



USIBWC Operation of Amistad and Falcon Dams during Hurricane Alex

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Lower Rio Grande Citizens Forum

August 25, 2010

PRESENTATION OUTLINE

- Background on Amistad and Falcon Dam
- Conservation and Flood Levels
- Mexican Tributaries and Dams
- Hurricane Alex and TD #2
- Rainfall
- Effects in Mexico
- Inflows to Rio Grande/Dams
- Flood Operations/Releases
- Coordination with Response Agencies



AMISTAD DAM



AMISTAD DAM

- International Dam/Storage Reservoir
- Located at Del Rio, TX-Cd. Acuña, Coah.
- Uses
 - Water Storage (3,275,532 acre-feet, 4,040,325 TCM)
 - Flood Control (5,011,292 acre-feet, 6,181,362 TCM)
 - Hydropower
 - Recreation
- Conservation Level 1117.0 ft (340.462 m)
- Flood Level – 1140.4 ft (347.595 m)



FALCON DAM

- International Dam/Storage Reservoir
- Located along the border between Laredo and McAllen, TX
- Purposes
 - Water Storage (2,646,817 acre-ft, 3,264,813 TCM)
 - Flood Control (3,148,123 acre-feet, 3,883,168 TCM)
 - Hydropower
- Conservation Level 301.2 ft (91.805 m)
- Flood Level – 306.7 ft (93.480 m)



