



United States Department of the Interior

BUREAU OF RECLAMATION
EL PASO FIELD DIVISION
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EL PASO, TEXAS 79901-7020

IN REPLY REFER TO

EP-431

1 8 AUG 2004

Mr. Gary Esslinger
Manager-Treasurer
Elephant Butte Irrigation District
PO Drawer 1509
Las Cruces, NM 88004-1509

Mr. Jesus Reyes
General Manager
El Paso County Water
Improvement District No. 1
294 Candelaria
El Paso, TX 79907-5599

Commissioner Arturo Duran
International Boundary and Water Commission
U. S. Section
The Commons, Bldg. C, Suite 310
4171 N. Mesa St.
El Paso, TX 79902

**SUBJECT: Final Allocation of the 2004 Rio Grande Project Water
Supply Based on End of July Data**

Dear Gentlemen:

The combined total Rio Grande Project water storage at Elephant Butte and Caballo Reservoirs for **July 31, 2004 was 210,365 acre-feet (AF)**. We have released 275,793 AF of storage water for irrigation from March 12 to July 31, 2004.

Nearly all of the combined Rio Grande Project (Project) storage in Elephant Butte and Caballo Reservoirs is available for allocation. The only waters that cannot be allocated are: 1,050 AF of Rio Grande Compact credit waters; and 6,315 AF of San Juan-Chama water, both in Elephant Butte Reservoir.

We have gained only 16,118 AF in the net supply available for allocation from July 1 through July 31, 2004. Further, comparing actual deliveries of Project supply to the canal headings and Caballo Dam releases during March through July of 2004 has resulted in a slight increase in the delivery efficiency to 0.704 (or a 29.6% loss rate). The last update of the allocation (for end of June data) indicated a river efficiency

of 0,6875 (31.25% losses). The river losses for the present net supply available for allocation have decreased by 2,852 AF since last month's allocation update. However, this decrease in river losses (2,852 AF) and increase in net supply (16,118 AF) totalling 18,970 AF still is less than the increase in river losses last month (44,537 AF). Therefore, Reclamation will not increase the allocation due to continuing decreased river efficiency of delivering Project supply to the Project canal headings. As agreed in our meeting with Elephant Butte Irrigation District, El Paso County Water Improvement District No. 1, the International Boundary & Water Commission, and Mexico on July 30, 2004, **Reclamation declares the allocation of last month's update as the final allocation for the 2004 irrigation season.** The following is the final allocation:

ACRE-FEET

Mexico.....	27,197
Elephant Butte Irrigation District.....	185,507
El Paso County Water Improvement District No. 1.....	<u>141,240</u>
TOTAL:	353,944

This final allocation represents only 37.98% of a full irrigation season supply for the entire Project. Last month's updated allocation was the same.

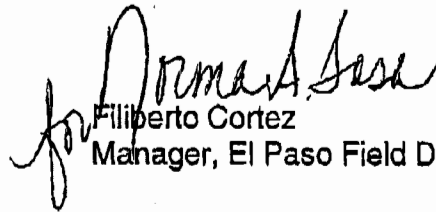
Please find enclosed:

- Enclosure No. 1 which summarizes modifications in the allocation procedures.
- Enclosure No. 2 which provides the details of the calculations for this month's allocation.
- Enclosure No. 3 which details the estimated Rio Grande Compact credit waters and San Juan-Chama water, both in Elephant Butte Reservoir.
- Enclosure No. 4 which summarizes the 2004 allocations to date.

Actual provisional flow data at the San Marcial gauging stations indicate that the flow for the 2004 spring runoff (March – July) was approximately 240,390 AF (41.95% of the 30-year average flow). Since 1996, we have

now had 8 years with below normal runoff into Elephant Butte Reservoir. The only year with above normal runoff was 1997. Enclosed is Reclamation's latest Project reservoirs operational plan with projections of the reservoirs' storage levels for the remainder of 2004. Elephant Butte Reservoir's low point is projected to be 48,450 AF on September 29th. See Enclosure No. 5.

Sincerely,


Filiberto Cortez
Manager, El Paso Field Division

Enclosures (5)

cc: Mr. Kenneth Rakestraw, Water Accounting Div., IBWC-US Section,
The Commons Bldg. C, Suite 310, 4171 N. Mesa, El Paso, TX
79902

Mr. Herman Settemeyer, Engineer Advisor for the Rio Grande
Compact Commissioner for Texas, TCEQ, MC-157, P.O. Box
13087, Austin, TX 78711-3087

Honorable Joe G. Hanson, Commissioner of the Rio Grande
Compact Commission for Texas, P. O. Box 1917, El Paso, TX
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Mr. Al Blair, AWBlair Engineering, 2711 W. Anderson Lane, Suite
210, Austin, TX 78757

(all cc's w/encls)

