Disclaimer: This presentation and slides serve only as a summary of the operations of the RGWM. The material presented is not intended, nor should it be accepted as superseding actual references treaties, rules and regulations. Please refer back to the original documents for actual applicable regulatory text.
Overview

• General Information
• Rio Grande Watermaster Program
• Photo Journal
• Questions
General Information
Rio Grande River (Rio Bravo)

4th longest river in North America

1896 River Miles

175 in Colorado

470 in New Mexico

1251 in Texas
General Information

Watermaster Programs

Texas Watermaster Areas

- South Texas Watermaster Area
- Concho River Watermaster Area
- Brazos Watermaster Area (2015) Includes Possum Kingdom Lake
- Rio Grande Watermaster Area Includes Southern portion of the Nueces - Rio Grande Coastal Basin

Non Watermaster Areas in the Rio Grande Basin
- Bolson - Closed Basin
- Upper Rio Grande - North of Fort Quitman
- Pecos & Devils River Watersheds
Rules and Regulations

TWC Chapter 11
Statutes on Water Rights

TAC Chapter 288
Agency rules on water conservation

TAC Chapter 295
Procedural agency rules to apply for water rights and amendments

TAC Chapter 297
Substantial agency rules to implement Texas Water Code

1944 Water Treaty Between Mexico and the United States
Managed by IBWC/CILA

TAC Chapter 303
Operation of the Rio Grande Watermaster Program
RIO GRANDE WATERMASTER PROGRAM
TEXAS ADMINISTRATIVE CODE
CHAPTER 303
Operation of the Rio Grande

Responsible for allocating, monitoring, and controlling surface waters in Rio Grande Basin, excluding the Pecos-Devil Rivers.


11 Total Staff Members
3 in Eagle Pass, TX
7 in Harlingen, TX
1 in Laredo, TX
Rio Grande Watermaster Program

- The Valley water suit between the State of Texas vs. HCWC&ID No. 18 was finalized in 1971 resulting in the final adjudication of the Lower Rio Grande water rights and appointment of a Watermaster.

- Priority was given based on Purpose of Use

- The final adjudication of the Upper Rio Grande water rights was completed in 1977

- The final adjudication of the Middle Rio Grande Water rights was completed in 1983

- User-Funded Program
RIVER SEGMENTS

• UPPER RIO GRANDE
  Fort Quitman-Amistad Dam including URG Tributaries
  “Run of the River” water rights
  Priority Date System

• MIDDLE RIO GRANDE
  Amistad Dam to Falcon Dam
  Water Stored/Water Released
  Purpose of use Priority System

• MIDDLE RIO GRANDE TRIBUTARIES
  “Run of the River” water rights
  Priority Date System

• LOWER RIO GRANDE
  Falcon Dam to Gulf of Mexico
  Water Stored/Water Released
  Purpose of use Priority System

• NUECES-RIO GRANDE COASTAL
  “Run of the River” water rights
  Priority Date System
Water Uses

- Municipal
- Industrial
- Domestic
- Irrigation
- Mining
- Recreation
- Hydroelectric
- Livestock
2017 UPPER RG WATER USE

UNITS IN ACRE-FEET

1 ACRE-FOOT=325,851 GALLONS
2017 MIDDLE RG WATER USE

UNITS IN ACRE-FEET

1 ACRE-FOOT = 325,851 GALLONS

IND  IRR  MIN  MUN  NON  REC
0.00  108.97  9,357.82  54,445.19  55.48  97.14
2017 TRIBUTARIES WATER USE

UNITS IN ACRE-FEET
1 ACRE-FOOT=325,851 GALLONS

IND  IRR  MIN  MUN  NON  REC
0.00  4,202.76  101.30  3,738.52  0.00  15.07
2017 LOWER RG WATER USE

UNITS IN ACRE-FEET
1 ACRE-FOOT=325,851 GALLONS

DOM | IND | IRR | MIN | MUN
---|---|---|---|---
6,648.60 | 3502.99 | 873,805.56 | 109.78 | 203,192.41
Rio Grande Watermaster Operations

- River Operations
- Water Accounting
- Field Operations
River Operations

Dedicated Releases based on Demand

- Water conservation oriented
- Calculations of the Water Demand
- Communication with IBWC on a daily basis on river and reservoir conditions and request water releases from Amistad, Falcon and Anzalduas dams
- Communication with Water Right holders on daily basis
- Monitor IBWC gaging stations to track flows
- Monitor Excess flows
River Operations