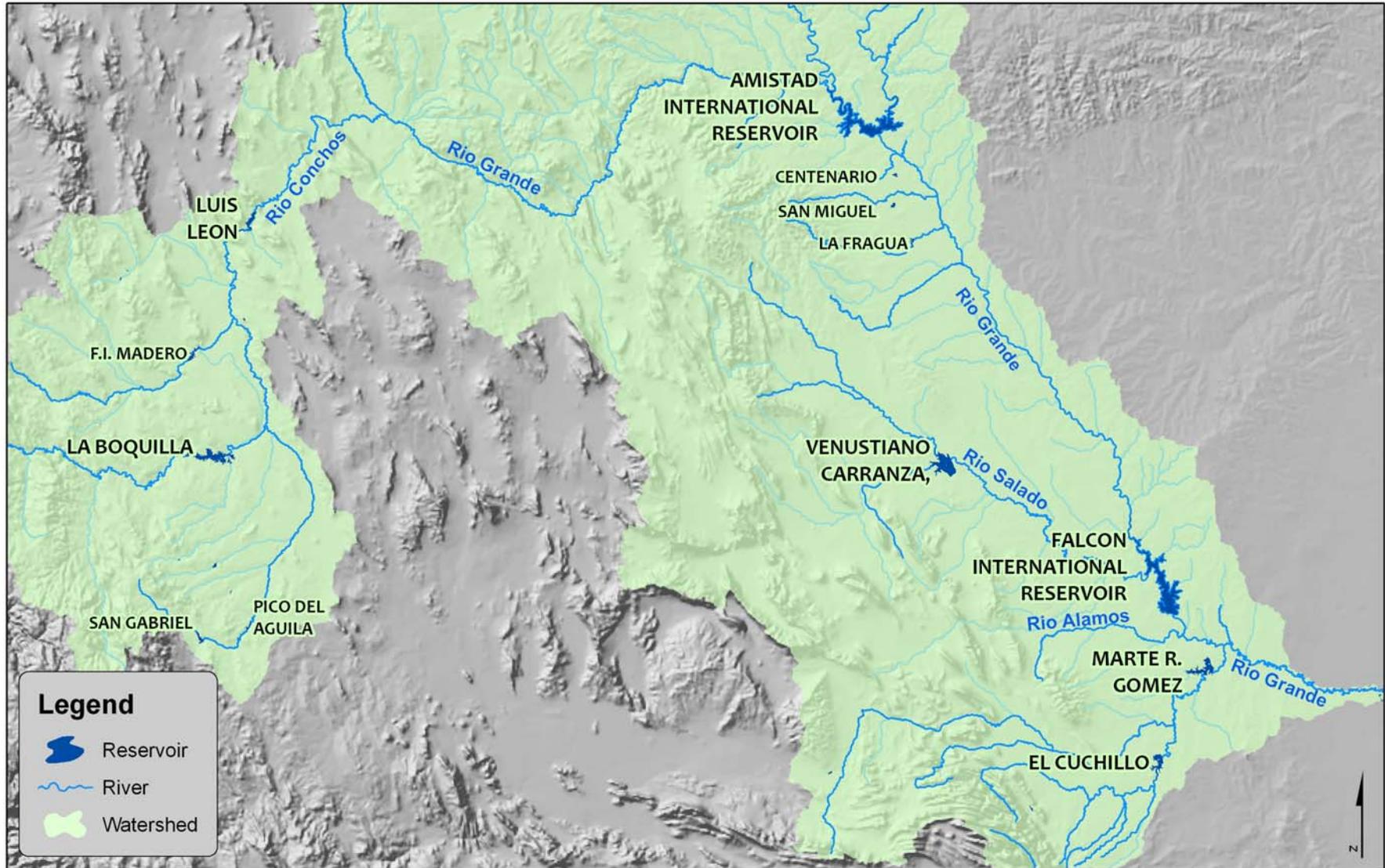
Mexican Reservoirs

- V. Carranza
- El Cuchillo
- Marte Gomez





Rio Grande Basin Map – Conchos & Downstream



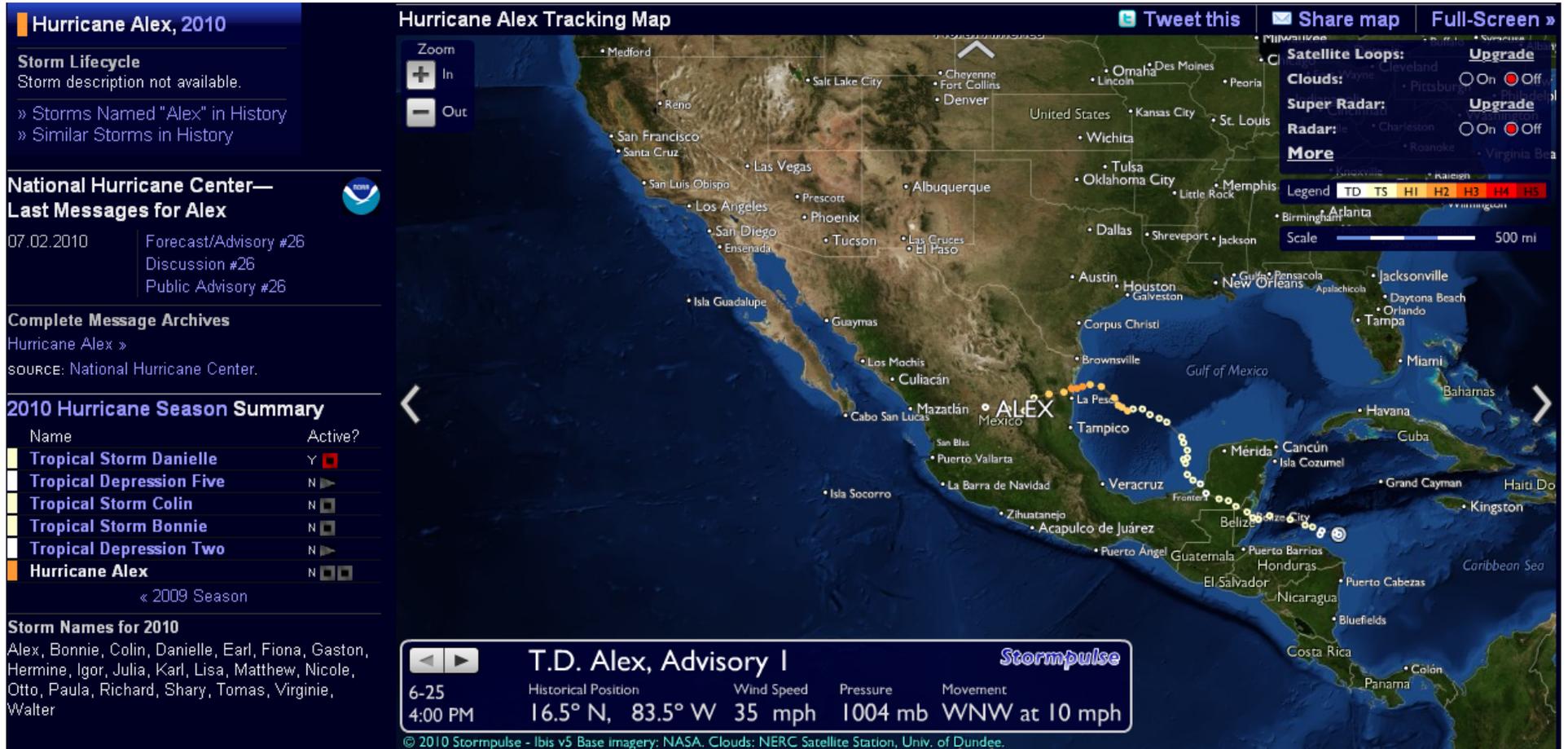
PRESA	Distance to Río Grande (Km)	Travel Times (Hr)
Boquilla, Chih.	444.0	144
Francisco I. Madero, Chih.	317.0	108
Luis L. León, Chih.	204.0	72
Centenario, Coah.	36.5	19
San Miguel, Coah.	34.0	15
La Fragua, Coah.	27.0	8
Venustiano Carranza, Coah.	268.0	60
Marte R. Gómez, Tam.	23.0	6
Cuchillo, N.L.	125.0	18

