LAKE CASA BLANCA DAM

TX02267

EMERGENCY ACTION PLAN

July 30, 2016

Updated:

August ___, 2016

Prepared for

Webb County

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Webb County
Engineering Department
Emergency Management

Emergency Action Plan
Lake Casa Blanca Dam
Webb County, Texas

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NOTIFICATION FLOW CHART

LAKE CASA BLANCA DAM

LOG SHEET OF CHANGES

DATE	CHANGE MADE	SIGNATURE
August 2016	**Changed Regional Liaison Office(r) to District Coordinator**	
August 2016	**Updated County Judge Name from Danny Valdez to Judge Tano E. Tijerina**	
August 2016	**Updated all contact information for County Engineer, local Emergency Management Coordinators and Emergency Operations Center locations.**	
August 2016	**Updated contact information for state agencies.**	
August 2016	**Updated Notification Flow Chart**	

APPROVAL AND IMPLEMENTATION

EMERGENCY ACTION PLAN

LAKE CASA BLANCA DAM

This Emergency Action Plan is hereby approved. This plan is effective immediately and supersedes all previous editions.

_____ _____

Webb County Judge Date

_____ _____

Webb County Engineer Date

_____ _____

Webb County Emergency Management Coordinator Date

EMERGENCY ACTION PLAN

LAKE CASA BLANCA DAM

1. INTRODUCTION

Lake Casa Blanca Dam and Reservoir are owned and operated by Webb County. It is located on Chacon Creek in Webb County. Chacon Creek is a tributary of the Rio Grande, located in the Rio Grande River Basin. The dam was completed in 1946. Lake Casa Blanca Dam is designated by the **National Inventory of Dams ID No. TX02267**. The latitude and longitude of the dam are **27.533333°N** and **99.448333°W**, respectively. The lake was constructed to serve as a recreational lake under Water Right Authorization Adj-02744. The hazard potential classification is (high or significant).

According to the Lake Casa Blanca Dam Breach Analysis **(Tab 10),** if a breach of the dam were to occur, a 60 to 114-foot opening could form in as little as 7 – 12 minutes. The subsequent flood wave would flow downstream through the floodplain of Chacon Creek. A breach of the dam has the potential to result in the loss of human life and loss of property. Approximately 1087 residential and commercial lots are located within the floodplain below Lake Casa Blanca Dam. **The residents are identified in table following the Notification Chart**.

1.1 Authority

The Texas Commission on Environmental Quality (TCEQ) is the regulatory agency responsible for the dam-safety laws in Texas. The primary goal of the state's dam-safety program is to save lives and reduce property damage that may result from a dam failure. The development and implementation of an Emergency Action Plan (EAP) is a positive step dam owners can take to accomplish dam-safety objectives, to protect their investment, and to reduce the potential liability associated with a dam failure. **Title 30, Texas Administrative Code, Chapter 299**, gives the state the authority to direct the owner of a dam, pursuant to **Texas Water Code 12.052**, to take immediate and appropriate action to remedy situations posing serious threat to human life or health, or risk of property damage. In addition, the following authorities formulate organization and operational concepts for emergency planning:

Texas Disaster Act of 1975, Executive Order of the Governor (GWB 95-la).

Guidelines for Operation and Maintenance of Dams in Texas, Texas Commission on Environmental Quality, November 2006. Publication No. GI-357.

1.2 Purpose

The purpose of this Emergency Action Plan is to identify emergency situations that could threaten Lake Casa Blanca Dam, and to plan for an expedited, effective response to prevent failure of the dam. This plan defines the notification procedures to be followed in the event of a potentially situation or the potential failure of the

dam. The procedures are intended to protect lives and prevent property damage from an uncontrolled release of water from the reservoir.

2. PROJECT DESCRIPTION

2.1 General

Lake Casa Blanca Reservoir has a drainage area of approximately 117.6 square miles, and is designed to be operated at a normal pool elevation of 444 feet msl. The storage capacity of the reservoir at the normal operation level is 11,000 acre-feet.

