Storage" is the combined capacity of Elephant Butte Reservoir and all other reservoirs actually available for the storage of usable water below Elephant Butte and above the first diversion to lands of the Rio Grande Project, but not more than a total of 2,638,860 acre feet.

RIO GRANDE COMPACT

(l) "Usable Water" is all water, exclusive of credit water, which is in project storage and which is available for release in accordance with irrigation demands, including deliveries to Mexico.

(m) "Credit Water" is that amount of water in project storage which is equal to the accrued credit of Colorado, or New Mexico, or both.

(n) "Unfilled Capacity" is the difference between the total physical capacity of project storage and the amount of usable water then in storage.

(o) "Actual Release" is the amount of usable water released in any calendar year from the lowest reservoir comprising project storage.

(p) "Actual Spill" is all water which is actually spilled from Elephant Butte Reservoir, or is released therefrom for flood control, in excess of the current demand on project storage and which does not become usable water by storage in another reservoir; provided, that actual spill of usable water cannot occur until all credit water shall have been spilled.

(q) "Hypothetical Spill" is the time in any year at which usable water would have spilled from project storage if 790,000 acre feet had been released therefrom at rates proportional to the actual release in every year from the starting date to the end of the year in which hypothetical spill occurs; in computing hypothetical spill the initial condition shall be the amount of usable water in project storage at the beginning of the calendar year following the effective date of this Compact, and thereafter the initial condition shall be the amount of usable water in project storage at the beginning of the calendar year following each actual spill.

ARTICLE II

The Commission shall cause to be maintained and operated a stream gaging station equipped with an automatic water stage recorder at each of the following points, to-wit:

(a) On the Rio Grande near Del Norte above the principal points of diversion to the San Luis Valley;

(b) On the Conejos River near Mogote;

(c) On the Los Pinos River near Ortiz;

(d) On the San Antonio River at Ortiz;

(e) On the Conejos River at its mouth near Los Sauces;

(f) On the Rio Grande near Lobatos;

(g) On the Rio Chama below El Vado Reservoir;

(h) On the Rio Grande at Owl Bridge near San Ildefonso;

(i) On the Rio Grande near San Acacia;

(j) On the Rio Grande at San Marcial;

(k) On the Rio Grande below Elephant Butte Reservoir;

(l) On the Rio Grande below Caballo Reservoir.

Similar gaging stations shall be maintained and operated below any other reservoir constructed after 1929, and at such other points as may be necessary for the securing of records required for the carrying out of the Compact; and automatic water stage recorders shall be maintained and operated on each of the reservoirs mentioned, and on all others constructed after 1929.

RIO GRANDE COMPACT COMMISSION REPORT

Such gaging stations shall be equipped, maintained and operated by the Commission directly or in cooperation with an appropriate Federal or State agency, and the equipment, method and frequency of measurement at such stations shall be such as to produce reliable records at all times. (Note: See Resolution of Commission printed elsewhere in this report.)

ARTICLE III

The obligation of Colorado to deliver water in the Rio Grande at the Colorado-New Mexico State Line, measured at or near Lobatos, in each calendar year, shall be ten thousand acre feet less than the sum of those quantities set forth in the two following tabulations of relationship, which correspond to the quantities at the upper index stations:

DISCHARGE OF CONEJOS RIVER

Quantities in thousands of acre feet

Conejos Index Supply (1)	Conejos River at Mouths (2)
100	0
150	20
200	45
250	75
300	109
350	147
400	188
450	232
500	278
550	326
600	376
650	426
700	476

Intermediate quantities shall be computed by proportional parts.

(1) Conejos Index Supply is the natural flow of Conejos River at the U.S.G.S. gaging station near Mogote during the calendar year, plus the natural flow of Los Pinos River at the U.S.G.S. gaging station near Ortiz and the natural flow of San Antonio River at the U.S.G.S. gaging station at Ortiz, both during the months of April to October, inclusive.

(2) Conejos River at Mouths is the combined discharge of branches of this river at the U.S.G.S. gaging stations near Los Sauces during the calendar year.

DISCHARGE OF RIO GRANDE EXCLUSIVE OF CONEJOS RIVER

Quantities in thousands of acre feet

Rio Grande at Del Norte (3)	Rio Grande at Lobatos less Conejos at Mouths (4)
200	60
250	65
300	75
350	86
400	98
450	112
500	127
550	144
600	162

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DISCHARGE OF RIO GRANDE EXCLUSIVE OF CONEJOS RIVER--Con.

Quantities in thousands of acre feet

Rio Grande at Del Norte (3)	Rio Grande at Lobatos less Conejos at Mouths (4)
650	182
700	204
750	229
800	257
850	292
900	335
950	380
1,000	430
1,100	540
1,200	640
1,300	740
1,400	840

Intermediate quantities shall be computed by proportional parts.

(3) Rio Grande at Del Norte is the recorded flow of the Rio Grande at the U.S.G.S. gaging station near Del Norte during the calendar year (measured above all principal points of diversion to San Luis Valley) corrected for the operation of reservoirs constructed after 1937.

(4) Rio Grande at Lobatos less Conejos at Mouths is the total flow of the Rio Grande at the U.S.G.S. gaging station near Lobatos, less the discharge of Conejos River at its Mouths, during the calendar year.

The application of these schedules shall be subject to the provisions hereinafter set forth and appropriate adjustments shall be made for (a) any change in location of gaging stations; (b) any new or increased depletion of the runoff above inflow index gaging stations; and (c) any transmountain diversions into the drainage basin of the Rio Grande above Lobatos.

In event any works are constructed after 1937 for the purpose of delivering water into the Rio Grande from the Closed Basin, Colorado shall not be credited with the amount of such water delivered, unless the proportion of sodium ions shall be less than forty-five percent of the total positive ions in that water when the total dissolved solids in such water exceeds three hundred fifty parts per million.

ARTICLE IV

The obligation of New Mexico to deliver water in the Rio Grande at San Marcial, during each calendar year, exclusive of the months of July, August, and September, shall be that quantity set forth in the following tabulation of relationship, which corresponds to the quantity at the upper index station:

RIO GRANDE COMPACT COMMISSION REPORT
DISCHARGE OF RIO GRANDE AT OTOWI BRIDGE AND AT SAN MARCIAL
EXCLUSIVE OF JULY, AUGUST AND SEPTEMBER
 Quantities in thousands of acre feet

Otowi Index Supply (5)	San Marcial Index Supply (6)
100	0
200	65
300	141
400	219
500	300
600	383
700	469
800	557
900	648
1,000	742
1,100	839
1,200	939
1,300	1,042
1,400	1,148
1,500	1,257
1,600	1,370
1,700	1,489
1,800	1,608
1,900	1,730
2,000	1,856
2,100	1,985
2,200	2,117
2,300	2,253

Intermediate quantities shall be computed by proportional parts.

(5) The Otowi Index Supply is the recorded flow of the Rio Grande at the U.S.G.S. gaging station at Otowi Bridge near San Ildefonso (formerly station near Buckman) during the calendar year, exclusive of the flow during the months of July, August and September, corrected for the operation of reservoirs constructed after 1929 in the drainage basin of the Rio Grande between Lobatos and Otowi Bridge.

(6) San Marcial Index Supply is the recorded flow of the Rio Grande at the gaging station at San Marcial during the calendar year exclusive of the flow during the months of July, August and September.

The application of this schedule shall be subject to the provisions hereinafter set forth and appropriate adjustments shall be made for (a) any change in location of gaging stations; (b) depletion after 1929 in New Mexico at any time of the year of the natural runoff at Otowi Bridge; (c) depletion of the runoff during July, August and September of tributaries between Otowi Bridge and San Marcial, by works constructed after 1937; and (d) any trans-mountain diversions into the Rio Grande between Lobatos and San Marcial.

Concurrent records shall be kept of the flow of the Rio Grande at San Marcial, near San Acacia, and of the release from Elephant Butte Reservoir to the end that the records at these three stations may be correlated. (Note: See Resolution of Commission printed elsewhere in this report.)

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ARTICLE V

If at any time it should be the unanimous finding and determination of the Commission that because of changed physical conditions, or for any other reason, reliable records are not obtainable, or cannot be obtained, at any of the stream gaging stations herein referred to, such stations may, with the unanimous approval of the Commission, be abandoned, and with such approval another station, or other stations, shall be established and new measurements shall be substituted which, in the unanimous opinion of the Commission, will result in substantially the same results so far as the rights and obligations to deliver water are concerned, as would have existed if such substitution of stations and measurements had not been so made. (Note: See Resolution of Commission printed elsewhere in this report.)

ARTICLE VI

Commencing with the year following the effective date of this Compact, all credits and debits of Colorado and New Mexico shall be computed for each calendar year; provided, that in a year of actual spill no annual credits nor annual debits shall be computed for that year.

In the case of Colorado, no annual debit nor accrued debit shall exceed 100,000 acre feet, except as either or both may be caused by holdover storage of water in reservoirs constructed after 1937 in the drainage basin of the Rio Grande above Lobatos. Within the physical limitations of storage capacity in such reservoirs, Colorado shall retain water in storage at all times to the extent of its accrued debit.

In the case of New Mexico, the accrued debit shall not exceed 200,000 acre feet at any time, except as such debit may be caused by holdover storage of water in reservoirs constructed after 1929 in the drainage basin of the Rio Grande between Lobatos and San Marcial. Within the physical limitations of storage capacity in such reservoirs, New Mexico shall retain water in storage at all times to the extent of its accrued debit. In computing the magnitude of accrued credits or debits, New Mexico shall not be charged with any greater debit in any one year than the sum of 150,000 acre-feet and all gains in the quantity of water in storage in such year.

The Commission by unanimous action may authorize the release from storage of any amount of water which is then being held in storage by reason of accrued debits of Colorado or New Mexico; provided, that such water shall be replaced at the first opportunity thereafter.

In computing the amount of accrued credits and accrued debits of Colorado or New Mexico, any annual credits in excess of 150,000 acre feet shall be taken as equal to that amount.

In any year in which actual spill occurs, the accrued credits of Colorado, or New Mexico, or both, at the beginning of the year shall be reduced in proportion to their respective credits by the amount of such actual spill; provided that the amount of actual spill shall be deemed to be increased by the aggregate gain in the amount of water in storage prior to the time of spill, in reservoirs above San Marcial constructed after 1929; provided, further, that if the Commissioners for the States having accrued credits authorize the release of part, or all, of such credits in advance of spill, the amount so released shall be deemed to constitute actual spill.

In any year in which there is actual spill of usable water, or at the time of hypothetical spill thereof, all accrued debits of Colorado, or New Mexico, or both, at the beginning of the year shall be cancelled.

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In any year in which the aggregate of accrued debts of Colorado and New Mexico exceeds the minimum unfilled capacity of project storage, such debts shall be reduced proportionally to an aggregate amount equal to such minimum unfilled capacity.

To the extent that accrued credits are impounded in reservoirs between San Marcial and Couthesne, and to the extent that accrued debts are impounded in reservoirs above San Marcial, such credits and debts shall be reduced annually to compensate for evaporation losses in the proportion that such credits or debts bore to the total amount of water in such reservoirs during the year.

ARTICLE VII

Neither Colorado nor New Mexico shall increase the amount of water in storage in reservoirs constructed after 1929 whenever there is less than 400,000 acre feet of usable water in project storage; provided, that if the actual releases of usable water from the beginning of the calendar year following the effective date of this Compact, or from the beginning of the calendar year following actual spill, have aggregated more than an average of 790,000 acre feet per annum, the time at which such minimum stage is reached shall be adjusted to compensate for the difference between the total actual release and releases at such average rate; provided, further, that Colorado, or New Mexico, or both, may relinquish accrued credits at any time, and Texas may accept such relinquished water, and in such event the state, or states, so relinquishing shall be entitled to store water in the amount of the water so relinquished.

ARTICLE VIII

During the month of January of any year the Commissioner for Texas may demand of Colorado and New Mexico, and the Commissioner for New Mexico may demand of Colorado, the release of water from storage reservoirs constructed after 1929 to the amount of the accrued debts of Colorado and New Mexico, respectively, and such releases shall be made by each at the greatest rate practicable under the conditions then prevailing, and in proportion to the total debit of each, and in amounts, limited by their accrued debts, sufficient to bring the quantity of usable water in project storage to 600,000 acre feet by March first and to maintain this quantity in storage until April thirtieth, to the end that a normal release of 790,000 acre feet may be made from project storage in that year.

ARTICLE IX

Colorado agrees with New Mexico that in event the United States or the State of New Mexico decides to construct the necessary works for diverting the waters of the San Juan River, or any of its tributaries, into the Rio Grande, Colorado hereby consents to the construction of said works and the diversion of waters from the San Juan River, or the tributaries thereof, into the Rio Grande in New Mexico, provided the present and prospective uses of water in Colorado by other diversions from the San Juan River, or its tributaries, are protected.

ARTICLE X

In the event water from another drainage basin shall be imported into the Rio Grande Basin by the United States or Colorado or New Mexico, or any of them jointly, the State having the right to the use of such water shall be given proper credit therefor in the application of the schedules.

ARTICLE XI

New Mexico and Texas agree that upon the effective date of this Compact all controversies between said States relative to the quantity or quality of the water of the Rio Grande are composed and settled; however, nothing herein shall be interpreted to prevent

RIO GRANDE COMPACT

recourse by a signatory state to the Supreme Court of the United States for redress should the character or quality of the water, at the point of delivery, be changed hereafter by one signatory state to the injury of another. Nothing herein shall be construed as an admission by any signatory state that the use of water for irrigation causes increase of salinity for which the user is responsible in law.

ARTICLE XII

To administer the provisions of this Compact there shall be constituted a Commission composed of one representative from each state, to be known as the Rio Grande Compact Commission. The State Engineer of Colorado shall be ex-officio the Rio Grande Compact Commissioner for Colorado. The State Engineer of New Mexico shall be ex-officio the Rio Grande Compact Commissioner for New Mexico. The Rio Grande Compact Commissioner for Texas shall be appointed by the Governor of Texas. The President of the United States shall be requested to designate a representative of the United States to sit with such Commission, and such representative of the United States, if so designated by the President, shall act as Chairman of the Commission without vote.

The salaries and personal expenses of the Rio Grande Compact Commissioners for the three States shall be paid by their respective States, and all other expenses incident to the administration of this Compact, not borne by the United States, shall be borne equally by the three States.

In addition to the powers and duties hereinbefore specifically conferred upon such Commission, and the members thereof, the jurisdiction of such Commission shall extend only to the collection, correlation and presentation of factual data and the maintenance of records having a bearing upon the administration of this Compact, and, by unanimous action, to the making of recommendations to the respective States upon matters connected with the administration of this Compact. In connection therewith, the Commission may employ such engineering and clerical aid as may be reasonably necessary within the limit of funds provided for that purpose by the respective States. Annual reports compiled for each calendar year shall be made by the Commission and transmitted to the Governors of the signatory States on or before March first following the year covered by the report. The Commission may, by unanimous action, adopt rules and regulations consistent with the provisions of this Compact to govern their proceedings.

The findings of the Commission shall not be conclusive in any court or tribunal which may be called upon to interpret or enforce this Compact.

ARTICLE XIII

At the expiration of every five-year period after the effective date of this Compact, the Commission may, by unanimous consent, review any provisions hereof which are not substantive in character and which do not affect the basic principles upon which the Compact is founded, and shall meet for the consideration of such questions on the request of any member of the Commission; provided, however, that the provisions hereof shall remain in full force and effect until changed and amended within the intent of the Compact by unanimous action of the Commissioners, and until any changes in this Compact are ratified by the legislatures of the respective states and consented to by the Congress, in the same manner as this Compact is required to be ratified to become effective.

ARTICLE XIV

The schedules herein contained and the quantities of water herein allocated shall never be increased nor diminished by reason of any increase or diminution in the delivery or loss of water to Mexico.

RIO GRANDE COMPACT COMMISSION REPORT
DISCHARGE OF RIO GRANDE AT OTOWI BRIDGE AND ELEPHANT BUTTE EFFECTIVE SUPPLY

Quantities in thousands of acre-feet	Elephant Butte Effective Index Supply (6)
Otowí Index Supply (5)	Supply (6)
100	57
200	114
300	171
400	228
500	286
600	345
700	406
800	471
900	542
1,000	621
1,100	707
1,200	800
1,300	897
1,400	996
1,500	1,095
1,600	1,195
1,700	1,295
1,800	1,395
1,900	1,495
2,000	1,595
2,100	1,695
2,200	1,795
2,300	1,895
2,400	1,995
2,500	2,095
2,600	2,195
2,700	2,295
2,800	2,395
2,900	2,495
3,000	2,595

Intermediate quantities shall be computed by proportional parts.

(5) The Otowi Index Supply is the recorded flow of the Rio Grande at the U.S.G.S. gaging station at Otowi Bridge near San Ildelonso (formerly station near Buckman) during the calendar year, corrected for the operation of reservoirs constructed after 1929 in the drainage basin of the Rio Grande between Lobatos and Otowi Bridge.

(6) Elephant Butte Effective Index Supply is the recorded flow of the Rio Grande at the gaging station below Elephant Butte Dam during the calendar year plus the net gain in storage in Elephant Butte Reservoir during the same year or minus the net loss in storage in said reservoir, as the case may be.

RESOLUTION OF COMMISSION

The application of this schedule shall be subject to the provisions hereinafter set forth and appropriate adjustments shall be made for (a) any change in location of gaging stations; (b) depletion after 1929 in New Mexico of the natural runoff at Otowi Bridge; and (c) any transmountain diversions into the Rio Grande between Lobatos and Elephant Butte Reservoir."

Be it Further Resolved:

That the gaging stations at San Acacia and San Marcial be, and the same are hereby abandoned for Compact purposes.

Be it Further Resolved:

That this Resolution has been passed unanimously and shall be effective January 1, 1949, if within 120 days from this date the Commissioner for each State shall have received from the Attorney General of the State represented by him, an opinion approving this Resolution, and shall have so advised the Chairman of the Commission, otherwise, to be of no force and effect.

(Note: The following paragraph appears in the Minutes of the Annual Meeting of the Commission held at Denver, Colorado, February 14-16, 1949.

"The Chairman announced that he had received, pursuant to the Resolution adopted by the Commission at the Ninth Annual Meeting on February 24, 1948, opinions from the Attorneys General of Colorado, New Mexico and Texas that the substitution of stations and measurements of deliveries by New Mexico set forth in said resolution was within the powers of the Commission").

RIO GRANDE COMPACT COMMISSION REPORT

ARTICLE XV

The physical and other conditions characteristic of the Rio Grande and peculiar to the territory drained and served thereby, and to the development thereof, have actuated this Compact and none of the signatory states admits that any provisions herein contained establishes any general principle or precedent applicable to other interstate streams.

ARTICLE XVI

Nothing in this Compact shall be construed as affecting the obligations of the United States of America to Mexico under existing treaties, or to the Indian Tribes, or as impairing the rights of the Indian Tribes.

ARTICLE XVII

This Compact shall become effective when ratified by the legislatures of each of the signatory states and consented to by the Congress of the United States. Notice of ratification shall be given by the Governor of each state to the Governors of the other states and to the President of the United States, and the President of the United States is requested to give notice to the Governors of each of the signatory states of the consent of the Congress of the United States.

IN WITNESS WHEREOF, the Commissioners have signed this Compact in quadruplicate original, one of which shall be deposited in the archives of the Department of State of the United States of America and shall be deemed the authoritative original, and of which a duly certified copy shall be forwarded to the Governor of each of the signatory States.

Done at the City of Santa Fe, in the State of New Mexico, on the 18th day of March, in the year of our Lord, One Thousand Nine Hundred and Thirty-eight.

(Sgd.) M. C. HINDERLIDER

(Sgd.) THOMAS M. McCLURE

(Sgd.) FRANK B. CLAYTON

APPROVED:

(Sgd.) S. O. HARPER

RATIFIED BY:

Colorado, February 21, 1939

New Mexico, March 1, 1939

Texas, March 1, 1939

Passed Congress as Public Act No. 96, 76th Congress.

Approved by the President May 31, 1939

RESOLUTION ADOPTED BY RIO GRANDE COMPACT COMMISSION
AT THE ANNUAL MEETING HELD AT EL PASO, TEXAS, FEBRUARY 22-24, 1945
CHANGING GAGING STATIONS AND MEASUREMENTS OF
DELIVERIES BY NEW MEXICO

RESOLUTION

Whereas, at the Annual Meeting of the Rio Grande Compact Commission year 1945, the question was raised as to whether or not a schedule for delivery of water New Mexico during the entire year could be worked out, and

Whereas, at said meeting the question was referred to the Engineering Advisory Committee for their study, recommendations and report, and

Whereas, said Engineering Advisers have met, studied the problems and date of February 24, 1947, did submit their Report, which said Report contains the findings of said Engineering Advisers and their recommendations, and

Whereas, the Compact Commission has examined said Report and finds it matters and things therein found and recommended are proper and within the terms Rio Grande Compact, and

Whereas, the Commission has considered said Engineering Advisers' Report all available evidence, information and material and is fully advised:

Now, Therefore, Be it Resolved:

The Commission finds as follows:

- (a) That because of change of physical conditions, reliable records of the amount of water passing San Marcial are no longer obtainable at the stream gaging station at San Marcial and that the same should be abandoned for Commission purposes.
- (b) That the need for concurrent records at San Marcial and San Acacia no longer exists and that the gaging station at San Acacia should be abandoned for Commission purposes.
- (c) That it is desirable and necessary that the obligations of New Mexico under the Compact to deliver water in the months of July, August, September, should be scheduled.
- (d) That the change in gaging stations and substitution of the new measure as hereinafter set forth will result in substantially the same results so far as rights and obligations to deliver water are concerned, and would have the effect of such substitution of stations and measurements had not been so made.

Be it Further Resolved:

That the following measurements and schedule thereof shall be substituted for the measurements and schedule thereof as now set forth in Article IV of the Compact:

"The obligation of New Mexico to deliver water in the Rio Grande into Elephant Butte Reservoir during each calendar year shall be measured by that quantity set forth in the following tabulation of relationship which corresponds to quantity at the upper index station:

RIO GRANDE COMPACT COMMISSION REPORT RULES AND REGULATIONS FOR ADMINISTRATION OF THE RIO GRANDE COMPACT

A Compact, known as the Rio Grande Compact, between the States of Colorado, New Mexico and Texas, having become effective on May 31, 1939 by consent of the Congress of the United States, which equitably apportions the waters of the Rio Grande above Fort Quitman and permits each State to develop its water resources at will, subject only to its obligations to deliver water in accordance with the schedules set forth in the Compact, the following Rules and Regulations have been adopted for its administration by the Rio Grande Compact Commission: to be and remain in force and effect only so long as the same may be satisfactory to each and all members of the Commission, and provided always that on the objection of any member of the Commission, in writing, to the remaining two members of the Commission after a period of sixty days from the date of such objection, the sentence, paragraph or any portion or all of these rules to which any such objection shall be made, shall stand abrogated and shall thereafter have no further force and effect; it being the intent and purpose of the Commission to permit these rules to obtain and be effective only so long as the same may be satisfactory to each and all of the Commissioners.

GAGING STATIONS ¹¹

Responsibility for the equipping, maintenance and operation of the stream gaging stations and reservoir gaging stations required by the provisions of Article II of the Compact shall be divided among the signatory States as follows:

(a) Gaging stations on streams and reservoirs in the Rio Grande Basin above the Colorado-New Mexico boundary shall be equipped, maintained, and operated by Colorado in cooperation with the U.S. Geological Survey.

(b) Gaging stations on streams and reservoirs in the Rio Grande Basin below Lobatos and above Caballo Reservoir shall be equipped, maintained and operated by New Mexico in cooperation with the U.S. Geological Survey to the extent that such stations are not maintained and operated by some other Federal agency.

(c) Gaging stations on Elephant Butte Reservoir and on Caballo Reservoir, and the stream gaging stations on the Rio Grande below those reservoirs shall be equipped, maintained and operated by or on behalf of Texas through the agency of the U.S. Bureau of Reclamation.

The equipment, method and frequency of measurements at each gaging station shall be sufficient to obtain records at least equal in accuracy to those classified as "good" by the U.S. Geological Survey. Water-stage recorders on the reservoirs specifically named in Article II of the Compact shall have sufficient range below maximum reservoir level to record major fluctuations in storage. Staff gages may be used to determine fluctuations below the range of the water-stage recorders on these and other large reservoirs, and staff gages may be used upon approval of the Commission in lieu of water-stage recorders on small reservoirs, provided that the frequency of observation is sufficient in each case to establish any material changes in water levels in such reservoirs.

¹¹ Amended at Eleventh Annual Meeting, February 23, 1950.

RULES AND REGULATIONS

RESERVOIR CAPACITIES ¹²

Colorado shall file with the Commission a table of areas and capacities for each reservoir in the Rio Grande Basin above Lobatos constructed after 1937; New Mexico shall file with the Commission a table of areas and capacities for each reservoir in the Rio Grande Basin between Lobatos and San Marcial constructed after 1929; and Texas shall file with the Commission tables of areas and capacities for Elephant Butte Reservoir and for all other reservoirs actually available for the storage of water between Elephant Butte and the first diversion to lands under the Rio Grande Project.

Whenever it shall appear that any table of areas and capacities is in error by more than five per cent, the Commission shall use its best efforts to have a re-survey made and a corrected table of areas and capacities to be substituted as soon as practicable. To the end that the Elephant Butte effective supply may be computed accurately, the Commission shall use its best efforts to have the rate of accumulation and the place of deposition of silt in Elephant Butte Reservoir checked at least every three years.

ACTUAL SPILL ¹³, ¹⁴

(a) Water released from Elephant Butte in excess of Project requirements, which is currently passed through Caballo Reservoir, prior to the time of spill, shall be deemed to have been Usable Water released in anticipation of spill, or Credit Water if such release shall have been authorized.

(b) Excess releases from Elephant Butte Reservoir, as defined in (a) above, shall be added to the quantity of water in storage in that reservoir, and Actual Spill shall be deemed to have commenced when this sum equals the total capacity of that reservoir to the level of the uncontrolled spillway less capacity reserved for flood control purposes, i.e., 1,998,400 acre-feet in the months of October through March, inclusive, and 1,973,400 acre-feet in the months of April through September, inclusive, as determined from the 1999 area-capacity table or successor area-capacity tables and flood control storage reservation of 50,000 acre-feet from April through September and 25,000 acre-feet from October through March.

(c) All water actually spilled at Elephant Butte Reservoir, or released therefrom, in excess of Project requirements, which is currently passed through Caballo Reservoir, after the time of spill, shall be considered as Actual Spill, provided that the total quantity of water then in storage in Elephant Butte Reservoir exceeds the physical capacity of that reservoir at the level of the sill of the spillway gates, i.e., -1,830,000 acre-ft in 1942.

(d) Water released from Caballo Reservoir in excess of Project requirements and in excess of water currently released from Elephant Butte Reservoir, shall be deemed Usable Water released, excepting only flood water entering Caballo Reservoir from tributaries below Elephant Butte Reservoir.

DEPARTURES FROM NORMAL RELEASES ¹⁵

For the purpose of computing the time of Hypothetical Spill required by Article VI and for the purpose of the adjustment set forth in Article VII, no allowance shall be made for the difference between Actual and Hypothetical Evaporation, and any under-release of usable water from Project Storage in excess of 150,000 acre-ft in any year shall be taken as equal to that amount.

¹¹ Amended at Eleventh Annual Meeting, February 23, 1950.

¹² Adopted at Fourth Annual Meeting, February 24, 1943.

¹³ Amended September 9, 1998.

¹⁴ Amended March 22, 2001; made effective January 1, 2001.

¹⁵ Adopted June 2, 1959; made effective January 1, 1952.

RIO GRANDE COMPACT COMMISSION REPORT

EVAPORATION LOSSES 16, 17, 18

The Commission shall encourage the equipping, maintenance and operation, in cooperation with the U.S. Weather Bureau or other appropriate agency, of evaporation stations at Elephant Butte Reservoir and at or near each major reservoir in the Rio Grande Basin within Colorado constructed after 1937 and in New Mexico constructed after 1929. The net loss by evaporation from a reservoir surface shall be taken as the difference between the actual evaporation loss and the evapo-transpiration losses which would have occurred naturally, prior to the construction of such reservoir. Changes in evapo-transpiration losses along stream channels below reservoirs may be disregarded.

Net losses by evaporation, as defined above, shall be used in correcting Index Supplies for the operation of reservoirs upstream from Index Gaging Stations as required by the provisions of Article III and Article IV of the Compact.

In the application of the provisions of the last unnumbered paragraph of Article VI of the Compact:

- (a) Evaporation losses for which accrued credits shall be reduced shall be taken as the difference between the gross evaporation from the water surface of Elephant Butte Reservoir and rainfall on the same surface.
- (b) Evaporation losses for which accrued debits shall be reduced shall be taken as the net loss by evaporation as defined in the first paragraph.

ADJUSTMENT OF RECORDS

The Commission shall keep a record of the location, and description of each gaging station and evaporation station, and, in the event of change in location of any stream gaging station for any reason, it shall ascertain the increment in flow or decrease in flow between such locations for all stages. Wherever practicable, concurrent records shall be obtained for one year before abandonment of the previous station.

NEW OR INCREASED DEPLETIONS

In the event any works are constructed which alter or may be expected to alter the flow at any of the Index Gaging Stations mentioned in the Compact, or which may otherwise necessitate adjustments in the application of the schedules set forth in the Compact, it shall be the duty of the Commissioner specifically concerned to file with the Commission all available information pertaining thereto, and appropriate adjustments shall be made in accordance with the terms of the Compact; provided, however, that any such adjustments shall in no way increase the burden imposed upon Colorado or New Mexico under the schedules of deliveries established by the Compact.

TRANSMOUNTAIN DIVERSIONS

In the event any works are constructed for the delivery of waters into the drainage basin of the Rio Grande from any stream system outside of the Rio Grande Basin, such waters shall be measured at the point of delivery into the Rio Grande Basin and proper allowances shall be made for losses in transit from such points to the Index Gaging Station on the stream with which the imported waters are commingled.

16 Amended at Tenth Annual Meeting, February 15, 1949.

17 Amended at Twelfth Annual Meeting, February 24, 1951.

18 Amended June 2, 1959.

RULES AND REGULATIONS

QUALITY OF WATER

In the event that delivery of water is made from the Closed Basin into the Rio Grande, sufficient samples of such water shall be analyzed to ascertain whether the quality thereof is within the limits established by the Compact.

SECRETARY 19

The Commission, subject to the approval of the Director, U.S. Geological Survey, to a cooperative agreement for such purposes, shall employ the U.S. Geological Survey on a yearly basis, to render such engineering and clerical aid as may reasonably be necessary for administration of the Compact. Said agreement shall provide that the Geological Survey shall:

- (1) Collect and correlate all factual data and other records having a material bearing on the administration of the Compact and keep each Commissioner adviser thereof.
- (2) Inspect all gaging stations required for administration of the Compact and make recommendations to the Commission as to any changes or improvements in methods of measurement or facilities for measurement which may be needed to insure that reliable records be obtained.
- (3) Report to each Commissioner by letter on or before the fifteenth day of each month, except January, a summary of all hydrographic data then available for the current year - on forms prescribed by the Commission - pertaining to:
 - (a) Deliveries by Colorado
 - (b) Deliveries by New Mexico
 - (c) Operation of Project Storage
- (4) Make such investigations as may be requested by the Commission in aid of its administration of the Compact.
- (5) Act as Secretary to the Commission and submit to the Commission at its regular meeting in February a report on its activities and a summary of all data needed for determination of debits and credits and other matters pertaining to administration of the Compact.

COSTS 11

In February of each year, the Commission shall adopt a budget for the ensuing fiscal year beginning July first.

Such budget shall set forth the total cost of maintenance and operating of gaging stations, of evaporation stations, the cost of engineering and clerical aid, and all other necessary expenses excepting the salaries and personal expenses of the Rio Grande Compact Commissioners.

Contributions made directly by the United States and the cost of services rendered by the United States without cost shall be deducted from the total budget amount; the remainder shall then be allocated equally to Colorado, New Mexico and Texas.

12 The substitution of this section for the section titled "Reports to Commissioners" was adopted at Ninth Annual Meeting, February 22, 1948.

11 Amended at Eleventh Annual Meeting, February 23, 1950.

RIO GRANDE COMPACT COMMISSION REPORT

Expenditures made directly by any State for purposes set forth in the budget shall be credited to that State; contributions in cash or in services by any State under a cooperative agreement with any federal agency shall be credited to such State, but the amount of the federal contribution shall not so be credited; in event any State, through contractual relationships, causes work to be done in the interest of the Commission, such State shall be credited with the cost thereof, unless such cost is borne by the United States.

Costs incurred by the Commission under any cooperative agreement between the Commission and any U.S. Government Agency, not borne by the United States, shall be apportioned equally to each State, and each Commissioner shall arrange for the prompt payment of one-third thereof by his State.

The Commissioner of each State shall report at the annual meeting each year the amount of money expended during the year by the State which he represents, as well as the portion thereof contributed by all cooperating federal agencies, and the Commission shall arrange for such proper reimbursement in cash or credits between States as may be necessary to equalize the contributions made by each State in the equipment, maintenance and operation of all gaging stations authorized by the Commission and established under the terms of the Compact.

It shall be the duty of each Commissioner to endeavor to secure from the Legislature of his State an appropriation of sufficient funds with which to meet the obligations of his State, as provided by the Compact.

MEETING OF COMMISSION [1, 110]

The Commission shall meet in Santa Fe, New Mexico, on the third Thursday of February of each year for the consideration and adoption of the annual report for the calendar year preceding, and for the transaction of any other business consistent with its authority; provided that the Commission may agree to meet elsewhere. Other meetings as may be deemed necessary shall be held at any time and place set by mutual agreement, for the consideration of data collected and for the transaction of any business consistent with its authority.