Rio Grande Reach
Travel Time: 1 Reach = 1 Day

UPPER*

REACH I
FT QUITMAN TO ABOVE PRESIDIO GAGING STATION

REACH II
UPPER PRESIDIO GAGING STATION TO ALAMITIO GAGING STATION

REACH III
ALAMITIO GAGING STATION TO JOHNSON RANCH GAGING STATION

REACH IV
JOHNSON RANCH GAGING STATION TO FOSTER RANCH GAGING STATION

REACH V
FOSTER RANCH GAGING STATION TO AMISTAD DAM

*Run of the River

MIDDLE

REACH I
AMISTAD DAM TO THE INTL BRIDGE AT DEL RIO

REACH II
INTL BRIDGE AT DEL RIO TO THE INTER’L BRIDGE AT EAGLE PASS

REACH III
INTL BRIDGE AT EAGLE PASS TO IBWC GAGING STATION AT SAN ANTONIO CROSSING

REACH IV
IBWC GAGING STATION AT SAN ANTONIO CROSSING TO THE INTL BRIDGE AT LAREDO

REACH V
THE INTL BRIDGE AT LAREDO TO SAN YGNACIO

REACH VI
SAN YGNACIO TO FALCON DAM

LOWER

REACH I
FALCON DAM – RIO GRANDE CITY

REACH II
RIO GRANDE CITY – ANZALDUAS DAM

REACH III
ANZALDUAS DAM – PROGRESO INTL BRIDGE

REACH IV
PROGRESO INTL BRIDGE – IBWC GAGING STATION NEAR SAN BENITO

REACH V
IBWC GAGING STATION NEAR SAN BENITO – CCID#6 PUMPS

REACH VI
CCID#6 PUMPS – IBWC GAGING STATION NEAR BROWNSVILLE

REACH VII
IBWC GAGING STATION NEAR BROWNSVILLE – GULF OF MEXICO
## River Operations

### Rio Grande Flows & Reservoirs Conditions

<table>
<thead>
<tr>
<th>Date</th>
<th>Rio Grande</th>
<th>Elephant Butte</th>
<th>Normal Conservation</th>
<th>Current Storage</th>
<th>Percent in storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>08/02/18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RG Below Caballo Dam</td>
<td>39.72</td>
<td>1,085</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RG at El Paso</td>
<td>24.40</td>
<td>862</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RG at ALICE</td>
<td>1.57</td>
<td>53</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Canal</td>
<td>18.00</td>
<td>636</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RG at Fort Quitman</td>
<td>0.85</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RG Above Rio Conchos</td>
<td>0.50</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RG below Rio Conchos</td>
<td>1.50</td>
<td>55</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RG at Johnson Ranch</td>
<td>0.87</td>
<td>31</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RG at Feeder Ranch</td>
<td>0.88</td>
<td>215</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pecos near Langtry</td>
<td>1.35</td>
<td>47</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Devils at Paffard</td>
<td>2.44</td>
<td>85</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amistad Reservoir</td>
<td>2.70</td>
<td>608</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RG at Del Rio</td>
<td>44.10</td>
<td>1,027</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RG at Eagle Pass</td>
<td>35.60</td>
<td>1,168</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RG at Encino</td>
<td>93.40</td>
<td>3,299</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RG at Las Juntas</td>
<td>7.20</td>
<td>2,220</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Falcon Reservoir</td>
<td>7.10</td>
<td>2,526</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RG at Rio Grande City</td>
<td>7.10</td>
<td>2,526</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RG below Anzalius</td>
<td>7.10</td>
<td>2,526</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RG at Brownsville</td>
<td>7.10</td>
<td>2,526</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anzalius Sgde</td>
<td>31,440</td>
<td>103.53</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### AMISTAD ABOVE/BELLOW CONSERVATION - FT