The dam is a 5,800-foot-long zoned earth-fil embankment with a 30-60-foot wide crest. The top of the dam is at elevation 465 feet msl and has a maximum height above the streambed of 59 feet. The upstream and downstream slopes are 2 horizontal to 1 vertical. The upstream slope is earthen with sparse vegetation and the downstream slope is earthen with sparse vegetation and trees.

The service spillway is composed of an uncontrolled grass-lined trapezoidal channel with a crest elevation of 445 feet msl. The width of the spillway is 546 feet. Flow over the spillway is discharged into the natural channel of Chacon Creek along the foot of the dam.

The emergency spillway is located at the east end of the dam and is a wide area along Bob Bullock Loop highway (Loop 20) that is also the only entrance to the Lake Casa Blanca State Park. It measures approximately 770 feet in width, with a crest elevation of 456.0 feet msl.

2.2 Reservoir Operations

Releases from the reservoir are uncontrolled.

3. RESPONSIBILITIES

3.1 Dam Owner's Responsibilities

Webb County is responsible for the dam operation and all maintenance.

The dam supervisor is the Webb County Engineer as listed on the Notification Flowchart. The Notification Flowchart will be updated with person-specific names and contact numbers as necessary. The remaining portions of this EAP will not designate specific persons but instead duties or jobs descriptions.

The dam operations are Webb County employees. They should be advised of the necessity of the EAP. The operators are the first line of dam observers and are the persons responsible to initiate implementation of the EAP protocols.

The Webb County Engineer is in the first line of dam observers and is the person responsible to initiate implementation of the EAP protocols. The Webb County Engineer is responsible for conducting routine maintenance activities (such as annual

brush control) conducting integrity inspections, and notifying the appropriate emergency personal in any emergency (or situation that could lead to an emergency). The Webb County Engineer is responsible for contracting appropriate emergency personal if a dam failure is imminent.
The Webb County Engineer is also responsible for ensuring the dam maintenance and inspection activities are conducted and updating the EAP. An annual EAP review should be conducted to ensure that contact names and numbers are current on the Notification Flowchart.

The Webb County Engineer is responsible for directing the specific actions that Webb County employees must take during an emergency condition. The actions specified should be incident appropriate, such as opening or closing water intakes, implementing remedial construction activities such as dirt moving, etc. Specific scenarios are not listed in this EAP. The Webb County Engineer will direct that actual measures to be implemented based on the conditions at the dam.

3.2 Emergency Response Procedures

When conditions at the dam have caused the declaration of an emergency, actions are to begin immediately with the notification of the Webb County Engineer and Webb County Judge. The **County Emergency Operations Center at 1110 Washington Street** will be set up at the direction of the County Judge and the City Emergency Operations Center at 616 East Del Mar Boulevard may be activated by City emergency management officials to monitor the progression of the situation and to coordinate remediation activities. Alternative phone numbers are available. Provisions for light may be necessary due to darkness, and alternate access to the dam from both sides should be available.

Immediately upon determination of a "watch" or more serious condition, this Emergency Action Plan will be implemented. Surveillance of the problem will be maintained on a 24-hour basis. The Department of Public Safety District CoordinatorDistrict Coordinator; the Webb County Sheriff's Department, the Webb County Emergency Management Coordinator; the City of Laredo Emergency Management officials; and the TCEQ Dam Safety Program will be notified according to the Notification Flowchart by the Webb County Emergency Management Coordinator.

The following are possible actions at the dam to prevent or delay failure after an emergency is first discovered:

Seepage Failure

1. Plug the flow with whatever material is available (hay, bentonite, or plastic) if the entrance is in the reservoir.
2. Lower the water level in the reservoir by pumping if necessary, until the flow decreases to a non-erosive velocity or until it stops. Place an inverted filter (a protective layer of sand and gravel) on the exit area to hold the material in place.
3. Continue operating at a lower level until a repair is made.