No action of the Commission shall be effective until approved by the Commissioner from each of the three signatory States.

(Signed) M. C. HINDERLIDER

M. C. Hinderlider

Commissioner for Colorado

(Signed) THOMAS M. MCCLURE

Thomas M. McClure

Commissioner for New Mexico

(Signed) JULIAN P. HARRISON

Julian P. Harrison

Commissioner for Texas

Adopted December 19, 1939.

[1] Amended at Eleventh Annual Meeting, February 23, 1950.

[10] Amended at Thirteenth Annual Meeting, February 25, 1952.

RIO GRANDE COMPACT COMMISSION REPORT
RECORDS OF DELIVERIES AND RELEASES

At the annual meeting of the Compact Commission on March 22, 2001, the records of deliveries and releases and computations of debits and credits for calendar year 2000 were reported. The records and computations as approved by the Commission are reproduced on the next three pages.

The delivery of water in the Rio Grande at the Colorado-New Mexico State line was obtained from the record of streamflow near Lobatos, Colorado; the scheduled delivery was computed as prescribed in Article III.

The delivery of water by New Mexico to Elephant Butte was computed from the record of streamflow below Elephant Butte Dam and the record of operation of Elephant Butte Reservoir; the scheduled delivery was computed as prescribed in the Resolution of the Commission adopted at the Ninth Annual Meeting held February 22-24, 1948, and published in this report.

The actual release from Project Storage during the year was measured at gaging stations below Caballo Dam. During 2001 the Commissioners found that the actual release of usable water was 788,000 acre-feet. This resulted in an accrued credit of 77,900 acre-feet as of January 1, 2002.

RIO GRANDE COMPACT - DELIVERIES BY COLORADO AT STATE LINE
YEAR 2001

Quantities in thousands of acre feet to nearest hundred

MONTH	CONEJOS INDEX SUPPLY										RIO GRANDE INDEX SUPPLY								DELIVERIES			
	MEASURED FLOW				ADJUSTMENTS				SUPPLY		ADJUSTMENTS				SUPPLY		DELIVERIES					
	CONJOS AT MOQUETE	LOS PAMOS NEAR ORTIZ	SAN ANTONIO AT ORTIZ	TOTAL	STORAGE AT END OF MONTH	CHANGE IN STORAGE	OTHER ADJUSTMENTS	NET ADJUSTMENTS	SUPPLY IN MONTH	ACCUMULATED TOTAL	RECORDED FLOW NEAR DEL MONTE	STORAGE AT END OF MONTH	CHANGE IN STORAGE	TRANSMOUNTAIN DIVERSIONS	OTHER ADJUSTMENTS	NET ADJUSTMENTS	SUPPLY IN MONTH	ACCUMULATED TOTAL	CONJOS RIVER AT LOS PAMOS NEAR LOS PAMOS	RIO GRANDE LESS CONJOS RIVER	RIO GRANDE AT LOBATOS	ACCUMULATED TOTAL AT LOBATOS
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
JAN	2.5			2.5	13.8	0.0		0.0	2.5	2.5	8.6	0.2	0.0			0.0	8.6	8.6	2.1	9.8	11.9	11.9
FEB	2.4			2.4	14.0	0.2		0.2	2.6	5.1	8.1	0.2	0.0			0.0	16.6	31.3	7.0	19.5	26.5	53.4
MAR	4.3			4.3	14.2	0.2		0.2	4.5	9.6	16.6	0.2	0.0			0.0	16.6	31.3	7.0	19.5	26.5	53.4
APR	15.4	10.9	4.6	30.9	14.6	0.4		0.4	31.3	40.9	52.0	0.2	0.0			0.0	52.0	85.3	7.0	12.8	19.8	73.2
MAY	78.6	40.8	5.1	124.5	27.6	12.4	0.1 ^a	12.5	137.0	177.9	261.6	0.2	0.0			0.0	261.6	348.9	33.9	48.9	82.8	156.0
JUN	53.9	9.9	0.1	63.9	28.1	1.1	0.2 ^a	1.3	65.2	243.1	208.5	0.2	0.0			0.0	208.5	553.4	15.7	60.2	75.9	231.8
JUL	18.4	1.8	0.0	20.2	22.0	-8.1	0.1 ^a	-8.0	15.2	258.3	70.6	0.2	0.0	-0.3 ^b	0.3 ^b	0.0	70.6	624.0	1.9	20.8	22.7	254.6
AUG	12.1	1.4	0.1	13.6	19.0	-3.0	0.0 ^a	-3.0	10.8	269.1	44.4	0.2	0.0			0.0	44.4	668.4	0.0	6.0	6.0	260.6
SEP	6.8	0.7	0.0	7.5	15.9	-3.1	0.1 ^a	-3.0	4.6	273.5	20.2	0.2	0.0			0.0	20.2	688.6	0.0	3.1	3.1	263.7
OCT	4.6	0.8	0.1	5.5	14.1	-1.8	0.1 ^a	-1.7	3.8	277.3	15.9	0.2	0.0			0.0	15.9	704.5	0.0	3.4	3.4	267.1
NOV	2.7			2.7	14.1	0.0	0.0 ^a	0.0	2.7	280.0	11.2	0.2	0.0			0.0	11.2	715.7	0.8	7.9	8.7	275.8
DEC	2.4			2.4	14.1	0.0		0.0	2.4	282.4	9.7	0.2	0.0			0.0	9.7	725.4	2.0	12.5	14.5	290.3
YEAR	205.2	68.3	10.0	283.5		0.3	0.6	0.9	282.4		725.4		0.0	-0.3	0.3	0.0	725.4		73.7	216.8	290.3	

Remarks: Cols. 6 and 13 do not include transmountain water.
^a Evaporation less post-compact reservoirs; report of the Engineer Adviser for Colorado
^b 517 ac-ft minus 243 ac-ft pre-compact; report of the Engineer Adviser for Colorado.

SUMMARY OF DEBITS AND CREDITS			
ITEM	DEBIT	CREDIT	BALANCE
C1 Balance at Beginning of Year			Cr 27.0
C2 Scheduled Delivery from Conejos River		97.0	Dr 70.0
C3 Scheduled Delivery from Rio Grande		215.7	Dr 286.7
C4 Actual Delivery at Lobatos plus 10,000 Acre Feet			Cr 13.5
C5 Reduction of Debits etc Evaporation			
C6 Reduction of Credits etc Evaporation and Spill	3.5		Cr 10.1
C7			
C8 Balance at End of Year			Cr 10.1

APPROVED: _____ Date: 2/20/2002 Engineer Adviser for Colorado SEV _____ Date: 2/20/2002 Engineer Adviser for New Mexico AWB _____ Date: 2/20/2002 Engineer Adviser for Texas HKS _____ Date: 2/20/2002

RIO GRANDE COMPACT - DELIVERIES BY NEW MEXICO AT ELEPHANT BUTTE
YEAR 2001

Quantities in thousands of acre feet to nearest hundred

MTH	OTOWI INDEX SUPPLY										ELEPHANT BUTTE EFFECTIVE SUPPLY					
	ADJUSTMENTS					INDEX SUPPLY					STORAGE IN ELEPHANT BUTTE RESERVOIR			Effective Supply		
	Recorded Flow at Otowi Bridge	Storage End of Month ^a	Change In Storage	Reservoir Evaporation	Other Adjustments	Trans-mountain Diversions	Net Adjustments	During Month	Accumulated Total	Total Water Stored in New Mexico Above San Marcial at End of Month ^b	End of Month ^a	Change Gain (+) Loss (-)	Recorded Flow Below Elephant Butte Dam	During Month	Accumulated Total	
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
JAN	33.4	10.9	0.0	0.0		0.1	0.1	33.5	33.5	11.9	1,256.5		4.3	43.2	43.2	
FEB	34.3	11.7	0.8	0.0		0.1	0.9	35.2	68.7	10.6	1,240.3	-56.1	98.9	43.6	87.0	
MAR	51.0	23.8	12.1	0.0		0.3	12.4	63.4	132.1	23.8	1,188.9	-51.4	96.5	45.1	132.1	
APR	67.2	77.1	53.3	0.3		0.4	54.0	121.2	253.3	84.0	1,131.6	-57.3	97.4	40.1	172.2	
MAY	169.0	196.6	119.5	1.2		-1.3	118.4	268.4	541.7	205.7	1,101.5	-30.1	106.0	75.9	249.1	
JUN	116.5	203.8	7.2	2.3		-1.8	7.7	124.2	665.9	212.7	1,037.5	-64.0	107.5	43.5	291.6	
JUL	76.2	185.0	-18.8	1.3		-11.5	-29.0	47.2	713.1	182.0	936.0	-101.5	113.1	11.6	303.3	
AUG	60.1	159.0	-26.0	1.0		-6.8	-31.8	28.3	741.4	163.8	867.4	-68.6	91.9	23.3	326.5	
SEP	42.7	89.6	-22.7	0.7		-2.0	-47.7	14.9	756.3	115.5	843.9	-23.5	40.3	16.8	343.3	
OCT	27.0	89.7	0.1	0.3		-1.1	-0.7	26.3	799.8	89.1	864.8	25.1	0.4	25.5	379.9	
NOV	35.3	90.1	0.4	0.2		-2.0	-1.4	33.9	833.7	89.8	888.1	23.3	13.2	38.5	418.4	
DEC	77.3		79.2	8.3		-29.1	58.4	833.7			-368.4		784.6	418.4		

Storage in recreational reservoirs not included.

Cols. 3 and 11 reflect implementation of revised area-capacity tables for Abiquiu, Cochiti, and Jemez Canyon Reservoirs, effective January 1, 1999.

3, 11, and 12 do not include transmountain water.

1 year beginning value adjusted to reflect the April 1999 Elephant Butte Reservoir area-capacity table made effective January 1, 2001. Previous value was 1,274.2

Mexico's credit at beginning of year reduced by 5.6 to reflect retroactive application of revised sedimentation equations to 1999 and 2000 accounting for Abiquiu, Cochiti, and Jemez Canyon reservoirs and reduced by 0.1 to reflect correction of Elephant Butte evaporation data errors in 1997

SUMMARY OF DEBITS AND CREDITS

ITEM	DEBIT	CREDIT	BALANCE
NM1 Balance at Beginning of Year			Cr 269.1
NM2 Scheduled Delivery at Elephant Butte	494.9		Dr 225.8
NM3 Actual Elephant Butte Effective Supply		416.4	Cr 190.6
NM4 Reduction of Debits etc Evaporation			
NM5 Reduction of Credits etc Evaporation and Spill	34.0		Cr 155.7
NM6			
NM7			
NM8 Balance at End of Year			Cr 155.7

APPROVED: _____ Date: 2/20/2002 Engineer Adviser for Colorado SEV _____ Date: 2/20/2002 Engineer Adviser for New Mexico AWB _____ Date: 2/20/2002 Engineer Adviser for Texas HKS _____ Date: 2/20/2002

RIO GRANDE COMPACT - RELEASE AND SPILL FROM PROJECT STORAGE
YEAR 2001

Quantities in thousands of acre feet to nearest hundred

MONTH	Total Project Storage Capacity Available at End of Month	USABLE WATER IN STORAGE			Unfilled Capacity of Project Storage at End of Month	CREDIT WATER IN STORAGE			Flood Water in Storage in Cabello Reservoir at End of Month	Total Water in Project Storage at End of Month	Measured Flow at Cabello Gaging Station	Intervening Diversions to Canals	Total Release and Spill	RIO GRANDE BELOW CABELLO DAM			USABLE RELEASE	
		Elephant Butte Reservoir	Cabello Reservoir	Total at End of Month		Colorado Credit Water	New Mexico Credit Water	Total at End of Month						Cabello Flood Water	Credit Water	Usable Water	Net During Month	Accumulated Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	2,131.8	990.4	28.4	999.8	1,133.0	27.0	289.1	296.1		5,294.9	---	---	---	---	---	---		0.0
JAN	2,131.8	999.6	42.5	1,042.1	1,089.7	27.0	288.8	295.8		5,337.9	0.2	0.0	0.2				0.2	0.2
FEB	2,131.8	946.0	109.4	1,054.4	1,872.4	26.8	267.5	294.3		5,348.7	23.8	0.0	23.8				23.8	24.0
MAR	2,131.8	587.2	93.0	990.2	1,141.5	28.5	265.1	291.7		5,281.3	106.7	0.1	106.8				106.8	130.8
APR	2,106.8	844.5	96.8	941.3	1,169.5	28.2	290.9	297.1		5,228.4	87.5	0.1	87.6				87.6	218.4
MAY	2,106.8	819.5	36.1	917.8	1,189.2	25.7	256.3	287.0		5,189.8	96.8	0.2	97.0				97.0	315.4
JUN	2,106.8	761.9	72.7	834.6	1,272.7	25.1	250.5	275.6		5,119.2	131.3	0.1	131.4				131.4	446.8
JUL	2,106.8	665.2	62.2	727.4	1,379.4	24.7	245.1	270.8		5,058.2	130.8	0.1	130.9				130.9	577.7
AUG	2,106.8	600.2	43.5	643.7	1,463.1	24.4	242.8	267.2		5,019.9	110.8	0.2	111.0				111.0	688.7
SEPT	2,106.8	579.9	12.3	592.2	1,514.5	24.1	239.9	264.0		5,056.2	73.0	0.2	73.2				73.2	761.9
OCT	2,131.8	578.9	7.5	586.5	1,545.3	23.8	237.0	260.8		5,073.3	25.9	0.0	25.9				25.9	787.5
NOV	2,131.8	605.9	10.4	616.3	1,515.5	23.6	235.3	258.9		5,075.2	0.3	0.0	0.3				0.3	787.8
DEC	2,131.8	636.4	26.5	655.9	1,475.9	23.5	234.2	257.7		5,013.6	0.1	0.1	0.2				0.2	788.0
YEAR											788.9	1.1	788.0	0.0	0.0	0.0		788.0

Temporary Project Storage Capacity for calendar year 2001 is 2,106,786 acre-feet (April to September) and 2,131,786 acre-feet (October to March) due to repair work on Cabello Dam. Project Storage Capacity after completion of repair will be 2,209,030 acre-feet (April to September) and 2,225,030 acre-feet (October to March) as recognized by the September 9, 1998 Resolution of the Rio Grande Compact Commission with flood control storage reservation at Elephant Butte Reservoir of 50,000 acre-feet from April through September and 25,000 acre-feet from October through March.

Based on Balance at Beginning of Year (C1 and NM1) and implementation of area-capacity curves for Elephant Butte Reservoir (see footnote "c" on Deliveries by New Mexico at Elephant Butte accounting sheet).

ACCRUED DEPARTURE FROM NORMAL RELEASE

ITEM	DEBIT	CREDIT	BALANCE
P1 Accrued Departure at Beginning of Year			Cr 75.9
P2 Actual Release during Year	788.0		Dr 712.1
P3 Normal Release for Year		190.0	Cr 77.9
P4			
P5			
P6			
P7 Accrued Departure at End of Year			Cr 77.9

TIME OF HYPOTHETICAL SPILL Did not occur

APPROVED. Engineer Adviser for Colorado SFW Date 2/20/2002 Engineer Adviser for New Mexico AS Date 2/20/2002 Engineer Adviser for Texas PS Date 2/21/2002

BUDGET FOR FISCAL YEAR ENDING JUNE 30, 2001

Item	Total Cost	Borne by United States	Borne by Colorado	Borne by New Mexico	Borne by Texas
GAGING STATIONS					
In Colorado	\$55,150	\$6,450	\$48,700		
In New Mexico, above Cabello Reservoir	\$64,310	\$39,195		\$25,115	
In New Mexico, Cabello Reservoir and below	\$21,329	\$5,316		\$1,750	\$14,263
Subtotal	\$140,789	\$50,961	\$48,700	\$26,865	\$14,263
ADMINISTRATION					
U.S.G.S. Contract	\$25,912	\$6,478	\$6,478	\$6,478	\$6,478
Other expenses	\$2,595		\$855	\$865	\$865
Subtotal	\$28,507	\$6,478	\$7,343	\$7,343	\$7,343
GRAND TOTAL	\$169,296	\$57,439	\$56,043	\$34,208	\$21,606
EQUAL SHARES			\$37,285	\$37,285	\$37,285

BUDGET FOR FISCAL YEAR ENDING JUNE 30, 2003

Item	Total Cost	Borne by United States	Borne by Colorado	Borne by New Mexico	Borne by Texas
GAGING STATIONS					
In Colorado	\$98,888	\$6,780	\$92,108		
In New Mexico, above Cabello Reservoir	\$69,170	\$42,015		\$27,155	
In New Mexico, Cabello Reservoir and below	\$24,780	\$7,390		\$1,880	\$15,500
Subtotal	\$192,838	\$56,185	\$92,108	\$29,045	\$15,500
ADMINISTRATION					
U.S.G.S. Contract	\$28,028	\$7,007	\$7,007	\$7,007	\$7,007
Other expenses	\$2,808		\$936	\$936	\$936
Subtotal	\$30,836	\$7,007	\$7,943	\$7,943	\$7,943
GRAND TOTAL	\$183,674	\$63,192	\$60,051	\$36,988	\$23,443
EQUAL SHARES			\$40,161	\$40,161	\$40,161

ACKNOWLEDGMENTS

This report was prepared by the U.S. Geological Survey, secretary to the Rio Grande Compact Commission. The water-supply data contained in this report have been provided by various Federal and State agencies.

The Office of the State Engineer of Colorado provided records of discharge for the following:

Rio Grande near Del Norte, Colo.
 Conejos River below Platoro Reservoir, Colo.
 Conejos River near Mogote, Colo.
 San Antonio River at Ortiz, Colo.
 Los Pinos River near Ortiz, Colo.
 Conejos River near Lascauses, Colo.
 Rio Grande near Lobatos, Colo.

Records of six transmountain diversions and of storage in Platoro, Squaw, and Shaw Lakes, Rio Hondo, Hermit Lakes Reservoir No. 3, Troutvale No. 2, Jumper Creek, Alberta Park, Big Meadows, Mill Creek, Fuchs, and Trujillo Meadows Reservoirs were also provided by the Office of the State Engineer of Colorado.

The U.S. Bureau of Reclamation, Albuquerque, N. Mex., provided the following records:

Azules tunnel at outlet, near Chama, N. Mex.
 Willow Creek above Heron Res., near Los Ojos, N. Mex.
 Horse Lake Creek above Heron Res., near Los Ojos, N. Mex.
 Storage in Heron Reservoir near Los Ojos, N. Mex.
 Willow Creek below Heron Dam, N. Mex.
 Storage in El Vado Reservoir near Tierra Amarilla, N. Mex.
 The U.S. Geological Survey, in cooperation with the U.S. Bureau of Reclamation, Albuquerque, N. Mex., provided the following records:
 Storage in Nambé Falls Reservoir near Nambé, N. Mex.
 Rio Nambé below Nambé Falls Dam, near Nambé, N. Mex.

The U.S. Geological Survey supplied the record for Rio Grande below Elephant Butte Dam and, in cooperation with the New Mexico Interstate Stream Commission, also provided the following:

Rio Chama below El Vado Dam, N. Mex.
 Rio Grande at Olowi Bridge, near San Hidelonso, N. Mex.
 Storage in McClure Reservoir near Santa Fe, N. Mex.
 Santa Fe River near Santa Fe, N. Mex.
 Storage in Nichols Reservoir near Santa Fe, N. Mex.

The U.S. Geological Survey, in cooperation with the Corps of Engineers, Albuquerque, N. Mex., also provided the following records:

Rio Chama below Abiquiu Dam, N. Mex.
 Rio Grande below Cochiti Dam, N. Mex.
 Galisteo Creek below Galisteo Dam, N. Mex.
 Jemez River below Jemez Canyon Dam, N. Mex.

The Corps of Engineers, Albuquerque, N. Mex., provided the records of storage in Abiquiu, Galisteo, and Jemez Canyon Reservoirs and in Cochiti Lake.

The Laguna Agency, Bureau of Indian Affairs, Laguna, N. Mex., supplied the records of storage in Seama Reservoir.

The U.S. Bureau of Reclamation, El Paso, Texas, provided the following records:

Storage in Elephant Butte Reservoir at Elephant Butte, N. Mex.
 Storage in Caballo Reservoir near Arrey, N. Mex.
 Rio Grande below Caballo Dam, N. Mex.
 Bonto Ditch below Caballo Dam, N. Mex.

The Rio Grande Compact Commission gratefully acknowledges the cooperation received from the agencies listed above.

RIO GRANDE COMPACT COMMISSION REPORT ACCURACY OF RECORDS

The Rules and Regulations of the Commission state that the equipment, method, and frequency of measurement at each gaging station shall be sufficient to obtain records at least equal in accuracy to those classified as "good" by the U.S. Geological Survey. Within the physical limitations of stream gaging, the agencies obtaining the records at Compact gaging stations have complied with these regulations.

The accuracy of streamflow records depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretation of records.

The station description states the degree of accuracy attributed to the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent of the true value; "good" within 10 percent; and "fair" within 15 percent. Records that do not meet the criteria mentioned are rated "poor." Different accuracies may be attributed to different parts of a given record. The probable error in a monthly or annual mean discharge depends more on the distribution of the daily errors between the limits than it does on the limits themselves. For this reason, monthly and annual records are more accurate than most daily records.

STREAMFLOW

Rio Grande near Del Norte, Colo.

Location:--Water-stage recorder, lat 37°41'22", long 106°27'38", in NW1/4 sec. 29, T. 40 N., R. 5 E., on right bank, 20 ft downstream from county highway bridge, 6 mi west of Del Norte, and 18 mi upstream from Pinos Creek. Datum of gage is 7,980.25 ft above mean sea level, datum of 1929. Prior to May 16, 1908, staff gage at site 4 mi downstream. Records are equivalent.

Drainage area--1,320 sq mi, approximately.

Average discharge--112 years (1890-2001), 904 ft³/s (654,900 acre-ft per year).

Extremes--1889-2001: Maximum discharge, 18,600 ft³/s Oct. 5, 1911 (gage height, 6.80 ft), from rating curve extended above 12,900 ft³/s; minimum daily, 69 ft³/s Aug. 21, 1902.

Remarks--Records good except those for winter months, which are fair. Flow regulated by four reservoirs, total capacity 126,100 acre-ft, and by several smaller ones. Six transmountain diversions import water into basin above station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	4,350	160	120	140	8,630
February	4,100	170	120	146	8,130
March	8,384	531	160	270	16,630
April	26,245	2,560	356	875	52,060
May	131,880	5,910	1,650	4,254	261,600
June	104,090	5,600	2,330	3,470	206,500
July	35,575	2,410	519	1,348	70,560
August	22,380	995	473	722	44,390
September	10,172	494	285	339	20,180
October	8,026	291	218	259	15,920
November	5,636	286	132	188	11,180
December	4,570	180	140	157	9,660
Calendar year 2001	365,708	5,910	120	1,002	725,400

Conejos River below Platoro Reservoir, Colo.

Location:--Water-stage recorder and concrete control, lat 37°21'18", long 106°32'37", in NW1/4NW1/4 sec. 22, T. 36 N., R. 4 E., on left bank 1,100 ft downstream from valve house for Platoro Reservoir, and 07 mi northwest of Platoro. Datum of gage is 9,866.60 ft above mean sea level (levels by Bureau of Reclamation).

Drainage area--40 sq mi, approximately.

Average discharge--49 years (1890-2001), 99.2 ft³/s (67,520 acre-ft per year).

Extremes--1892-2001: Maximum discharge, 1,160 ft³/s Nov. 1, 1957; maximum gage height, 4.29 ft June 15, 1958; no flow Oct. 16-20, 1955.

Remarks--Records good except those for winter months, which are fair. No diversions above station. Flow completely regulated by Platoro Reservoir (capacity, 59,570 acre-ft).

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	222.1	7.3	7.0	7.13	439
February	209.1	7.6	7.3	7.67	415
March	241.8	8.0	7.6	7.80	480
April	1,226.9	181	8.0	40.9	2,430
May	7,351	531	46	237	14,580
June	10,328	577	126	344	20,490
July	5,380	283	45	174	10,570
August	3,608	196	43	116	7,160
September	2,025	118	40	67.5	4,020
October	1,242	69	15	40.1	2,460
November	254.9	22	7.0	8.50	506
December	217.0	7.0	7.0	7.00	430
Calendar year 2001	32,204.8	577	7.0	88.5	64,080

RIO GRANDE COMPACT COMMISSION REPORT

Conejos River near Mogote, Colo.

Location:--Water-stage recorder, lat 37°13'14", long 106°11'13", in SE1/4SE1/4 sec. 34, T. 33 N., R. 7 E., on right bank 25 ft upstream from bridge on State Highway 174, 0.4 mi downstream from Fox Creek, and 5.3 mi west of Mogote. Datum of gage is 8,271.54 ft above mean sea level.

Drainage area--282 sq mi.

Average discharge--91 years (1904, 1912-2001), 327 ft³/s (236,900 acre-ft per year).

Extremes--1903-05, 1911-2001: Maximum discharge, 9,000 ft³/s Oct. 5, 1911 (gage height, 8.50 ft), from rating curve extended above 3,100 ft³/s; minimum daily determined, 10 ft³/s July 18, 1904.

Remarks--Records good except those for winter months, which are fair. Diversions above station for irrigation of about 500 acres. Since 1951 flow partly regulated by Platoro Reservoir.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	1,265	43	39	40.8	2,510
February	1,206	47	39	43.1	2,390
March	2,155	129	40	69.6	4,280
April	7,770	765	94	259	15,410
May	39,626	1,820	457	1,278	78,600
June	27,171	1,560	459	906	53,890
July	9,778	544	122	315	19,390
August	6,073	339	135	196	12,050
September	3,495	194	80	116	6,930
October	2,326	103	60	75.0	4,610
November	1,345	85	26	44.8	2,670
December	1,222	43	36	39.4	2,420
Calendar year 2001	103,435	1,820	26	283	205,200

San Antonio River at Ortiz, Colo.

Location:--Water-stage recorder, lat 36°59'35", long 106°12'17", in New Mexico in NE1/4SE1/4 sec. 24, T. 32 N., R. 8 E., on left bank 800 ft south of New Mexico-Colorado State line, 0.4 mi southeast of Ortiz, and 0.4 mi upstream from Los Pinos River. Altitude of gage is 7,970 ft.

Drainage area--110 sq mi.

Average discharge--61 years (1914-2001), 25.6 ft³/s (18,550 acre-ft per year).

Extremes--1920, 1925-2001: Maximum discharge, 1,750 ft³/s Apr. 15, 1937 (gage height, 5.38 ft), from rating curve extended above 1,100 ft³/s; no flow at times.

Remarks--Records good except those for winter months, which are fair. A few small diversions above station for irrigation.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	77.8	3.1	2.2	2.51	154
February	98.9	4.9	4.9	3.53	196
March	1,420.1	190	4.9	45.8	2,880
April	2,284	240	15	76.1	4,530
May	2,539	254	12	81.9	5,040
June	66.74	10	.00	2.22	132
July	.00	.00	.00	.00	.00
August	55.64	22	.00	1.79	110
September	9.01	1.1	.00	.30	18
October	66.31	3.2	.69	2.14	132
November	74.9	4.0	1.5	2.50	149
December	64.4	2.6	1.8	2.08	128
Calendar year 2001	6,756.80	254	.00	18.5	13,400

STREAMFLOW

Los Pinos River near Ortiz, Colo.

Location:--Water-stage recorder, lat 36°56'56", long 106°04'23" in New Mexico on line between secs. 26 and 27, T. 32 N., R. 8 E., on left bank 0.9 mi south of New Mexico-Colorado State line, 2.1 mi southwest of Ortiz, and 2.9 mi upstream from mouth. Altitude of gage is 8,040 ft.

Drainage area:--167 sq mi.

Average discharge:--43 years (1915-20, 1925-2001), 120 ft³/s (86,940 acre-ft per year).

Extremes:--1915-20, 1925-2001: maximum discharge, 3,160 ft³/s May 12, 1941 (gage height, 5.77 ft, site and datum then in use), from rating curve extended above 1,600 ft³/s; minimum observed, 4.0 ft³/s Dec. 17, 1945.

Remarks:--Records good except those for winter months, which are fair. Diversions above station for irrigation.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	406	15	11	13.1	805
February	415	17	13	14.8	823
March	1,183	60	16	38.2	2,350
April	5,497	666	57	183	10,990
May	20,582	1,010	346	664	40,820
June	4,963	401	45	165	9,840
July	917	58	20	29.6	1,820
August	704	36	14	22.7	1,400
September	357.2	19	9.4	11.9	709
October	402	16	11	13.0	797
November	367.2	17	9.2	12.2	728
December	334	12	10	10.8	662
Calendar year 2001	36,127.4	1,010	9.2	99.0	71,660

Conejos River near Lasauces, Colo.

Location:--Water-stage recorder, lat 37°18'01", long 105°44'47", in secs. 2 and 11 (two channels), T. 35 N., R. 11 E., on left bank of main channel 125 ft downstream from bridge on State Highway 156 and on left bank of secondary channel 220 ft upstream from bridge, 1.0 mi upstream from mouth, and 2.1 mi north of Lasauces. Datum of gage on main channel is 7,495.02 ft and on secondary (south) channel is 7,496.89 ft above mean sea level (levels by Bureau of Reclamation).

Drainage area:--887 sq mi.

Average discharge:--80 years (1922-2001), 181 ft³/s (131,100 acre-ft per year).

Extremes:--1921-2001: Maximum discharge, 3,890 ft³/s May 15, 1941; no flow at times in some years.

Remarks:--Records good except those for winter months, which are fair. Diversions for irrigation of about 75,000 acres above station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	1,041	40	27	33.6	2,060
February	1,632	81	35	58.3	3,240
March	3,519	257	65	114	6,990
April	3,498	325	31	117	6,940
May	17,099	967	157	552	33,920
June	7,927	554	45	264	15,720
July	974.60	72	26	31.4	1,990
August	20.12	7.2	1.0	5.5	40
September	4.21	1.0	.00	1.4	8.4
October	15.38	2.4	.00	5.0	31
November	397.1	24	3.7	13.2	788
December	1,013	48	23	32.7	2,010
Calendar year 2001	37,140.41	967	.00	102	73,670

RIO GRANDE COMPACT COMMISSION REPORT

Rio Grande near Lobatos, Colo.

Location:--Water-stage recorder, lat 37°04'42", long 105°45'22", in sec. 22, T. 33 N., R. 11 E., on right bank at highway bridge, 6 mi north of Colorado-New Mexico State line, 10 mi east of Lobatos, and 14 mi east of Animas. Datum of gage is 7,427.63 ft above mean sea level. Datum of 1929.

Drainage area:--720 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley).

Average discharge:--31 years (1900-30), 346 ft³/s (612,900 acre-ft per year); 71 years (1931-2001) 449 ft³/s (325,200 acre-ft per year).

Extremes:--1899-2001: Maximum discharges observed, 13,200 ft³/s June 8, 1905 (gage height, 9.1 ft), from rating curve extended above 8,000 ft³/s; no flow at times in 1950-51, 1956.

Remarks:--Records good except those for winter months, which are fair. Mutual flow of stream affected by transmountain diversions, storage reservoirs, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	6,010	220	170	194	11,920
February	7,571	376	180	270	15,020
March	13,373	768	308	431	26,530
April	9,996	616	172	333	19,830
May	41,746	2,140	554	1,347	82,800
June	38,250	2,010	690	1,275	75,870
July	11,467	638	130	370	22,740
August	3,025	159	61	97.6	6,000
September	1,552	115	29	51.7	3,080
October	1,718	66	43	55.4	3,410
November	4,363	259	55	145	8,650
December	7,290	290	200	235	14,460
Calendar year 2001	146,361	2,140	29	403	290,300

Willow Creek above Heron Reservoir, near Los Ojos, N. Mex.

Location:--Water-stage recorder, lat 36°44'35", long 106°37'34", in Tierra Amarilla Grant, on right bank 200 ft downstream from bridge, 0.2 mi downstream from Spring Creek, 3.3 mi west of Los Ojos, and at mi 9.7. Datum of gage is 7,196.29 ft above mean sea level. Prior to Apr. 1, 1971, at site 900 ft downstream.

Drainage area:--112 sq mi.

Average discharge:--7 years (1963-69), 11.5 ft³/s (8,330 acre-ft per year) prior to completion of Azotea tunnel; 32 years (1970-2001), 137 ft³/s (99,260 acre-ft per year) subsequent to completion of Azotea tunnel.

Extremes:--1962-2001: Maximum discharge, 1,610 ft³/s Mar. 12, 1985 (gage height, 6.65 ft); no flow at times.

Remarks:--Records good except those for winter months, which are fair. Subsequent to Nov. 16, 1970, flow affected by transmountain diversions through Azotea tunnel. Flow in Ruthven Drain included prior to Apr. 1, 1971.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	0.00	0.00	0.00	0.00	0.00
February	.00	.00	.00	.00	.00
March	3,432.50	421	.00	111	6,810
April	11,890	820	133	396	23,580
May	24,553	940	143	791	48,660
June	14,281	861	175	476	28,330
July	2,286.1	177	7.1	73.7	4,530
August	2,170.2	239	4.0	70.0	4,300
September	121.80	24	.00	4.06	242
October	.00	.00	.00	.00	.00
November	.00	.00	.00	.00	.00
December	.00	.00	.00	.00	.00
Calendar year 2001	58,714.61	940	.00	161	116,500

STREAMFLOW

Horse Lake Creek above Heron Reservoir, near Los Opos, N. Mex.

Location--Water-stage recorder, lat 36°42'24", long 106°14'42", in Tierra Amarilla Grant, on right bank 3.7 mi northwest of Heron Dam, 7.8 mi downstream from Horse Lake, and 9.9 mi west of Los Opos. Datum of gauge is 7,188.85 ft above mean sea level. Prior to July 1, 1971, at site 1,100 ft upstream.