Tropical Storms

- Hurricane Alex
- Tropical Depression No. 2



Hurricane Alex





TD No. 2

#2, Tropical Depression, 2010

Storm Lifecycle
Storm description not available.
[» Similar Storms in History](#)

**National Hurricane Center—
Last Messages for Two**

07.08.2010 Forecast/Advisory #4
Discussion #4
Public Advisory #4

Complete Message Archives
Tropical Depression #2 »
source: National Hurricane Center.

2010 Hurricane Season Summary

Name	Active?
Tropical Storm Danielle	Y <input checked="" type="checkbox"/>
Tropical Depression Five	N <input type="checkbox"/>
Tropical Storm Colin	N <input type="checkbox"/>
Tropical Storm Bonnie	N <input type="checkbox"/>
Tropical Depression Two	N <input type="checkbox"/>
Hurricane Alex	N <input type="checkbox"/>

« 2009 Season »

Storm Names for 2010
Alex, Bonnie, Colin, Danielle, Earl, Fiona, Gaston, Hermine, Igor, Julia, Karl, Lisa, Matthew, Nicole, Otto, Paula, Richard, Shary, Tomas, Virginie, Walter

Tropical Depression Two Tracking Map

Tweet this Share map Full-Screen »

Satellite Loops: [Upgrade](#)

Clouds: On Off

Super Radar: [Upgrade](#)