- AMISTAD ABOVE CONSERVATION - FT: 34.98
- AMISTAD BELOW CONSERVATION - FT: 38.55

### Mexican Reservoirs

<table>
<thead>
<tr>
<th>River</th>
<th>Flood Capacity</th>
<th>Cons. Capacity</th>
<th>Current MCM</th>
<th>Current A/F</th>
<th>% Storage of Conservation Capacity</th>
<th>Discharge CFS</th>
<th>CMS</th>
<th>Current as of</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Gabriel - Rio Florida</td>
<td>317,340</td>
<td>240,431</td>
<td>199,243</td>
<td>134,725</td>
<td>87.23%</td>
<td>4.33</td>
<td>54,300</td>
<td>7-Aug-18</td>
</tr>
<tr>
<td>El Nino - Rio Conchos</td>
<td>1,508,604</td>
<td>1,508,604</td>
<td>1,508,604</td>
<td>1,508,604</td>
<td>100.00%</td>
<td>0.00</td>
<td>7-Aug-18</td>
<td></td>
</tr>
<tr>
<td>Rio Grande - Rio Conchos</td>
<td>18,983</td>
<td>18,983</td>
<td>18,983</td>
<td>18,983</td>
<td>100.00%</td>
<td>0.00</td>
<td>7-Aug-18</td>
<td></td>
</tr>
<tr>
<td>Familia - Rio Conchos</td>
<td>57,000</td>
<td>57,000</td>
<td>57,000</td>
<td>57,000</td>
<td>100.00%</td>
<td>0.00</td>
<td>7-Aug-18</td>
<td></td>
</tr>
<tr>
<td>El Rejon - Rio Chival</td>
<td>128,893</td>
<td>128,893</td>
<td>128,893</td>
<td>128,893</td>
<td>100.00%</td>
<td>0.00</td>
<td>7-Aug-18</td>
<td></td>
</tr>
<tr>
<td>Centenario - El Tigre</td>
<td>209,269</td>
<td>209,269</td>
<td>209,269</td>
<td>209,269</td>
<td>100.00%</td>
<td>0.00</td>
<td>7-Aug-18</td>
<td></td>
</tr>
<tr>
<td>San Miguel - Rio San Diego</td>
<td>21,980</td>
<td>21,980</td>
<td>21,980</td>
<td>21,980</td>
<td>100.00%</td>
<td>0.00</td>
<td>7-Aug-18</td>
<td></td>
</tr>
<tr>
<td>San Luis - Rio San Pedro</td>
<td>32,048</td>
<td>32,048</td>
<td>32,048</td>
<td>32,048</td>
<td>100.00%</td>
<td>0.00</td>
<td>7-Aug-18</td>
<td></td>
</tr>
<tr>
<td>V. Carranza - Rio Balbo</td>
<td>132,832</td>
<td>132,832</td>
<td>132,832</td>
<td>132,832</td>
<td>100.00%</td>
<td>0.00</td>
<td>7-Aug-18</td>
<td></td>
</tr>
<tr>
<td>Los Cabos - Rio Alamos</td>
<td>125,357</td>
<td>125,357</td>
<td>125,357</td>
<td>125,357</td>
<td>100.00%</td>
<td>0.00</td>
<td>7-Aug-18</td>
<td></td>
</tr>
<tr>
<td>El Quispeo - Rio San Juan</td>
<td>178,422</td>
<td>178,422</td>
<td>178,422</td>
<td>178,422</td>
<td>100.00%</td>
<td>0.00</td>
<td>7-Aug-18</td>
<td></td>
</tr>
<tr>
<td>Martin Gomez - San Juan</td>
<td>214,050</td>
<td>214,050</td>
<td>214,050</td>
<td>214,050</td>
<td>100.00%</td>
<td>0.00</td>
<td>7-Aug-18</td>
<td></td>
</tr>
</tbody>
</table>

### Totals

- Rio Grande: 107,12,574 | 7,205,511 | 4,391,173 | 3,485,007 | 0.24%

### National Ownership at Amistad/Falcon

- Mexico at Amistad/Falcon: 312,305 | 599 | 485,815 | 19.15%
- Combined storage - Mexico: 3,873,612 | 47.20%
- United States combined at Amistad/Falcon: 4,194 | 2,000 | 1,028,710 | 48.02%
### TCEQ River Operations Estimates

**Date:** 3/1/2015  
**Time:** 8:48:00 AM

<table>
<thead>
<tr>
<th>Spoke to:</th>
<th>Charlie</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cila</strong></td>
<td>104.50</td>
</tr>
<tr>
<td></td>
<td>31.852</td>
</tr>
<tr>
<td></td>
<td>31.850</td>
</tr>
<tr>
<td></td>
<td>198.6</td>
</tr>
<tr>
<td></td>
<td>MX</td>
</tr>
<tr>
<td></td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td>31.6</td>
</tr>
<tr>
<td></td>
<td>US</td>
</tr>
<tr>
<td></td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td>21.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cila Current</th>
<th>104.50</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Flows</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Gains</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MX</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21.6</td>
</tr>
</tbody>
</table>