Embankment or Foundation Sliding

1. Lower the water level in the reservoir by pumping if necessary at a rate and to an elevation considered safe, given the slide condition.
2. Stabilize the slide, if on the downstream slope, by weighting the toe area below the slide with soil, rock, or gravel.
3. Continue operating at a lower level until a repair is made.

Structural Failure

1. Implement temporary measures to protect the damaged structure, such as placing rock riprap in the damaged area.
2. Lower the water level to a safe elevation by pumping if necessary.

Preventive measures can be taken in an emergency to prevent the catastrophic failure of the dam, but such repairs should be undertaken with extreme caution. The repairs are only temporary, and a permanent repair should be designed by an engineer as soon as possible.

3.3 Responsibilities for Notification

The Webb County Engineer shall make all initial notifications. As indicated in Section 5, technical advice shall be sought when time allows. However, for rapidly developing situations, immediate notification of the Webb County Judge, the department of Public Safety District CoordinatorDistrict Coordinator and the Webb County and City of Laredo emergency management officials may be necessary for quick action. Sample notification messages appear in Tab 3. The county officials will in turn notify local law-enforcement officials for appropriate action. The Webb County Public Information Officer will issue news releases. Sample news releases appear in Tab 4.

3.4 Responsibilities for Evacuation

Webb County Sheriff's office and Laredo Police Department officials shall be responsible for evacuating residents in the event of a dam emergency. After notification by the Webb County Engineer through the Department of Public Safety District Coordinator and the Webb County, and City of Laredo emergency management officials, local law-enforcement officials, will be responsible for the warning and evacuation of people in the threaten areas.

3.5 Responsibilities for Duration, Security, Termination, and Follow-Up

The Webb County Engineer or his or her designated representative will be responsible for on-site monitoring of the situation and for keeping local authorities informed of developing conditions at the dam from the time an emergency starts until it ends. Local law-enforcement agencies shall maintain security at the dam. In cooperation with the Webb County Engineer, the Webb County Judge shall be responsible for declaring the situation terminated and a follow-up evaluation of the emergency.

3.6 Plan Coordinator

The Webb County Engineer who takes care of the day-to-day operations of then dam is responsible and has the authority to implement and carry out all procedures and surveillance found in this Plan. He shall be responsible for initiating the notification procedures when signs of distress or failure are noted. All participating parties should be familiar with this plan and their responsibilities during an emergency. Precautionary measures shall be taken to prevent the uncontrolled release of water from the reservoir. In the event that a failure is imminent, proper notification of persons in the downstream area shall be made. Any recourses available to the Webb County Engineer shall be used to minimize uncontrolled releases. The Webb County Engineer alternates listed in the Notification Flowchart shall implement and carry out these in his absence.

3.7 Emergency Operations Center

In the event of a "watch" or more serious condition, the Webb County Engineer and Webb County Judge shall activate the Emergency Operation Center for the overall direction and response activities. The County & City Emergency Operations Center shall be established at 1110 Washington Street and 616 East Del Mar Boulevard respectively. . The Webb County Engineer will be responsible for initiating actions from this location.

3.8 Communications

Local officials and downstream residents will be notified by landline telephone, if available; otherwise via cell phones or emergency personnel (in person or using their radios). The various radio networks for emergency use include the informal ham-radio network, and networks belonging to:

- The Webb County
- The City of Laredo
- The Texas Department of Public Safety
- The Texas Department of Transportation

Sample notification messages appear in Tab 3. Verification or authentication of the situation can be made by contacting the Department of Public Safety District Coordinator and the Webb County, and City of Laredo civil emergency management coordinators. Television and radio can be used as much as possible to notify area residents of possible dangers. **Sample news releases appear in Tab 4.** News releases are to be issued by the *(Owner)* Public Information Officer. The following summarizes the notification procedure for different levels of alert:

"Abnormal" Condition

3. The Webb County Engineer will be notified.
4. The Webb County Engineer will notify the Webb County Judge.
5. The Webb County Engineer will inspect the situation.