BUREAU OF RECLAMATION
El Paso Field Division
El Paso, TX

W Troers
12/11/2003

Modification of Rio Grande Project Water Supply Allocation Procedures

During the 2003 irrigation season on the Rio Grande Project, the net water supply available was too low to fall on the D-1 regression curve. Therefore, Reclamation utilized the following relationship to determine Mexico's allotment of the available water supply, which was based on historical allocation procedures on a month by month basis. This relationship is derived from the D-1 regression equation of the draft operating agreement.

$$\frac{763,842 \text{ AF (D-1 curve full supply release from Cabello)}}{928,700 \text{ AF (D-1 curve full supply amount delivered to U. S. lands of Rio Grande Project and Mexico's Canal Heading)}} = \frac{\text{Net Supply Available for Release from Cabello}}{X \text{ (Amount of water delivered to U. S. lands \& Mexico's canal heading)}}$$

or

$$1.44476 * X = \text{NET SUPPLY AVAILABLE FOR RELEASE}$$

Mexico's allotment is then determined by multiplying 0.113486 by the amount of water delivered to the U. S. lands and Mexico's canal heading as determined in the relationship above. This relationship is based on a full supply being delivered to the U. S. lands and to Mexico's canal heading per the D-1 regression equation. Reclamation assumed, for 2003, that the efficiency of delivering the water supply would be close to a full supply year, due to the fact that the previous 25 years had been full supply years.

However, final allotments to the U. S. lands for both U. S. irrigation districts for 2003 indicated that the efficiency of delivering the water supply to the U. S. lands was not as efficient as that of delivering water under a full supply allocation. The 1906 Treaty between the United States and Mexico specifies that the amount of water delivered to Mexico's canal heading shall be diminished in the same proportion as the water delivered to the lands of the U. S. irrigation system during extraordinary drought. Therefore, Reclamation will modify its relationship of determining Mexico's allotment to its canal heading for the 2004 irrigation season based on the final allotments to the U. S. lands issued by the U. S. irrigation districts in August, 2003. As more physical data concerning the amount of water delivered to the U. S. lands becomes available, Reclamation will continue modifying its relationship to determine Mexico's allotment of its canal heading, so that the amount of water delivered to the U. S. lands in proportion to a full supply delivery to the U. S. lands is equal to the amount of water allotted to Mexico's canal heading in proportion to a full supply delivery to Mexico's canal heading.

The following is the derivation of the modified relationship to determine Mexico's allotment to its canal heading.

FINAL ALLOTMENTS TO U. S. IRRIGATION DISTRICTS LANDS (August, 2003)

Elephant Butte Irrigation District (EBID) to lands	=	8.0 inches/acre	=	0.667 acre-foot/acre
El Paso County Water Improvement District No. 1 (EP#1) to lands	=	19.0 inches/acre	=	1.583 acre-foot/acre

CALCULATION OF TOTAL RIO GRANDE PROJECT ALLOCATION PER AUTHORIZED ACREAGE

$$\begin{aligned} \text{EBID} &= 0.667 \text{ AF/acre} * (88,000 \text{ acres}/155,000 \text{ acres} = 0.56774) = 0.379 \text{ AF/acre} \\ \text{EP\#1} &= 1.583 \text{ AF/acre} * (67,000 \text{ acres}/165,000 \text{ acres} = 0.40228) = 0.634 \text{ AF/acre} \\ \text{Total Rio Grande Project Allocation to U. S. Lands} &= 1.063 \text{ AF/acre} \end{aligned}$$

TOTAL WATER SUPPLY DELIVERED TO U. S. LANDS FOR 2003

$$1.063 \text{ AF/acre} * 155,000 \text{ acres} = 164,765 \text{ AF}$$

TOTAL WATER SUPPLY DIVERTED AT MEXICO'S CANAL HEADING FOR 2003

$$26,948 \text{ AF}$$

TOTAL WATER SUPPLY DELIVERED ON RIO GRANDE PROJECT FOR 2003

$$191,713 \text{ AF}$$

MODIFIED ALLOCATION PROCEDURE (RELATIONSHIP) TAKING INTO ACCOUNT 2003 EFFICIENCIES TO U. S. LANDS

$$\frac{363,004 \text{ AF (2003 total Cabello release for irrigation season)}}{191,713 \text{ AF (2003 total supply delivered to U. S. lands \& Mexico's heading)}} = \frac{2004 \text{ Net Supply Available for Release}}{X \text{ (Amount of water delivered to U. S. lands \& to Mexico's Heading)}}$$

or

$$1.89348 * X = \text{NET SUPPLY AVAILABLE FOR RELEASE}$$

WORKSHEET TO DETERMINE UPDATED ALLOTMENTS FOR RIO GRANDE PROJECT WATER USERS

WTrsers
8/16/2004

JULY 31, 2004 Rio Grande Project Reservoirs Storage

	(acre-feet)
ELEPHANT BUTTE RESERVOIR	144,257
CABALLO RESERVOIR	66,108
Total Rio Grande Project Storage	210,365