Radar: On Off

More

Legend **TD** TS H1 H2 H3 H4 H5

Scale mi

T.D. Two, Advisory I Stormpulse

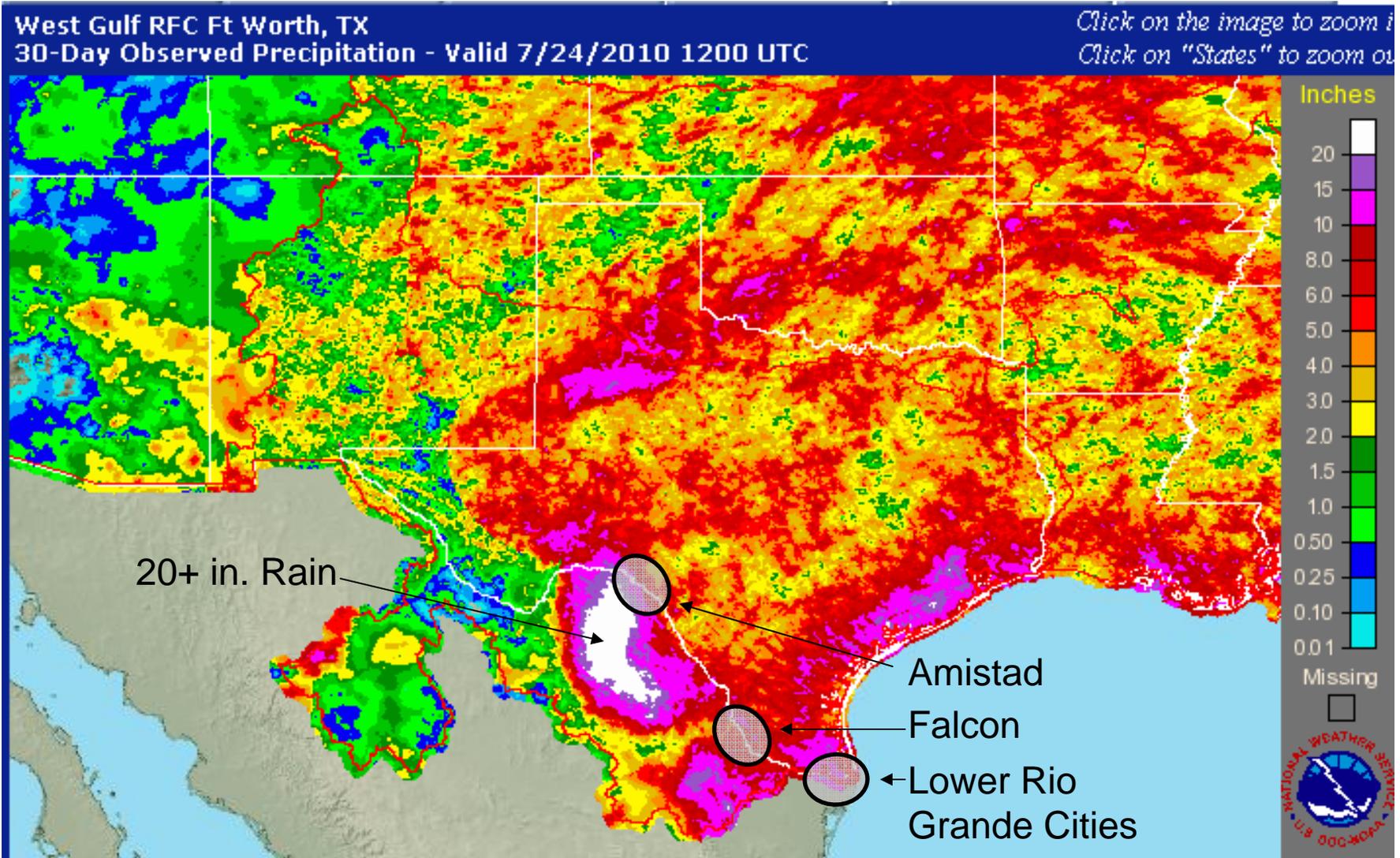
7-7	Historical Position	Wind Speed	Pressure	Movement
9:00 PM	23.9° N, 93.9° W	35 mph	1005 mb	WNW at 14 mph

© 2010 Stormpulse - Ibis v5 Base Imagery: NASA, Clouds: NERC Satellite Station, Univ. of Dundee.



Hurricane Alex / Tropical Depression #2 Impacts

30-Day Rainfall Ending 24 July 2010



Effects in Mexico

- Flooding in Monterrey Mexico
- High Flows from Carranza Reservoir- 3,840 cms (135,608 cfs) on July 7
- High Flows from El Cuchillo- 3,142 cms (110,959 cfs) on July 3
- Marte Gomez: High flows from Marte Gomez- 928 cms (32,772 cfs) on July 9