"Watch" Condition

6. The Webb County Engineer will notify the Webb County Judge and the Department of Public Safety District CoordinatorDistrict Coordinator.
7. The Web County Engineer will inspect the situation.
8. A "watch" message will be issued by the Webb County emergency management coordinator to TPWD Lake Casa Blanca State Park Ranger and downstream contacts, if so directed by the Webb County officials.
9. State dam safety officials will be notified by the Webb County Engineer.

Possible Dam Failure

10. The Webb County Engineer will notify the Webb County Judge, the Department of Public Safety District CoordinatorDistrict Coordinator, and the Webb County and City of Laredo emergency management coordinators, other Webb County officials as needed, TPWD Lake Casa Blanca State Park Ranger, and representatives of the Texas Department of Transportation (Laredo District).
11. The Webb County Judge *will* coordinate with the Webb County Engineer.
12. Local emergency management coordinators will send a "possible dam failure" warning message to downstream residents, if so directed by the Webb County Judge & Engineer.

13. The Webb County Judge will notify state dam-safety officials.

Imminent Dam Failure

14. The Webb County Engineer will contact the Webb County Judge.
15. The Webb County Engineer will notify the Department of Public Safety District CoordinatorDistrict Coordinator, Webb County Sheriff, Laredo Police Department, and the Webb County, and City of Laredo emergency management coordinators, TPWD Lake Casa Blanca State Park Ranger, and representatives of the Texas Department of Transportation (Laredo District).
16. Local emergency management coordinators will issue a "failure" message to downstream residents and evacuation programs shall begin.
17. The Web County Judge will notify state dam-safety officials.

The Webb County Engineer shall ensure notification of personnel in the event of an emergency at the dam, and may delegate contacting some personnel to other Webb County personnel. The delegation of contacts should be very specific as to which ones are to be made. The Notification Flowchart at the beginning of this report contains contact information for Webb County staff, as well as the other officials which may be involved in the event of a situation at the dam.

4. POSSIBLE EMERGENCY CONDITIONS

4.1 SITUATIONS

Many dam conditions can lead to emergency situations, not all of which will necessitate the implementation of the Emergency Action Plan (EAP); however, if any of them occur, the appropriate action must be taken.

- **Severe storm:** Although generally not in themselves a threat to the dam, severe storms can contribute to an existing problem and hinder any remediation efforts, Severe storms also cause the uncontrolled release of floodwater, and increase flow in already rain-swollen areas.

- **Earthquakes:** Lake Casa Blanca Dam is located in a seismic zone with low activity. An earthquake is, however, a possibility, and appropriate post-earthquake inspections should be performed.

- **Tornadoes:** Tornadoes do occur in the area, with the potential for structural damage to the dam, possibly resulting in its failure. If a tornado has struck in the area, an inspection of the dam for any signs of damage will be appropriate.

- **Sabotage:** A threat to damage the dam has been made. Appropriate actions must be taken to protect the dam.

4.2 Signs of Failure

The following sections describe some of the different types of failure which could lead to a dam breach. The impacts of a dam breach have been evaluated and results are included in this report.

- **Seepage Failure:** Although all earthen embankments allow some minor seepage through the dam or the foundation, excessive, uncontrolled seepage can result in piping (or the movement of embankment material in the seepage flow) and lead to failure. Piping can occur for years at a slow rate. If piping has progressed to a dangerous level, it will be evident by increased flow or the discharge of muddy water (or both). At that stage, immediate action to stop the piping is needed. Fully developed piping is difficult to control and is very likely to result in failure. A whirlpool in the reservoir is a sign of uncontrollable pipping and necessitates immediate emergency action.