Drainage area--45 sq mi, approximately.

Average discharge--12 years (1963-73, 1986), 1.17 ft³/s (848 acre-ft per year).

Estimates--1963-2001: Maximum discharge, 3,960 ft³/s July 30, 1966 (gauge height, 4.9 ft); no flow most of time.

Remarks--Records good. Diversions above station for irrigation of meadows and for oil-channel stock tanks.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	--	--	--	--	--
February	--	--	--	--	--
March	--	--	--	--	--
April	--	--	--	--	--
May	0.62	0.18	0.00	0.02	1.2
June	.00	.00	.00	.00	.00
July	.00	.00	.00	.00	.00
August	.00	.00	.00	.00	.00
September	.00	.00	.00	.00	.00
October	--	--	--	--	--
November	--	--	--	--	--
December	--	--	--	--	--
Calendar year 2001	--	--	--	--	--

Willow Creek below Heron Dam, N. Mex.

Location--Totalizing flowmeter, lat 36°39'56", long 106°42'12", in Tierra Amarilla Grant, in outlet conduit at Heron Dam, 0.2 mi upstream from Rio Chama, 5.1 mi northeast of El Vado Dam, and 8.7 mi southwest of Los Opos.

Drainage area--193 sq mi.

Average discharge--31 years (1971-2001), 126 ft³/s (91,290 acre-ft per year).

Estimates--1971-2001: Maximum daily discharge, 2,780 ft³/s Dec. 18, 19, 1982; no flow at times each year.

Remarks--Records excellent. Flow completely regulated by Heron Dam.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	662.0	100	.00	21.4	1,310
February	2,800	100	.00	100	5,550
March	5,360	400	100	173	10,630
April	14,031	550	400	468	27,830
May	12,360	419	.00	56.0	3,440
June	0.00	.00	.00	.00	.00
July	.00	.00	.00	.00	.00
August	.00	.00	.00	.00	.00
September	.00	.00	.00	.00	.00
October	992.00	400	.00	32.0	1,970
November	12,000	400	.00	400	23,800
December	10,894	400	200	351	21,610
Calendar year 2001	48,475.00	550	.00	133	96,150

RIO GRANDE COMPACT COMMISSION REPORT

Rio Chama below El Vado Dam, N. Mex.

Location--Water-stage recorder, lat 36°34'48", long 106°43'34", in Tierra Amarilla Grant, on left bank 1.5 mi downstream from El Vado Dam, 2.8 mi upstream from Rio Nuevas, and 13 mi southwest of Tierra Amarilla. Datum of gauge is 6,696.12 ft above mean sea level, datum of 1929. Prior to October 1935, at site 1.5 mi upstream and October 1935 to September 1936, at site 1.1 mi upstream at different datum.

Drainage area--877 sq mi, of which about 100 sq mi is probably noncontributing.

Average discharge--4 years (1914, 1921-23), 444 ft³/s (321,700 acre-ft per year), prior to completion of El Vado Dam; 35 years (1936-70), 372 ft³/s (269,500 acre-ft per year), prior to release of transmountain water; 31 years (1971-2001) 479 ft³/s (347,000 acre-ft per year).

Estimates--1914-16, 1920-24, 1936-2001: Maximum discharge observed, 9,000 ft³/s May 22, 1920 (gauge height, 12 ft); no flow Mar. 25, 26, 31, 1955.

Remarks--Records good. Diversions above station for irrigation of about 10,600 acres. Since 1935 flow regulated by El Vado Reservoir and since October 1970 flow partly regulated by Heron Reservoir. Subsequent to May 1971 flow affected by releases of transmountain water from Heron Reservoir.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	3,505	116	111	113	6,950
February	3,065	114	102	109	6,080
March	3,298	165	99	106	6,540
April	3,233	161	91	108	6,410
May	20,966	2,040	92	676	41,590
June	9,919	760	182	331	19,670
July	7,656	521	152	247	15,190
August	12,936	653	98	417	25,660
September	22,035	863	604	734	43,710
October	11,530	719	221	372	22,870
November	6,967	226	218	223	13,260
December	6,967	226	221	225	13,620
Calendar year 2001	111,797	2,040	91	306	221,700

Rio Chama below Abiquiu Dam, N. Mex.

Location--Water-stage recorder, lat 36°14'12", long 106°24'59", in SE1/4SE1/4 sec. 8, T. 23 N., R. 5 E., on right bank 0.8 mi downstream from Abiquiu Dam and 5.9 mi northwest of Abiquiu. Altitude of gauge is 6,040 ft (from river-profile map and topographic map).

Drainage area--2,147 sq mi, of which about 100 sq mi is probably noncontributing.

Average discharge--9 years (1965-70), 376 ft³/s (272,400 acre-ft per year), prior to release of transmountain water; 31 years (1971-2001), 534 ft³/s (387,000 acre-ft per year).

Estimates--1961-2001: Maximum discharge, 2,990 ft³/s July 1, 1965 (gauge height, 6.69 ft); minimum, about 0.5 ft³/s Mar. 17, 1966, Jan. 28, 1972.

Remarks--Records good. Flow regulated by Heron, El Vado, and Abiquiu Reservoirs. Diversions above station for irrigation of about 17,600 acres. Subsequent to May 1971 flow affected by the release of transmountain water from Heron Reservoir.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	1,664	56	51	53.7	3,300
February	1,743	109	52	62.2	3,460
March	1,570	58	48	50.6	3,110
April	5,018	400	48	167	9,950
May	5,281	503	142	170	10,470
June	6,167	461	155	206	12,220
July	16,566	809	208	534	32,860
August	18,756	862	193	605	37,200
September	25,564	1,030	692	892	50,710
October	14,323	772	65	462	28,410
November	1,365	44	38	42.2	2,510
December	1,338	47	41	43.8	2,680
Calendar year 2001	99,275	1,030	38	272	196,900

STREAMFLOW

Rio Námbe below Námbe Falls Dam, near Námbe, N. Mex.

Location.—Totalizing flowmeters, lat 35°59'46" long 105°54'17", in NE1/4 sec. 29, T. 19 N., R. 10 E., in Námbe Indian Reservation, in outlet conduits at Námbe Falls Dam, 300 ft upstream from Námbe Falls, 2.6 mi upstream from confluence of Rio Námbe and Rio En Medio, 4.4 mi southeast of Námbe Pueblo, and 5.4 mi southeast of Námbe.

Drainage area.—34.1 sq mi.

Average discharge.—23 years (1979-2001), 14.7 ft³/s (10,650 acre-ft per year).

Extremes.—1979-2001: Maximum discharge, 312 ft³/s June 9, 1979 (gauge height, 1.96 ft), at site 1,100 ft downstream; no flow December 31, 1994.

Remarks.—Records good. Flow completely regulated by Námbe Falls Reservoir.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	38.7	1.3	1.1	1.25	77
February	33.8	1.3	1.1	1.21	67
March	43.4	1.5	1.3	1.40	86
April	354.6	24	1.5	11.8	703
May	1,198	58	25	38.6	2,380
June	611	38	11	20.4	1,210
July	420.8	19	3.9	13.6	835
August	372.7	35	3.0	12.0	739
September	220.1	21	2.9	7.34	437
October	223.0	2.0	2.4	7.19	442
November	52.6	7.7	1.4	1.75	104
December	39.1	1.7	1.0	1.26	78
Calendar year 2001	3,607.8	58	1.0	9.88	7,160

Rio Grande at Otowi Bridge, near San Ildefonso, N. Mex.

Location.—Water-stage recorder, lat 35°52'29", long 106°08'30", in San Ildefonso Pueblo Grant, 400 ft downstream from bridge on State Highway 4, 1.8 mi southwest of San Ildefonso Pueblo, 2.5 mi downstream from Pogoque River, and 6.8 mi west of Pogoque. Datum of gage is 5,488.48 ft above mean sea level, datum of 1929. Prior to May 19, 1994, and July 25 to Oct. 1, 1994, staff gage at site 180 ft upstream at datum 2.02 ft lower.

Drainage area.—14,300 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Average discharge.—102 years (1896-1905, 1910-2001), 1,553 ft³/s (1,111,000 acre-ft per year).

Extremes.—1895-1905, 1910-2001: Maximum discharge, 24,400 ft³/s May 23, 1920 (gage height, 14.1 ft); minimum daily, 60 ft³/s July 4, 5, 1902.

Remarks.—Records good. Flow partly regulated by Heron, El Vado, and Abiqui Reservoirs. Diversions above station for irrigation of about 620,000 acres in Colorado and 75,000 acres in New Mexico. Subsequent to May 1971 flow affected by releases of transmountain water from Heron Reservoir.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	16,822	579	471	543	33,370
February	17,315	740	529	618	34,340
March	25,721	1,250	830	618	51,020
April	33,906	1,800	629	618	67,260
May	85,180	3,700	721	1,130	169,000
June	58,720	3,190	1,100	2,278	116,500
July	38,396	1,250	904	1,239	76,160
August	30,298	1,280	588	977	60,100
September	31,570	1,300	868	1,052	62,620
October	21,519	948	511	694	42,680
November	13,629	584	358	454	27,030
December	17,789	638	512	574	35,280
Calendar year 2001	390,867	3,700	358	1,071	775,300

RIO GRANDE COMPACT COMMISSION REPORT

Santa Fe River near Santa Fe, N. Mex.

Location.—Water-stage recorder and concrete control, lat 35°41'12", long 105°50'35", in NE1/4 sec. 23, T. 17 N., R. 10 E., 0.4 mi downstream from McCure Dam, and 5.3 mi east of Santa Fe. Altitude of gage is 7,716 ft. Prior to Nov. 4, 1930, at site 1.5 mi downstream, and Apr. 11, 1931 to Sept. 30, 1947, at site 0.3 mi upstream, each at different datum.

Drainage area.—18.2 sq mi.

Average discharge.—89 years (1913-2001), 8.16 ft³/s (5,912 acre-ft per year).

Extremes.—1913-2001: Maximum discharge, 1,500 ft³/s Aug. 14, 1921; minimum, no flow Aug. 2-10, 2000.

Remarks.—Records good. Flow regulated by McCure Reservoir, completed in 1926, raised in 1935 and again in 1947.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	2.94	0.14	0.06	0.095	5.8
February	4.29	.24	.08	.15	8.5
March	64.66	7.3	.12	2.09	128
April	167.2	21	1.4	5.57	332
May	566.5	35	4.4	18.3	1,120
June	334.0	15	7.7	11.1	662
July	245.3	16	4.9	7.91	487
August	383.9	18	5.0	12.4	761
September	292.4	27	1.1	9.75	580
October	272.7	16	3.8	8.60	541
November	36.95	6.0	.11	1.23	73
December	6.05	.34	.13	.20	12
Calendar year 2001	2,376.89	35	.06	6.51	4,710

Rio Grande below Cochiti Dam, N. Mex.

Location.—Water-stage recorder, lat 35°37'05", long 106°19'24", in SW1/4 sec. 17, T. 16 N., R. 6 E., in Pueblo de Cochiti Grant, 320 ft upstream from bridge on State Highway 22, 700 ft downstream from Cochiti Dam, and 1.4 mi northeast of Cochiti Pueblo. Datum of gage is 5,226.08 ft above mean sea level, datum of 1929. Prior to Nov. 14, 1973, at site 2.4 mi downstream at altitude 5,210 ft. Nov. 14, 1973 to Jan. 8, 1976, at site 320 ft downstream at datum 4.79 ft lower.

Drainage area.—14,900 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Average discharge.—31 years (1971-2001), 1,406 ft³/s (1,019,000 acre-ft per year).

Extremes.—1971-2001: Maximum discharge, 10,300 ft³/s July 26, 1971, at site 2.4 mi downstream prior to closure of Cochiti Dam; minimum discharge, 0.51 ft³/s Aug. 3-5, 1977, Aug. 27-28, 1978.

Remarks.—Records good. Since Nov. 12, 1973, flow completely regulated by Cochiti Dam. Cochiti easide main canal on left bank and still main canal on right bank bypass station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	17,567	632	511	567	34,940
February	18,669	894	528	667	37,030
March	23,352	1,130	597	753	46,370
April	29,642	1,420	644	988	58,790
May	74,140	4,090	1,690	2,292	147,100
June	51,560	2,720	1,110	1,719	102,300
July	31,648	1,140	911	1,021	62,770
August	25,243	1,010	634	814	50,070
September	25,676	996	750	856	50,930
October	16,482	787	360	532	32,680
November	11,279	587	164	376	22,370
December	16,669	632	462	536	32,940
Calendar year 2001	341,867	4,090	164	937	678,100

STREAMFLOW

Calistee Creek below Calistee Dam, N. Mex.

Location--Waterstage recorder, lat. 35°27'56", long. 106°12'57", in SE1/4SE1/4 sec. 5, T. 14 N., R. 7 E., 0.6 mi downstream from Calistee Dam, and 5.5 mi northwest of Cerrillos. Altitude of gage is 5,450 ft.

Drainage area--597 sq mi.

Average discharge--31 years (1971-2001), 6.03 ft³/s (4,369 acre-ft per year).

Extremes--1970-2001: Maximum discharge, 21,000 ft³/s July 27, 1971 (gage height, 7.00 ft); maximum gage height, 7.33 ft (July 20, 1971; no flow many days each year).

Remarks--Records poor. Flow partly regulated by uncontrolled outlet in Calistee Dam. Capacity of outlet, 5,000 ft³/s when reservoir is full. Diversions for irrigation of about 50 acres above reservoir.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	90.75	8.6	0.00	2.93	180
February	47.84	3.2	54	1.71	95
March	8.65	2.9	.00	.28	17
April	1.25	.61	.00	.042	2.5
May	1.15	.60	.00	.037	2.3
June	178.33	95	.00	5.94	354
July	32	.24	.00	.010	.5
August	343.80	134	.00	11.1	682
September	.00	.00	.00	.00	.00
October	.00	.00	.00	.00	.00
November	.00	.00	.00	.00	.00
December	.00	.00	.00	.00	.00
Calendar year 2001	672.69	134	.00	1.84	1,330

Jemez River below Jemez Canyon Dam, N. Mex.

Location--Waterstage recorder, lat. 35°23'24", long. 106°32'03", in NE1/4 sec. 5, T. 13 N., R. 4 E., 0.8 mi downstream from Jemez Canyon Dam, 2.0 mi upstream from mouth, and 6 mi north of Bernalillo. Datum of gage is 5,055.66 ft above mean sea level, datum of 1929. Prior to April 24, 1951, at site three-quarters mi upstream at datum 4,401 ft higher. April 24, 1951 to June 25, 1958, at site 37 ft upstream at datum 4,401 ft higher.

Drainage area--1,038 sq mi.

Average discharge--59 years (1937, 1944-2001), 62.7 ft³/s (45,430 acre-ft per year).

Extremes--1937, 1944-2001: Maximum discharge, 16,300 ft³/s Aug. 29, 1943 (gage height, 5.62 ft); no flow at times.

Remarks--Records good. Flow regulated by Jemez Canyon Dam since October 1953. Diversions for irrigation of about 3,000 acres above station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	609.2	36	1.8	19.7	1,210
February	1,093	62	14	39.0	2,170
March	3,117.7	354	3.7	101	6,180
April	5,885.8	667	5.1	196	11,670
May	3,723.2	1,580	5.2	120	7,380
June	1,478.5	214	1.6	49.3	2,930
July	680	63	14	21.9	1,350
August	723.0	64	9.0	23.3	1,430
September	690	28	14	23.0	1,370
October	2,083.13	120	.40	67.2	4,130
November	160.57	15	.17	5.35	318
December	217.5	8.9	.42	7.02	431
Calendar year 2001	20,461.60	1,580	.17	56.1	40,590

RIO GRANDE COMPACT COMMISSION REPORT

Rio Grande below Elephant Butte Dam, N. Mex.

Location--Waterstage recorder, lat. 33°08'54", long. 107°12'22", in SW1/4 sec. 25, T. 13 S., R. 4 W. (projected), in Pedro Armendarez Grant, 1.0 mi downstream from dam and 1.5 mi upstream from Cuchillo Negro River. Datum of gage is 4,242.09 ft above mean sea level. Datum of 1929. Prior to April 23, 1942, at several different sites and daumns.

Drainage area--29,450 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Average discharge--87 years (1915-2001), 1,011 ft³/s (722,500 acre-ft per year).

Extremes--1915-2001: Maximum daily discharge, 8,220 ft³/s May 22, 1942; no flow at times prior to 1929 and March 2-4, 1979.

Remarks--Records good. Flow regulated by Elephant Butte Reservoir. Diversions for irrigation of about 800,000 acres above station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	2,152.6	768	9.6	69.4	4,270
February	49,880	2,440	1,280	1,781	98,940
March	48,630	1,630	1,040	1,569	96,460
April	49,130	1,670	1,620	1,638	97,450
May	53,420	1,800	1,600	1,723	106,000
June	54,190	2,440	1,470	1,806	107,500
July	57,040	2,220	1,390	1,840	113,100
August	46,319	1,660	838	1,494	91,870
September	20,327	874	370	678	40,320
October	7,713.9	1,490	7.4	249	15,300
November	208.9	7.7	6.4	24	414
December	6,631.1	667	7.6	214	13,150
Calendar year 2001	395,642.5	2,440	6.4	1,084	794,800

Rio Grande below Caballo Dam, N. Mex.

Location--Waterstage recorder, lat. 32°53'05", long. 107°17'31", in NE1/4SW1/4 sec. 30, T. 16 S., R. 4 W., 2,000 ft upstream from Interstate Highway 25, 4,200 ft downstream from Caballo Dam, 1.3 mi upstream from Percha diversion dam, and 3 mi northwest of Arroyo. Datum of gage is 4,140.90 ft above mean sea level, datum of 1929. October 13, 1938 to December 31, 1945, at datum 5.0 ft higher.

Drainage area--30,700 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Average discharge--64 years (1938-2001) 941 ft³/s (681,800 acre-ft per year).

Extremes--1938-2001: Maximum daily discharge, 7,650 ft³/s May 20, 1942; minimum daily, 0.1 ft³/s Oct. 31 to Nov. 14, 1954, Nov. 7 to Dec. 31, 1955, Feb. 15-29, 1972.

Remarks--Records good. Flow regulated by Elephant Butte and Caballo Reservoirs. Diversions for irrigation of about 800,000 acres above station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	93.0	3.0	3.0	3.00	184
February	12,024.0	996	3.0	429	23,850
March	53,791	2,330	901	1,735	106,700
April	44,130	1,870	1,120	1,471	87,530
May	46,780	2,000	1,110	1,574	96,760
June	66,199	2,520	1,860	2,206	131,300
July	65,950	2,600	1,710	2,127	130,800
August	55,870	2,110	1,400	1,802	110,800
September	36,820	1,770	850	1,227	73,000
October	12,892.0	1,440	4.0	416	23,570
November	142.0	7.0	1.0	4.73	282
December	40.6	1.8	1.1	1.31	81
Calendar year 2001	396,722.6	2,600	1.0	1,087	786,900

STREAMFLOW

Bonito ditch below Caballo Dam, N. Mex.

Records available--January 1986 to December 2001. Published as supplementary data with Rio Grande below Caballo Dam in USGS Water-Supply Papers and Water-Data Reports beginning with October 1947.

Remarks--Ditch diverts directly from Caballo Reservoir for irrigation of lands on right bank of river. The total release from Project Storage, as used in computations of Compact Commission, is the combined flow of this ditch and Rio Grande below Caballo Dam.

Diversions, in acre-feet

January	0
February	323
March	1413
April	1263
May	1442
June	1348
July	888
August	2105
September	1551
October	161
November	0
December	702
Calendar year 2001	1,119.7

RIO GRANDE COMPACT COMMISSION REPORT

Reservoirs in Rio Grande Basin in California
(constructed or enlarged since 1937)

Saguaw Lake--Staff gage in sec. 12, T. 39 N., R. 4 W., on tributary to Saguaw Creek. Completed in 1938; capacity, 162 acre-ft by 1953 survey. Water is used for irrigation below gaging station on Rio Grande near Del Norte.

Month-end gage height, in feet, and contents, in acre-feet

Calendar Year 2001

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. yr.
Gage height	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	-
Contents	162	162	162	162	162	162	162	162	162	162	162	162	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

Rio Honda Reservoir--Staff gage in sec. 22, T. 42 N., R. 3 W., on Rio Honda (Deep Creek) tributary to Clear Creek. Completed in 1957; capacity, 561 acre-ft. Originally filled during May and June 1958 with transmountain water storage is not in debit status. Water is used for fish culture.

Month-end gage height, in feet, and contents, in acre-feet

Calendar Year 2001

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. yr.
Gage height	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-
Contents	561	561	561	561	561	561	561	561	561	561	561	561	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

Huerfano Lake Reservoir No. 3--In sec. 25, T. 41 N., R. 4 W., on South Clear Creek. Completed prior to 1960; capacity, 192 acre-ft. Capacity table based on elevation above bricket of outlet. Water is used for fish culture. Includes 169 acre-ft of transmountain water by exchange in 1984 and 23 acre-ft of transmountain water by exchange in 1985.

Month-end gage height, in feet, and contents, in acre-feet

Calendar Year 2001

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. yr.
Gage height	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	-
Contents	192	192	192	192	192	192	192	192	192	192	192	192	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

Trousdale No. 2 Reservoir--Staff gage in E1/2 sec. 10, T. 41 N., R. 3 W., on South Clear Creek. Completed in 1940; capacity, 435 acre-ft. Condition of spillway limited storage to 168 acre-ft after May 1942. Repairs to spillway in 1947 increased capacity to 257 acre-ft. Water is used for fish culture with only occasional sale for irrigation. Storage omitted from accounting by action of Commission on Feb. 15, 1962.

Month-end gage height, in feet, and contents, in acre-feet

Calendar Year 2001

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. yr.
Gage height	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	-
Contents	213	213	213	213	213	213	213	213	213	213	213	213	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

STORAGE IN RESERVOIRS

Reservoirs in Rio Grande Basin in Colorado
(constructed or enlarged since 1937)

Juniper Creek Reservoir--In sec. 5, T. 39 N., R. 2 W., on Juniper Creek, tributary to Trout Creek. Completed in 1951; capacity, 38 acre-ft. Capacity table based on elevation above bottom of outlet. Storage omitted from accounting by action of Commission on Feb. 15, 1962.

Month-end gage height, in feet, and contents, in acre-feet

Calendar Year 2001

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. yr.
Gage height	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	-
Contents	38	38	38	38	38	38	38	38	38	38	38	38	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

Big Meadows Reservoir--In NW1/4 sec. 12, T. 38 N., R. 2 E., on South Fork about 0.9 mi upstream from Hope Creek. Completed in 1967; capacity, 2,437 acre-ft. Capacity table based on elevation above outlet. Water is used for fish culture. Includes 140 acre-ft of transmountain water, by exchange, in 1967; 388 acre-ft, by exchange, in 1968; 347 acre-ft, by exchange, in 1969; and 1,112 acre-ft, by exchange, in 1983, for a total of 2,437 acre-ft.

Month-end gage height, in feet, and contents, in acre-feet

Calendar Year 2001

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. yr.
Gage height	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	-
Contents	2,437	2,437	2,437	2,437	2,437	2,437	2,437	2,437	2,437	2,437	2,437	2,437	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

Alberta Park Reservoir--In sec. 34, T. 38 N., R. 2 E., on Pass Creek. Completed in 1953; capacity, 598 acre-ft. Capacity table based on elevation above bottom of outlet. Storage prior to June 30, 1983 included 244 acre-ft of transmountain water imported in 1963. By a 1983 resolution of the Rio Grande Compact Commission, the reservoir was drained for repairs in July 1983; recovery was completed in 1984. The reservoir also contains 100 acre-ft of transmountain water stored by exchange in 1983 and 254 acre-ft of transmountain water stored in 1984.

Month-end gage height, in feet, and contents, in acre-feet

Calendar Year 2001

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. yr.
Gage height	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	-
Contents	598	598	598	598	598	598	598	598	598	598	598	598	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaw Lake Enhancement--In sec. 5, T. 38 N., R. 2 E., on tributary to Lake Creek. Capacity, 638 acre-ft by 1916 decree; enlarged in 1955 to 681 acre-ft. Only the storage in excess of 638 acre-ft is subject to terms of Rio Grande Compact. Includes 42 acre-ft of transmountain water imported in 1965.

Month-end gage height, in feet, and contents, in acre-feet

Calendar Year 2001

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. yr.
Gage height	-	-	-	-	-	-	-	-	-	-	-	-	-
Contents	42	42	42	42	42	42	42	42	42	42	42	42	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

RIO GRANDE COMPACT COMMISSION

Reservoirs in Rio Grande Basin in Colorado
(constructed or enlarged since 1937)

Mill Creek Reservoir--In sec. 16, T. 39 N., R. 2 E., on Mill Creek. Completed in 1953; capacity, 43 acre-ft. Capacity based on elevation above bottom of outlet. Includes 43 acre-ft of transmountain water, by exchange, in 1976.

Month-end gage height, in feet, and contents, in acre-feet

Calendar Year 2001

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. yr.
Gage height	15.0	15.0	15.0	0.0	14.2	14.2	14.0	13.7	13.6	13.3	13.3	13.3	-
Contents	43	43	43	0	39	39	38	37	36	35	35	35	-
Change	0	0	0	-43	+39	0	-1	-1	-1	-1	0	0	-8

Ends Reservoir--Staff gage in sec. 2, T. 37 N., R. 4 E., on East Pinos Creek. Completed in 1939; capacity, 237 acre-ft with 2 ft of flash boards in spillway. Prior to calendar year 1999, contents reported as 238 acre-ft; were actually 237 acre-ft. Pinos Creek enters Rio Grande below station near Del Norte.

Month-end gage height, in feet, and contents, in acre-feet

Calendar Year 2001

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. yr.
Gage height	9.9	12.6	15.0	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	-
Contents	92	140	188	237	237	237	237	237	237	237	237	237	-
Change	+18	+48	+48	+49	0	0	0	0	0	0	0	0	+193

Patton Reservoir—Water-stage recorder in NW1/4 sec. 22, T. 36 N., R. 4 E., on Conejos River. Completed in 1951; capacity, 99,570 acre-ft. at crest of spillway. Reservoir is used for irrigation and flood control. Storage affects Conejos Index Supply. Contents include 2,000 acre-ft. of transmountain water stored by exchange in April 1985 on behalf of the Colorado Division of Wildlife.

Month-end elevation, in feet, and contents, in acre-feet

Date	Elevation	Contents	Change in contents
December 31, 2000	9,977.1	16,779	-
January 31, 2001	9,977.2	16,843	+64
February 28	9,977.5	17,012	+169
March 31	9,977.9	17,214	+202
April 30	9,978.6	17,584	+370
May 31	9,998.6	30,014	+12,430
June 30	9,991.3	31,105	+1,091
July 31	9,991.26	25,060	-6,045
August 31	9,986.3	21,975	-3,085
September 30	9,981.1	18,946	-3,029
October 31	9,977.7	17,097	-1,849
November 30	9,977.7	17,113	0
December 31	9,977.7	17,113	+16
Calendar year 2001			+334

Trinillo Meadows Reservoir—In sec. 5, T. 32 N., R. 5 E., on Los Pinos River. Completed in 1957; capacity, 869 acre-ft. effective Jan. 1, 1999. Water is used for fish culture. Storage is transmountain water, by exchange, in 1999.

Month-end gage height, in feet, and contents, in acre-feet

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. yr.
Gage height	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	-
Contents	869	869	869	869	869	869	869	869	869	869	869	869	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

Calendar Year 2001

STORAGE IN RESERVOIRS

Reservoirs in Rio Grande Basin in New Mexico
(constructed or enlarged since 1929)

Heald Reservoir—Water-stage recorder, lat. 36°39'56", long. 106°42'13", on Willow Creek. Storage began in October 1970. Capacity, 401,300 acre-ft. at elevation 7,158.1 ft. (flow point on crest of spillway); dead storage, 1,340 acre-ft. at elevation 7,033.0 ft. Used for storage of transmountain water.

Month-end elevation, in feet, and contents, in acre-feet

Date	Elevation	Contents	Change in contents
December 31, 2000	7,160.76	267,390	-
January 31, 2001	7,160.60	266,640	-750
February 28	7,159.80	262,900	-3,740
March 31	7,159.87	263,230	+330
April 30	7,159.50	261,510	-1,720
May 31	7,169.23	308,750	+47,240
June 30	7,174.43	335,790	+27,040
July 31	7,175.12	339,470	+3,680
August 31	7,175.65	342,320	+2,850
September 30	7,175.28	340,330	-1,990
October 31	7,174.62	336,800	-3,530
November 30	7,170.06	312,670	-24,130
December 31	7,165.76	291,420	-21,250
Calendar year 2001			+24,030

El Vado Reservoir—Water-stage recorder and surface flowmeter, lat. 36°25'39", long. 106°44'00", on Rio Chama. Storage began in January 1935. Capacity, 186,250 acre-ft. at gage height 6,972.0 ft. (crest of spillway); dead storage, 480 acre-ft. below gage height 6,775.0 ft. (river at outlet works), as determined by survey in 1994. Datum of gage is 8.21 ft. above mean sea level, datum of 1929. Storage includes both Rio Grande and transmountain water.

Month-end gage height, in feet, and contents, in acre-feet

Date	Gage height	Contents	Change in contents	Transmountain water
December 31, 2000	6,818.24	23,940	-	14,920
January 31, 2001	6,814.99	20,990	-2,950	10,270
February 28	6,816.62	22,440	+1,450	10,480
March 31	6,828.11	34,150	+11,710	10,190
April 30	6,889.59	99,160	+65,010	23,890
May 31	6,900.02	179,900	+80,740	23,780
June 30	6,899.32	177,700	-2,200	23,640
July 31	6,895.22	165,020	-12,680	22,190
August 31	6,887.15	141,690	-23,330	19,680
September 30	6,889.17	98,280	-43,410	17,070
October 31	6,858.85	78,460	-19,820	17,260
November 30	6,865.15	90,170	+11,710	28,500
December 31	6,889.57	99,120	+8,950	36,300
Calendar year 2001			+75,180	-

STORAGE IN RESERVOIRS

Reservoirs in Rio Grande Basin in New Mexico
(constructed or enlarged since 1929)

Abiquiu Reservoir.--Water-stage recorder, lat 36°14'24", long 106°25'44", on Rio Chama. Completed in February 1963; capacity, 1,192,800 acre-ft at elevation 6,350 ft (crest of spillway) by 1998 survey. Reservoir is operated by Corps of Engineers for flood control and sediment storage. A resolution granting permission to store transmountain waters was approved by Rio Grande Compact Commission on May 3, 1974. Storage includes both Rio Grande and transmountain water.

Month-end elevation, in feet, and contents, in acre-feet

Date	Elevation	Contents	Change in contents	Transmountain water
December 31, 2000	6,193.31	91,320	-	88,650
January 31, 2001	6,194.72	95,470	+4,150	94,620
February 28	6,196.23	100,010	+4,540	99,760
March 31	6,197.91	105,180	+5,170	104,880
April 30	6,199.01	108,620	+3,440	106,270
May 31	6,201.74	144,970	+36,350	103,970
June 30	6,211.48	151,290	+6,320	100,950
July 31	6,206.23	133,550	-18,740	89,800
August 31	6,203.14	121,960	-10,590	84,390
September 30	6,201.05	115,110	-6,850	83,360
October 31	6,199.40	109,850	-5,260	80,320
November 30	6,202.69	120,460	+10,610	91,840
December 31	6,205.83	131,160	+10,700	103,260
Calendar year 2001	-	-	+39,840	-

Nambe Falls Reservoir.--Water-stage recorder in NE1/4SW1/4 sec. 29, T. 19 N., R. 10 E., in Nambe Indian Reservation, on Rio Nambe. Completed in 1976; capacity 2,023 acre-ft at elevation 6,626.6 ft (crest of spillway); dead storage 121 acre-ft at elevation 6,609 ft. Storage is transmountain water by exchange (see resolution adopted March 27, 1975).

Month-end elevation, in feet, and contents, in acre-feet

Date	Elevation	Contents	Change in contents
December 31, 2000	6,812.43	1,310	-
January 31, 2001	6,815.24	1,430	+120
February 28	6,817.86	1,560	+130
March 31	6,823.54	1,850	+290
April 30	6,826.66	2,030	+180
May 31	6,826.76	2,030	0
June 30	6,824.19	1,880	-150
July 31	6,816.25	1,480	-400
August 31	6,811.04	1,250	-230
September 30	6,807.27	1,090	-160
October 31	6,801.23	880	-210
November 30	6,804.29	980	+100
December 31	6,807.83	1,110	+130
Calendar year 2001	-	-	-200

RIO GRANDE COMPACT COMMISSION REPORT

Reservoirs in Rio Grande Basin in New Mexico
(constructed or enlarged since 1929)

McClure (Granite Dam) Reservoir.--Water-stage recorder in NE1/4SW1/4 sec. 24, T. 17 N., R. 10 E., on Santa Fe River. Original reservoir completed in 1926; capacity, 561 acre-ft; in 1935, permanent flash boards were installed in spillway, increasing capacity to 650 acre-ft; in 1947 both dam and spillway were reconstructed, increasing capacity to 2,615 acre-ft (gage height, 9,788.4 ft, crest of spillway). In 1953 spillway was equipped with radial gates that opened automatically, increasing capacity to over 3,000 acre-ft. In 1972, radial gates were removed, decreasing capacity to 2,615 acre-ft. In 1989, modifications to the dam and spillway increased capacity to 2,813 acre-ft. In 1995, modification to the dam and spillway increased capacity to 3,257 acre-ft. No dead storage. Altitude of gage is 7,798 ft. Water is for municipal use in Santa Fe. Storage includes both Rio Grande water and transmountain water by exchange. Capacity includes 561 acre-ft for pre-Compact storage and additional capacity as may be available to accommodate up to a total of 1,061 acre-ft of pre-Compact storage in McClure and Nichols Reservoirs combined.