Monterrey, Mexico

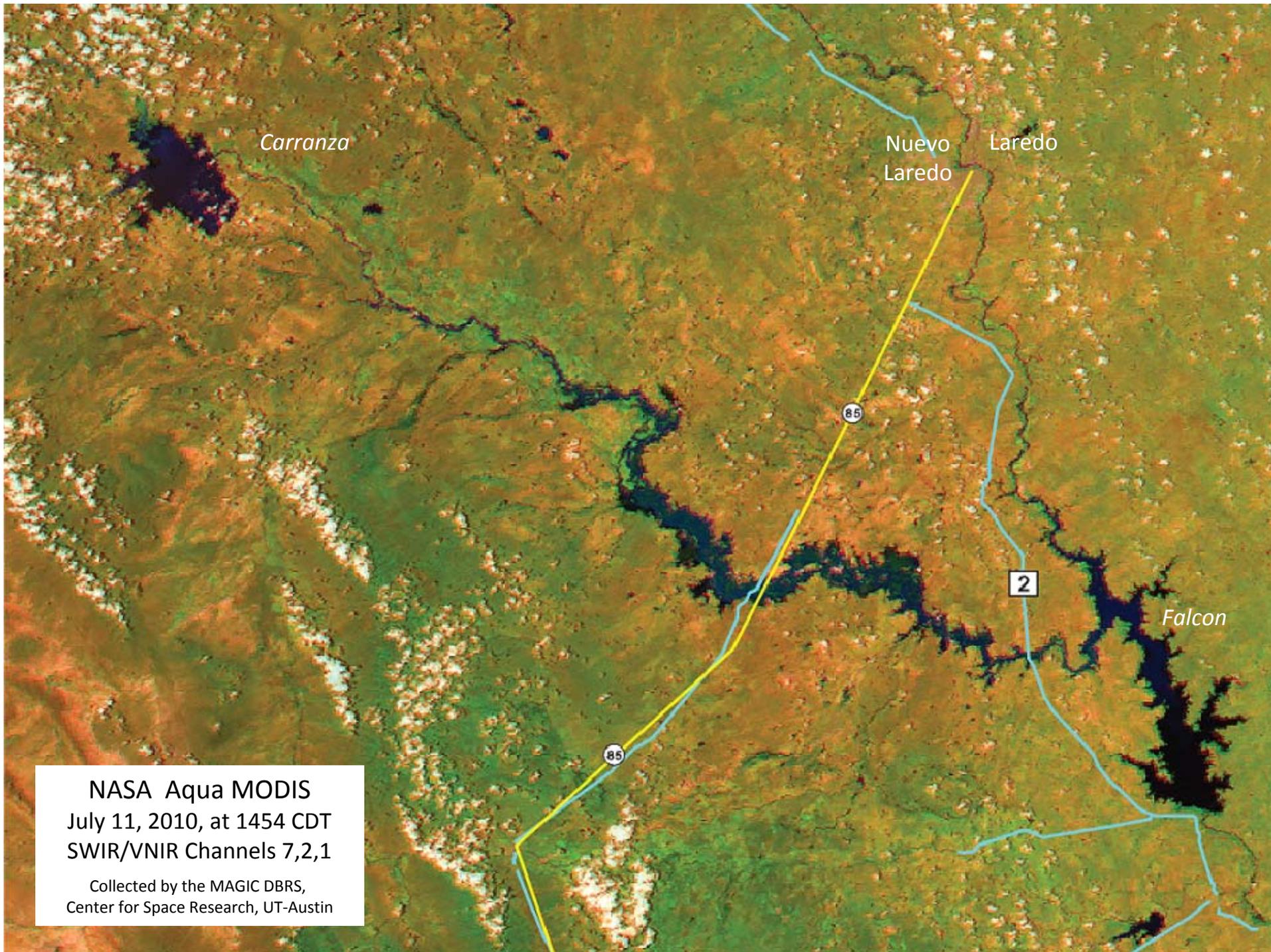


Monterrey, Mexico

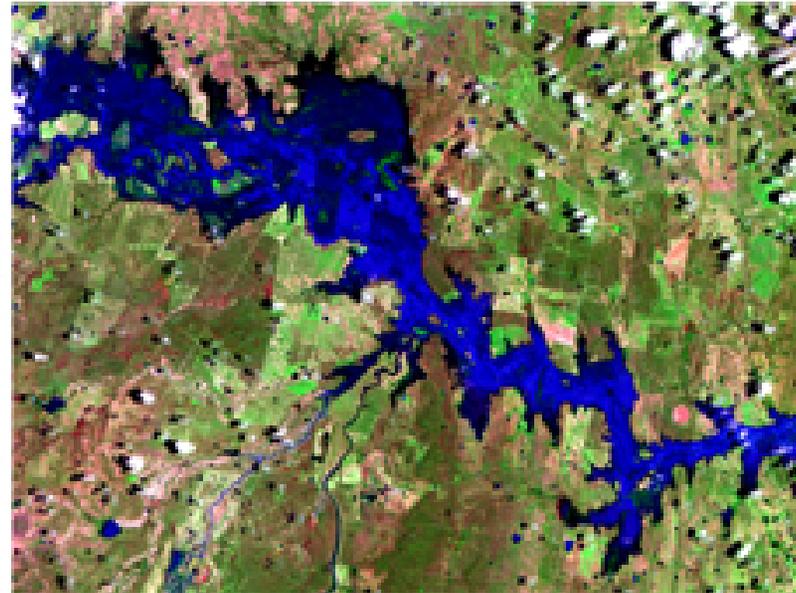


Monterrey, Mexico





Upstream of Falcon Dam