- **Embankment or Foundation Sliding:** Sliding is usually first apparent when cracks or bulges in the embankment appear. Slides with progressive movement can cause failure of the embankment.

- **Overtopping Failure:** Overtopping is not considered a problem because Lake Casa Blanca Dam can pass the Probable Maximum flood.

4.3 Previously Known Problems

Not applicable at this time

4.4 Emergency Identification

A. Signs if Failure

In an emergency, the Webb County Engineer is responsible for the dam's operation, maintenance and inspection. The early identification of potentially dangerous conditions can allow time for the implementation of emergency action plans. It is important to understand how distress can develop into failure. With appropriate action, distress need not lead to a catastrophic failure of the dam. Early identification, close monitoring, planned action and remedial measures will help alleviate a potentially dangerous situation. The following sections describe some of the different levels of distress which could lead to a dam breach.

B. *"Abnormal"* Conditions

The conditions listed below are not normal occurrences. These conditions, as well as those listed in the next three sections, are summarized in **Tab 2**, along with recommended actions. When these conditions are present, they should be noted, and action should be taken to prevent the possible failure of the dam.

- Piping or boils in the area of any structure such as the embankment, spillway, or in the vicinity of the toe of the embankment, as evidenced by muddy water
- Slides or sloughs in the embankment, discharge channel or abutments
- A signature increase in seepage quantities through or under the embankment or primary spillway
- Unusual vertical or horizontal movement or cracking of the embankment
- Small sinkholes or subsidence within 500 feet of the embankment
- Excessive displacement of the soil on the embankment slope
- An earthquake
- A server storm
- A tornado
- Threat of sabotage

In the event that any of these items are observed, the Webb County Engineer should contact the designated observer to inspect the dam to document the distress and determine whatever remedial action is necessary. Notification of local authorities is not necessary for "abnormal" conditions.

C. *"Watch"* Conditions

A "watch" indicates that a significant problem that may potentially progress to a dangerous situation has been detected, but that a breach is considered unlikely and no flooding is imminent. This situation will require monitoring and repair or correction as soon as possible. Upon detection, the notification

procedures must be implemented in accordance with the instructions in **Tab 2.** The Webb County Engineer shall institute all practicable measures to mobilize personnel to control the situation. The following conditions which constitute "watch" conditions:

- Small boils if conditions are muddy, on the downstream slope of the embankment or downstream from the toe, or if there is flowing muddy water downstream from the embankment.
- Large sinkholes with corresponding seepage anywhere on the embankment or downstream from the toe.
- Any slide that degrades the crest of the embankment or that is progressively increasing in size.
- Significantly increasing seepage or flow
- The embankment of the emergency spillway

D. Possible Dam Failure

A "possible dam failure" warning is issued when a "watch" condition is becoming progressively worse, and a dam failure is considered possible. The Webb County Engineer will immediately notify the Webb County Judge, the Department of Public Safety District CoordinatorDistrict Coordinator and City and County emergency management coordinators, TPWD Casa Blanca State Park Ranger and others in accordance with the Notification Flowchart. He or she will continue all practicable measures to correct the problem, including lowering the reservoir level if appropriate. The existence of any of the following conditions constitutes possible dam failure.

- Large boils, increasing in size and flow rate, especially if there is flowing muddy water
- Significantly increasing seepage, especially flowing muddy water
- Slides involving a large mass of material that impacts the crest of the dam and is continuing to move
- Sinkholes with seepage flowing muddy water
- An increase in the reservoir level to near the top of the dam

E. Imminent Dam Failure

"Imminent failure" is the determination that a "warning" condition will most likely progress to a failure of the dam and the reservoir will be uncontrollably released, regardless of the actions taken. When this determination is made, immediate notification and warning of downstream areas becomes the primary concern. The existence of any of the following conditions constitutes imminent failure:

- Rapidly increasing boils or the presence of new, significantly flowing boils, particularly muddy ones near previously identified ones.
- Readily increasing seepage, especially flowing muddy water
- Slides involving a large mass of material or which have degraded the crest of the embankment to a level that approaches the water surface level, or if significant seepage is observed through the slide area.