#### Spill(s)
- 1
- 14
- 15
- 16
- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- Total: 13

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Salinity Stations
- Taken from website: http://rhoc3.tceq.texas.gov/cgi-bin/water_daily_summary.pl
- Roma (767)
- Los Olmos (796)
- United I.D. (791)
- HCID #18 (792)
- Anzaldaus Dam (736)
- HCID #9 (793)
- Harlingen I.D. (789)

### Requests

<table>
<thead>
<tr>
<th></th>
<th>Amount</th>
<th>Release Time</th>
<th>Contact</th>
<th>Time of Call</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falcon</td>
<td>19.0</td>
<td>12:00</td>
<td>Charlie</td>
<td>9:04</td>
</tr>
<tr>
<td>Anzaldaus</td>
<td>12.20</td>
<td>18:00</td>
<td>Charlie</td>
<td>9:04</td>
</tr>
</tbody>
</table>

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Falcon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anzaldaus</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Comments:
- Anthony on River.
- Telemetry down.
- CWQMS down.
# River Operations

<table>
<thead>
<tr>
<th>Time</th>
<th>Total</th>
<th>Mexico</th>
<th>U.S.</th>
<th>Falcon Mean</th>
<th>Mexico Dams</th>
<th>A DIV</th>
<th>B DIV</th>
<th>Deduced</th>
<th>Balance</th>
<th>Above Anzalduas</th>
<th>ANZ DAY</th>
<th>Out of Pool</th>
<th>To Storage</th>
<th>Estimated End of Day Ownership</th>
<th>Adjusted Ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/25</td>
<td>PM</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/26</td>
<td>AM</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/27</td>
<td>AM</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/28</td>
<td>AM</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/29</td>
<td>AM</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/30</td>
<td>PM</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/31</td>
<td>AM</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/32</td>
<td>AM</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/33</td>
<td>PM</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/34</td>
<td>AM</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/35</td>
<td>PM</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: The table continues with similar columns and data for subsequent days.*
### River Operations

<table>
<thead>
<tr>
<th>DAY</th>
<th>8 Reach Total (in CPS)</th>
<th>8 Reach Total (in CMCS)</th>
<th>Small Dret Total</th>
<th>UNION WSG</th>
<th>LA GRULLA</th>
<th>H #13</th>
<th>H #16</th>
<th>H #18</th>
<th>H #18 A50-001</th>
<th>H #18 H118-002</th>
<th>H #18 H116-002</th>
<th>UNITED H101</th>
<th>H #18 A54-001</th>
<th>H #18 H117-002</th>
<th>BELOW ANZ in CPS</th>
<th>DAY</th>
<th>Total in CPS</th>
<th>Sugar Release (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/11</td>
<td>9.0</td>
<td>0.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>7/12</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>7/13</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>7/14</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>7/15</td>
<td>45.0</td>
<td>1.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>7/16</td>
<td>66.0</td>
<td>1.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>21</td>
<td>45</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>7/17</td>
<td>75.0</td>
<td>2.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>21</td>
<td>45</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>7/18</td>
<td>153.0</td>
<td>4.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>60</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>7/19</td>
<td>138.0</td>
<td>3.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>60</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>7/20</td>
<td>132.0</td>
<td>3.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>60</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>7/21</td>
<td>209.0</td>
<td>5.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>60</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>7/22</td>
<td>203.0</td>
<td>5.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>60</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>7/23</td>
<td>194.0</td>
<td>5.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>60</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>7/24</td>
<td>178.0</td>
<td>5.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>60</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>7/25</td>
<td>198.0</td>
<td>5.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>60</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>7/26</td>
<td>198.0</td>
<td>5.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>60</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>7/27</td>
<td>221.0</td>
<td>6.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>60</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>7/28</td>
<td>234.0</td>
<td>6.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>60</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>7/29</td>
<td>254.0</td>
<td>6.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>60</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>7/30</td>
<td>254.0</td>
<td>6.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>60</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>7/31</td>
<td>285.0</td>
<td>7.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>60</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>8/1</td>
<td>216.0</td>
<td>6.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>60</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>8/2</td>
<td>242.0</td>
<td>6.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>7</td>
<td>47.9</td>
<td></td>
</tr>
<tr>
<td>8/3</td>
<td>259.0</td>
<td>8.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>7</td>
<td>47.9</td>
<td></td>
</tr>
<tr>
<td>8/4</td>
<td>287.0</td>
<td>8.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>7</td>
<td>47.9</td>
<td></td>
</tr>
<tr>
<td>8/5</td>
<td>287.0</td>
<td>8.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>7</td>
<td>47.9</td>
<td></td>
</tr>
<tr>
<td>8/6</td>
<td>137.0</td>
<td>3.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>7</td>
<td>47.9</td>
<td></td>
</tr>
</tbody>
</table>