Upstream of Falcon Dam



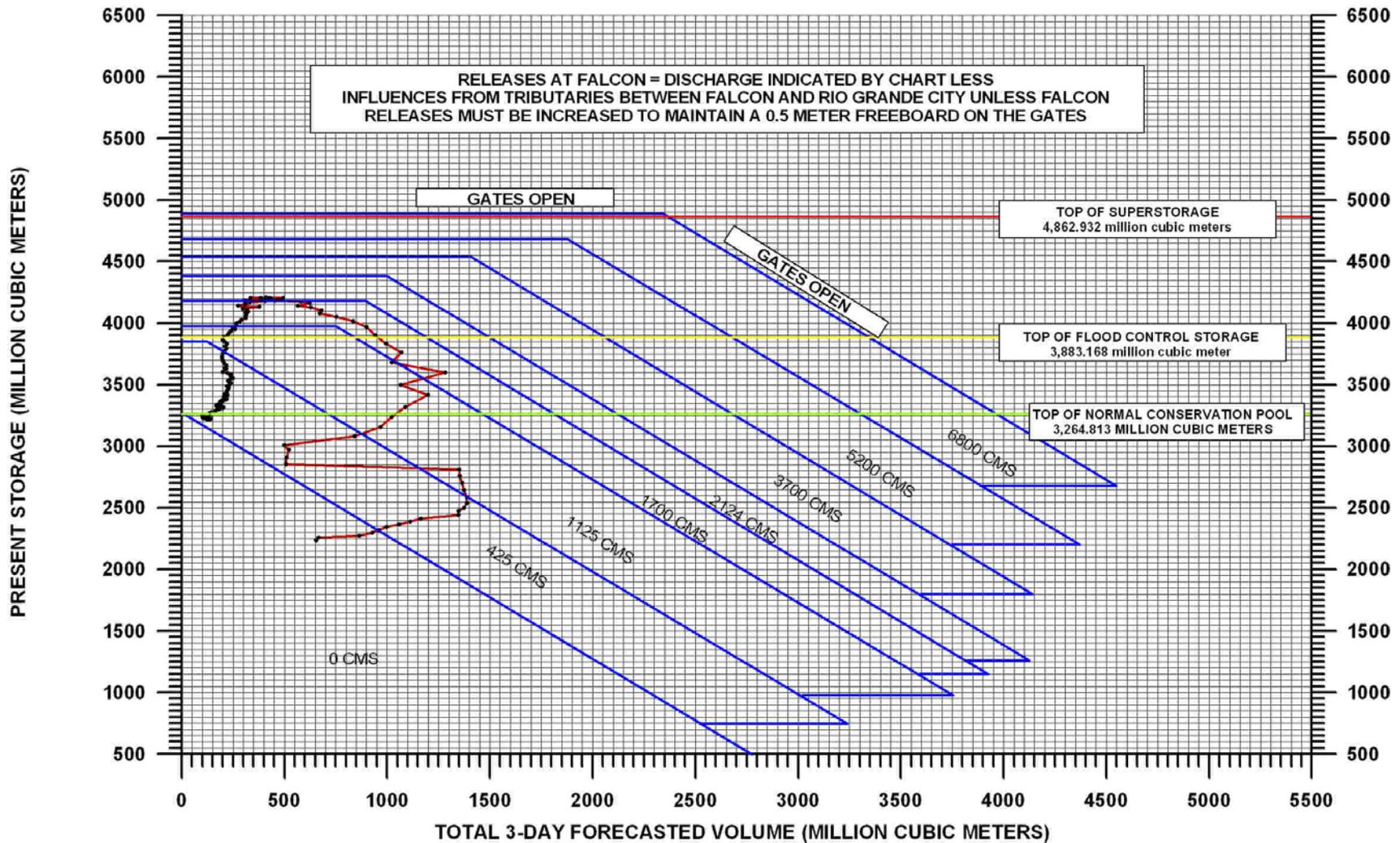
Flood Operations Criteria

- Incoming flows
- Outgoing flows
- Remaining Capacity
- Downstream conditions
- Upstream conditions