Month-end gage height, in feet, and contents, in acre-feet

Date	Gage height	Contents	Change in contents	Pre-Compact water	Transmountain water
December 31, 2000	7,848.52	1,050	-	726	324
January 31, 2001	7,852.99	1,150	+100	746	404
February 28	7,855.65	1,280	+130	876	404
March 31	7,867.01	1,920	+640	1,061	404
April 30	7,877.95	2,660	+740	1,061	404
May 31	7,885.78	3,260	+600	1,061	404
June 30	7,881.39	3,020	-240	1,061	404
July 31	7,876.00	2,520	-500	1,060	404
August 31	7,865.96	1,860	-660	1,060	404
September 30	7,855.17	1,250	-610	946	404
October 31	7,853.63	733	-517	329	404
November 30	7,842.31	722	-11	318	404
December 31	7,843.91	777	+55	373	404
Calendar year 2001	-	-	-273	-	-

Nichols Reservoir.--Water-stage recorder in SE1/4NE1/4 sec. 21, T. 17 N., R. 10 E., on Santa Fe River. Completed in 1942; capacity 685 acre-ft at gage height 167.0 ft (crest of spillway); dead storage 14 acre-ft at gage height 121.1 ft. Datum of gage is 7,313.2 ft above mean sea level. Water is for municipal use in Santa Fe. Storage includes both Rio Grande water and transmountain water by exchange. Capacity may include pre-Compact storage such that total pre-Compact storage in McClure and Nichols Reservoirs combined does not exceed 1,061 acre-ft.

Month-end gage height, in feet, and contents, in acre-feet

Date	Gage height	Contents	Change in contents	Pre-Compact water	Transmountain water
December 31, 2000	156.28	407	-	167	240
January 31, 2001	150.16	282	-125	122	160
February 28	144.42	195	-87	75	160
March 31	149.65	274	+79	160	160
April 30	145.59	211	-63	0	160
May 31	167.04	687	+476	0	160
June 30	164.17	603	-84	0	160
July 31	151.19	319	-284	0	160
August 31	159.10	479	+160	0	160
September 30	153.90	440	-39	215	160
October 31	163.37	581	+141	421	160
November 30	161.30	526	-55	366	160
December 31	158.44	455	-71	295	160
Calendar year 2001	-	-	+48	-	-

STORAGE IN RESERVOIRS

Reservoirs in Rio Grande Basin in New Mexico
(constructed or enlarged since 1929)

Cochiti Lake—Water-stage recorder and manometer in NW1/4SW1/4 sec. 16, T. 16 N., R. 6 E., in Pueblo de Cochiti Grant, on Rio Grande. Completed in 1975; capacity 491,259 acre-ft at elevation 5,450.0 ft (crest of service spillway); zero storage at elevation 5,255.0 ft, from 1998 survey. A 50,000-acre-ft permanent pool was authorized by Public Law 88-293, 88th Congress, March 26, 1964. Reservoir is operated by Corps of Engineers for flood control, sediment storage, and recreation. Storage began Nov. 12, 1973.

Month-end elevation, in feet, and contents, in acre-feet

Date	Elevation	Contents	Change in contents	Transmountain water
December 31, 2000	5,342.06	51,700	-	49,890
January 31, 2001	5,341.49	50,960	-740	49,930
February 29	5,340.85	50,170	-790	50,030
March 31	5,341.59	51,090	+920	50,270
April 30	5,341.59	51,090	0	49,820
May 31	5,340.53	49,780	-1,310	49,320
June 30	5,340.72	50,010	+230	49,920
July 31	5,340.13	49,300	-710	48,290
August 31	5,339.07	48,080	-1,220	47,870
September 30	5,339.21	48,230	+150	47,360
October 31	5,338.88	47,860	-370	46,990
November 30	5,338.93	47,920	+60	47,050
December 31	5,340.84	50,160	+2,240	49,010
Calendar year 2001	-	-	-1,540	-

Calistegui Reservoir—Water-stage recorder and manometer in NW1/4 sec. 9, T. 14 N., R. 7 E., on Calistegui Creek. Storage records began in October 1970. Capacity 88,990 acre-ft at elevation 5,603.0 ft (crest of spillway). No dead storage. Reservoir is operated by Corps of Engineers for flood control and sediment storage.

Month-end contents, in acre-feet

Calendar Year 2001

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. yr.
Contents	0	0	0	0	0	0	0	0	0	0	0	0	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

STORAGE IN RESERVOIRS

Reservoirs in Rio Grande Basin in New Mexico
(constructed or enlarged since 1929)

Jemez Canyon Reservoir—Water-stage recorder in SW1/4SW1/4 sec. 32, T. 14 N., R. 4 E., on Jemez River. Completed in 1953; capacity 229,423 acre-ft at elevation 5,271.20 ft. Maximum controlled capacity at elevation 5,232.0 ft (floor of spillway) is 97,425 acre-ft by 1998 survey. Reservoir is operated by Corps of Engineers for flood control and sediment storage. A sediment pool of about 2,000 acre-ft of transmountain water has been maintained since August 1979.

Month-end elevation, in feet, and contents, in acre-feet

Date	Elevation	Contents	Change in contents	Transmountain water
December 31, 2000	5,173.69	4,510	-	4,390
January 31, 2001	5,173.99	4,640	+130	4,350
February 29	5,172.50	3,990	-650	4,300
March 31	5,172.27	3,890	-100	4,180
April 30	5,180.56	9,410	+5,520	3,880
May 31	5,183.49	11,510	+2,100	3,970
June 30	5,179.09	7,940	-3,570	791
July 31	5,176.54	6,060	-1,880	0
August 31	5,175.13	5,210	-850	0
September 30	5,171.70	3,660	-1,550	0
October 31	5,155.59	0	-3,660	0
November 30	5,155.00	0	0	0
December 31	5,155.00	0	0	0
Calendar year 2001	-	-	-4,510	-

Acomita Reservoir—Staff gage in SE1/4 sec. 29, T. 10 N., R. 7 W., on San Fidel Arroyo; water for reservoir is diverted from Rio San Jose. Completed in 1938; original capacity, 650 acre-ft; present capacity, 650 acre-ft on basis of 1956 sediment survey. Water is used for irrigation on Acoma Indian Reservation. Storage omitted from accounting by action of Commission on March 23, 2001.

Month-end contents, in acre-feet

Calendar Year 2001

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. yr.
Contents	-	-	-	-	-	-	-	-	-	-	-	-	-
Change	-	-	-	-	-	-	-	-	-	-	-	-	-

Saama Reservoir—In sec. 36, T. 10 N., R. 7 W., off channel from Rio San Jose. Completed in October 1980; capacity approximately 400 acre-ft. Water is used for irrigation on Laguna Indian Reservation.

No storage during 2001.

RIO GRANDE COMPACT COMMISSION REPORT

Reservoirs in Rio Grande Basin in New Mexico
(project storage)

Elephant Butte Reservoir--Water-stage recorder in NW 1/4 sec. 30, T. 13 S., R. 3 W., on Rio Grande. Storage began Jan. 6, 1915; capacity, 2,023,400 acre-ft at gage height 4,407.0 ft (crest of spillway), by survey of 1909 with flood control storage reservation of 50,000 acre-ft from April through September and 25,000 acre-ft from October through March in accordance with the Sept. 9, 1908, resolution of the Rio Grande Compact Commission. Datum of gage is 43.3 ft above mean sea level, datum of 1929. Water is used for power development and irrigation in New Mexico and Texas. Records furnished by Bureau of Reclamation. Delivery of transmountain water for minimum recreation pool was initiated in December 1975. Beginning Jan. 1, 1977, gage readings are midnight readings.

Month-end gage height, in feet, and contents, in acre-feet			
Date	Gage height	Contents	Transmountain water
December 31, 2000	4,381.74	1,268,340	10,840
January 31, 2001	4,383.24	1,306,110	10,670
February 29	4,381.04	1,250,970	10,640
March 31	4,378.92	1,199,420	10,570
April 30	4,376.48	1,142,020	10,450
May 31	4,375.16	1,111,830	10,320
June 30	4,372.26	1,047,610	10,140
July 31	4,367.36	946,010	10,020
August 31	4,363.86	877,360	9,920
September 30	4,362.60	853,720	9,840
October 31	4,362.36	849,270	9,580
November 30	4,363.70	874,330	9,530
December 31	4,364.92	897,630	9,490
Calendar year 2001	-	-370,710	-

Caballo Reservoir--Water-stage recorder in SE 1/4 SW 1/4 sec. 19, T. 16 S., R. 4 W., on Rio Grande. Storage began Feb. 8, 1938; capacity, 356,700 acre-ft (by 1909 survey), at gage height 4,162.0 ft (above which spillway gates open automatically). Datum of gage is 43.3 ft above mean sea level, datum of 1929; 100,000 acre-ft of storage reserved for flood control. Records furnished by Bureau of Reclamation. Beginning Jan. 1, 1977, gage readings are midnight readings.

Month-end gage height, in feet, and contents, in acre-feet			
Date	Gage height	Contents	Change in contents
December 31, 2000	4,142.94	42,850	-
January 31, 2001	4,144.12	42,490	-360
February 29	4,157.33	108,370	+65,880
March 31	4,154.82	92,970	-15,400
April 30	4,155.46	96,760	+3,790
May 31	4,155.68	98,080	+1,320
June 30	4,151.12	72,740	-25,340
July 31	4,148.96	62,240	-10,500
August 31	4,144.40	43,500	-18,740
September 30	4,132.18	12,320	-31,180
October 31	4,129.26	7,610	-4,710
November 30	4,131.04	10,380	+2,770
December 31	4,138.44	25,490	+15,110
Calendar year 2001	-	-	-17,360

STORAGE IN RESERVOIRS

Reservoirs in Rio Grande Basin in New Mexico
(project storage)

Project storage--The combined usable storage in Elephant Butte and Caballo Reservoirs.

Month-end contents, in acre-feet

Date	Contents	Change in contents
December 31, 2000	1,311,200	-
January 31, 2001	1,348,600	+37,400
February 29	1,359,300	+10,700
March 31	1,292,400	-66,900
April 30	1,238,800	-53,600
May 31	1,209,900	-28,900
June 30	1,120,400	-89,500
July 31	1,008,200	-112,200
August 31	920,900	-87,300
September 30	866,000	-54,900
October 31	856,900	-9,100
November 30	884,700	+27,800
December 31	923,100	+38,400
Calendar year 2001	-	-386,100

NOTE--Values of combined contents may not agree with sum of individual values because of rounding.

TRANS-MOUNTAIN DIVERSIONS

Elbe River. -Weminuche Pass ditch (Leads ditch).--Water-stage recorder and 3-ft Parshall flume in sec. 33, T. 40 N., R. 4 W., at Weminuche Pass in Colorado. Diversion is from North Fork Los Pinos River in San Juan River Basin into Weminuche Creek in Rio Grande Basin. Second enlargement was completed in 1936. Diversion for irrigation is from Rio Grande above the Del Norte gaging station.

Weminuche Pass ditch (Leads-Lotz ditch). --Water-stage recorder and 4-ft rectangular flume in sec. 33, T. 40 N., R. 4 W., at Weminuche Pass in Colorado. Diversion is from Rincon a Vado Creek in San Juan River Basin into Weminuche Creek in Rio Grande Basin. Second enlargement was completed in 1936. Diversion for irrigation is from Rio Grande above the Del Norte gaging station.

Williams Creek. -Squaw Pass ditch.--Water-stage recorder and 2-ft Parshall flume in sec. 21, T. 39 N., R. 3 W., at Squaw Pass in Colorado. Diversion is from Williams Creek in San Juan River Basin into Squaw Creek in Rio Grande Basin. Constructed in 1938. Diversion for irrigation is from Rio Grande below Del Norte gaging station.

Tablar ditch. --Water-stage recorder and 3-ft Parshall flume in sec. 35, T. 43 N., R. 3 W., at Spring Creek Pass in Colorado. Diversion is from Cebola Creek in Gansuon River Basin into tributary of Clear Creek in Rio Grande Basin. Completed in 1910 or 1911. Diversion for irrigation is from Rio Grande below Del Norte gaging station.

Don La Font No. 1 & 2 ditches (Fredin Pass ditch). --Water-stage recorder and 2-ft Parshall flume in sec. 4, T. 38 N., R. 1 W., at Piedra Pass in Colorado. Diversion is from tributaries of Piedra River in San Juan River Basin to South Fork Rio Grande. Completed in 1938. Original ditch completed in 1938; first enlargement completed in 1940. Water is imported by Colorado Game and Fish Department, beginning in 1959, to offset losses from fish culture reservoirs.

Treasure Pass diversion ditch. --Water-stage recorder and 2-ft Parshall flume in sec. 31, T. 38 N., R. 2 E., at Wolf Creek Pass in Colorado. Diversion is from Wolf Creek in San Juan River Basin to a tributary of South Fork Rio Grande. Completed in 1923 or 1924. Water is diverted for irrigation from Rio Grande above the Del Norte gaging station, beginning in 1959. Prior to 1959 it was diverted below gaging station.

Azules-Luna. --Water-stage recorder and 10-ft Parshall flume, lat 36°51'12", long 106°40'18", at south portal of Azules tunnel, San Juan-Chama Project. Diversion is from Rio Blanco, Little Navajo River, and Navajo River in Colorado and discharge is into Azules Creek in New Mexico. Construction completed in 1970.

Imported quantities, in acre-feet, 2001

	Pine River- Weminuche Pass ditch	Weminuche Pass ditch	Williams Creek- Squaw Pass ditch	Tablar ditch	Don La Font ditches	Treasure Pass ditch	Azules tunnel
January	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0
March	0	0	0	0	0	0	1,510
April	0	0	0	0	0	0	19,280
May	0	0	0	38	0	0	51,090
June	236	0	238	87	204	46	29,280
July	63	0	87	113	0	11	4,640
August	46	0	40	85	0	0	310
September	55	0	2	48	0	0	0
October	42	0	0	13	0	0	0
November	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0
Calendar year	462	0	387	501	0	57	110,570

RIO GRANDE COMPACT COMMISSION REPORT
EVAPORATION AND PRECIPITATION

The last paragraph of Article VI of the Compact states, in part, "such credits and debits shall be reduced annually to compensate for evaporation losses in the proportion that such credits or debits bear to the total amount of water in such reservoirs during the year."

To provide the data needed for the computation of such evaporation losses, the Commission has encouraged the establishment and operation of evaporation stations near each major reservoir in the basin and at other selected locations.

Evaporation and other climatological data collected at the several stations in Colorado and New Mexico are tabulated on the next page. At some of the stations, it was not possible to obtain evaporation records throughout the winter period.

The measurements of evaporation were made in accordance with standard practice for the type of pan in use. Measurements of precipitation were made in standard 8-inch rain gages, which were supplemented at some of the stations by recording rain gages.

Records for the evaporation stations at the State University, Elephant Butte Dam, and El Vado Dam antedated the creation of the Commission; the stations at Abiquiu Dam, Cochiti Dam, and Jemez Canyon Dam were established by the Corps of Engineers. All others were established at the request of the Commission.

The Rio Grande Compact Commission gratefully acknowledges the cooperation of the National Oceanic and Atmospheric Administration, U.S. Army Corps of Engineers, and U.S. Bureau of Reclamation for furnishing the climatological records contained in this report.

Alamosa Airport. -Lat 37°27', long 108°52', in Alamosa County at airport near Alamosa, Colo. Standard class A pan, anemometer, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 7,536 ft.

Blanco Dam. -Lat 37°21', long 106°30', in Conejos County near Platoro, Colo. Standard class A pan, anemometer, maximum and minimum thermometers, fan type psychrometer, standard 8-inch and recording rain gages at elevation 9,826 ft.

Heceta Dam. -Lat 36°40', long 106°42', in Rio Arriba County about 4 mi. northeast of Heceta Dam near Tierra Amarilla, N. Mex. Standard class A pan, maximum and minimum thermometers, and standard 8-inch rain gage at elevation 7,310 ft.

El Vado Dam. -Lat 36°36', long 106°44', in Rio Arriba County at El Vado Dam near Tierra Amarilla, N. Mex. Standard class A pan, anemometer, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 6,750 ft.

Abiquiu Dam. -Lat 36°14', long 106°26', in Rio Arriba County at Abiquiu Dam near Abiquiu, N. Mex. Standard class A pan, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 6,390 ft.

Nambe Falls Dam. -Lat 35°51', long 105°54', in Santa Fe County at Nambe Falls Dam, N. Mex. Standard class A pan, maximum and minimum thermometers, recording thermograph, standard 8-inch and recording rain gages at elevation 5,840 ft.

Cochiti Dam. -Lat 35°38', long 106°19', in Sandoval County at operations building at Cochiti Dam, N. Mex. Standard class A pan, anemometer, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 5,560 ft.

Jemez Canyon Dam. -Lat 35°23', long 106°32', in Sandoval County at Jemez Canyon Dam, N. Mex. Standard class A pan, anemometer, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 5,388 ft.

Elephant Butte Dam. -Lat 33°09', long 107°11', in Sierra County at Elephant Butte Dam, N. Mex. Standard class A pan, anemometer, maximum and minimum thermometers, and standard 8-inch rain gage at elevation 4,576 ft.

Caballo Dam. -Lat 32°54', long 107°18', in Sierra County at Caballo Dam, N. Mex. Standard class A pan, anemometer, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 4,190 ft.

New Mexico State University. -Lat 32°17', long 106°45', in Doña Ana County at University Park, N. Mex. Standard class A pan, anemometer, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 3,881 ft.

EVAPORATION AND PRECIPITATION 2001

Evaporation and precipitation, in inches

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Alamosa Airport	Evap. 0.36	0.56	1.02	0.27	1.09	0.07	2.75	3.22	0.11	0.03	0.26	0.13	9.87
Placero Dam	Evap. -	-	-	-	4.72	8.88	6.60	4.37	4.39	3.40	-	-	-
Placero Dam	Precip. -	-	-	-	0.12	0.94	3.01	0.46	1.33	0.91	-	-	-
Heron Dam	Evap. -	-	-	5.04	8.09	9.81	8.32	6.86	7.22	4.60	-	-	-
Heron Dam	Precip. 1.76	0.73	1.82	1.21	1.91	0.31	2.58	1.98	0.30	0.54	1.25	0.79	15.18
El Vado Dam	Evap. -	-	-	5.64	8.31	10.10	9.01	7.27	6.86	5.70	-	-	-
El Vado Dam	Precip. 1.20	0.27	0.74	0.94	0.71	0.61	1.69	2.33	0.20	0.62	0.95	0.41	10.67
Abiquiu Dam	Evap. -	-	-	7.49	10.77	12.02	9.80	8.52	8.30	5.88	-	-	-
Abiquiu Dam	Precip. 0.57	0.35	0.09	0.48	0.46	0.17	2.46	1.11	0.31	0.17	0.91	0.27	7.25
Nambe Falls Dam	Evap. -	-	-	4.50	7.69	11.67	7.96	6.12	6.36	4.37	-	-	-
Nambe Falls Dam	Precip. 1.08	0.02	0.0	0.0	1.58	0.77	1.67	2.43	0.13	0.16	0.37	0.0	8.21
Cochiti Dam	Evap. -	-	-	8.22	10.72	13.94	12.60	10.98	10.28	7.14	-	-	-
Cochiti Dam	Precip. 1.48	0.46	0.39	0.36	0.64	0.65	1.13	2.19	0.51	0.09	0.24	0.53	8.67
Jemez Canyon Dam	Evap. -	-	-	9.22	11.97	15.73	17.01	15.59	13.91	5.60	-	-	-
Jemez Canyon Dam	Precip. 0.16	0.46	0.42	0.12	0.28	0.18	1.76	1.38	0.70	0.16	0.30	0.14	6.06
Elephant Butte Dam	Evap. 2.70	5.38	7.88	13.00	15.34	19.11	15.70	12.71	11.68	9.88	6.06	3.84	123.28
Elephant Butte Dam	Precip. 1.17	0.79	0.21	0.0	0.50	0.57	1.45	1.65	1.76	0.09	0.24	0.20	8.63
Caballo Dam	Evap. 2.83	4.39	7.06	11.31	13.24	15.23	12.89	11.70	10.57	8.06	4.79	3.30	105.37
Caballo Dam	Precip. 0.92	0.77	0.11	0.03	0.86	0.95	0.99	1.19	1.50	0.15	0.10	0.05	7.62
State Univer.	Evap. -	-	6.95	9.90	11.08	11.97	11.90	10.60	8.79	7.26	4.79	-	-
Univer.	Precip. 0.29	0.17	0.35	0.04	0.71	0.36	0.99	1.49	0.61	0.01	0.21	0.02	5.25

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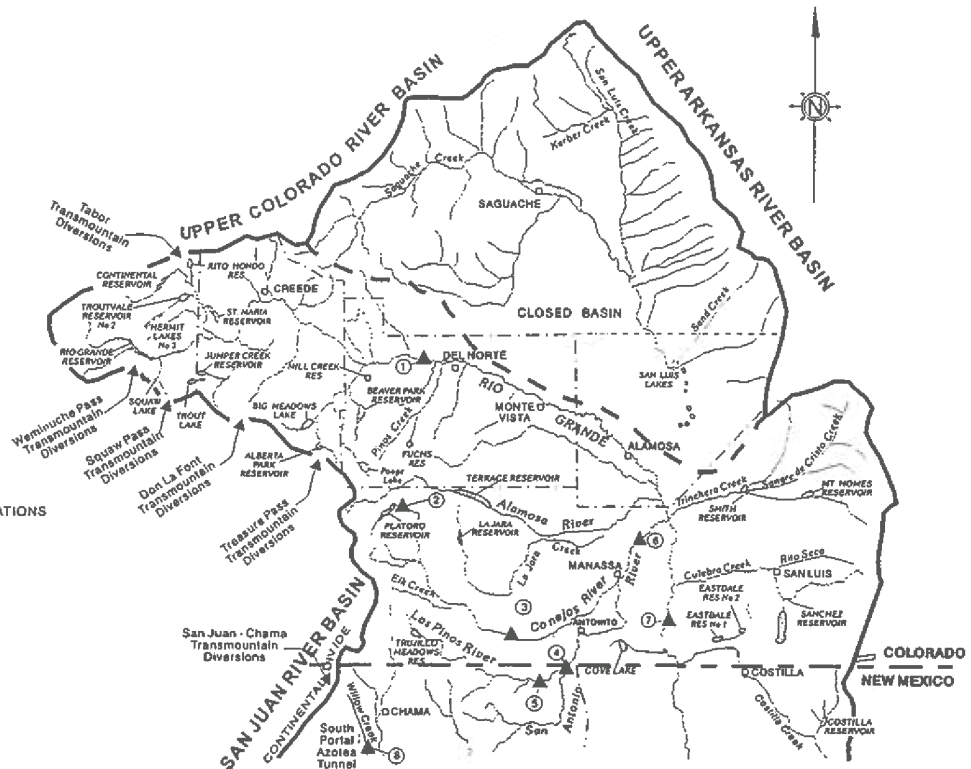
LEGEND

- ▲ STREAM-GAGING STATION
- CITY OR TOWN
- BASIN BOUNDARY
- - - COUNTY LINE
- - - CLOSED BASIN BOUNDARY
- TABOR TRANSMOUNTAIN DIVERSION

EXPLANATION

RIO GRANDE COMPACT STREAM-GAGING STATIONS

- 1 Rio Grande near Del Norte
- 2 Conejos River below Platoro Reservoir
- 3 Conejos River near Mogote
- 4 San Antonio River at Ortiz
- 5 Los Pinos River near Ortiz
- 6 Conejos River near Lasauzas
- 7 Rio Grande near Lobatos
- 8 Azotea Tunnel at South Portal

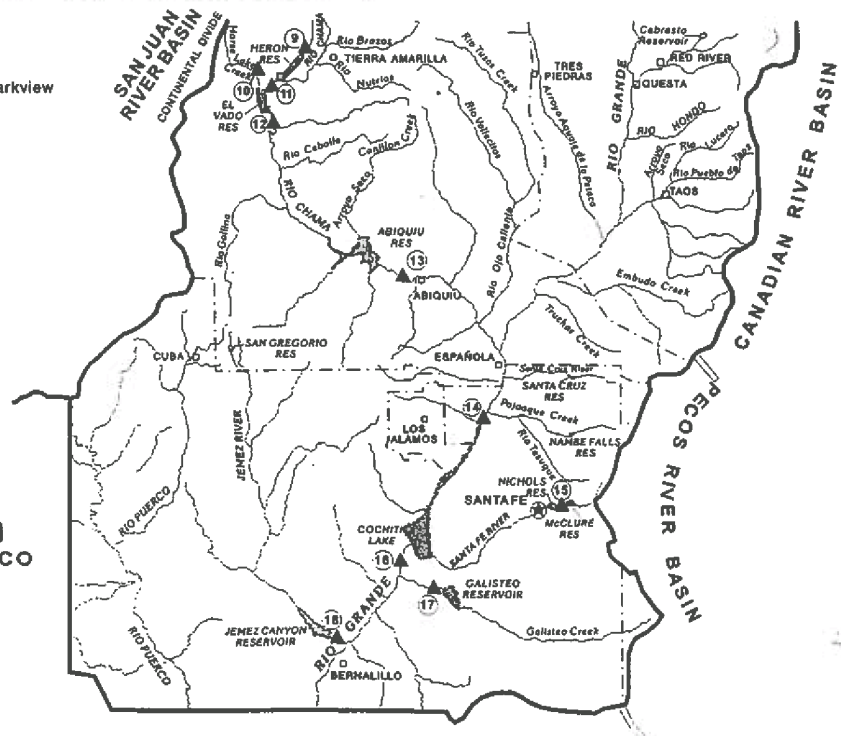


- 9 Willow Creek above Heron Reservoir
- 10 Horse Lake Creek above Heron Reservoir
- 11 Willow Creek below Heron Reservoir, near Parkview
- 12 Rio Chama below El Vado Dam
- 13 Rio Chama below Abiquiu Dam
- 14 Rio Grande at Owl Bridge
- 15 Santa Fe River near Santa Fe
- 16 Rio Grande below Cochiti Dam
- 17 Galisteo Creek below Galisteo Dam
- 18 Jemez River below Jemez Canyon Dam

NOTE: Screened areas denote reservoirs,
whose capacity is all or in part
subject to provisions of the
Rio Grande Compact

Revised March 1989
**RIO GRANDE BASIN
ABOVE BERNALILLO, NEW MEXICO**

0 10 20 30 40 50 MILES
0 10 20 30 40 50 KILOMETERS



**Statement of Garry M. Rowe
Area Manager
U.S. Bureau of Reclamation
Submitted to the
New Mexico Section
of the
American Society of Agricultural Engineers**

February 19, 1998

EBID1

**EXHIBIT
FC-007**

EBID_NM_002445-0001

Statement of Garry M. Rowe
Area Manager
U.S. Bureau of Reclamation
Submitted to the
New Mexico Section
of the
American Society of Agricultural Engineers

February 19, 1998

Introduction

Good afternoon ladies and gentlemen. It is a pleasure to be with you today. Again, I am Garry Rowe, Area Manager of the Bureau of Reclamation's Area Office in Albuquerque. On the screen is a map that shows my area of responsibility for Reclamation's program and in the heart of this, the Rio Grande Project and the Mesilla Valley.

I appreciate the opportunity to appear before the New Mexico Section of the society to describe Reclamation's perspective of the adjudication in the Mesilla Valley. With me today assisting in this presentation is Ms. Gwen Easterday of our office in Albuquerque. Also, I have copies of the written statement of Eluid Martinez, Commissioner of Reclamation, dated November 20, 1997, which provides details concerning the United States' position which I will not, in the interest of time, address in my presentation to you. If anyone would like a copy, please see Gwen before leaving today's seminar.

EBID135223

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The adjudication of the portion of the Rio Grande so integral in Reclamation's operation of the Rio Grande Project led to the lawsuit brought by the United States in the Federal District Court for New Mexico last summer to quiet its title to the water rights for the Rio Grande Project. I hope my comments today will clarify the link between the ongoing adjudication process and the quiet title action in this presentation.

Background of the Case

The United States filed this lawsuit to quiet its title in the water rights for the Rio Grande Project. We believe that the named defendants, which are entities in New Mexico and Texas, by their claims and actions have clouded the title of the United States to the water rights for the Project. We named the New Mexico State Engineer as a defendant because he has general supervision of the waters of the State and must administer water rights in New Mexico to protect the United States' water rights for the Rio Grande Project.

Many people have asked why this action was filed. The United States filed in federal district court because we need, in our opinion, to clear our title in the water rights for the entire Project, not just those portions and uses located in New Mexico. With Project facilities located in two states and astride the international border with Mexico, and with Project water delivered to lands located in two states and to Mexico, we believe that only the federal courts have jurisdiction to accomplish this.

Before addressing the particulars of the United States' claim for water rights for the Project, I would like to provide an overview of the history of the development of the Project and the purposes which it serves. I believe that this will aid in gaining a full appreciation of the United States' position.

Rio Grande Project Facilities

Congress authorized the Rio Grande Project in 1905. This next overhead shows the expanse of the Project and its facilities.

The Rio Grande Project has two storage facilities -- Elephant Butte and Caballo Dams and Reservoirs. These are owned by the United States and operated and maintained by the Bureau of Reclamation, including the power plant at Elephant Butte Dam.

Downstream from the reservoirs are six diversion dams, all owned by the United States. The first three -- Percha, Leasburg, and Mesilla Diversion Dams -- are located in New Mexico. Percha and Leasburg Diversion Dams divert into canals which serve lands in New Mexico, while the Mesilla Diversion Dam serves lands both in New Mexico and Texas.

The other three dams -- the American, International, and Riverside Diversion Dams -- are located in Texas near El Paso on the border between Texas and Mexico. The American and International Dams are operated by the International Boundary and Water Commission. Project water for Mexico is diverted at the International Diversion Dam. The American and Riverside Dams divert water for irrigation and other uses in Texas.

Percha, Leasburg, Mesilla, and Riverside Diversion Dams are now operated by the districts in accordance with contracts with the United States. Title to the canals, laterals, and drains served by the Project's diversion dams, **but only these facilities**, were transferred to Elephant Butte Irrigation District in New Mexico ("EBID") and the El Paso County Water Improvement District No. 1 in Texas ("El Paso County No. 1") in 1996.

The total construction cost of the Project was over \$38 million. Of this, roughly \$8.2 million was for the construction of Elephant Butte Dam and Reservoir. None of the construction costs for Elephant Butte Dam were earmarked for irrigation purposes, even though large scale irrigation is possible only because of the water developed by the reservoir. The costs of Elephant Butte Dam and Reservoir are being repaid to the federal government by power customers, except for the \$1 million that came from the State Department for water delivery to Mexico.

Of the remaining \$29.8 million of the total construction cost of the Project, a little over \$22 million was designated to irrigation purposes. Of this \$22 million, EBID and El Paso County No. 1 were required to pay back \$10.1 million without interest.

Interstate and International Purposes of the Rio Grande Project

The Rio Grande Project serves a number of purposes, many which arose out of historic conflicts over the use of the waters of the Rio Grande. Conflicts between the citizens of New Mexico and Texas date back to the late 1800s. Furthermore, the use of the Rio Grande in the United States had been harmful to the irrigation of lands in Mexico. So the original idea of the Project was to supply water to fulfill the then anticipated treaty obligations to Mexico **AND** to irrigate arid lands both in New Mexico and Texas.

In 1906, a treaty between the United States and Mexico was signed and provides for the equitable distribution of the waters of the Rio Grande for irrigation purposes. In conformity with the treaty, the United States is now obligated to deliver 60,000 acre-feet of water per year to Mexico.

While the Project was intended to resolve conflicts between water users in New Mexico and Texas, an interstate compact to that effect was not

ratified by Congress until 1939. The Rio Grande Compact provides for the equitable apportionment of the waters of the Rio Grande Basin above Fort Quitman, Texas, between the states of Colorado, New Mexico, and Texas.

How did the Compact treat the Texas portion?

The State of New Mexico is obligated to deliver water to the State of Texas following a complex formula set forth in the Compact. Rather than taking delivery of its allocation of the Rio Grande's waters at the New Mexico/Texas state line, the State of Texas takes delivery at Elephant Butte Reservoir in New Mexico. Thus, the Compact, instead of leaving the Texas share of the water open for disposition under the general water statutes of Texas, directs that Rio Grande Project water be used to serve lands both in Texas and New Mexico. The water belonging to Texas is definitely committed to the service of the Rio Grande Project.

Over the years, Congress has authorized the use of water from the Rio Grande Project for other purposes such as power, M&I, and for recreation.

Rio Grande Project Operations

Let me turn now to the operation of the Rio Grande Project. The Rio Grande Project begins at the head of Elephant Butte Reservoir. Rio Grande inflows to Elephant Butte Reservoir are either passed through or stored in the reservoir, depending upon hydrologic and storage conditions and downstream demands for Project water. Water stored in Elephant Butte Reservoir is subsequently released and may then be re-stored or re-regulated or passed through Caballo Reservoir located about 25 miles downstream. In addition to the re-storage in Caballo Reservoir of stored water released from Elephant Butte Reservoir, tributary inflows below Elephant Butte Dam may be stored in Caballo Reservoir.

Releases from Caballo Dam, and tributary inflows to the Rio Grande below Caballo Dam, are in part diverted at the Percha Diversion Dam. Surface run off of Project water returns to the Rio Grande through various drains, while deep percolation of Project water returns to the river through ground water inflows. These return flows and tributary inflows are then available for utilization at the next diversion dam.