8/5/2015s
Water Accounting
Water Accounting

- Water use is administered through water accounts similar to bank accounts

- Authorization to use water is requested and diversion certification is issued

- Processing of the pump operation report as submitted by the water user to account for the water used

- Processing of water adjustments between diverters and users
Water Accounting

• Processing water contracts between water right holders

• Processing temporary water use permits

• Generation of the Monthly Report outlining the status of the water account

• Updating Watermaster records as required due to water right amendments and changes of ownerships

All water accounting is processed using TXWAS (Texas Watermaster Accounting System)
Water Accounting

Authorized Water Right = AWR

Usable Balance: No charge water YTD

Storage balance: Contract Water YTD

Storage Limit: Authorized Water Right YTD

Contract Balance: Sold Water YTD
Water Accounting

Diversion Certification: Authorization to divert water

**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY DIVERSION CERTIFICATE**

- **Acct No:** 0000-000
- **Authorization Number:** 418623
- **Owner:** John Doe Farms
- **Diverter:**
  - Is authorized to divert: 10,438.4
  - Feet of regular water with pump 1 for the period and rate shown below:

<table>
<thead>
<tr>
<th>Deputy: Quintanilla</th>
<th>Reach: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Doe</td>
<td></td>
</tr>
<tr>
<td>1804 W Jefferson Ave</td>
<td></td>
</tr>
<tr>
<td>Harlingen, Texas 78550</td>
<td></td>
</tr>
</tbody>
</table>

- **Begin Date** | **End Date** | **GPM** | **Acre Feet** |
  - 02/16/2014 08:00 | 02/16/2014 17:00 | 900 | 1.4912 |
  - 02/17/2014 08:00 | 02/17/2014 17:00 | 900 | 1.4912 |
  - 02/18/2014 08:00 | 02/18/2014 17:00 | 900 | 1.4912 |
  - 02/19/2014 08:00 | 02/19/2014 17:00 | 900 | 1.4912 |
  - 02/20/2014 08:00 | 02/20/2014 17:00 | 900 | 1.4912 |
  - 02/21/2014 08:00 | 02/21/2014 17:00 | 900 | 1.4912 |
  - 02/22/2014 08:00 | 02/22/2014 17:00 | 900 | 1.4912 |

- **Watermaster:** Jose G. Luna

Please retain this copy for your records
Water Accounting

- Pump Operation Report
- These reports must be returned with meter readings in a timely manner

---

**TENAS COMMISSION ON ENVIRONMENTAL QUALITY PUMP OPERATION REPORT**

<table>
<thead>
<tr>
<th>Acct No:</th>
<th>0000-000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client Name</td>
<td>John Doe Farms</td>
</tr>
<tr>
<td>Is authorized to divert: 10,4384 acre-feet of regular water with pump</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Meter Reading</th>
<th>255694</th>
<th>258694</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Date:** 01/27/2014  **Time:** 08:33

**Received By:** AC

**Authorized Number:** 418623

<table>
<thead>
<tr>
<th>Begin Date</th>
<th>End Date</th>
<th>GPM</th>
<th>Acre Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>02/16/2014 08:00</td>
<td>02/16/2014 17:00</td>
<td>900</td>
<td>1.4912</td>
</tr>
<tr>
<td>02/17/2014 08:00</td>
<td>02/17/2014 17:00</td>
<td>900</td>
<td>1.4912</td>
</tr>
<tr>
<td>02/18/2014 08:00</td>
<td>02/18/2014 17:00</td>
<td>900</td>
<td>1.4912</td>
</tr>
<tr>
<td>02/19/2014 08:00</td>
<td>02/19/2014 17:00</td>
<td>900</td>
<td>1.4912</td>
</tr>
<tr>
<td>02/20/2014 08:00</td>
<td>02/20/2014 17:00</td>
<td>900</td>
<td>1.4912</td>
</tr>
<tr>
<td>02/21/2014 08:00</td>
<td>02/21/2014 17:00</td>
<td>900</td>
<td>1.4912</td>
</tr>
<tr>
<td>02/22/2014 08:00</td>
<td>02/22/2014 17:00</td>
<td>900</td>
<td>1.4912</td>
</tr>
</tbody>
</table>