Adjustments to Total Project Storage

Rio Grande Compact Credit Waters in Elephant Butte Reservoir (data available to 7/31/04)	-1,050
Sun Juan-Chama Water Existing in Elephant Butte Reservoir (data available to 7/31/04)	-6,315
Estimated Rio Grande Project Reservoirs Evaporation and Other Losses for 1 Month	-688
Total Adjustments to RGProject Storage	-8,053

MAR 12-JUL 31 Irrig. Rel. from Caballo 275,793

Net Storage in RGP Reservoirs and Irrigation
Releases Available for Allocation

478,085

This net water supply represents a 16,118 AF gain from Jul. 1 - Jul. 31. The river efficiency of delivering water from Caballo Dam to the Project canal headings has increased somewhat from the end of June update of the allocation. Last month's river efficiency was 0.6876 (31.25% losses) based on actual Mar-Jun data. This month's actual data (Mar-Jul) indicates an increase in the river efficiency to 0.7040 (29.6% losses). Last month's river losses amounted to 144,368 AF, but this month's river losses are 141,516 AF - a decrease of 2,852 AF in river losses. However, with the gain in net supply (16,118 AF) and decrease in river losses (2,852 AF) totalling 18,970 AF; it still doesn't equal the additional 44,537 AF of river losses from last month.

Therefore, Reclamation will not increase the allocation as of July 31, based still on decreased river efficiency of delivering Project supply to the Project canal headings.

ENCLOSURE NO. 3**WORKSHEET OF STATUS OF RIO GRANDE COMPACT CREDIT WATERS
& SAN JUAN-CHAMA WATER IN ELEPHANT BUTTE RESERVOIR**WTreeers
8/16/2004**2004****ELEPHANT BUTTE RESERVOIR**

	Rio Grande Compact Credit Waters		San Juan- Chama Pool (AF)
	Colorado (AF)	New Mexico (AF)	
Beginning of 2004 (derived from 2003 RGC Accounting)	1,200	54,000	6,984
Estimated Evaporation from Jan. 1 to July 31, 2004 (derived from actual data)			669
Relinquishment of Credit Waters by NM to TX on March 1, 2004		53,000	
Relinquishment of Credit Waters by CO to TX on March 31, 2004	1,150		
Preliminary Status of RGC Credit Waters and SJ-C Water to July 31, 2004	50	1,000	6,315

2004 Rio Grande Project Allocation**Initial Allocation - End of November, 2003**

(letter issued Dec. 15, 2003)

Mexico	2,918 AF
Elephant Butte Irrigation District	23,134 AF
El Paso County Water Improvement District # 1	17,615 AF

43,667 AF *

Updated Allocation - End of December, 2003

(letter issued Jan. 21, 2004)

Mexico	5,191 AF
Elephant Butte Irrigation District	41,163 AF
El Paso County Water Improvement District # 1	31,341 AF

77,695 AF *

Updated Allocation - End of January, 2004

(letter issued Feb. 11, 2004)

Mexico	6,733 AF
Elephant Butte Irrigation District	53,387 AF
El Paso County Water Improvement District # 1	40,646 AF

100,766 AF *

Updated Allocation - End of February, 2004

(letter issued Mar. 10, 2004)

Mexico	16,461 AF
Elephant Butte Irrigation District	130,524 AF
El Paso County Water Improvement District # 1	99,377 AF

246,362 AF *

Updated Allocation - End of March, 2004

(letter issued Apr. 06, 2004)

Mexico	18,600 AF
Elephant Butte Irrigation District	147,487 AF
El Paso County Water Improvement District # 1	112,292 AF

278,379 AF *

2004 Rio Grande Project Allocation

Updated Allocation - End of April, 2004

(letter issued May 06, 2004)

Mexico	23,337 AF
Elephant Butte Irrigation District	180,179 AF
El Paso County Water Improvement District # 1	137,182 AF
	340,698 AF *

Updated Allocation - End of May, 2004

(letter issued June 08, 2004)

Mexico	27,197 AF
Elephant Butte Irrigation District	185,507 AF
El Paso County Water Improvement District # 1	141,240 AF
	353,944 AF *

Updated Allocation - End of June, 2004

(letter issued July 08, 2004)

Mexico	27,197 AF
Elephant Butte Irrigation District	185,507 AF
El Paso County Water Improvement District # 1	141,240 AF
	353,944 AF *

Final Allocation - End of July, 2004

(letter issued July 09, 2004)

Mexico	27,197 AF
Elephant Butte Irrigation District	185,507 AF
El Paso County Water Improvement District # 1	141,240 AF
	353,944 AF *