- Cracks that extend to the reservoir level.
- Overtopping of the earthen dam

5. PREVENTIVE ACTIONS

This section lists the conditions and actions which may be used to classify the level of emergency response, as a guide for Webb County personnel.

5.1. Abnormal Condition

Periodic inspections if the dam by Webb County Engineer or his designee will evaluate its structural safety, stability, and operational adequacy, If Webb County personnel who visit the dam site notice visual evidence of distress, the structure should be inspected by a registered engineer specializing in dam design and construction. In the event of an abnormal occurrence, such as a tornado, earthquake, or unusually heavy rainfall, special inspections by an engineer of the embankment and spillway are warranted. An abnormal condition can generally be repaired or corrected in the next few months with no immediate action necessary.

5.2. "Watch" Condition

If a problem has been detected at the dam which requires constant monitoring or immediate action to repair and the condition is manageable by Webb County staff, a "Watch condition exists. A "watch" will continue until the problem is corrected or a "possible dam failure" warning is issued. The Webb County Engineer should notify the TPWD Casa Blanca State Park Ranger, the Texas Department of Public Safety District CoordinatorDistrict Coordinator and state dam-safety officials.

5.3. Possible Dam Failure

A "watch" condition that is progressively getting worse is considered a possible dam failure. Efforts to correct the situation will continue, and—although there is no imminent danger—if conditions continue to deteriorate, a dam failure could occur. A "possible dam failure" condition generally has already involved extensive efforts by Webb County personnel and potentially other contractors. A "possible dam failure" condition will continue until the problem is corrected, or until an "imminent dam failure" warning is issued. Notifications have been issued and local law-enforcement personnel are ready to begin evacuation of threatened areas.

5.4. Imminent Dam Failure

If the Webb County Engineer has determined that the condition at the dam will continue to progress to failure and result in the uncontrolled release of water, an "imminent dam failure" condition exists. Dam failure will most likely occur regardless of what actions are taken. Numerous forces are involved in trying to correct the situation. Evacuation has begun and will continue until the situation is stabilized.

5.5. Dam Failure

A dam failure has occurred and a flood wave is moving downstream. Flooding will occur immediately and will continue to move downstream until water levels in the reservoir are stabilized. Considerable destruction can be expected, and evacuation of low-lying areas should continue.

5.6. Other Considerations

Alternate Access

Alternate access routes are limited in the event of an emergency at the dam. The TPWD access road which runs along the inside face of the dam is not reachable from SH-59 on the south if the spillway is engaged or from the dam foot access road from Loop 20 on the south if there is dam failure.

Darkness

In a nighttime emergency, the Webb County Engineer should arrange for access to generators and lights to monitor the situation.

Adverse Weather

The TPWD access road across the inside dam slope is a paved roadway with grassed edges which should allow discharge across the road as part of the emergency spillway. There are NO alternate routes if the principal spillway is engaged. All-weather access to the downstream toe of the dam will not be unavailable. For developing situations near the downstream toe of the dam, gravel may need to be brought in to stabilize the access road in that area. Should a failure condition or significant rainfall event occur consultation with the TPWD Casa Blanca State Park Ranger for park evacuation should be a primary action.

6. SUPPLIES AND RESOURCES

6.1 Contracts

Should Webb County personnel and resources prove to be inadequate during an emergency, requests will be made for assistance from other local jurisdictions, other agencies, and industry, as needed. Such assistance may include equipment, supplies, or personnel. All agreements will be entered into by authorized officials and should be in writing whenever possible. The Webb County Judge shall have the authority to enter into agreements as deemed necessary to prevent the failure of the dam.