**Signature:**

**THIS COPY MUST BE RETURNED TO WATERMASTER WITHIN 5 DAYS FOLLOWING END OF CERTIFICATION PERIOD**
Allocation

- The equitable distribution of the United States' share of water stored in the Amistad-Falcon system to eligible accounts

Two Reservoirs, One System

- Full Allocation
- Partial Allocation
- Negative Allocation*  

Water Right Accounts on the Rio Grande’s Amistad-Falcon system fall in either of 2 categories.

- Water rights with municipal priority – MDI Reserve
- Water rights with a Class A or Class B – Class Reserve

*never occurred
Partial Allocation

MDI Reserve

- The highest priority of Water rights. This reserve is maintained full to ensure the availability of municipal, domestic, and industrial water before any other use.

- The MDI accounts receive a full allotment of water which is equal to their Annual Authorized Water Right at the beginning of each year.
Partial Allocation

CLASS A & B RESERVE

- Water for Irrigation, Mining and Recreation use is maintained in the Class Reserve.
  - These accounts depend on the inflows into the Amistad/Falcon system for the allotment of water thru monthly allocations whenever water is available.
## Rio Grande Watermaster Report 06/26/18

### Amistad
- **Normal Conservation Elevation**: 340.402
- **Water Elevation**: 331.480
- **Total Normal Conservation Capacity**: 4,040,325
- **Total Combined Storage**: 2,141,000
- **US Share of Current Storage**: 1,686,000
- **Mexico share of Current Storage**: 470,000
- **US Release AVG**: 21.80
- **Mexico Release AVG**: 4.20
- **US Inflows AVG**: 311.10
- **Mexico Inflows AVG**: 23.30
- **US Reservoir Loss**: 13.50

### Falcon
- **Normal Conservation Elevation**: 91.805
- **Water Elevation**: 81.585
- **Total Normal Conservation Capacity**: 3,284,813
- **Total Combined Storage**: 866,000
- **US Share of Current Storage**: 663,000
- **Mexico share of Current Storage**: 192,000
- **US Release AVG**: 86.80
- **Mexico Release AVG**: 33.40
- **US Inflows AVG**: 43.00
- **US Reservoir Loss**: 9.13

### Overall Status
- **Normal Conservation Capacity - Amistad**: 4,040,325
- **US Share of Amistad Normal Conservation**: 2,270,063
- **Current US share of Normal Conservation**: 1,686,000
- **Normal Conservation Capacity - Falcon**: 3,284,813
- **US Share of Falcon Normal Conservation**: 1,913,180
- **Current US share of Normal Conservation**: 663,000
- **Normal Capacity - Amistad/Falcon System**: 7,305,138
- **Normal Conservation Capacity - US**: 4,183,843
- **Normal Conservation Capacity - Mexico**: 3,121,266

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Storage US</td>
<td>2,328,000 TCM</td>
</tr>
<tr>
<td>Current Storage Mexico</td>
<td>668,000 TCM</td>
</tr>
<tr>
<td>Percent of Storage Capacity</td>
<td></td>
</tr>
</tbody>
</table>

- **Percent of Storage Capacity - Amistad - Falcon System**: 41.01%
Partial Allocation

Determining water available for allocation

Subtract reserves from the US Share of water in the Amistad/Falcon system on the last Saturday of each month to determine the amount of Unallocated Water.

On May 26, 2018 the reserves were:
- US Share in Amistad/Falcon = 1,887,333 AF
- Dead Storage = 4,600 AF
- Municipal Reserve = 225,000 AF
- Middle Class A & B Reserve = 214,412.6564 AF
- Middle Allocation = ____________ AF
- Lower Class A & B Reserve = 1,312,878.8467 AF
- Lower Allocation = ____________ AF
- Operating Reserve = 75,000 AF
- Unallocated Water = 55,441.4969AF
PRE-ALLOCATION