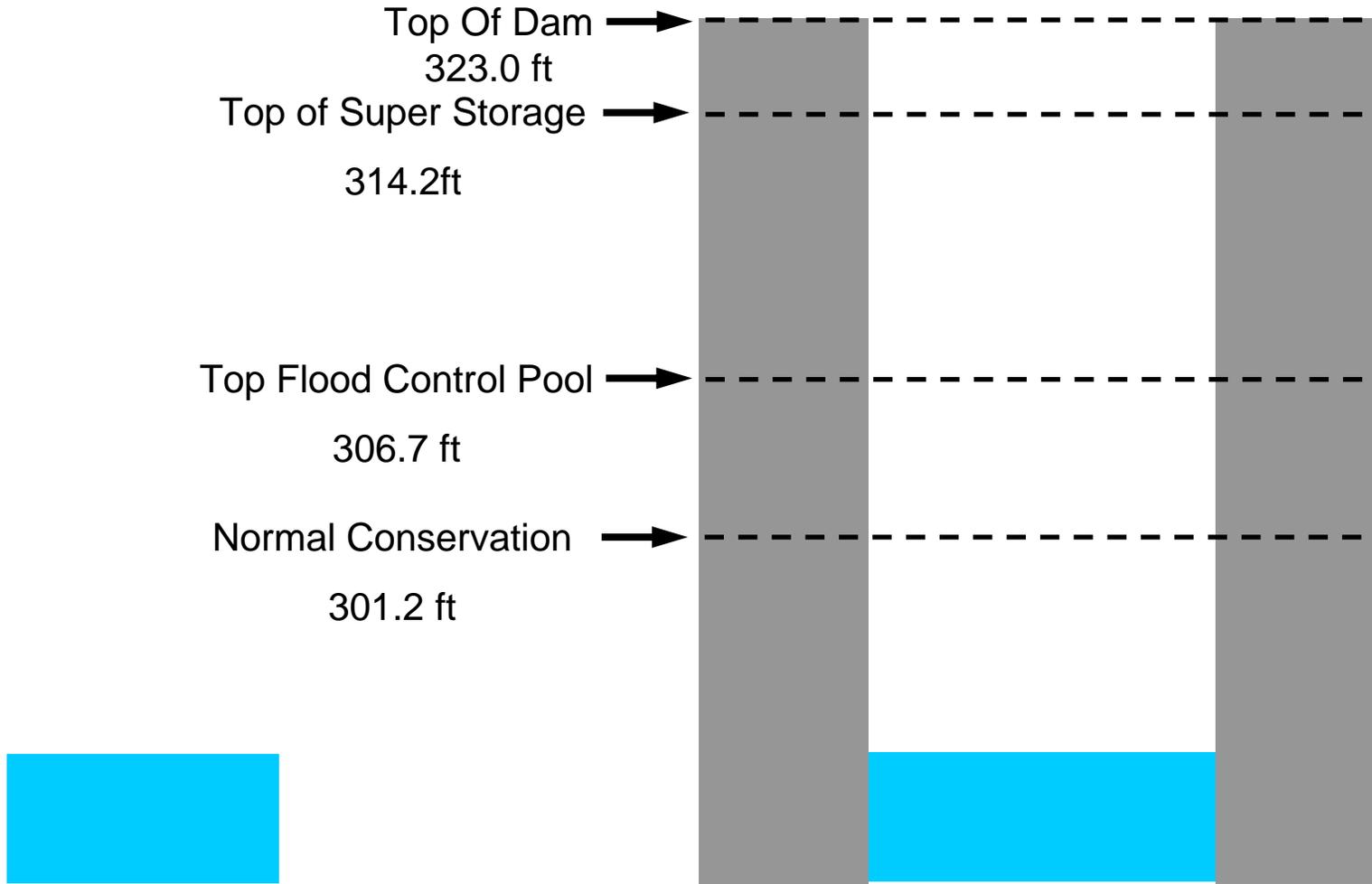


Flood Operations Criteria

FALCON FLOOD OPERATION CHART
TO EFFECT CONTROL OF DISCHARGES AT RIO GRANDE CITY
July 2010



Falcon Storage Thresholds



Hurricane Alex / Tropical Depression #2 Impacts

Summary of Reservoir Storage and Percent of Flood Capacity (Million Cubic Meters)



International Reservoirs					
Amistad			Falcon		
Flood Capacity	6,181.362		3,883.168		
1-Jul-10	3,838.631	62%	2,043.146	53%	
23-Jul-10	4,543.878	74%	3,989.103	103%*	

*Within Super Storage Capacity

Mexican Reservoirs					
V. Carranza		El Cuchillo		Marte Gomez	
Flood Capacity	1,322.372		1,784.292		2,303.900
1-Jul-10	917.207	69%	1,117.752	63%	558.793 24%
23-Jul-10	1,269.089	96%	1,576.089	88%	1,070.704 46%

Amistad Dam Flood Operations

- Start Date: July 5, 2010
- End Date: August 19, 2010
- Maximum Discharge: 35,314 cfs

A higher release rate was noted in the September 1974 event. According to gage records, the momentary maximum flow reported at the “below station” was 62,200 cfs.