This process -- of diverting unregulated river flows, releases of stored water, and project return flows -- is repeated downstream at each successive diversion dam. The result is that water supplied from the Rio Grande Project to users in Texas and New Mexico is so intermingled that it is impossible to differentiate between the sources of the water used to irrigate the lands within the two irrigation districts.

Rio Grande Project water is delivered to El Paso County and EBID in accordance with federal reclamation law and contracts which the districts have with the United States. Under a full Project water supply of 931,841 acre-feet per year, which includes 60,000 acre-feet for Mexico, there is sufficient water to irrigate 155,000 acres in the United States.

Of the water delivered to El Paso County, about 50,000 acre-feet per year is subcontracted by the district to the City of El Paso for use in the city's municipal water supply system. The city obtained this water by taking Project lands in Texas out of production and assuming the responsibility for paying the assessments on those lands.

The United States Holds Title to the Rio Grande Project Water Rights

With this background information in hand, let me turn now to the United States' claim that it holds title to the water rights for the Rio Grande Project. There has never been any question that, In accordance with the Reclamation Act of 1902, the United States was required to either purchase, appropriate, or otherwise obtain sufficient water rights to supply all the authorized acreage in a Reclamation project.

Therefore, in January of 1906 the United States, as required by the 1905 Territorial laws, filed with the New Mexico Territorial Irrigation Engineer notice of its appropriation of waters for the Rio Grande Project, with storage and diversion from the Rio Grande at the location of the future Elephant Butte Reservoir and at dams below in New Mexico and Texas. In April of 1908, in conformity with the 1907 Territorial laws, the United States filed a supplemental notice of its appropriation "of all unappropriated water of the Rio Grande and its tributaries," with the water to be diverted or stored at the same locations as in the 1906 filing.

In short, the United States appropriated the water rights for the Project, gave proper notice of its appropriation in accordance with the Territorial laws, and subsequently filed certain plans required by those laws. Having done so, the United States obtained and holds title to those water rights.

In addition to holding title to the appropriative water rights for the Rio Grande Project, the United States, as has been recognized by the United States' Supreme Court, owns the return flows resulting from deliveries to Reclamation project water users within a Reclamation project. The return flows are essential to the scope and operation of the Project in that the return flows constitute a significant portion of the water supply for Project lands at every point after the first diversion is made at Percha Diversion Dam.

It is clear that the United States:

- ① formed the intent to appropriate the water;
- ② took the first steps to act on that intent with the necessary surveys and plans;
- ③ filed the necessary notices of its appropriation of water rights with the Territorial Engineer;
- ④ determined the amounts of water to be stored and diverted;
- ⑤ identified the purposes of the Project through Congressional authorization, that is, the Secretarial findings in 1905, the 1906 Treaty with Mexico, and subsequent legislation;
- ⑥ determined the place of use;
- ⑦ constructed Elephant Butte and Caballo Dams and Reservoirs and the other Project facilities with due diligence;
- ⑧ and stored and diverted the waters of the Rio Grande.

Finally, the United States exercises these water rights through its ownership, control, and operation of the Project's storage reservoirs and diversion dams. Beneficial use of Project water has been and is made possible only as a result of the federal government's actions.

Title to the Project water rights resides in the United States although the right of beneficial use of Project water rests with the irrigators. This distinction has been recognized by the United States Supreme Court.

Let me make it clear ... we do not seek to federalize the source of the waters which were appropriated through Territorial law at the turn of the century or claim unfettered control of such water. To the contrary, Reclamation can not just take the water from the water user or away from the contracts and sell it off to another. Any change in use would require agreement from the districts and the water users.

The United States' Claims for the Rio Grande Project

The United States claims the right:

(1) to store, in Elephant Butte and Caballo Reservoirs, flows of the Rio Grande arriving at San Marcial and arising below there -- that is, tributary inflows arising above Caballo Dam,

(2) to divert, at the six Project diversion dams, stored water which is released from Elephant Butte and Caballo Reservoirs and unregulated river flows which are passed through the reservoirs without being stored or which arise in the Rio Grande system below the reservoirs, and

(3) to divert and redivert, at the diversion dams below Percha Diversion Dam, all Project return flows.

Storage in and releases from the two reservoirs are, of course, made and accounted for in accordance with the Rio Grande Compact.

In terms of quantities, we claim:

the right to store water in the two reservoirs each year to the original maximum conservation storage capacity of each facility with the right of refill;

and the right to divert the aggregate amount of 931,841 acre-feet per year from all sources (that is, releases of water from storage, tributary inflow, and return flow), as measured at the headgates of the six diversion dams; this including the 60,000 acre-feet for Mexico.

The United States claims water rights characterized in the same manner as any other water right under New Mexico state law would be characterized.

Conclusion

In conclusion, I would reiterate that the Rio Grande Project is an interstate and international project, delivering water developed through the exercise of water rights which were appropriated by the United States, in conformity with New Mexico law, to water users in New Mexico, Texas, and Mexico.

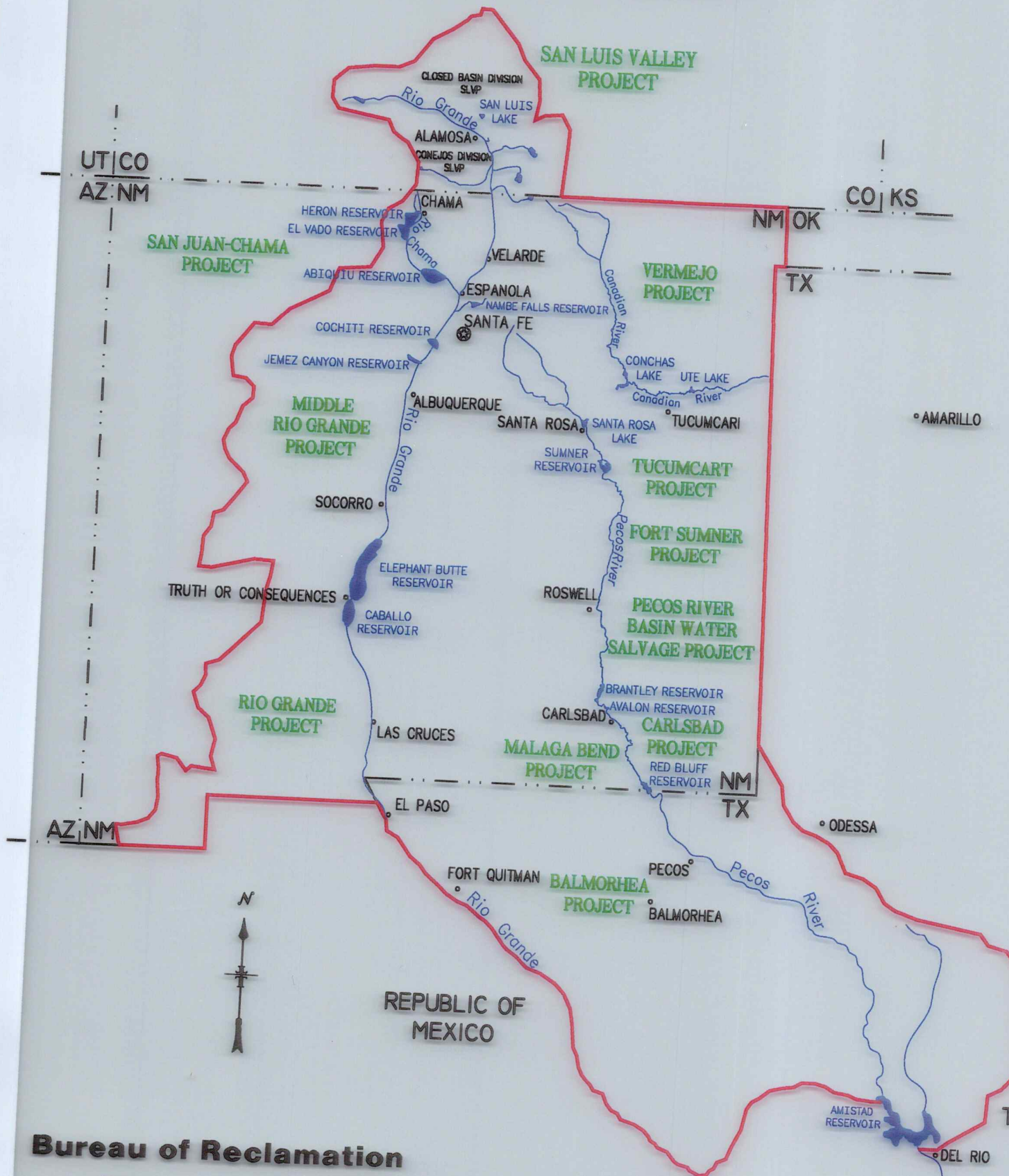
These water rights must continue to be exercised, and the Project operated, in a manner which ensures:

- ▶ the Project's interstate and international functions are met in accordance with the applicable compact, treaty, and laws;
- ▶ the protection of the property rights of the Rio Grande Project for the project beneficiaries and other American taxpayers;
- ▶ our ability to operate the project so as to continue to meet our contractual obligations to EBID and El Paso County No. 1;
- ▶ that necessary and desirable changes in the use of Project water from irrigation to M&I are achievable while the rights of the Districts and water users to be involved through agreements for such changes are also protected;
- ▶ the landowners entitled to Project water for irrigation and to whose land the Project water is appurtenant derive some financial compensation when they forego the use of Project water;
- ▶ and that decisions as to transfers of Project water from irrigation to M&I uses protect the interests of other irrigators who desire to continue farming.

We believe that the state has the same interests here as it would in any judicial determination of competing claims to the waters of a given river system -- that is, a determination of rights which enables the state to know with certainty who has the right to what so that the state can properly administer its own water rights system. Until the issue of title to appropriated water rights is resolved, and the water rights quantified, it will be nearly impossible for the state to administer, under its laws, competing claims to the waters of the Rio Grande. We desire only to confirm our title to the water rights for the entire Project so that we will know our place in the state's priority system -- and can call upon the State Engineer to administer our water rights accordingly.

Again, thank you for this opportunity to speak to you.

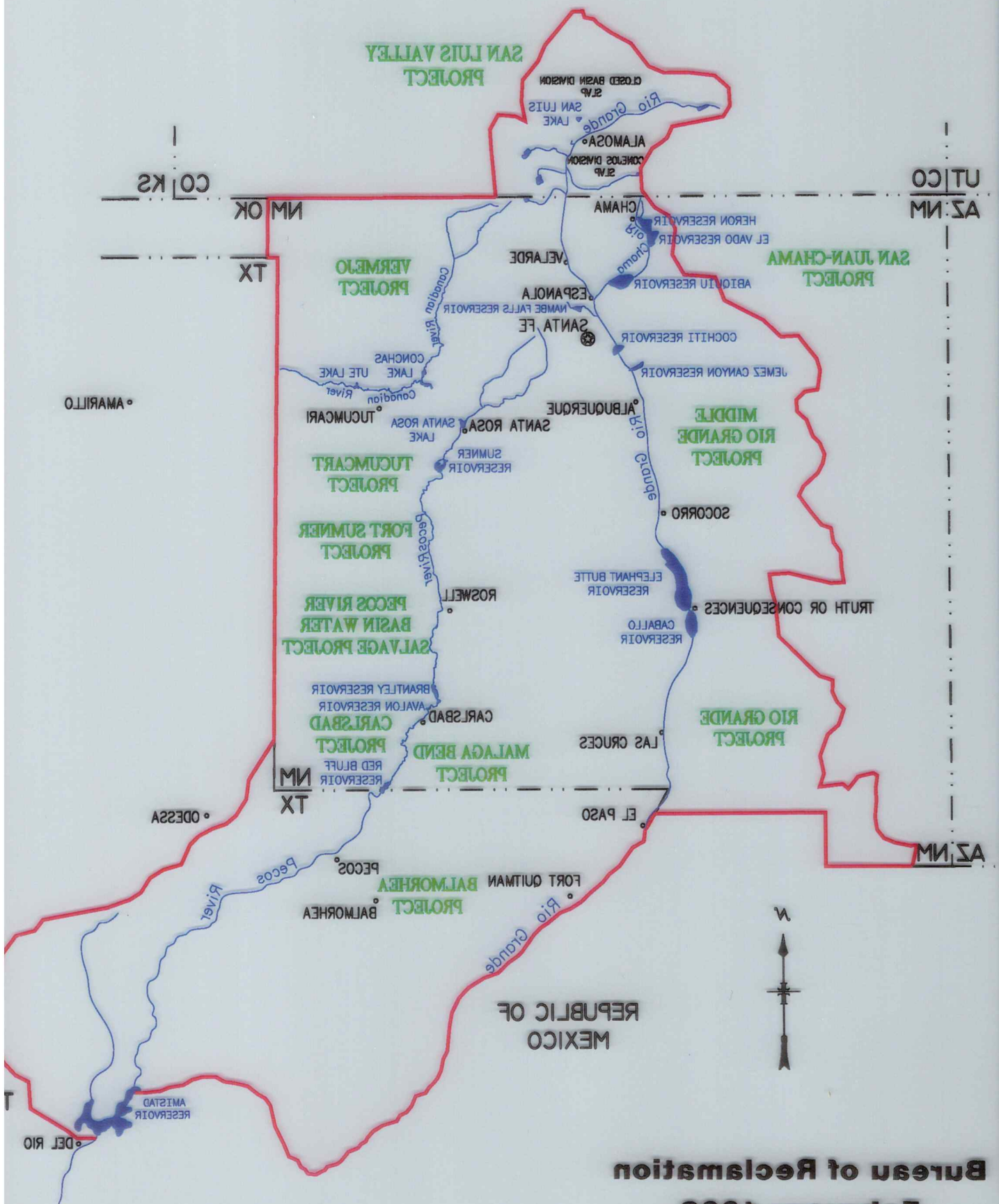
ALBUQUERQUE AREA OFFICE
BUREAU OF RECLAMATION



Bureau of Reclamation
February 1998

EBID135241

ALBUQUERQUE AREA OFFICE
BUREAU OF RECLAMATION



Bureau of Reclamation

February 1998

EBID135242

Why was this action filed?

The United States filed this suit in Federal District Court because we need, in our opinion, to clear our title in the water rights for the **entire Project**, not just those portions and uses located in New Mexico.

With Project facilities located in two states and astride the international border with Mexico, and with Project water delivered to lands located in two states and to Mexico, **we believe that only the federal courts have jurisdiction to clear our title.**

Bureau of Reclamation

February 1998

EBID135243

Why was this action filed?

The United States filed this suit in Federal District Court because we need, in our opinion, to clear our title in the water rights for the **entire Project**, not just those portions and uses located in New Mexico.

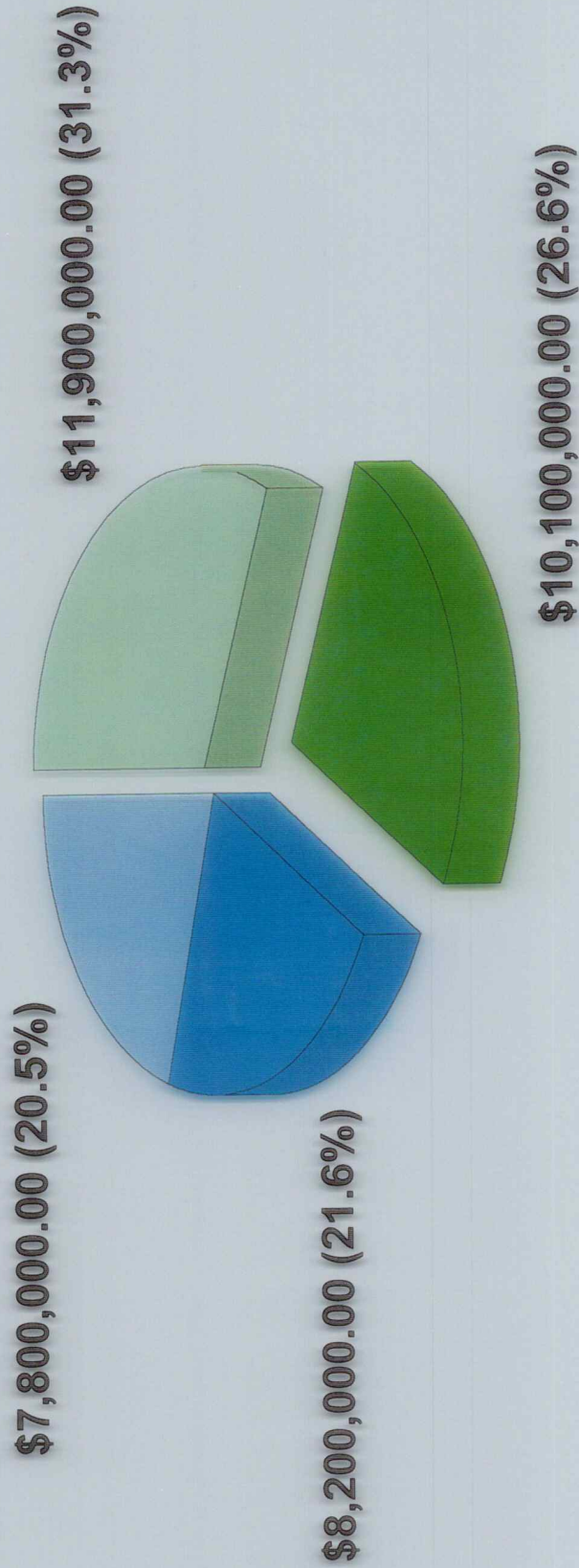
With Project facilities located in two states and astride the international border with Mexico, and with Project water delivered to lands located in two states and to Mexico, **we believe that only the federal courts have jurisdiction to clear our title.**

Bureau of Reclamation
February 1998

EBID135244

IRRIGATION DISTRICTS' CONTRIBUTION TO \$38,000,000 RIO GRANDE PROJECT TOTAL CONSTRUCTION COSTS

**Bureau of Reclamation
February 1998**



EBID135245

■ Irrigation costs NOT paid by the districts

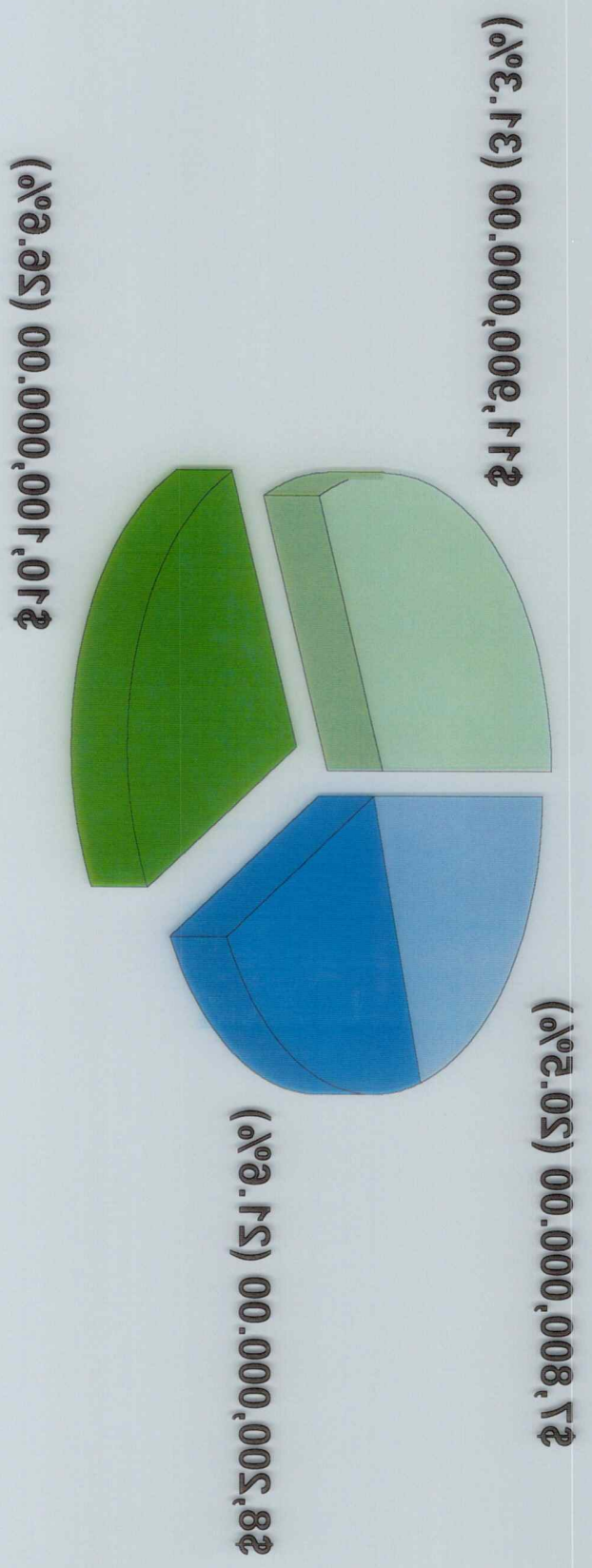
■ Irrigation cost PAID by the districts

■ Irrigation costs NOT paid by the districts

■ Other District facilities costs NOT paid by the district

ИОИТУВІЯТНОС'СТІЯТІД ІОИТАДІЯІ СТСОС ІОИТУСТНОС ІАТОТ ТСОЛОРА ЕДИАНДО ОІЯ 000,000,83\$ ОТ

Bureau of Reclamation
 February 1998



Construction cost PIAQ
 Construction cost TON
 Other Project facilities cost
 Elephant Butte Dam costs

The Rio Grande Project serves a number of purposes, many which arose out of historic conflicts over the use of the waters of the Rio Grande.

Conflicts between the citizens of New Mexico and Texas date back to the late 1800s.

Furthermore, the use of the Rio Grande in the United States had been harmful to the irrigation of lands in Mexico. So the original idea of the Project was to supply water to fulfill the then anticipated treaty obligations to Mexico **AND** to irrigate arid lands both in New Mexico and Texas.

both in New Mexico and Texas.

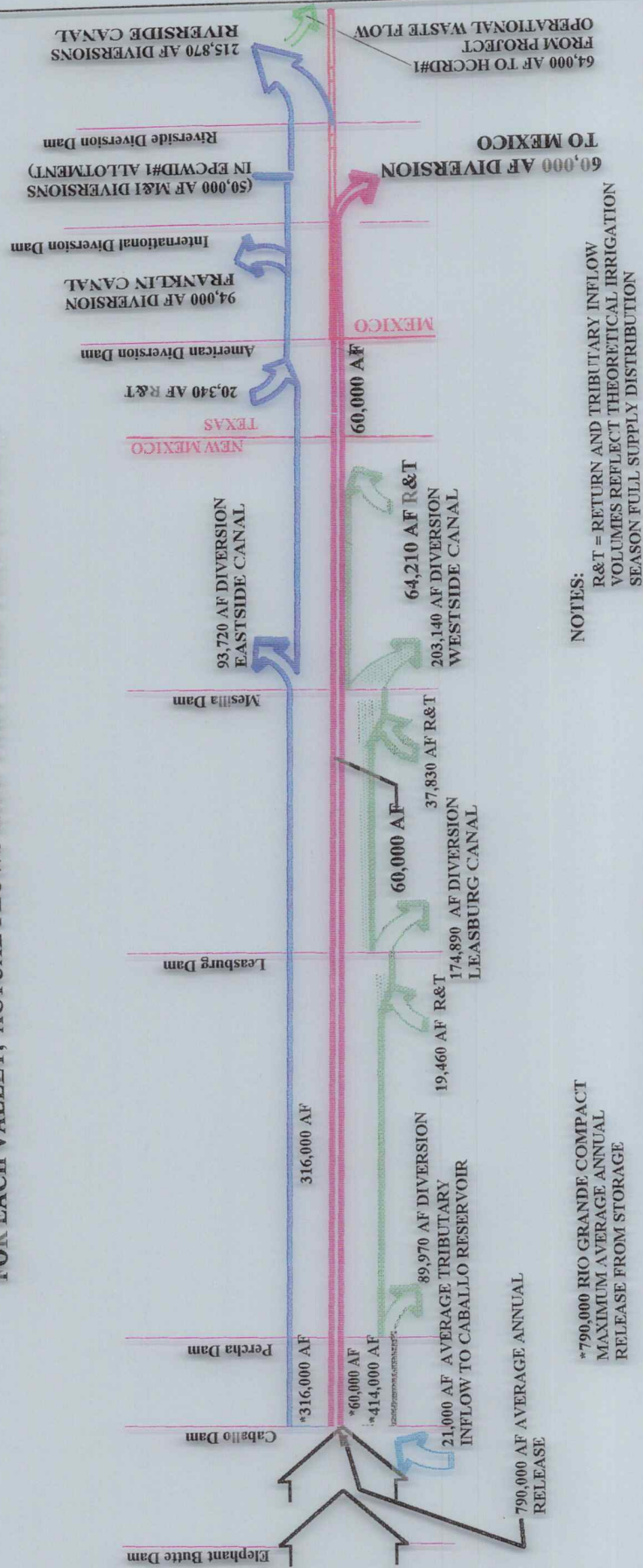
to Mexico **AND** to irrigate arid lands the then anticipated treaty obligations Project was to supply water to fulfill in Mexico. So the original idea of the been harmful to the irrigation of lands Rio Grande in the United States had Furthermore, the use of the

the late 1800s.
New Mexico and Texas date back to
Conflicts between the citizens of

use of the waters of the Rio Grande.
arose out of historic conflicts over the
number of purposes, many which
The Rio Grande Project serves a

Bureau of Reclamation February 1998

Flow Distribution of Rio Grande Project Water (DISTRIBUTION AND RETURN FLOWS ARE BASED UPON ACREAGES FOR EACH VALLEY, ACTUAL FLOWS WILL VARY FROM YEAR TO YEAR)

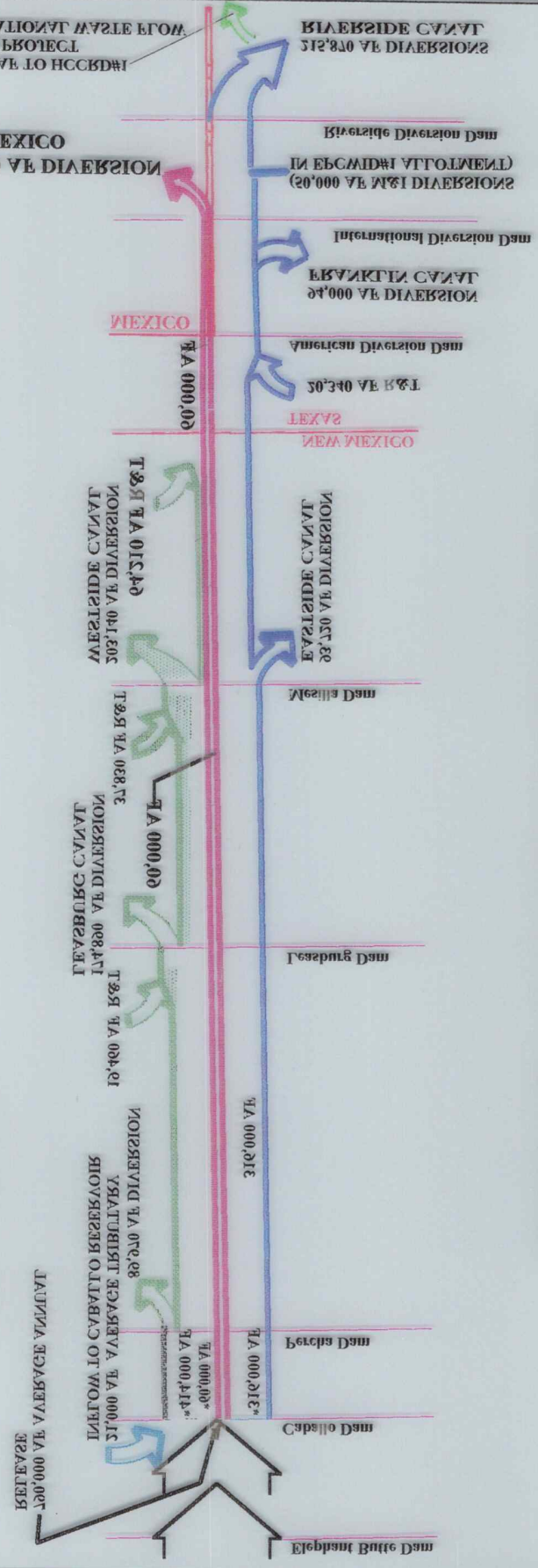


*790,000 RIO GRANDE COMPACT
MAXIMUM AVERAGE ANNUAL
RELEASE FROM STORAGE

EBID135249

- Hardy County, Conservation and
- Reclamation of Mexico
- Elephant Butte Irrigation District
- District No. 1
- El Paso County, Water Improvement

REFUGE FROM STORAGE
MAXIMUM VALUE OF WATER
*100,000 CFS OF STORAGE



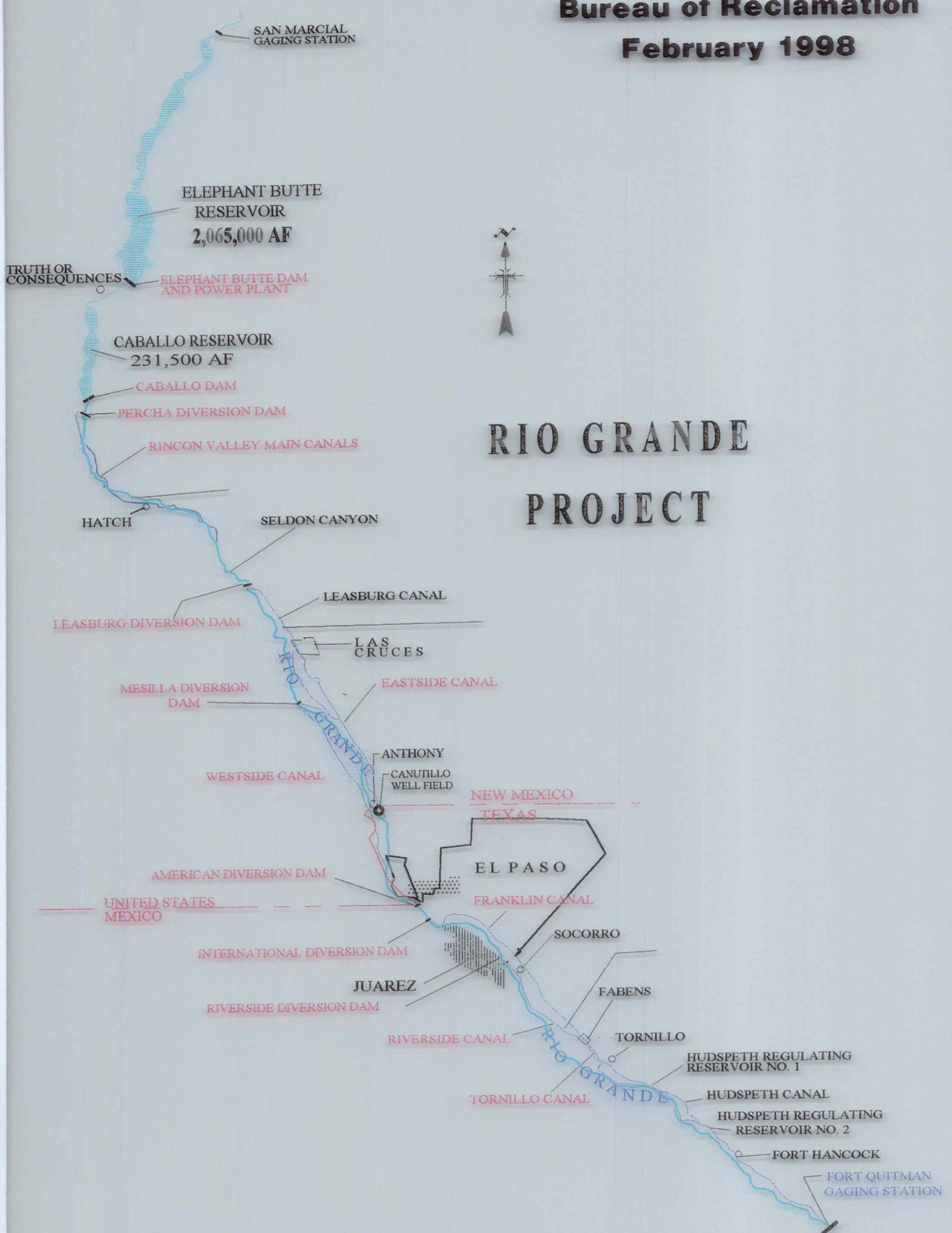
FOR EACH VALLEY, ACTUAL FLOWS WILL VARY FROM YEAR TO YEAR
(DISTRIBUTION AND RETURN FLOWS ARE BASED UPON AVERAGE)

Flow Distribution of Rio Grande Project Water

February 1988
Bureau of Reclamation

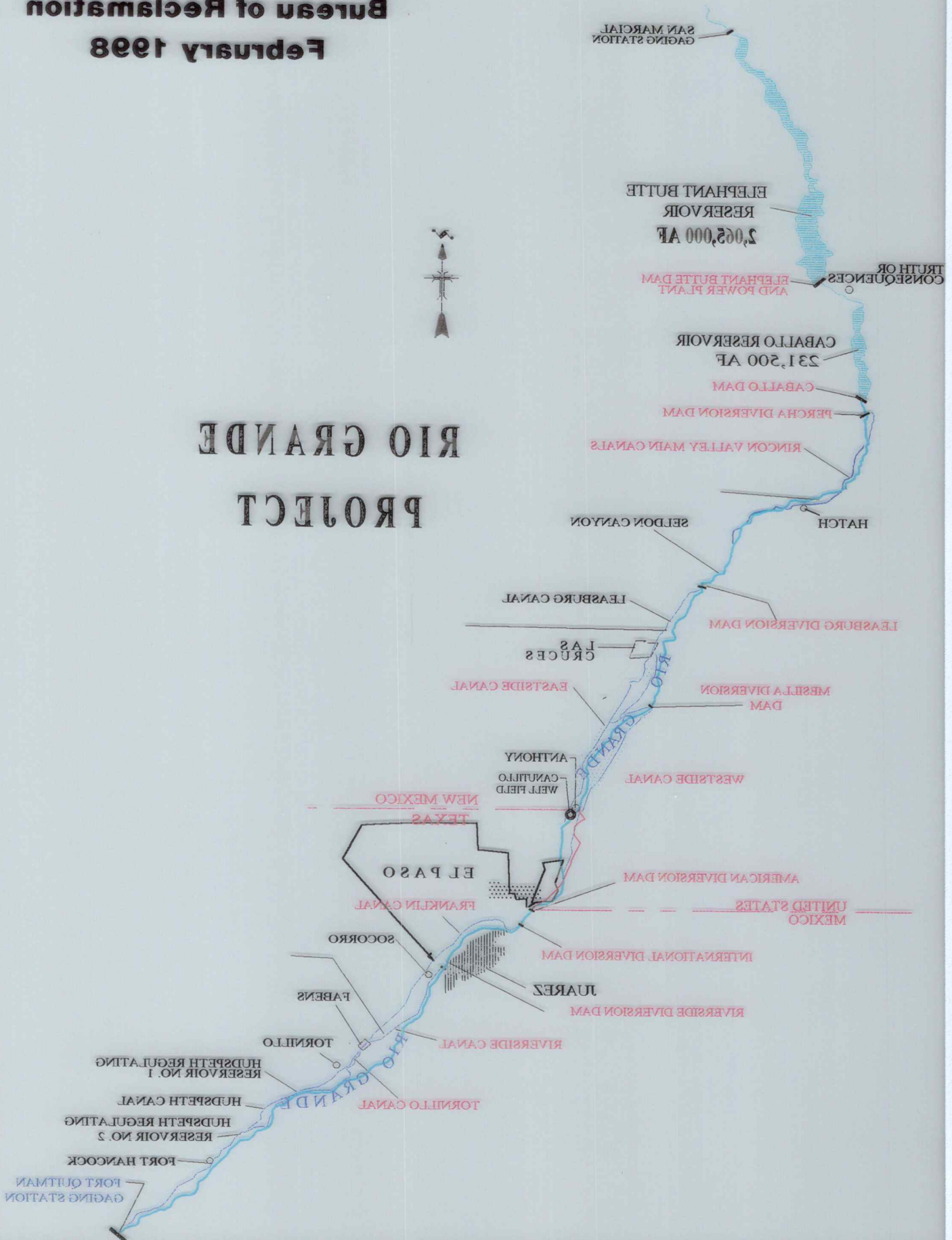
EBID135250

Bureau of Reclamation
February 1998



EBID135251

RIO GRANDE PROJECT



EBID135252

The United States claims the right:

- (1) to store in Elephant Butte and Caballo Reservoirs flows of the Rio Grande arriving at San Marcial and arising below there -- that is, tributary inflows arising above Caballo Dam,**
- (2) to divert at the six Project diversion dams stored water which is released from Elephant Butte and Caballo Reservoirs and unregulated river flows which are passed through the reservoirs without being stored or which arise in the Rio Grande system below the reservoirs, and**
- (3) to divert and redivert, at the diversion dams below Percha Diversion Dam, all Project return flows.**

Bureau of Reclamation

February 1998 EBID135253

The United States claims the right:

- (1) to store in Elephant Butte and Caballo Reservoirs flows of the Rio Grande arriving at San Marcial and arising below there -- that is, tributary inflows arising above Caballo Dam,
- (2) to divert at the six Project diversion dams stored water which is released from Elephant Butte and Caballo Reservoirs and unregulated river flows which are passed through the reservoirs without being stored or which arise in the Rio Grande system below the reservoirs, and
- (3) to divert and redivert, at the diversion dams below Percha Diversion Dam, all Project return flows.