Operating Reserve, 75,000.0000

Middle Reserve, 214,412.6564

MDI Reserve, 225,000.0000

Unallocated Water, 55,441.4969

Dead Storage, 4,600,000.00

Lower Reserve, 1,312,878.8467

Operating Reserve, 75,000.0000

Unallocated Water, 55,441.4969

Dead Storage, 4,600,000.00

Lower Reserve, 1,312,878.8467

Amistad/Falcon System 05/26/2018
1,887,333.0000 AF
PARTIAL ALLOCATION

Rate Calculation

AUTHORIZED WATER RIGHTS

<table>
<thead>
<tr>
<th>Class</th>
<th>Lower</th>
<th>Middle</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>LA</td>
<td>MA</td>
<td>X</td>
</tr>
<tr>
<td>Class B</td>
<td>LB</td>
<td>MB</td>
<td>Y</td>
</tr>
</tbody>
</table>

\[ ((X \times 1.7) + Y) = Z \]

Unallocated water: \( 55,441,4969 / Z = 0.019806851 \) (B Rate)

\( 0.019806851 \times 1.7 = 0.033671646 \) (A Rate)

Authorized Water Right of each eligible Class A Account x A Rate = AF Allocated
Authorized Water Right of each eligible Class B Account x B Rate = AF Allocated
Partial Allocation

Final Allocation Worksheet

May 26, 2018

- US Share in Amistad/Falcon = 1,887,333 AF
- Dead Storage = 4,600 AF
- Municipal Reserve = 225,000 AF
- Middle Class A & B Reserve = 214,412.6564 AF
- Middle Allocation = 5,455.6603 AF
- Lower Class A & B Reserve = 1,312,878.8467 AF
- Lower Allocation = 48,816.1766 AF
- Operating Reserve = 75,000 AF
- Unallocated Water = 1,158.6600 AF
Amistad/Falcon System 05/26/2018
1,887,333.0000 Acre-Feet
Field Operations

- Watermaster staff are required to conduct a combined total of 18,600 field monitoring investigations.

- Watermaster staff monitor river diversions daily to verify valid certifications and the accuracy of the meters.

- Enforcement actions are taken for unauthorized diversions.
Field Operations

- Respond to water right complaints
- Maintain records of deputy daily inspections
- Ensure water user compliance and enforce watermaster and state water rules
- Technical assistance to water users
- Visual reconnaissance of river conditions
- Other Watermaster duties assigned
Field Operations

IRRIGATION DISTRICTS WITHIN HIDALGO, CAMERON AND WILLACY COUNTIES, TEXAS

Legend:
- County lines
- Main canals
- Canals
- Roads
- Existing irrigation districts
- Policy Auction

[Map showing irrigation districts within Hidalgo, Cameron, and Willacy Counties, Texas]
Field Operations
Field Operations
Field Operations
Field Operations
Field Operations
UPPER RIO GRANDE
FORGOTTEN RIVER AREA
UPPER RIO GRANDE
CANDELARIA-PRESIDIO AREA
UPPER RIO GRANDE
PRESIDIO-REDFORD AREA
UPPER RIO GRANDE
BIG BEND NATIONAL PARK AREA
Amistad International Dam

- Located west of Del Rio in Val Verde County
- Operated and maintained by IBWC and its Mexican counterpart, CILA
Amistad International Dam
Amistad International Dam
Tropical Storm Alex – Summer 2010

1000 CMS release (35,315 CFS)
Amistad International Dam
Tropical Storm Alex – Summer 2010

1000 CMS release (35,315 CFS)
MIDDLE RIO GRANDE
EAGLE PASS AREA
MIDDLE RIO GRANDE
LAREDO AREA
MIDDLE RIO GRANDE
ZAPATA AREA

12/03/2008
Falcon International Dam

Located at the intersection of Starr county and Zapata county
Operated and maintained by the IBWC and its Mexican counterpart, CILA
Falcon International Dam
Tropical Storm Alex – Summer 2010

1000 CMS release (35,315 CFS)
LOWER RIO GRANDE
ROMA AREA
Anzalduas Dam

- Located in Hidalgo County
- Operated by the IBWC and its Mexican counterpart, CILA
LOWER RIO GRANDE
HIDALGO & WILLACY COUNTIES
LOWER RIO GRANDE
CAMERON COUNTY
LOWER RIO GRANDE
LOWER RIO GRANDE
Mouth of the Rio Grande
QUESTIONS?
Jose A. Davila
Assistant Rio Grande Watermaster
(830) 773-5059 (Office Direct)
(830) 773-4103 (Fax)
jose.davila@tceq.texas.gov