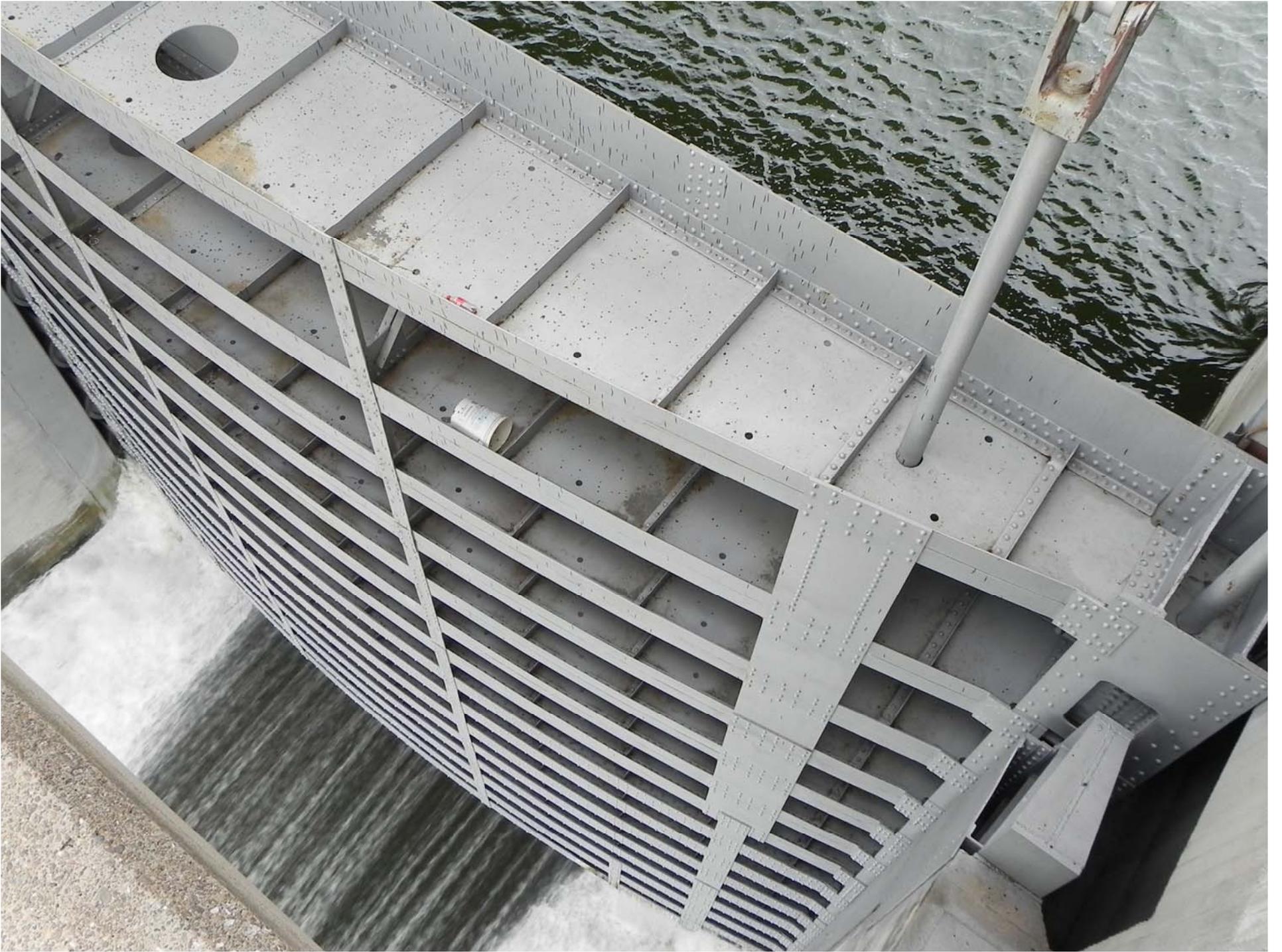


Falcon Dam Flood Operations

- Start Date: July 7, 2010
- End Date: August 20, 2010
- Maximum Discharge: 60,035 cfs

A higher release rate was noted in the September 1971 event. According to gage records, the momentary maximum flow reported at the “below station” was 82,600 cfs









Flood Operations Coordination

- National Weather Service
- Texas Emergency Operations Center
- Additional Outreach
 - Elected Officials
 - Stakeholders



Questions ?