Bureau of Reclamation
February 1998

EBID135254

Conclusions

These water rights must continue to be exercised, and the Project operated, in a manner which ensures:

- ▶ the Project's interstate and international functions are met in accordance with the applicable compact, treaty, and laws;
- ▶ the protection of the property rights of the Rio Grande Project for the project beneficiaries and other American taxpayers;
- ▶ our ability to operate the project so as to continue to meet our contractual obligations to EBID and El Paso County No. 1;
- ▶ that necessary and desirable changes in the use of Project water from irrigation to M&I are achievable while the rights of the Districts and water users to be involved through agreements for such changes are also protected;
- ▶ the landowners entitled to Project water for irrigation and to whose land the Project water is appurtenant derive some financial compensation when they forego the use of Project water;
- ▶ and that decisions as to transfers of Project water from irrigation to M&I uses protect the interests of other irrigators who desire to continue farming.

Bureau of Reclamation
EBID135255
February 1998

Conclusions

These water rights must continue to be exercised, and the Project operated, in a manner which ensures:

- ▶ the Project's interstate and international functions are met in accordance with the applicable compact, treaty, and laws;
- ▶ the protection of the property rights of the Rio Grande Project for the project beneficiaries and other American taxpayers;
- ▶ our ability to operate the project so as to continue to meet our contractual obligations to EBID and El Paso County No. 1;
- ▶ that necessary and desirable changes in the use of Project water from irrigation to M&I are achievable while the rights of the Districts and water users to be involved through agreements for such changes are also protected;
- ▶ the landowners entitled to Project water for irrigation and to whose land the Project water is apportioned derive some financial compensation when they forego the use of Project water;
- ▶ and that decisions as to transfers of Project water from irrigation to M&I uses protect the interests of other irrigators who desire to continue farming.

Conclusions

We believe that the state has the same interests here as it would in any judicial determination of competing claims to the waters of a given river system --

that is, a determination of rights which enables the state to know with certainty who has the right to what so that the state can properly administer its own water rights system.

Bureau of Reclamation

February 1998

EBID135257

Conclusions

We believe that the state has the same interests here as it would in any judicial determination of competing claims to the waters of a given river system --

that is, a determination of rights which enables the state to know with certainty who has the right to what so that the state can properly administer its own water rights system.

Conclusions

The Rio Grande Project is an *interstate* and *international* project, delivering water developed through the exercise of water rights which were appropriated by the United States in accordance with New Mexico law to users in Texas, New Mexico, and Mexico.

Bureau of Reclamation

February 1998

EBID135259

Conclusions

The Rio Grande Project is an interstate and international project, delivering water developed through the exercise of water rights which were appropriated by the United States in accordance with New Mexico law to users in Texas, New Mexico, and Mexico.

Bureau of Reclamation
February 1998

EBID135260

2-270-12 F

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May 28, 2003

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Boulder, Colorado 80306-1440

Re: Bureau of Reclamation's Rio Grande Project Water Supply and
Allocation Process

Gentlemen:

I was cleaning up my office and came across the enclosed letter. I thought you would
like to have a copy for your files.

Yours very truly,



William A. Paddock

Enclosure

WAP:jdf-6252 (002)

CO - 00

EXHIBIT
FC-040



United States Department of the Interior

BUREAU OF RECLAMATION
EL PASO FIELD DIVISION
700 E. SAN ANTONIO AVENUE, SUITE 710
EL PASO, TEXAS 79901-7020

RECEIVED
SEP 16 2002
CARLSON, HAMMOND & PADDOCK, L.L.C.

IN REPLY REFER TO

EP-431

WTR-4.10

SEP 11 2002

Mr. William A. Paddock
Attorney at Law
1700 Lincoln St., Suite 3900
Denver, CO 80203-4539

SUBJECT: Bureau of Reclamation's Rio Grande Project Water Supply and Allocation Process (Your Letter dated February 14, 2002)

Dear Mr. Paddock:

Thank you for your letter dated February 14, 2002 concerning questions about the Bureau of Reclamation's (Reclamation's) Rio Grande Project water supply and allocation process. We apologize for the tardiness of this response to your letter.

We would like to take this opportunity to elaborate upon the reference in your letter to a "normal release from Project storage." The Rio Grande Compact does not formally define a normal release from Project storage, as evidenced by definitions contained in Article I. However, there is a minor reference to 790,000 acre-feet (AF) being released from Project storage in the same proportion to actual releases to determine the time of a hypothetical spill from Project storage. Article VII mentions actual releases aggregating more than an average of 790,000 AF since the last spill from Project storage for which an adjustment to the minimum stage of Project storage occurs in determining when the 400,000 AF of usable water in Project storage is reached. Article VIII mentions a normal release of 790,000 AF may be made from Project storage when the Commissioner for Texas calls for release of post-1929 upstream reservoirs storage up to the amount of accrued debits by New Mexico, and likewise the Commissioner of New Mexico calls for release of post-1929 upstream reservoirs storage up to the amount of accrued debits by Colorado.

Finally, contained within the Rio Grande Compact accounting procedures is a worksheet entitled "Release and Spill from Project Storage." At the lower right hand side of the sheet is a calculation entitled "Accrued Departure from Normal Release," of which Item P3 is entitled "Normal Release for Year" and begins the accounting procedure with a credit of 790,000 AF. The final calculation is the accrued departure from a normal

A Century of Water for the West
1902 - 2002



CO - 001429

yearly release from Project storage of 790,000 AF since the last spill from Project storage. Reclamation interprets this accrued departure from normal release as a measure of how the Rio Grande Project is complying with its obligation to meet yearly demand from the water users of the Rio Grande Project and at the same time comply with the Rio Grande Compact intent to recognize a yearly average of 790,000 AF release from Project storage to satisfy water users within the "Texas portion" of the Compact.

In mathematical principles, normal and average simply are defined as the sum of a number of items divided by the number of items. Reclamation applies the same mathematical principle to the "average or normal" 790,000 AF release from Project storage. In some years, irrigation demand (due to dry conditions, less precipitation, and greater crop demand) will dictate a release from Project storage greater than 790,000 AF. Other years, irrigation demand will dictate a release from Project storage less than 790,000 AF. However, by summing those yearly releases from Project storage, since the last Rio Grande Compact spill, and dividing by the number of years since the last spill, we can arrive at the average yearly release from Project storage. If you subtract that average yearly release from the normal yearly release of 790,000 AF, you will determine the accrued departure from a normal release. A negative number simply means that it is a debit (the average release since the last spill is greater than 790,000 AF). Conversely, a positive number is a credit (the average release since the last spill is less than 790,000 AF). Reclamation believes as long as the accrued departure from a normal release from Project storage since the last spill is at zero or an accrued departure credit, then it is meeting the obligations and intents of both the Rio Grande Compact and the Rio Grande Project. A good example of this is the action that Reclamation took to reduce the accrued departure from a normal release in early 1999, when it became apparent that the three years following the spill of 1995 resulted in an accrued departure from a normal release of 15,400 AF debit. Since the end of 1998, we now have an accrued departure from a normal release of 77,900 AF credit (per the final accounting of the Rio Grande Compact Commission for the year ending 2001).

To further support our interpretation of an average yearly release of 790,000 AF from Project storage and compliance under the Rio Grande Compact and Rio Grande Project, we quote from Mr. Raymond Hill's testimony and report entitled "Development of the Rio Grande Compact of 1938," dated October 8, 1968. Concerning the negotiation and discussion between the States of Colorado, New Mexico, and Texas to determine the average yearly release from Rio Grande Compact Project storage, Mr. Hill stated: "It is apparent from the foregoing that the Rio Grande Compact Commissioners, at the time of executing the Rio Grande Compact of 1938, anticipated that compliance by Colorado with the schedules of deliveries set forth in Article III of that Compact and compliance by New Mexico with the schedules set forth in Article IV would result in enough water entering Elephant Butte Reservoir to sustain an average normal release of 790,000 AF per year from Project storage for use on lands in New Mexico downstream of Elephant Butte Reservoir and on lands in Texas and also to comply with the obligations of the Treaty of 1906 for deliveries of water to Mexico. It is also clear that the restrictive provisions quoted above were designed to protect Colorado and New

Mexico from the adverse effects of releases from Project storage at any greater average annual rate.”

Concerning your questions about Reclamation's Rio Grande Project allocation process and water supply, we offer the following response. Reclamation's allocation procedure for the water supply of the Rio Grande Project determines yearly allotments to the Rio Grande Project water users canal headings on the Rio Grande (which are downstream of Caballo Dam), rather than the Caballo Dam yearly release. The water users of the Rio Grande Project are: Elephant Butte Irrigation District (EBID) in southern New Mexico; El Paso County Water Improvement District No. 1 (EP#1) in far west Texas; and Mexico (through the U. S. International Boundary & Water Commission (IBWC)). These allotments, at the water users canal headings, not only include releases from Rio Grande Project storage, but also include any rainfall runoff from tributaries to the Rio Grande (downstream of Caballo Dam), return flows from agricultural drains of the Rio Grande Project irrigated lands, and any operational wastes and spills from the Rio Grande Project irrigation distribution systems.

These annual allotments are determined based on the historical relationship of deliveries of the Rio Grande Project water supply to the U. S. irrigation districts (EBID and EP#1) canal headings & authorized U. S. irrigated lands versus deliveries to Mexico's canal heading near El Paso, TX. Beginning December 1st of each year, Reclamation begins the allocation process of the Rio Grande Project water supply for the upcoming irrigation season. Reclamation's initial allocation during December of the Rio Grande Project water supply includes existing Rio Grande Project reservoirs storage (excluding Rio Grande Compact credit waters, non-Project storage such as San Juan-Chama water, and reservoir evaporation/losses for the Rio Grande Project reservoirs for an irrigation season), and a calculation using regression equations (which utilize historical data from 1951-1978, and include rainfall runoff, return flows, and operational spills of the Rio Grande Project irrigation distribution system) to determine Mexico's allotment and the U. S. irrigation districts allotments for an entire irrigation season at their respective canal headings. Please see a copy of the enclosed document, which summarizes Reclamation's allocation procedure for the Rio Grande Project for more details.

Therefore, the figures mentioned in our letter dated January 18, 2002 to the U. S. Army Corps of Engineers (concerning Reclamation's Rio Grande Project monthly reservoirs plan) refer to our initial (first) allocation of the Rio Grande Project water supply for the 2002 irrigation season which was transmitted to both U. S. irrigation districts and to Mexico (through the IBWC) on December 17, 2001. The initial allocation for the 2002 irrigation season is summarized as follows.

CO - 001431

RIO GRANDE PROJECT WATER SUPPLY
INITIAL ALLOCATION FOR THE 2002 IRRIGATION SEASON

Elephant Butte Irrigation District (EBID)	392,715 acre-feet (AF)
El Paso County Water Improvement District No. 1	299,002 AF
<u>Mexico</u>	<u>46,422 AF</u>
Total Water Supply Allocation	738,139 AF

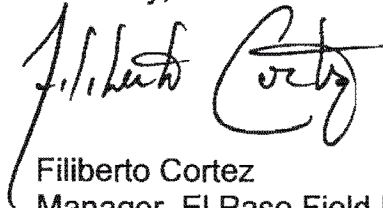
(20.79% reduction in full supply) *

* a full supply for an irrigation season for the Rio Grande Project water users is: EBID – 494,979 AF; EP#1 – 376,862 AF; and Mexico – 60,000 AF. The total full supply allocation for the Rio Grande Project is 931,841 AF. To determine the reduction in a full supply, calculate $1 - (\text{present allocation} / \text{full supply allocation})$.

The final allocation was issued (which was full supply allotments to each water user) on April 8, 2002 based on gains in storage of both reservoirs between Dec. 1, 2001 and Mar. 31, 2002. Again, the Rio Grande Project allocation process allots a yearly water supply to each of the water users at their respective canal headings, not just releases from Caballo Dam.

If you have any other questions, please contact me at (915) 534-6301.

Sincerely,



Filiberto Cortez
Manager, El Paso Field Division

Enclosure

CO - 001432

IN THE SUPREME COURT OF THE UNITED STATES
BEFORE THE OFFICE OF THE SPECIAL MASTER
HON. MICHAEL J. MELLO

STATE OF TEXAS)	
)	
Plaintiff,)	
	)	Original Action Case
VS.	)	No. 220141
	)	(Original 141)
STATE OF NEW MEXICO,)	
and STATE OF COLORADO,)	
)	
Defendants.)	

REMOTE ORAL AND VIDEOTAPED DEPOSITION OF
GARY ESSLINGER
AUGUST 17, 2020
VOLUME 1

REMOTE ORAL AND VIDEOTAPED DEPOSITION of GARY ESSLINGER, produced as a witness at the instance of the Defendant State of New Mexico, and duly sworn, was taken in the above-styled and numbered cause on August 17, 2020, from 9:06 a.m. to 4:34 p.m., before Heather L. Garza, CSR, RPR, in and for the State of Texas, recorded by machine shorthand, at the offices of HEATHER L. GARZA, CSR, RPR, The Woodlands, Texas, pursuant to the Federal Rules of Civil Procedure and the provisions stated on the record or attached hereto; that the deposition shall be read and signed.

1 and farmers were required to put meters on their wells
2 and then as a regulatory agency, the water master was
3 then given the authority to check on those wells that
4 were metered and get their -- their gallons pumped and
5 send that to the -- collect that data and then send it
6 to the state engineer so that there would be a
7 determination of the water pumped out of the lower Rio
8 Grande.

9 **Q. Do you have an understanding of what the**
10 **district office for the state engineer does in Las**
11 **Cruces?**

12 A. Yes, I do.

13 **Q. What's your understanding?**

14 A. Well, again, in -- in my experience working
15 with the state engineer's district office, it's --
16 it's always been cordial. It's always been very
17 interactive, trying to work with the state engineer's,
18 the data that they collect, as well as help them
19 determine where parcels of land have irrigation wells
20 and vice versa. We try to work -- try to find out
21 from the state engineer where their -- their pumping
22 meter notes are coming from. EBID has followed suit
23 in that 19 -- I'm just going to say the metering
24 order. I can't remember the date of the metering
25 order, but we installed at that time many of the --

1 the -- the meters through regular telemetry, realtime
2 data entry that goes directly into our offices, and
3 that's the same report that is sent from those meters
4 that we report to the state engineer on a quarterly
5 basis. So, again, our -- at a staff level, our --
6 our -- our interaction with the state engineer happens
7 daily in some cases with our water records department
8 and our land records department, as land is moved and
9 sold and groundwater rights are -- are moved and
10 surface rights are transferred, then, yeah, we do a --
11 a lot of -- of interaction with the state engineer's
12 district office here in Las Cruces.

13 **Q. Do you know if that district office has any**
14 **responsibilities related to surface water?**

15 A. Again, I've only recently asked Ryan Serrano
16 if he could tell me what the issue that related to an
17 illegal diversion of surface water on a community
18 ditch, and like I said, we have -- we have resolved
19 that without his enforcement powers, which I was --
20 which I was depending upon, and if there were some
21 times before, they were intermittent. They weren't
22 what I would call routine.

23 **Q. What does that mean?**

24 A. Intermittent or routine on any kind of a
25 surface water issue.

1 Q. We were -- we started this discussion talking
2 about the EBID's position in the lawsuit. Is EBID
3 supporting one of the parties in this case?

4 A. EBID is basically representing itself. We're
5 sort of an island. We're in geographic New Mexico.
6 We're in Compact Texas. We don't answer to the -- to
7 the Compact commissioner from Texas and who's
8 appointed. That comes from the governor of Texas. We
9 have no say-so. We don't have any say-so in who is
10 the Compact commissioner from New Mexico, and so
11 we're -- we're at the mercy of -- of making sure that
12 New Mexico delivers the water to Texas or -- or to
13 Elephant Butte reservoir, and we try our best to work
14 with the commissioner of Texas to ensure that EBID
15 gets their fair share of the water, EP No. 1 gets
16 their fair share, and Mexico gets their fair share.

17 Q. Well, you say you have no say in who the
18 Compact commissioner for the State of New Mexico is,
19 but that person is the New Mexico state engineer; is
20 that correct?

21 A. That's correct. But he's appointed.

22 Q. Appointed by the governor; is that right?

23 A. That's right.

24 Q. The governor is elected by the people of the
25 State of New Mexico; is that right?

1 A. That's correct.

2 Q. I am assuming that many of EBID's members are
3 residents of the State of New Mexico?

4 A. That's correct.

5 Q. And they have the right to vote in governor
6 elections?

7 A. That's correct.

8 Q. Do you personally ever interact with the
9 governor or any of the governor's staff?

10 A. Over the years of my experience, yes, I've --
11 I've had meetings with the governor, whoever the
12 governor was at the time. I mentioned Bill Richardson
13 before. I remember discussions with Gary Johnson. In
14 recent times, I have not had any discussions with our
15 current governor, Michelle Grisham Lujan. Perhaps
16 some interface with governor Martinez, and that's --
17 that's all I can remember.

18 Q. You mentioned you're on the Mesilla Valley
19 Economic Development Board. If agriculture is
20 impacted by the outcome of this case, will it have an
21 impact on the economy in southern New Mexico?

22 A. Yes, it will. It will have a drastic effect
23 on the economy.

24 Q. We're going to come back in a little bit to
25 the positions of the parties in the case. I want to

IN THE SUPREME COURT OF THE UNITED STATES
BEFORE THE OFFICE OF THE SPECIAL MASTER
HON. MICHAEL J. MELLO

STATE OF TEXAS)	
)	
Plaintiff,)	
	)	Original Action Case
VS.	)	No. 220141
	)	(Original 141)
STATE OF NEW MEXICO,)	
and STATE OF COLORADO,)	
)	
Defendants.)	

REMOTE ORAL AND VIDEOTAPED DEPOSITION OF
DR. J. PHILLIP KING
MAY 18, 2020
VOLUME 1

REMOTE ORAL AND VIDEOTAPED DEPOSITION of DR. J. PHILLIP KING, produced as a witness at the instance of the Defendant State of New Mexico, and duly sworn, was taken in the above-styled and numbered cause on May 18, 2020, from 10:07 a.m. Central to 3:01 p.m. Central, before Heather L. Garza, CSR, RPR, in and for the State of Texas, recorded by machine shorthand, remotely at the offices of HEATHER L. GARZA, CSR, RPR, The Woodlands, Texas, pursuant to the Federal Rules of Civil Procedure and the provisions stated on the record or attached hereto; that the deposition shall be read and signed.

1 the expert opinions and disclosures that relate to you
2 in this case, I want to talk about a few more
3 background principles, and to do that, I'm going to
4 ask you to look at another document, which I'm showing
5 you now.

6 (Exhibit No. 5 was marked.)

7 Q. (BY MR. WECHSLER) Can you see that, Exhibit
8 5? Are you on mute, Dr. King?

9 A. I was.

10 Q. Okay. Do you recognize Exhibit 5?

11 A. Yes.

12 Q. What is it?

13 A. It's a report that I did some years back for
14 the World Wildlife Fund on the potential for water
15 conservation as a means to make available water for
16 environmental habitat establishment.

17 Q. It looks like the date on the front of the
18 cover page is June, 2003. Is that accurate?

19 A. Yes.

20 Q. Do you consider what was written by you in
21 this report to be accurate, at least at the time?

22 A. I have not learned that anything I said in
23 there was incorrect since.

24 Q. Fair enough. Let's turn to the executive
25 summary, which is on Page 7. The pages lag behind the

1 PDF, so it's Page 8 of the overall document. At the
2 bottom, it indicates Page 7, and at the top, it
3 says, "Executive Summary."

4 A. Okay.

5 Q. In the paragraph that starts, "The primary
6 source," midway down is a sentence that reads, "The
7 Compact places the Rio Grande project, including EBID,
8 which is entirely located in New Mexico, under the
9 administrative authority of the Texas Compact
10 Commissioner." Do you see that?

11 A. Yes.

12 Q. What did you mean by that?

13 A. It's been a while, but I believe I meant that
14 this being downstream of New Mexico's delivery point
15 was the area at the time of the Compact that was
16 termed Texas.

17 Q. Have you -- you recognize that EBID is a New
18 Mexico entity, right?

19 A. Yes.

20 Q. Do you think that the Texas commissioner has
21 any authority over EBID?

22 A. Some. For example, in the case we -- in the
23 example we discussed before with the relinquishment of
24 credit waters, we make recommendations to the
25 commissioner, but it's my understanding is that

1 ultimately it's his call. I think with
2 administrative, I may have also meant -- I may have
3 meant -- well, I -- I would leave it there, that
4 basically since we're below the delivery point,
5 administrative is perhaps not the best word but...

6 Q. In other documents that you have authored,
7 you talk about their setting of delivery requirement
8 at the state line. For example, I think you talked --
9 described the operating agreement in those terms. Do
10 you recall that?

11 A. About who setting of a delivery assignment at
12 the state line?

13 Q. About the operating agreement basically
14 creating a delivery requirement at the state line?

15 A. I don't think so.

16 Q. Okay. Well, we can look at those documents,
17 probably not until tomorrow. Have you reviewed the
18 recent decisions of the Court or the Special Master?

19 A. Not in great detail. I have gone through
20 them quickly and reviewed a summary by counsel.

21 Q. The -- in the next paragraph on that same
22 page, Page 7, you indicate that the project was
23 operated as a single irrigation system. Do you see
24 that?

25 A. Yes.



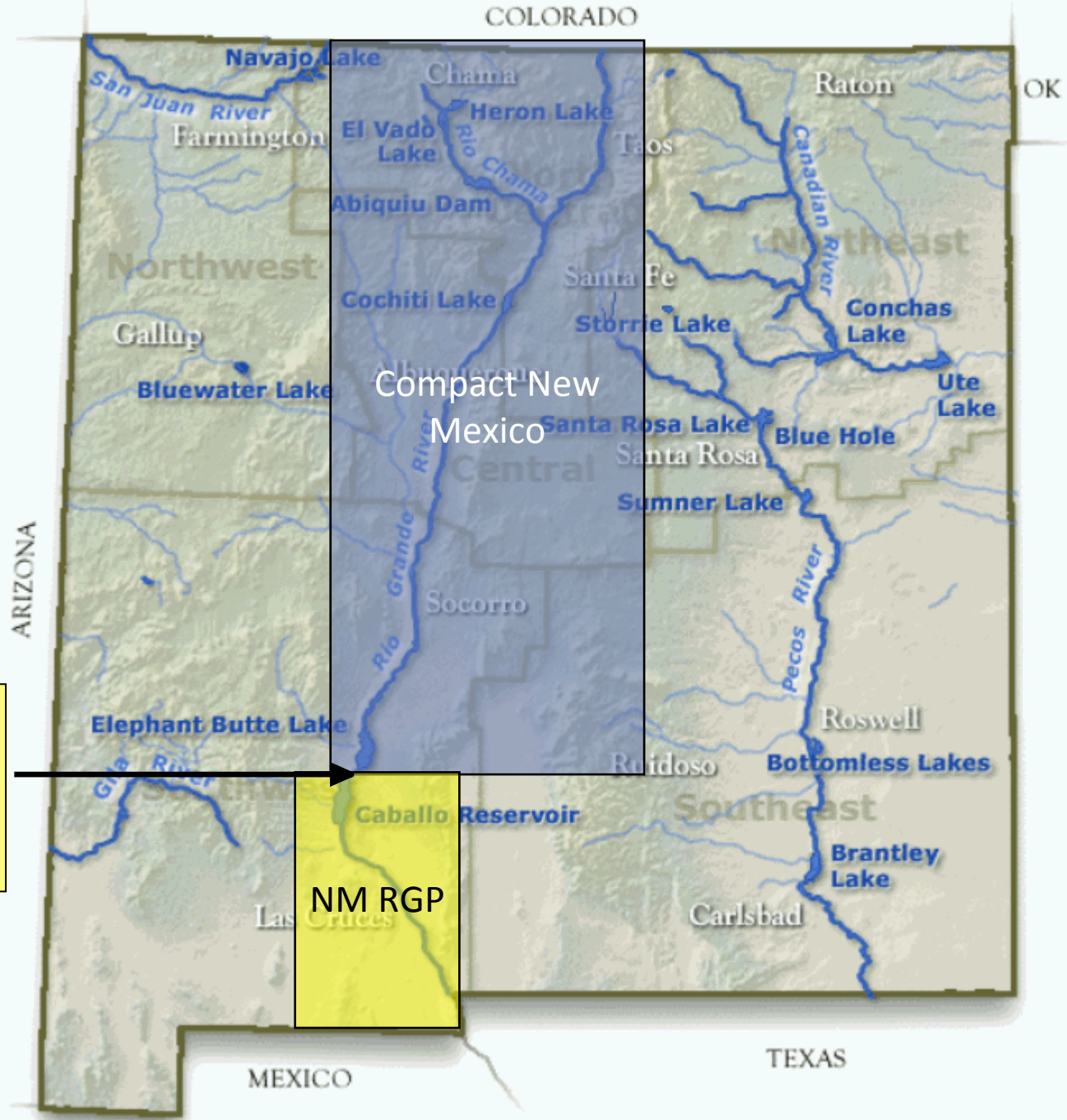
Elephant Butte Irrigation District: Litigation on the Lower Rio Grande



Presented to the
House Agriculture & Water Resources Committee
February 5, 2014
Gary Esslinger, Manager – gesslinger@ebid-nm.org
Steven Hernandez, General Counsel – slh@lclaw-nm.com

The New Mexico
Portion of the
Rio Grande
Project: NM or
TX?

NM
delivery
to TX –
EB Dam



2012-2013 RGP Season Summary

	Allocation		Used		% US Supply	
	2012	2013	2012	2013	2012	2013
EBID	135,633	57,735	133,060	54,002	49.4%	51.2%
EPCWID	141,977	47,594	136,380	51,561	50.6%	48.8%
Mexico	23,196	3,665	23,187	3,709		
Total	300,806	108,994	292,627	109,272		
Release			371,271	168,201		
Div. Ratio			78.8%	65.0%		



How bad was 2013?

- Latest first release from Project Storage – June 1
- Earliest shutdown of release – July 17
- Smallest volume of release – 168,607 acre-feet
- Highest river loss rate – Average > 600 cfs
- Smallest Project diversion – 109,272 AF
- Smallest allotment to EBID farmers – 3.5 inches
- Elephant Butte bottomed out at 60,327 AF on July 8, the lowest level since September 1, 1972
- Declining regional groundwater levels
- Increasing groundwater salinity
- 2014 very likely another short year

Compact Texas and Geographic NM

Elephant Butte Reservoir at 2% of 2,638,000 AF of Storage



Rio Grande Project Timeline

- 1979-1980 Districts pay off Project Construction Costs and takeover contract requires districts and US to agree on allocation scheme for Project Supply for 2 units.
- 1979-2002 Full water allocations to districts and Mexico.
- 1997-2001 US files quiet title suit to rights in the Project and EPCWID#1 raises claim over US method of allocating water to the districts not accounting for NM GW pumping. Mediation fails and suit dismissed in 2001 so parties can proceed to argue in the state stream adjudication.
- 2003 – After 24 years of full supply, drought returns.
- 2003 Texas threatens lawsuit in Supreme Court. Both states ramp up with war chests.
- 2003-2006 Reclamation employs “ad hoc” allocation method.
- 2007 both districts file suit in respective federal courts in NM and Texas because neither district agrees with allocation.
- Mandatory Mediation in Texas litigation leads to Operating Agreement Settlement outlining allocation method of Project Supply between the 2 districts.

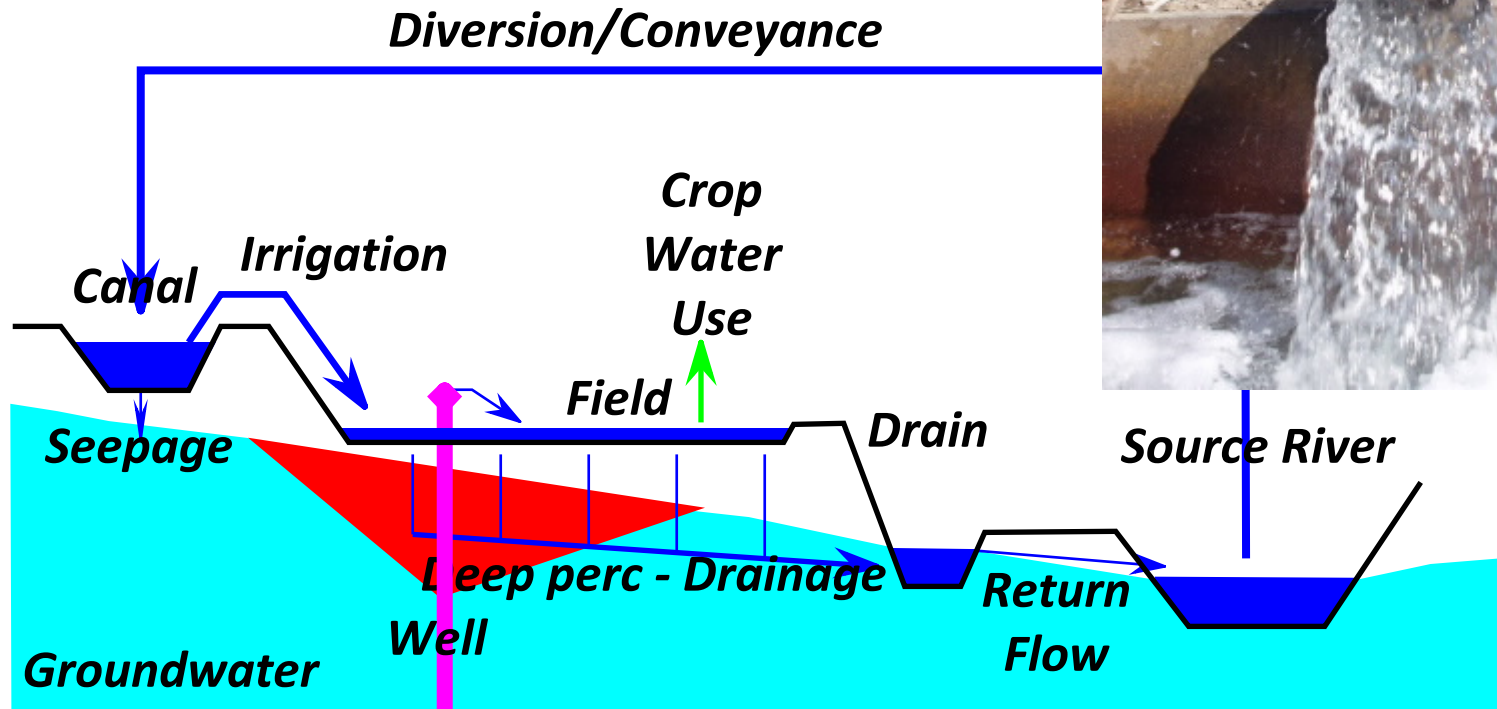
OA Litigation Settlement

- Describes how the BOR will handle the allocation of Project Water accounting for both districts.
- Allocation insures that EPCWID#1 gets the water they have ordered from reservoirs in NM.
- EPCWID#1 abandons its claim that all pumping in NM after Compact must be accounted for and grandfathers in **all** ground water pumping in NM from 1951-1978.
- Carryover accounts set up for both districts encouraging conservation.
- Districts now control releases from reservoirs for maximum conservation in delivery and EBID can utilize flood flows without delivery obligation to Texas.
- Annual Operating Manual Review allows parties to address unforeseen issues.
- Texas threat to file in USSC removed.

NM v. EBID, et al., 96 CV-888 (1986)

- *Stream Adjudication of Rio Grande Project Right.*
- SS-97-104 What is the source or sources of water for the US' s Rio Grande Project Right?
- August 2012 court grants state motion that US has no claim to groundwater as a source of water for the Project, only surface releases.
- However, the Court recognizes that from a release of 790,000 AF of water from reservoirs, 930,000 AF of water is delivered to farmers.
- Court leaves open issue of status and quantity of return flows captured in 457 miles of EBID drains for Administrative hearings in front of SE.
- Court denies motions for summary judgment on priority date issue. Trial will be set soon.

Cross-Section of shallow alluvium Surface water-groundwater – Drain return interaction.



NM v. United States, EBID, EPWCID#1

D.N.M. 11-CV-691 (2011)

- NM claims US erred in Compact accounting that gave more water to Texas (including EBID).
- NM claims 2008 Operating Agreement has changed allocation of Project water to favor Texas (not including EBID).
- EBID Cross Claim against US for releases by IBWC to Mexico in violation of Mexican Treaty of 1906 which costs districts 25,000AF of Project Supply.
- Motions to dismiss filed by major parties and argued November 2012.
- No decision on motions, instead action stayed by Judge Browning awaiting outcome of Texas v NM.

Texas v. New Mexico and Colorado,

No. CV No. 220141 (U.S. Jan. 8, 2013)

- Texas complains that as a result of NM's actions, Texas does not receive its share of water apportioned by the Compact and allocated by the Rio Grande Project.
- 1. Ruling by adjudication court not recognizing return flows as being part of the United State's right in water that composes Project Supply and instead leaves that decision to an administrative hearing before the NM state engineer.
- 2. AG lawsuit to overturn the Operating Agreement Settlement.
- Texas now goes back to previous position before Operating Agreement claiming all groundwater pumping after Compact must be accounted for.
- [NM, and CO, file responses. CLC, EPCWID#1, El Paso, Hudspeth ID](#) file amicus briefs.
- Supreme Court asks US for their position on taking the case.
- US filed their position in December 10, 2013, "The Court should grant Texas Leave to file its complaint."
- January 27, 2014 Supreme Court accepts lawsuit. NM allowed 60 days to file a motion to dismiss under Rule 12(b)(6).

IF TEXAS PREVAILS: THE LOSERS

- Damage claim by Texas probably over half a billion dollars. (state)
- Damage claim by Texas could also include penalty water to be delivered to Elephant Butte

from upstream Rio Grande. (Middle and Upper Rio Grande)

- SE will face decisions to ensure downstream delivery to EPCWID#1 through

AWRM/priority call options against EBID members, and all GW pumpers including

domestic wells, mutual domestics, dairies, border development.





EBID will seek to Intervene

1. *South Carolina v North Carolina* ,130 S.Ct. 854 (2010).
2. SC arguing that upstream NC was taking more than its fair share of an interstate river.
3. City of Charlotte, Duke Energy, Catawaba River Water Supply Project, sought to intervene on behalf of NC.
4. Intervenor can intervene if it is able to demonstrate ... some compelling interest in its own right apart from his interest in a class with all other citizens which interest is not properly represented by the state.
5. Catawaba RWSP allowed to intervene because it diverted water in both states and served users in both states.
6. Duke Energy was a major supplier of hydro power to users in both states and has powerful interests that likely will shape the outcome of this litigation.
7. City of Charlotte SOL.

EBID

Elephant Butte Irrigation District Of New Mexico

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Delyce Maciel, HR-Safety Director

April 29, 2011

Pat Gordon, Esq.

Texas Rio Grande Compact Commissioner

P.O. Box 1917

El Paso, TX 79950-1917

RE: Alternative Relinquishment Credit Proposal from NM

Dear Commissioner Gordon,

This letter will respond with EBID's perspective to the letter dated April 19, 2011 from New Mexico Compact Commissioner John D'Antonio with respect to Relinquishment of Rio Grande Compact Credit Water.

At the March 30, 2011 Rio Grande Compact Commission Meeting, Commissioner D'Antonio publicly denied EBID's request for relinquishment of credit water which would have helped get the irrigation season started for farmers in Southern New Mexico. Commissioner D'Antonio cited the failure of the 2008 Operating Agreement entered into by EBID, El Paso County Water Improvement District No. 1 (EP No.1), and the United States Bureau of Reclamation as his justification for denying the relinquishment request. Specifically, as the Albuquerque Journal March 31, 2011 article on the subject pointed out, the reason the relinquishment was denied was because too much water would go to Texas. In effect, Commissioner D'Antonio punished Southern New Mexico farmers by withholding water in order to keep EP No.1 farmers from getting their fair share of relinquished water. In light of the denial of our initial request for relinquishment of credit water, the April 19 offer was somewhat of a surprise.

Regardless of the surprising nature of the offer for relinquishment of credit water from Commissioner D'Antonio and EBID's willingness to have that credit water in order to get this irrigation season started, there are several problems with the offer for relinquishment that must be addressed. First, we do not see how, under the Rio Grande Compact, the New Mexico Compact Commissioner can relinquish credit water for use by only one of two irrigation districts in Compact Texas. Once the water is relinquished, the State of New Mexico has no say in how it is used within Compact Texas. Any determination of how the water will ultimately be used once it is relinquished will come from the Allocation Committee, not the State of New Mexico. Second, the relinquishment of 30,000 AF, as proposed by Commissioner D'Antonio, would not be enough to offer even one irrigation for the district members because it would yield only about 2 inches. The fact that Commissioner D'Antonio may consider a second relinquishment in July is not something EBID is able to rely on in making a decision regarding allocation of water for irrigation. We would have to be realistic and conservative and assume that Commissioner D'Antonio would decide against a subsequent relinquishment of additional credit water.

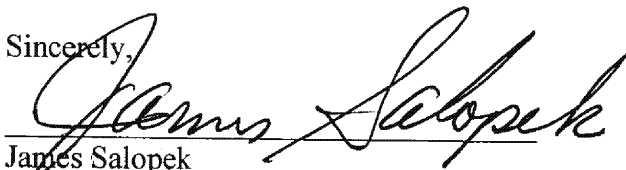
EBID159477

Seeing no help from Commissioner D'Antonio with respect to getting water for the irrigation season through a relinquishment, EBID looked to the Operating Agreement Allocation Committee, which, as you know, is currently studying various issues related to the project operation. The recent main topic of the Allocation Committee's discussions has revolved around compensating EBID for impacts of groundwater pumping in the Texas portion of the Mesilla Valley. These negotiations promise to yield a transfer of several thousand acre feet from the EP No. 1 Project Water Account to the EBID Project Water Account. We would obviously like to have the State of New Mexico relinquish Compact Credit Water, but we refuse to be exploited or manipulated by that relinquishment, especially given the fact that Commissioner D'Antonio clearly has demonstrated that he does not have an interest in protecting New Mexico farmers during a time in which they need it most. That said, there is a way this could all work out according to the intent apparently expressed by New Mexico, which would result in most of the relinquished water being used by EBID. If 100,000 AF were relinquished by New Mexico, as was originally requested, it could be divided according to the Operating Agreement. Any water available to EP No.1 as a result of the relinquishment which is determined to be owed to EBID to offset the effects of Cañutillo pumping would immediately be transferred to EBID's Project Water Account. In short, the intent of the NM Compact Commissioner can be realized, but not through the method employed in his proposal.

The relinquishment of 100,000 AF would not compromise the recreation value of Elephant Butte Lake unduly by the Fourth of July. There would still be unavailable water consisting of 65,000 AF of Compact Credit water and 65,000 AF of San Juan-Chama water. Additionally, the two districts would not use all of their water by that time. In 2003, the lake was lowered to less than 100,000 AF, and we would clearly not reach that point even at the end of the season. Finally, Compact New Mexico's delivery to Compact Texas at Elephant Butte Dam will not be compromised, as it is helped out by substantial Supplemental Water, apparently anticipated to be 75,000 AF this year, which is purchased yearly by the federal government to maintain habitat for the Rio Grande Silvery Minnow. All of this indicates the New Mexico recreation and tourism economy would not be unduly burdened by the relinquishment of credit water Southern New Mexico farmers need.

We are in an oppressive drought in the Lower Rio Grande Basin, and as a result, the New Mexico and Texas Compact Commissioners need to come together to support and advance the interests of the constituency in this area. We hope that, as the Texas Compact Commissioner, you will craft a realistic response to the New Mexico Compact Commissioner's proposal, after considering our letter and input from EP No. 1 and the United States Bureau of Reclamation. If you have any questions regarding the issues we have outlined in this correspondence, please do not hesitate to contact us.

Sincerely,



James Salopek
President, EBID Board

EBID159478

CC:

EBID Board of Directors
Susana Martinez, Governor of State of New Mexico
Rick Perry, Governor of State of Texas
John D'Antonio, Rio Grande Compact Commissioner for New Mexico
Estevan Lopez, Director, New Mexico Interstate Stream Commission
Amy Haas, General Counsel, New Mexico Interstate Stream Commission
Rolf Schmidt-Peterson, New Mexico Engineer Advisor
Steve Farris, Office of the Attorney General, New Mexico
Buford Harris, Commissioner, New Mexico Interstate Stream Commission
Chuy Reyes, El Paso County Water Improvement District No. 1
Herman Settemeyer, Texas Engineer Advisor
Dick Wolfe, Rio Grande Compact Commissioner for Colorado
Craig Cotton, Colorado Engineer Advisor
Mike Hamman, US Bureau of Reclamation
Filiberto Cortez, US Bureau of Reclamation

EBID159479

IN THE SUPREME COURT OF THE UNITED STATES
BEFORE THE OFFICE OF THE SPECIAL MASTER
HON. MICHAEL J. MELLO

STATE OF TEXAS)	
)	
Plaintiff,)	
	)	Original Action Case
VS.	)	No. 220141
	)	(Original 141)
STATE OF NEW MEXICO,)	
and STATE OF COLORADO,)	
)	
Defendants.)	

REMOTE ORAL AND VIDEOTAPED DEPOSITION OF
PATRICK R. GORDON
JULY 14, 2020
VOLUME 1

REMOTE ORAL AND VIDEOTAPED DEPOSITION of PATRICK R. GORDON, produced as a witness at the instance of the Defendant State of New Mexico, and duly sworn, was taken in the above-styled and numbered cause on July 14, 2020, from 9:03 a.m. to 3:33 p.m., before Heather L. Garza, CSR, RPR, in and for the State of Texas, recorded by machine shorthand, at the offices of HEATHER L. GARZA, CSR, RPR, The Woodlands, Texas, pursuant to the Federal Rules of Civil Procedure and the provisions stated on the record or attached hereto; that the deposition shall be read and signed.

1 A. I was already serving on a governing board
2 for the -- for the governor, and they asked if I'd be
3 interested in this board because I'm from El Paso and
4 this involves El Paso.

5 Q. What was the governing board that you were
6 already serving on?

7 A. Texas Department of Housing and Community
8 Affairs.

9 Q. You obviously told them that you would be
10 interested in serving on the commission; is that
11 right?

12 A. I did.

13 Q. Why were you interested in it?

14 A. I just thought it would be interesting to do
15 it.

16 Q. Do you know why the governor selected you for
17 the role of the Texas Rio Grande Compact Commissioner?

18 A. I do not.

19 Q. When you were appointed as the commissioner,
20 did you do anything to learn about the duties of
21 the -- either the Commission or of the commissioners?

22 A. I did.

23 Q. What did you do?

24 A. Well, I met with the attorney general's
25 staff, who was in charge of the water areas for the

1 State of Texas. I met with the EP1 district, their
2 board members. I met with EBID and their board
3 members, tried to do whatever I could to get all the
4 background, read materials on the Compact.

5 Q. You say you read materials on the Compact.
6 Did you read previous Compact meeting minutes and
7 transcripts?

8 A. No. I read, like, a book by Little. Just --
9 there's just materials out there on the Compact.
10 Mainly it was talking to, you know, the districts to
11 get the information, you know, what -- how things
12 operated, how -- just trying to get up to speed as
13 best I could.

14 Q. Did you read any -- or review any historical
15 documents?

16 A. Well, I think there was some -- some
17 publications on the Compact and how it came around.

18 Q. How about the negotiating minutes of the
19 Compact, did you read those?

20 A. I did.

21 Q. Why did you read those?

22 A. Because I thought it was important to learn
23 about the Compact, including the joint investigation
24 report. I read that.

25 Q. Any other historic documents that you recall?

1 A. Not that I recall.

2 **Q. Did you read the Compact?**

3 A. I did.

4 **Q. The statutes -- the Texas statutes indicate**
5 **that a commissioner serves for six years; is that**
6 **correct?**

7 A. That's correct.

8 **Q. You have served for one term already; is that**
9 **right?**

10 A. That's -- I think I've served for two.

11 **Q. Two. Are you in your second term now?**

12 A. I'm in my third. I -- I took over a partial
13 one so Mr. Hanson resigned. I don't know where he
14 went. I think he was traveling or left town. So I
15 took over his remaining term and then I've been
16 appointed twice.

17 **Q. When is your current term up?**

18 A. Four years, I believe.

19 **Q. The statutes indicate that the Texas**
20 **commissioner receives a salary. Do you receive a**
21 **salary?**

22 A. I do.

23 **Q. What is that salary?**

24 A. It's about 40,000 a year.

25 **Q. That salary is received from the State of**

1 Q. We talked earlier and you indicated that you
2 agree that one purpose of the Compact was to protect
3 the existing project. Do you know how the project was
4 operated as of 1938 when the Compact was entered into?

5 A. No.

6 Q. In 1938, do you know if New Mexico water
7 users received surface water below Elephant Butte?

8 MR. SOMACH: Objection.

9 A. I --

10 MR. SOMACH: Asked and answered.

11 A. I don't know.

12 Q. (BY MR. WECHSLER) Is there any language
13 within the Compact that you would point to that
14 suggests Texas and New Mexico water users should be
15 treated differently below Elephant Butte?

16 A. No.

17 Q. You indicated that Article 4 is what you
18 would point to, to suggest that all of the water
19 delivered to Elephant Butte belongs to Texas. Are
20 there any other provisions of the Compact that you
21 would point to for that premise?

22 A. Yeah. So you go from Article 4, then you go
23 up to Article 1 -- 1L. So usable water is what's
24 released, and usable water is all -- all water that's
25 available that's in storage, then you go to project

1 storage. Project storage is Elephant Butte and
2 Caballo. So usable water goes to the two projects or
3 the two contracts under the Rio Grande project and
4 Mexico, and project storage defines what's put into
5 Elephant Butte and Caballo. Article 4 talks about
6 what's put in project storage.

7 Q. So you're identifying Article 1L and 1K. Is
8 there anything in 1L or 1K that suggests that the
9 water users in Texas and New Mexico should be treated
10 differently?

11 A. There's no mention of that in here.

12 Q. Starting with the definition of usable water,
13 here it says, "All water, exclusive of credit water,
14 which is in project storage and which is available for
15 release in accordance with irrigation demands,
16 including deliveries in Mexico" -- or to Mexico. Do
17 you see that?

18 A. Yes.

19 Q. There it says, "Available for lease in
20 accordance with irrigation demands." Do you see that?

21 A. Correct.

22 Q. What do you understand that to mean?

23 A. Release to the two contract users for
24 irrigation.

25 Q. Irrigation demands in either New Mexico or

1 Texas?

2 A. According to the two 1938 contracts, correct.

3 Q. And then Paragraph K says -- it's basically
4 the combined capacity of Elephant Butte reservoir and
5 all other reservoirs, right?

6 A. That's correct. Because Caballo was built
7 in -- I'm not sure exactly when Caballo was built, but
8 I believe it was built after the -- well, I'm sorry.
9 I don't know when it was built.

10 Q. Under that definition, the states agreed that
11 project storage would not be more than a total of
12 2,638,860 acre feet?

13 A. Correct.

14 Q. Do you know how they arrived at that number?

15 A. I don't.

16 Q. The first reference I see here in the Compact
17 is on that same page, at least in this version, to the
18 790 under the definition of, "Hypothetical spill" in
19 Article 1(q). Do you see that?

20 A. Yes.

21 Q. What does the 790 represent?

22 A. 790 is a full allocation, my understanding.

23 Q. Is -- does the 790 represent enough water to
24 provide water to Mexico, Elephant Butte Irrigation
25 District, and EP No. 1?

1 A. Yes. It's supposed to. Well, it's supposed
2 to be a full allocation of what's released. It was
3 based on the joint investigation report and then the
4 engineer advisors put together a report before they
5 came up with the Compact. So you have to look at all
6 that together, the history.

7 Q. Do you know if 790 was thought to be enough
8 water to satisfy irrigation demands in both Elephant
9 Butte Irrigation District and EP No. 1 and, also,
10 provide 60,000 acre-feet to Mexico?

11 A. Based on the conditions that existed in 1938,
12 yes.

13 Q. So why is it that when you read the
14 definitions of K and L, you understand that to be --
15 you think that supports your idea that all water
16 should go to Texas?

17 A. So all water is allocated to the 1938
18 contracts.

19 Q. All right. Is there anything else in the
20 Compact that you would point to that -- other than
21 those definitions and Article 4 that you would point
22 to that support your position that all water delivered
23 to Elephant Butte is Texas' water?

24 A. Well, there's a lot of things in here that
25 talk about the reservoirs up north and what can be

1 stored or not, so it appears to me that this -- this
2 Compact was designed to limit how much water New
3 Mexico was required to deliver from the middle Rio
4 Grande, and there's discussions in here about the
5 reservoirs built after 1929. All these gaging
6 stations, and it's what Texas was apportioned under
7 the Compact. Otherwise, what was Texas apportioned?

8 Q. Is there a gaging station below Caballo
9 reservoir?

10 A. I believe there's a gaging station right
11 below it, yes.

12 Q. Is that identified in the Compact?

13 A. It measures what's released. I don't know if
14 it's in the Compact or not.

15 Q. You can see it. It's in Article 2(1) as in
16 llama?

17 A. Yes.

18 Q. Do you know why the drafters of the Compact
19 put a -- negotiated for a gage below Caballo
20 reservoir?

21 A. That's the way you could measure what's --
22 what's released from the reservoir.

23 Q. Do you know why it was important to the
24 negotiators how much was released?

25 A. Right. Because if more than 790 in a full

1 year was released, it could impact Article 7, which
2 impacts how much New Mexico can store in the post-1929
3 reservoirs, for example. So I think it was a way that
4 they could keep track of how much was released from
5 the reservoir.

6 Q. Will you agree with me that the release of
7 790,000 acre-feet from the reservoir was not necessary
8 to satisfy the existing irrigation demands in Texas in
9 1938?

10 A. Could you define "Texas"?

11 Q. EP No. 1.

12 A. 790 itself?

13 Q. The 790,000 acre-feet release.

14 A. That was to both EBID and EP1 and Mexico.

15 Q. Right. So my question, to phrase it a
16 different way, is that 790 -- a release of 790,000
17 acre-feet was not necessary from the reservoir to
18 satisfy the existing irrigation demands in EP No. 1 in
19 1938?

20 A. I don't -- I don't agree with that.

21 Q. Why not?

22 A. Because that was the purpose of coming up
23 with 790 is that the -- that the -- the needs of both
24 EBID and EP1 under the 1938 contracts were mapped out.
25 They figured out return flows and determined if they

1 delivered 60,000 to Mexico, that's how much was needed
2 to deliver to EBID and EP1 with a little bit of extra
3 water to EP1 to make up for the salinity at the end of
4 the -- towards Tornillo.

5 Q. Thank you. That's helpful. I think I
6 understand your answer and -- and I asked a bad
7 question. Were you finished pointing out the parts of
8 the Compact that you think support your position that
9 all the water delivered to Elephant Butte is
10 apportioned to Texas?

11 A. I believe so, yes.

12 Q. I'm just going back through Commissioner
13 Gordon, to see if there's other parts of the Compact
14 that I wanted to ask you about. Staying on the
15 definition of usable water in Article 1(1), is it the
16 intent of the Compact that all releases should be in
17 accordance with irrigation demands.

18 A. I think it's what the -- the districts call
19 for.

20 Q. What does it -- oh, sorry to interrupt.

21 A. That's okay. That's okay. No, that's what I
22 mean. It's what the...

23 Q. Were you finished with your answer?

24 A. Yes.

25 Q. When it said, "In accordance with irrigation

1 project, all the lands in the project have equal water
2 rights, and the acreage to be irrigated is practically
3 frozen at its present" -- I think it says -- "figure
4 with 3 percent, quote, cushion." Do you see that?

5 A. Yeah.

6 Q. Is it your understanding that the -- the
7 lands -- the irrigated lands in the project were
8 essentially frozen as of 1938 with a -- the ability to
9 increase those by 3 percent?

10 A. That's my understanding.

11 Q. And then Mr. Clayton concludes this section
12 by saying, "It is therefore not necessary even if it
13 were practicable to make any definite provision in the
14 Compact for the amount of water to pass the Texas/New
15 Mexico state line." Do you have any understanding of
16 what Mr. Clayton was describing there?

17 A. No.

18 MR. SOMACH: Objection; foundation.

19 THE WITNESS: Sorry.

20 Q. (BY MR. WECHSLER) Going back to the Compact,
21 which is Exhibit PG4, and if you'll turn to Article 7,
22 what do you understand Article 7 to do? What's its
23 function?

24 A. So if the usable water in the reservoir falls
25 below 400,000 acre-feet, either Colorado or New Mexico

1 can store water in reservoirs that were constructed
2 after 1929.

3 Q. Do you have any understanding of why that
4 provision was included in the Compact?

5 A. I think they were trying to keep the status
6 quo from Colorado all the way to Elephant Butte.

7 Q. And in order for there to be a relinquishment
8 under Article 7, is it necessary for either Colorado
9 or New Mexico to agree with Texas about the
10 relinquishment?

11 A. Right. The Texas commissioner has to agree,
12 and the -- the New Mexico commissioner would have to
13 agree.

14 Q. And so that's a prerogative that's in both
15 New Mexico and Texas commissioners; is that right?

16 A. That's correct.

17 Q. Turning to Article 8, do you have an
18 understanding of what Article 8 accomplishes?

19 A. Article 8 is what we're in right now or will
20 be.

21 Q. What does that mean?

22 A. Well, when New Mexico under delivers and is
23 in a debit, they are required to hold water back and
24 not use it, and the Texas commissioner can call for it
25 in January for release in the upcoming irrigation

1 season.

2 Q. And if the Texas commissioner calls for it,
3 where does it go?

4 A. It goes to Elephant Butte.

5 Q. Then who gets to use that water?

6 A. The irrigation -- the two contracts in
7 Mexico.

8 Q. So some of the water gets used in Mexico,
9 some in Texas?

10 A. It's used by EBID and EP1 and Mexico.

11 Q. And so 57 percent of the water would be used
12 by EBID and 43 percent by EP No. 1?

13 A. Correct. After -- after reduction of Mexico.

14 Q. Which is, in a full supply year, would be
15 60,000 acre-feet to --

16 A. That's right. Mexico is adjusted depending
17 on how much is released. I don't know the index for
18 that, but they don't get a full supply unless there's
19 a full release.

20 Q. Does New Mexico have any responsibilities
21 arising from the Compact below Elephant Butte?

22 A. It's my opinion that they have the
23 responsibility to ensure that the water is delivered
24 to the respective districts for under the 38 contracts
25 in Mexico once it's been delivered to Elephant Butte.

1 being traded in Santa Teresa is paper water. My
2 understanding it doesn't really exist. It's way away
3 from the river, so I -- I don't think that's a -- a
4 good idea. I think that will hurt the river.

5 **Q. Has that application been acted upon yet?**

6 A. I don't know.

7 **Q. Did the State of Texas protest that**
8 **application?**

9 A. Yes.

10 **Q. Do you have lawyers representing you in that**
11 **proceeding?**

12 A. I just sent a letter my -- myself. So I
13 guess if there is a letter, it would be Mr. Somach or
14 the attorney general, Ms. Hubenak.

15 **Q. After the operating agreement was entered**
16 **into in 2008, I understood you earlier to be saying**
17 **that you still believe that Texas is not receiving its**
18 **share of water that it's entitled to under the**
19 **Compact. Do I have that correct?**

20 A. That's correct.

21 **Q. You said earlier you had an obligation as a**
22 **Compact commissioner to the State of Texas to ensure**
23 **that Texas receives its share of Compact water; is**
24 **that right?**

25 A. That's correct.

1 **Q. Yet you were involved in negotiating the**
2 **operating agreement; is that right?**

3 A. Correct.

4 **Q. Do you see any conflict between those two**
5 **positions?**

6 A. No.

7 **Q. Why not?**

8 A. Because the operating agreement was a
9 compromise to stop this lawsuit, and it was a way
10 to -- if EP1 and EBID were happy, the State of Texas
11 would probably be happy, too.

12 **Q. Is the State of Texas comfortable with the**
13 **operating agreement?**

14 A. I would say generally, yes.

15 **Q. Why do you qualify it with the**
16 **word "generally"?**

17 A. Because I'd have to look at -- at this point,
18 I think the State of Texas would be -- would be
19 satisfied with the operating agreement, but I've got
20 to get approvals of that.

21 **Q. Approvals from whom?**

22 A. The governor.

23 **Q. And you haven't had that discussion with the**
24 **governor?**

25 A. I've had discussions with the governor's

1 office regarding the operating agreement and that it's
2 a good solution for resolving conflicts here, but as
3 far as sign off, no. As far as I'm concerned, that's
4 an issue between the two ground -- groundwater
5 districts and -- and their contracts, so I don't
6 necessarily view that as a Compact issue.

7 Q. Do you mean the surface water districts?

8 A. I mean, EBID and EP1.

9 Q. You view the distribution of water between --
10 of project water to EBID and EP No. 1 as a contract as
11 opposed to Compact issue?

12 A. Yes. It's a contract.

13 Q. So does that mean that the Compact issue has
14 to do with how much water is delivered into Elephant
15 Butte?

16 A. No. The Compact has to do with New Mexico
17 delivering water into Elephant Butte and then as it is
18 released to the contract users, it's being diverted by
19 groundwater pumping.

20 Q. But isn't that a contract issue based on your
21 theory?

22 A. No. That's a Compact, because the
23 contracting parties aren't getting water because it's
24 leaving the contracts.

25 Q. Why does that become a Compact issue?

1 A. It's because if you go back to Article 4
2 about deliver, and deliver means deliver the water and
3 not interfere with it getting to the users, and New
4 Mexico, through its groundwater pumping, is impacting
5 the flow of the river, which in turn impacts the
6 delivery of water to the contract users.

7 Q. You indicated earlier that you did not have
8 an understanding of water administration management or
9 enforcement for either surface water or groundwater in
10 Texas. Do you have an understanding of water
11 administration, water management, or water enforcement
12 in the State of New Mexico?

13 A. No.

14 MR. SOMACH: Objection; asked and
15 answered.

16 Q. (BY MR. WECHSLER) Do you think it's important
17 to understand water administration, water management,
18 or water enforcement in New Mexico in order to
19 understand the obligations for ensuring that the two
20 districts receive their water?

21 A. I'm sorry. Can you repeat that?

22 Q. I can. You don't happen to have realtime, do
23 you? The --

24 A. What -- what's realtime?

25 Q. It's the transcript -- the deposition

IN THE SUPREME COURT OF THE UNITED STATES
BEFORE THE OFFICE OF THE SPECIAL MASTER
HON. MICHAEL J. MELLO

STATE OF TEXAS)	
)	
Plaintiff,)	
	)	Original Action Case
VS.	)	No. 220141
	)	(Original 141)
STATE OF NEW MEXICO,)	
and STATE OF COLORADO,)	
)	
Defendants.)	

REMOTE ORAL AND VIDEOTAPED DEPOSITION OF
PATRICK R. GORDON
JULY 15, 2020
VOLUME 2

REMOTE ORAL AND VIDEOTAPED DEPOSITION of PATRICK R. GORDON, produced as a witness at the instance of the Defendant State of New Mexico, and duly sworn, was taken in the above-styled and numbered cause on July 15, 2020, from 9:02 a.m. to 2:21 p.m., before Heather L. Garza, CSR, RPR, in and for the State of Texas, recorded by machine shorthand, at the offices of HEATHER L. GARZA, CSR, RPR, The Woodlands, Texas, pursuant to the Federal Rules of Civil Procedure and the provisions stated on the record or attached hereto; that the deposition shall be read and signed.

1 that you think Texas is entitled to 43 percent of the
2 release?

3 A. I think EP1 is entitled to it, and I believe
4 that these contracts are incorporated into the Compact
5 so indirectly, Texas is entitled to the 43 percent
6 we're discussing right now.

7 Q. If the downstream contracts are incorporated
8 into the Compact and EBID is entitled to 57 percent of
9 the released water project supply; is that right?

10 A. Correct.

11 Q. So if the Compacts are incorporated into the
12 contract, does that mean that New Mexico, by
13 extension, is also entitled to 57 percent of the
14 supply?

15 A. No.

16 Q. Why not?

17 A. Because New Mexico is not EBID.

18 Q. Is Texas EP No. 1?

19 A. No.

20 Q. So what rights does Texas have to water below
21 Elephant Butte?

22 MR. SOMACH: Objection to the extent
23 that it calls for a legal conclusion.

24 You can go ahead and answer.

25 A. Can you repeat that question?

1 Q. (BY MR. WECHSLER) I can. What rights does
2 Texas have to water below Elephant Butte?

3 A. I think the rights that Texas has to the
4 water is to ensure that it's not interfered with and
5 is delivered to the contract users.

6 Q. If EP No. 1 does not receive 43 percent of
7 project supply, is that a violation of Texas' Compact
8 rights?

9 A. I believe it is.

10 Q. If New Mexico does not receive 57 percent of
11 project supply, is that a violation of New Mexico's
12 Compact rights?

13 A. No.

14 Q. What's the distinction?

15 A. EBID is not New Mexico.

16 Q. But you also told me EP No. 1 is not Texas?

17 A. Texas is the -- the water that's in the
18 reservoir is delivered by New Mexico under Article 4
19 of the treaty -- under Article 4 of the Compact to
20 Texas. As commissioner for Texas, Texas -- this water
21 should -- is entitled to go to the contract users.

22 Q. Does Texas have any jurisdiction over any
23 land within the territorial boundaries of the State of
24 New Mexico?

25 A. Not that I'm aware of.

1 that far apart, I didn't think, and as far as what
2 they wanted in an operating agreement. But you had
3 personalities on the two boards that sometimes were
4 very strong and so all I did was keep the dialogue
5 going when I could.

6 **Q. At what point did you -- what point were you**
7 **asked to become involved as a facilitator?**

8 A. I would say probably in April or May of 2007.

9 **Q. Do you have any knowledge about how the**
10 **decision was made to ask you to be a facilitator?**

11 A. I don't know.

12 **Q. Who approached you to be a facilitator?**

13 A. I would say from EBID, it was Robert Fabian
14 and James Salopek and Gary Esslinger, and EP1, it
15 would have been Chuy Reyes, Johnny Stubbs, maybe Art
16 Ivey.

17 **Q. Why did you agree to be a facilitator?**

18 A. Because these guys needed to work out
19 their -- work out a relationship and work out an
20 operating agreement, because the Bureau told them if
21 they didn't, the Bureau was going to put one in place,
22 and both of them probably had concerns with what the
23 Bureau was going to -- to do in an operating
24 agreement.

25 **Q. As Texas commissioner, you have an obligation**

1 to act on behalf of the State of Texas; is that right?

2 A. As Texas commissioner, yes.

3 Q. You mentioned yesterday that one of your
4 responsibilities is to make sure that Texas gets its
5 share of water?

6 A. That is one responsibility, but my
7 responsibility is to make sure that water is delivered
8 to the 1938 contracts. Actually, my responsibility is
9 to make sure it doesn't get picked off.

10 Q. In other words, New Mexico water users don't
11 deplete Texas' share?

12 A. Yes.

13 Q. Do you consider yourself neutral as to the
14 actions of EBID?

15 A. So first of all, when I helped be the
16 facilitator, I didn't do it as my role as the Rio
17 Grande Compact Commissioner. I did it because these
18 two districts were in what I consider the 38 contracts
19 involving Texas water, but I did not negotiate the
20 specific terms. Both districts had their own
21 attorneys. EBID had Dr. Maddock, Dr. King, Steve
22 Hernandez, Steve Hubert. EBID had Al Blair, Jim
23 Spear, and I believe Maria O'Brien. So as to the
24 negotiating of the specific terms of this operating
25 agreement, I did not do that.

1 Q. You said at the beginning of that answer that
2 you did not act as a facilitator in your role as the
3 Rio Grande Compact commissioner, but you were the
4 sitting and acting Compact commissioner for the State
5 of Texas at the time that you acted as a facilitator;
6 is that right?

7 A. That's right.

8 Q. In what role did you act as facilitator
9 between the districts and Reclamation?

10 A. As Pat Gordon.

11 Q. I think you told me as Pat Gordon, you didn't
12 have any expertise or information or knowledge about
13 water hydrology, water administration; do I have that
14 right?

15 A. That's right.

16 Q. What did you have to add as a facilitator
17 then?

18 A. I was able to develop a relationship with the
19 two boards and I could help keep them talking, but I
20 had no expertise in hydrology. I had no expertise in
21 the detail of the -- the detail of the agreement. So
22 what I added was just I kept them talking.

23 Q. Going back to my question, we -- we were
24 talking about your -- that you did have
25 responsibilities as commissioner, and my question to

1 you was: With regard to the water -- water
2 distribution actions of the two districts, you are not
3 neutral; is that correct?

4 A. I think I'm neutral between the two districts
5 as to the 38 contract water.

6 Q. In what way do you think you're neutral?

7 A. Well, you can go look at the Compact. If you
8 look at Article 7, I'm the -- if there's a
9 relinquishment of a credit water, I do it as Compact
10 commissioner, and it goes to both EBID and EP1. If
11 you look at Article 8, I can call on water if there's
12 a debit as Texas commissioner. In Article 8 in
13 January, I can call that water, and that water again
14 goes into the reservoir and then to EBID and EP1.

15 Q. Why does that make you neutral?

16 A. Well, it means I have to -- if I make a
17 decision as commissioner, it doesn't -- my decision
18 doesn't impact the 57/43. It gets the water to the
19 contracts through the project. I -- I don't decide
20 who gets more of the 57/43. That's not my decisions.

21 Q. Under Article 7 we talked about yesterday,
22 there has to actually be an agreement between the
23 Texas commissioner and the New Mexico commissioner in
24 order to release New Mexico credit water, right?

25 A. That's correct.

1 Q. Similarly, if Colorado was releasing credit
2 water, it has to actually be an agreement between the
3 Colorado commissioner and the Texas commissioner,
4 right?

5 A. Correct. That's right.

6 Q. And under Article 8, any water that reaches
7 Elephant Butte, if I understand your testimony, that
8 gets divided 57/43 between the two districts; is that
9 right?

10 A. In general, yes. If there's credits, it
11 becomes usable water. Whatever becomes usable water
12 and is released goes to -- to the contracts, 57/43.

13 Q. Do you have responsibilities under the
14 Compact to make sure that New Mexico gets its share of
15 Compact water?

16 A. My responsibilities are to make sure the
17 water gets to the reservoir and is delivered to the
18 reservoir, and "delivered" means that it's delivered
19 and not -- I used the word picked off. It's
20 probably -- it's not diverted.

21 Q. It's not diverted in New Mexico?

22 A. Correct.

23 Q. Except for the 57 percent that New Mexico
24 lands are entitled to?

25 A. Sure. The -- the water released should go to

1 the two downstream contract users.

2 Q. My question was: Do you have
3 responsibilities under the Compact to make sure that
4 New Mexico gets its share of Compact water?

5 A. I don't know. I -- I don't think so, because
6 New Mexico's share is under 1938 contracts, and I
7 don't control those.

8 Q. When you agreed to become the facilitator
9 between the two districts, did you have a discussion
10 with them where you informed them of your
11 responsibilities or what you viewed as your
12 responsibilities as the Texas commissioner?

13 A. They all knew what the Texas commissioner did
14 so, no, I did not have a discussion.

15 Q. How do you know what they knew?

16 A. In talking to them, having meetings with
17 them, discussing with them, they had -- had -- they'd
18 been in this project for quite a long time, so they
19 had a lot more knowledge about everything than you and
20 I do.

21 Q. When you agreed to become the facilitator
22 between the districts, did you inform them of the work
23 that your firm had done for the City of El Paso?

24 A. No.

25 Q. Did you inform them of the engagement letter

1 Q. Do you -- are you familiar with the
2 allocation committee?

3 A. No.

4 Q. Do you think that the process for setting a
5 project allocation is transparent?

6 A. I assume it is.

7 Q. Why do you assume it is?

8 A. I just assume it is. I don't know of any
9 reason that it's not.

10 Q. Do you track the allocations for the project
11 on a monthly basis?

12 A. No.

13 Q. Do you track the allocations on an annual
14 basis?

15 A. I track -- well, whatever is presented at the
16 annual meeting is what I -- I receive, annual Compact
17 meeting. I guess as far as the projects, no, I don't
18 track any of this.

19 Q. How do you know if, let's say the beginning
20 of an irrigation season, if EP No. 1 is receiving its
21 full share of water, if you don't track the
22 allocations on a monthly basis?

23 A. I don't track water.

24 Q. How do you know if EP No. 1 is receiving its
25 share of water?

1 A. I don't know.

2 **Q. If you don't know if EP No. 1 is receiving**
3 **its share of water, how do you accomplish your duties**
4 **as Texas commissioner?**

5 A. My duties as Texas commissioner is to ensure
6 that the waters are delivered by New Mexico into
7 Elephant Butte reservoir and that those waters are
8 delivered to the downstream contract users.

9 Q. Don't you have to know the allocations in
10 order to know whether or not the downstream users
11 receive their share?

12 A. I assume that that's the project, and the two
13 downstream users will handle that issue.

14 Q. What if there's a dispute?

15 A. Between who?

16 Q. Between the districts.

17 A. Well, that's -- that's not my area, other
18 than I can help -- if I can help them resolve their
19 disputes, I'll do what I can, but I have no
20 jurisdiction.

21 Q. I thought you told me that Texas was entitled
22 to 43 percent of project supply?

23 MR. SOMACH: Objection; asked and
24 answered; misstates prior testimony.

25 A. That does misstate my testimony. I said that

1 Q. (BY MR. WECHSLER) I'll show you what I'll
2 mark as deposition Exhibit No. 46. Do you recognize
3 that document?

4 A. Yes.

5 Q. What is it?

6 A. It's the Texas complaint in the Supreme
7 Court.

8 Q. Did you have any input into the drafting of
9 this complaint?

10 A. I'm sure I did.

11 Q. Do you recall what your input was?

12 A. I -- I probably reviewed it.

13 Q. Do you know if there's anything in the
14 complaint with which you disagree?

15 A. No.

16 Q. No, you don't know or, no, there's nothing
17 you disagree with?

18 A. There's nothing that I know of that I
19 disagree.

20 Q. What is the relief that Texas is seeking?

21 A. To stop the -- what Texas is stop -- wanting
22 is for New Mexico to not divert and siphon off water
23 delivered to Texas under the Compact.

24 Q. I want to make sure I'm clear on what water
25 that is. So what water are you referring to?

1 A. Article 4, the Compact requires that New
2 Mexico deliver a quantity of water to San Marcial,
3 which in turn ends up in Elephant Butte and Caballo.
4 That water is, in turn, converted to usable water. It
5 is delivered to Texas subject to being delivered down
6 to Mexico and EP1 and EBID under 1938 contracts.

7 Q. Are you suing in this complaint for the water
8 that is allocated to EBID?

9 A. I'm suing for whatever New Mexico is
10 diverting from those 1938 contract users.

11 Q. You would acknowledge that EBID is allowed to
12 take some of the -- the project water?

13 A. My understanding is they do take project
14 water.

15 Q. Are you suing for that water -- project water
16 that EBID is taking?

17 MR. SOMACH: Objection. Mr. Gordon
18 isn't suing for anything. This is a lawsuit that's
19 brought by the State of Texas, so I assume you're
20 asking him -- I'm not sure what you're asking him, but
21 I just want to clarify. He 's not suing for anything
22 related to this litigation.

23 MR. WECHSLER: Yeah. I'm asking in his
24 role as Texas commissioner speaking on behalf of
25 Texas.

1 A. One -- I believe some are for permit. Some
2 are for transfer rights, like New Mexico copper we
3 talked about yesterday.

4 Q. We did. When you filed those protests, do
5 you know what happens to them?

6 A. I'm assuming they go through the New Mexico
7 adjudication process, but I don't -- other than New
8 Mexico copper -- I received correspondence back on New
9 Mexico copper. I generally don't receive anything on
10 the applications or I haven't.

11 Q. Do you know if there is a -- an
12 administrative process in New Mexico for addressing
13 protested water rights issues?

14 A. I'm assuming there's a process. I don't know
15 what that process is.

16 Q. Have you or anyone from the State of Texas
17 ever participated in one of those administrative
18 processes?

19 A. No. I don't know if anybody in the State of
20 Texas. I have not.

21 Q. Since you've been commissioner, have you
22 or -- or someone from your office participated in the
23 New Mexico adjudication?

24 A. No.

25 Q. After you file one of these protests, have

1 you tracked what has occurred with the underlying
2 applications?

3 A. No.

4 Q. Why not?

5 A. I figure I'll get copied if there's some
6 decision made. So I don't know -- know how to track
7 it. I just figure I'll get correspondence back.

8 Q. How do you decide what applications to
9 protest?

10 A. If they're in the -- below Elephant Butte.

11 Q. If they're below Elephant Butte, you
12 generally will protest them?

13 A. Yes.

14 Q. Why?

15 A. Because that impacts the project -- that
16 impacts the flow of the water in the river or could.

17 Q. Well, you used the word "could." Do you
18 conduct any evaluation about whether or not it does or
19 will impact the river?

20 A. No, I don't. I figure that's up to the state
21 engineer to do that.

22 Q. How do you become aware of the applications?

23 A. EBID sends them to me.

24 Q. Do you know where they become aware of the
25 applications?

1 A. No.

2 Q. Do you know if EBID has protested those same
3 applications?

4 A. My understanding, they do.

5 Q. Does EBID ever report back to you about the
6 proceedings or the results of those administrative
7 proceedings?

8 A. Not that I'm aware of.

9 Q. Let me show you one more document here.

10 Before I -- before I go to that
11 document, have you ever protested an application or
12 transfer of groundwater below Elephant Butte?

13 A. Have I?

14 Q. Yes.

15 A. Personally?

16 Q. Filed a protest, yes.

17 A. Me personally?

18 Q. Well, on behalf of the Commission.

19 A. Filed -- we just talked about we filed
20 protests. I filed several protests.

21 Q. I understand that. Have you filed for lands
22 that are not located within Elephant Butte?

23 MR. SOMACH: Objection; vague.

24 A. I don't know.

25 Q. (BY MR. WECHSLER) Do you know the location of

1 the applications that you have protested?

2 A. Generally, yes.

3 Q. Generally, where are they located?

4 A. Close to the river or impacting the river,
5 because EBID will send them to me and say we're
6 protesting these because they could impact the pro --
7 they could impact the flow in the river.

8 Q. Have you ever protested any applications in
9 New Mexico that were not provided to you by EBID?

10 A. Not that I'm aware of.

11 (Exhibit No. 49 was marked.)

12 Q. (BY MR. WECHSLER) I'm marking deposition
13 Exhibit PG49, which is -- has a title page that
14 says, "2007 Rio Grande Project Salinity Management
15 Workshop, May 21 through 22nd, 2007, El Paso, Texas."
16 Do you see that?

17 A. Yes.

18 Q. Do you recall this workshop?

19 A. I'm sorry. Did you ask a question? I didn't
20 hear it.

21 Q. I did. I asked do you recall the workshop?

22 A. You know, I recall it was in -- around this
23 time.

24 Q. You recall that this workshop was hosted by
25 the Rio Grande Compact Commission?

No. 141, Original

In the
SUPREME COURT OF THE UNITED STATES

STATE OF TEXAS,

Plaintiff,

v.

STATE OF NEW MEXICO and
STATE OF COLORADO,

Defendants.

OFFICE OF THE SPECIAL MASTER

**DECLARATION OF PATRICK R. GORDON IN SUPPORT OF THE STATE OF
TEXAS'S OPPOSITIONS TO THE STATE OF NEW MEXICO'S MOTIONS FOR
PARTIAL SUMMARY JUDGMENT AND BRIEFS IN SUPPORT**

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December 22, 2020

I, Patrick R. Gordon, declare as follows:

1. My name is Patrick R. Gordon. I am over the age of 18, have personal knowledge of the facts set forth in this Declaration, and if called as a witness could and would testify competently under oath to such facts. I reside in El Paso, Texas.

2. I am the Rio Grande Compact Commissioner for the State of Texas (Texas).

3. Pursuant to Title 3, Chapter 41, of the Texas Water Code, the Texas Governor, with the advice and consent of the Texas Senate, appoints a commissioner to represent Texas on the Rio Grande Compact Commission established by Article XII of the 1938 Rio Grande Compact (Compact). I was first appointed as the Rio Grande Compact Commissioner in approximately January of 2006 by the Governor of Texas.

4. Pursuant to Title 3, Chapter 41, of the Texas Water Code, the Rio Grande Compact Commissioner serves for a six-year term upon appointment. I am currently serving in my third term as the Texas Rio Grande Compact Commissioner.

5. Upon my appointment as the Rio Grande Compact Commissioner, I took a constitutional oath of office, and an oath to faithfully perform my duties as the Rio Grande Commissioner. Pursuant to Title 3, Chapter 41, of the Texas Water Code, as the Rio Grande Commissioner, I am responsible for administering the provisions of the Compact, and I have all the powers and duties prescribed by the Compact.

6. In my role as the Rio Grande Compact Commissioner I have read, and am familiar with, the Compact. I have also read, and am familiar with, the negotiating minutes for the Compact, along with various other documents regarding the history of the Compact, including the 1936-1937 Rio Grande Joint Investigation in the Upper Rio Grande Basin in Colorado, New Mexico and Texas, commonly known as the JIR.

7. As the Rio Grande Compact Commissioner, I represent Texas and report directly to the Governor of Texas.

8. As the Rio Grande Compact Commissioner, I am authorized to state, under oath, the position of Texas on the issue of Compact apportionment. The position of Texas is as follows: The Compact equitably apportions the waters of the Rio Grande from its headwaters to Fort Quitman, Texas, among the State of Colorado (Colorado), the State of New Mexico (New Mexico), and Texas. Article III of the Compact provides water for use in Colorado, subject to the obligation to deliver indexed flows of water to New Mexico just below the Colorado-New Mexico state line. Articles III and IV of the Compact together provide water for use in New Mexico, subject to the obligation to deliver an indexed flow of water to Texas in Elephant Butte Reservoir. The water delivered by New Mexico in Elephant Butte Reservoir is apportioned to Texas, subject to the United States' Treaty obligation to Mexico and the United States' contractual obligations to Elephant Butte Irrigation District (EBID). The Compact does not apportion water to New Mexico below Elephant Butte Reservoir. The water released from Elephant Butte Reservoir and delivered to EBID pursuant to the United States' downstream contracts with EBID, is not a Compact apportionment to New Mexico. This water is a Project allocation, defined by the United States' downstream contracts with EBID. Article VII of the Compact provides that Texas may accept relinquished water (relinquished by Colorado and New Mexico) thereby allowing additional storage in upstream reservoirs. New Mexico has no ability to accept water under the Compact, even from itself, for the benefit of interests downstream of Elephant Butte Reservoir. Article VIII of the Compact provides that the Texas Rio Grande Commissioner can demand of Colorado and New Mexico the release of water from the upstream storage reservoirs under specified circumstances. *See also*, Deposition of Patrick R. Gordon, (Vol. 1)

(July 14, 2020) (Gordon Depo. 7/14/20), at 67:4-20; 144:7-16; 157:2-12; 157:23-159:14; 161:17-162:6; 162:12-163:2; 164:7-165:7; 165:23-167:11; 169:10-17. TX_MSJ_006892 - TX_MSJ_006940.

9. I am aware of New Mexico's 2011 federal district lawsuit. Texas did not file this original action "in reaction" to New Mexico's 2011 federal district lawsuit as stated by New Mexico in paragraph 82, page 16 of its brief in support of its partial summary judgment motion on Compact apportionment. As stated at my deposition, the 2011 federal district lawsuit "impacted" Texas's decision to proceed with this original action because, although "the operating agreement attempted to solve the issues of the diversion . . . of water to the contract users", it became apparent from the 2011 litigation that New Mexico "had no intention of trying to fix the problem that existed." *See* NM-EX 212, Gordon Depo. (Vol. II) (July 15, 2020) at 109:2-13.

10. The decision by Texas to file the present original action was based upon many factors. The primary factor, before and after the New Mexico's 2011 federal district lawsuit, and the "problem that existed" that I referred to during my deposition, was the historical and continuing depletions of Texas's Compact apportionment of Rio Grande surface water due to New Mexico's groundwater pumping and illegal surface water pumping below Elephant Butte Reservoir.

11. I have reviewed paragraph 87, page 17, of New Mexico's partial summary judgment motion on Compact apportionment. There, New Mexico cites to portions of NM-EX 518, which New Mexico claims to be a transcript of a Rio Grande Compact Commission meeting in 2011. Counsel for New Mexico showed this to me at my deposition. As stated at that time, I had not (until then), seen a copy of the document. Although it is correct that there are usually transcripts of Commission meetings, I cannot verify its accuracy.

Regarding the language that New Mexico references at paragraph 87, page 17, and assuming for purposes of this comment that the transcript is true and correct (which I cannot verify), I would not have spoken to the commission meeting attendees in legal terms. I also did not use the term “apportionment.” The transcript reflects use of the word “allocation,” which is referable to Project operations and the delivery of contract water to the districts in accordance with Reclamation contracts. The Reclamation contracts include a 1938 contract between the United States, EBID and El Paso County Water Improvement District No. 1 (EP#1), which includes a reference to the 57/43 percentage split regarding irrigated acres in each district. The Compact does not contain 57/43 percentage language that states or even suggests that there is a 57/43 apportionment of Rio Grande water between New Mexico and Texas. At my deposition, when counsel for New Mexico showed me the transcript now marked in support of their motion as NM-EX 518, and asked me about the language in the transcript, I testified that the comments were not correct, that I likely misspoke, and that people at the Commission meetings often mix up the verbiage between the Project and Compact. New Mexico, however, excluded that portion of my testimony from paragraph 87 in its motion on Compact apportionment. *See* Gordon Depo. 7/14/20 at 130:8-19, 134:3-19. TX_MSJ_006892 - TX_MSJ_006940.

12. I have reviewed the representation of Rolf Schmidt-Petersen in paragraph 11 of his declaration submitted in support of the New Mexico motions for partial summary judgment (NM-EX 004) and referenced in paragraph 91, page 18, of the New Mexico motion on Compact apportionment. I have also reviewed the representation of Estevan Lopez in paragraph 18 of his declaration submitted in support of the New Mexico motions for partial summary judgment (NM-EX 003) and referenced in paragraph 91, page 18, of the New Mexico motion on Compact apportionment. Both deponents use the same language,

verbatim, for this testimony. Both deponents refer to NM-EX 519. I have reviewed NM-EX 519 in conjunction with making this declaration. I did attend a meeting in approximately May of 2011 with representatives of New Mexico. The purpose of the meeting was to discuss the Operating Agreement. Compact apportionment was not a subject of the meeting. The handwriting depicted in NM-EX 519 is not mine. I do not know whose handwriting is depicted in NM-EX 519. The notes depicted in NM-EX 519 were not "talking points that represented Texas's position on the Rio Grande Compact" as stated by declarants Lopez and Schmidt-Petersen. Further, the declarants' representations of my statements, and Texas's "positions" are incorrect. I did not make any statement, or represent that it was the position of Texas, that the Compact *apportions* water below Elephant Butte Reservoir between New Mexico and Texas. I did not make any statement, or represent that it was the position of Texas, that there is a 57/43 apportionment pursuant to the Compact.

I declare under penalty of perjury that the foregoing is true and correct. Executed this 20th day of December 2020 at El Paso, Texas.


Patrick R. Gordon

Folder 2 – San Juan-Chama Project File No. 2

Box 3

MS406 Rio Grande Compact Commission Records

C.L. Sonnichsen Special Collections Department, University of Texas at El Paso

Statement of Louis A. Scott, Rio Grande Compact
Commissioner for Texas, in Opposition to the
Inclusion of the San Juan-Chama Transmountain
Diversion as a Participating Project in Legis-
lation Authorizing the Secretary of the Interior
to Construct, Operate, and Maintain the Colorado
River Storage Project and Participating Projects.

Mr. Chairman and Members of the Committee:

My name is Louis A. Scott. My address is 1100 First National Building, El Paso, Texas, and I am Rio Grande Compact Commissioner for the State of Texas.

At the outset I wish to make clear that the only portion of the bills being considered by the Committee to which the State of Texas objects is the authorization of the San Juan-Chama transmountain diversion, and the construction of dams, reservoirs, and hydroelectric plants on the Rio Chama in New Mexico as an integral part thereof, as a participating project.

Under the Rio Grande Compact the Commissioner for New Mexico represents all interests above Elephant Butte reservoir in that state, while the Commissioner for Texas represents all interests below the reservoir. The area so represented by the Texas Commissioner includes the entire Rio Grande Federal Reclamation Project, which consists of Elephant Butte dam and reservoir, Caballo dam and reservoir, Elephant Butte Irrigation District in Sierra and Dona Ana counties, New Mexico, and El Paso County Water Improvement District No. One in El Paso County, Texas. There are approximately 160,000 irrigable acres within the Rio Grande Federal project, 90,000 lying in New Mexico and 70,000 being in El Paso County, Texas.

The Rio Grande Federal Reclamation project has been in operation since 1915 and is rated by the Bureau of Reclamation as one of the three most successful Federal projects. There has never been a default in the payment to the United States of any installment of construction, operation or maintenance costs, or any

other charge made by the Government. The project is not subsidized and all costs are being paid by the landowners within the territorial limits of the project.

Under the terms of the Rio Grande Compact, New Mexico is required to make certain scheduled deliveries of water into Elephant Butte reservoir. That New Mexico has defaulted to a serious extent in fulfilling its obligations will be mentioned later in this statement.

The Rio Chama is the principal tributary of the Rio Grande in New Mexico. It is therefore readily apparent that if anything is done to obstruct, withhold, diminish, or curtail the normal flow of the Rio Chama, lands under the Rio Grande Federal project will be deprived of the water to which they are entitled under the Rio Grande Compact.

At this point mention should be made of the treaty of 1906 between the United States and Mexico whereby the United States is required to deliver to Mexico 60,000 acre feet of water per year from water stored in Elephant Butte reservoir. Such deliveries naturally reduce the amount of water available for use on Rio Grande Federal project lands.

The Rio Grande Compact contemplates and intends that there shall be a normal release of 790,000 acre feet per year from project storage to satisfy the needs of project lands and to meet the treaty requirement for delivery of 60,000 acre feet to Mexico. Article VIII of the Compact provides that if either New Mexico or Colorado has accrued debits to Texas, then during the month of January of any year the Commissioner for Texas may demand release of water stored in reservoirs constructed in New Mexico above Elephant Butte after 1929 to the amount of accrued debits, and that such releases shall be made in sufficient quantities, within the limits of such debits, to bring usable

water in project storage to 600,000 acre feet by March 1st and to maintain this quantity in storage until April 30th.

Article VII of the Compact further provides that neither New Mexico nor Colorado shall increase storage in reservoirs constructed after 1929 when there is less than 400,000 acre feet of usable water in Elephant Butte and Caballo reservoirs.

The third paragraph of Article VI of the Compact provides that New Mexico shall not accrue debits in excess of 200,000 acre feet, except as such debits may be caused by storage of water held in reservoirs constructed after 1929, and that New Mexico shall retain water in storage at all times to the extent of its accrued debit. Since El Vado reservoir on the Rio Chama is at present the only reservoir ^{on this river} ~~in New Mexico~~ constructed after 1929, this provision of Article VI means that New Mexico shall retain in El Vado the amount of its accrued debt to Texas. The capacity of El Vado reservoir is about 198,000 acre feet. However, from January 1, 1942, to December 31, 1952, New Mexico accrued a debit to Texas of approximately 465,000 acre feet. In other words, as of December 31, 1952, New Mexico owed Texas, which under the compact is but another word for the Rio Grande Federal Reclamation project, 465,000 acre feet of water. No computation has been made for the year 1953, but it is probable New Mexico's water debt to Texas has increased. This enormous debt, which is more than twice the maximum permitted New Mexico by the Compact, has been accumulated with only one dam on the Rio Chama. While we do not intend to imply that all of New Mexico's debit has been caused by refusal to operate El Vado reservoir in compliance with the Rio Grande Compact, we do say that a very substantial part of the debit is directly attributable to such dereliction by New Mexico.

Because of repeated violations of the Rio Grande Compact by New Mexico, United States Senator Price Daniel, while serving as Attorney General of Texas, felt impelled in the discharge of his official duties to file suit

in behalf of the State of Texas against the State of New Mexico. This suit is now pending in the Supreme Court of the United States.

In spite of the Rio Grande Compact and New Mexico's refusal to operate the one reservoir (El Vado) on the Rio Chama in compliance with that solemn agreement, New Mexico is now urging enactment of legislation by the Congress which will authorize the construction of four other reservoirs on the Rio Chama, having a combined storage capacity of more than three and one half times that of El Vado.

New Mexico proposes a transmountain diversion of San Juan River water into a tributary of the Rio Chama to the extent of 235,000 acre feet per year. Yet New Mexico in the same proposal asks the United States to finance the construction of four new dams and reservoirs for the impounding of 753,000 acre feet of the annual flow of the Rio Chama. This amount added to El Vado's capacity of 198,000 acre feet makes a total of 951,000 acre feet of the Rio Chama flow that New Mexico wishes to store behind five dams. It goes without saying that such storage will include the normal flow of the Rio Chama as well as imported San Juan River water, and thereby New Mexico will, for all practical purposes, be given absolute control of the principal tributary of the Rio Grande, which in turn supplies all of the water for the Rio Grande Federal Reclamation project. Remembering the difficulties experienced with New Mexico in the operation of one reservoir on the Rio Chama, Texas is justified in viewing with grave concern and alarm the prospect of giving New Mexico the opportunity to control all of the natural flow of this stream which is absolutely essential to the continued successful operation of the Rio Grande Federal project.

Since 1913 the highest recorded annual flow of the Rio Chama at Chamita, New Mexico, near the confluence of the Chama with the Rio Grande, was 907,000 acre feet. Thus the entire heaviest flow of the river for any year during the past forty years was less than New Mexico would impound in five

reservoirs. (Source: Rio Grande Joint Investigation.)

The combined storage of usable water in Elephant Butte and Caballo reservoirs has not been 600,000 acre feet at any one time since April, 1950. Hence if the four new reservoirs New Mexico desires the United States Government to build on the Rio Chama had been in existence in January, 1951, under the terms of Article VIII of the Rio Grande Compact, Texas would have, in view of New Mexico's debt to Texas, demanded the release of sufficient water in those reservoirs to bring usable water in Rio Grande Federal project storage to 600,000 acre feet by March 1, 1951 and to maintain that quantity in project storage until April 30, 1951. The same procedure would have been followed each year thereafter so long as New Mexico had an accrued debit to Texas and there was less than 600,000 acre feet of usable water in project storage in January. As of January 15, 1954 there were only 136,000 acre feet of usable water in project storage. On the same date New Mexico's debt to Texas was in excess of 460,000 acre feet. Assuming existence of the four new reservoirs, and assuming their content at approximately 500,000 acre feet, Texas could demand the drainage of the reservoirs in order to put 600,000 acre feet of usable water in project storage.

For considerable periods of time during the years 1950-1953, inclusive, there was less than 400,000 acre feet of usable water in Rio Grande Federal project storage. This was true during nine months of the year 1953. Under Article VII of the Rio Grande Compact there can be no increased storage in reservoirs on the Rio Chama when there is less than 400,000 acre feet of usable water in project storage.

The Secretary of the Interior has not recommended authorization of the San Juan-Chama project as a participating project under any of the bills being considered by this Committee. The Secretary has not made available to

the Committee any feasibility report.

No provision is made in the bills or plan of the project as to how or by whom the various structures on the Rio Chama will be operated. This is left to speculation and conjecture, or to possible future agreement between many conflicting interests.

Proponents of the legislation say no harm can come from authorization of the project because the bills provide that no appropriation for or construction of the project shall be made or begun until coordinated reports have been submitted to the affected states and approved by the Congress. It seems to us this is putting the cart before the horse in that the project should not be authorized until its economic justification and feasibility is established after thorough, careful, extensive studies by all interested and affected parties.

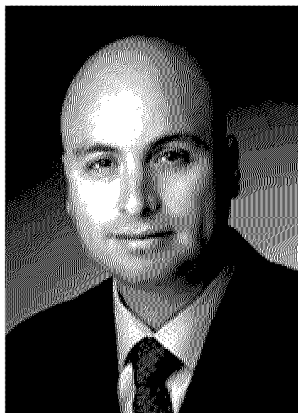
We sincerely believe that the San Juan-Chama project as submitted is fraught with danger to the Rio Grande Federal irrigation project. If lands under the latter project are deprived of the normal flow of the Rio Chama they will revert to desert, with consequent disaster to the economy of the whole area.

For the reasons herein stated, we respectfully urge the Committee to strike from the bills the authorization for the San Juan-Chama project as a participating project.

Louis A. Scott
Rio Grande Compact Commissioner
For Texas

Balderas: Lawsuit Is Trying To Stop Texas Theft Of New Mexico Water

By Office of New Mexico Attorney General



Credit Hector Balderas

Santa Fe, NM – Today, New Mexico Attorney General Hector Balderas appeared before the Senate Finance Committee to give an update on ***Texas v New Mexico and Colorado*** – a critical case to protect New Mexico water rights from the federal government and Texas. Please see below for excerpts from Attorney General Balderas’ testimony:

- **New Mexico water lawsuit is about fighting federal overreach & the theft of New Mexico water by Texas.**
- **Second, this lawsuit is about the federal government stealing New Mexico’s credit water and giving it to Texas, and doing so without our knowledge and certainly without our approval.**
- **Third, this suit is about the United States government favoring Texas farmers over southern New Mexico farmers. For example, in 2012 the U.S. gave Texas farmers 30 acre inches of water and New Mexico farmers only got 10 inches or less.**
- One of the most salient points that I want to emphasize is that New Mexico was forced to sue in order to protect its lawful entitlement and use of waters in the Rio Grande and to establish definitively that the Bureau of Reclamation cannot release our credit water without our approval.
- If we do not put up a defense, we lose control of our water, and ultimately, this case became necessary because without filing, we would have already lost.
- This is a complex case, and there is a great deal at stake; that is a fact upon which we can all agree. It is crucial, however, that we are all on the same page in terms of the facts and where New Mexico truly stands as of now:
- First, there is a misconception that New Mexico is in a weak position, but the truth is that we believe New Mexico is in a very strong position based on the law and on the evidence.
- Second, the misconception that Texas outspending New Mexico is necessarily detrimental to our position is not true for the following reasons:

- a. While Texas will undoubtedly outspend us, the fact of the matter is that more money doesn't mean a win, and;
- b. As long New Mexico has adequate funding to bring forward the necessary experts, present our case to the Court, and the agencies involved that we rely on (primarily the Interstate Stream Commission) are adequately funded, we remain in a strong position.
- Third, the misconception that we should settle this case immediately is false too:
 - a. We do not believe that this case is currently in a posture to consider settlement.
 - b. While we are always willing to talk to Texas, we do not see any common ground on which to base successful negotiations. What Texas claims the Rio Grande Compact requires and what we read in the plain language of the Compact are as different as night and day.
- Fourth, the misconception that groundwater pumping in New Mexico automatically takes surface water away from Texas is incorrect:
 - a. New Mexico meters, measures and administers groundwater pumping in the Lower Rio Grande to ensure that water rights owners are not exceeding the limit of their water rights. We are looking forward to proving in court that groundwater pumping is not harming Texas.
 - b. In comparison, Texas allows uncontrolled groundwater pumping. Texas would like us to believe they have their act together in how they manage both ground and surface water yet groundwater pumping is completely uncontrolled.
- Fifth, the misconception that New Mexicans below Elephant Butte Reservoir live in "Compact Texas" not New Mexico is false:
 - a. There is no such thing as "Compact Texas". The Rio Grande Compact did not change state boundaries and recognizes each state's boundaries correctly.
 - b. There is only one state that is protecting New Mexicans below Elephant Butte Reservoir **and it is not Texas.**
 - c. **Texas and the U.S. Bureau of Reclamation are trying to steal water that rightfully belongs to New Mexicans below Elephant Butte Reservoir.**
- Given all of these facts, I will say again that I am committed to being aggressive in my handling of this litigation.
- We are well-positioned for success, but adequate funding is essential, not only for my office but for the Interstate Stream Commission. The Legislative Finance Committee recommendation for the Interstate Stream Commission is \$2 million and \$2 million for the Attorney General's Office, and that money is crucial to our combined success.
- **The consequences of loss would be catastrophic to New Mexico.**

Relevant History of the Case:

- 2008: Elephant Butte Irrigation District, El Paso County Water Improvement District #1, Bureau of Reclamation enter into the 2008 Operating Agreement
- 2008-2010: Elephant Butte Irrigation District's yearly allocation is decreased by Operating Agreement
- 2011: Bureau of Reclamation releases New Mexico Compact Credit Water to Texas over New Mexico objections and New Mexico is subsequently forced to sue the Bureau of Reclamation in Federal district court
- 2013: Texas files petition for leave to bring suit against New Mexico and Colorado in the Supreme Court