6.2 Equipment and Supplies

Equipment which is available for use in the event of an emergency includes the equipment listed in Tab 5. Other contractors in the area may be needed. Possible contractors are listed in Tab 6.

6.3 Reports

Technical Data

Periodic inspections of the dam will be made to evaluate its structural safety, stability, and operational adequacy. In the event of an abnormal occurrence, reference to these reports, particularly the photographs, can be beneficial in the evaluation of a potential problem

Technical records such as drawings and inspection reports should be stored and carefully maintained at the Webb County Engineer office. Alternate personnel shall be familiar with the location of the documents in the event of an emergency situation.

Emergency Operations Center Activity Log
Any unusual or emergency condition should be documented, including the following:

- activation or deactivation of emergency facilities
- emergency notifications to other local governments and to state and federal agencies
- significant changes in the emergency
- major commitments of resources or requests for additional resources from external sources
- telephone calls should be recorded in chronological order
- issuance of protective action recommendations to the public
- evacuations
- casualties
- termination of the incident

Costs of the Emergency Operations Center
For major emergencies, the emergency operations center shall maintain detailed records of costs expended. These records may be used to recover costs from the responsible party or insurers, or as basis for requesting financial assistance for certain allowable response and recovery costs from the state or federal government. Documented costs should include:

- personnel costs, especially overtime
- equipment operation
- equipment leasing and rental
- contract services to support emergency operations
- specialized supplies expended in emergency operations

7. INUNDATION AREA

The impacts of a dam breach have been evaluated and the results are included in Lake Casa Blanca Dam Breach Analysis (Tab 10). The inundation mapping resulting from the breach analysis is included in Tab 11 at the back of this report. It illustrates the areas subject to flooding under severe storm conditions, a failure of the dam, or both. Also included on these maps are the times to flood associated with bridge crossings. After examining the results of the breach analysis of Lake Casa Blanca Dam, it has been determined that there were a significant number of structures that could be affected either

due to a PMF event alone with no dam breach, or due to a PMF or sunny-day dam breach. These structures, located along Chacon Creek within the City of Laredo, can suffer dramatic impact from a breach of the dam. In addition, water resulting from a breach, and associated damages, will travel downstream to the Rio Grande.

The Lake Casa Blanca Dam-Breach Analysis (Tab 10) contains profiles of the peak flood levels expected, as well as an estimation of the time from the beginning of the breach to the peak flood elevations. A comparison of the areas that are likely to be flooded with the plots showing the times from the start of the breach to the flooding shows the areas of evacuation and the time constraints involved. Figures in Appendix B of Lake Casa Blanca Dam Breach Analysis (Tab 10) include information on the estimated impact of flooding on the bridges along Chacon Creek. These structures may suffer impacts before the peak elevation of the flood wave.

7.1. Local Evacuation Plan

If imminent failure of the dam with uncontrolled downstream flooding is anticipated, local emergency management and law enforcement personnel should notify those downstream of evacuation in the most expedient manner possible. The organizations and personnel on the Notification Flowchart should be contacted immediately. Local law enforcement officials, along with radio and television stations, can best spread the notice for evacuation. The immediate impact will be to urban areas of the City of Laredo along Chacon Creek downstream of the dam. For sunny-day and PMF breaches, the following actions should be taken:

- Barricading all bridges that could possibly be flooded to prevent access to the affected area. These bridges include the Chacon Creek crossings of Bob Bullock High (Loop 20), SH-59, Clark Blvd., SH-359, S. Zapata Hwy, (US-83), and South Meadows Avenue. See the maps at the end of this report (Tab 11) to determine appropriate barricade locations.

- The Department of Public Safety District CoordinatorDistrict Coordinator can assist with the notification of all persons and agencies involved, with the possibility of additional support—including contacting others not accessible by radio or telephone.

- City of Laredo officials are generally familiar with developed areas in their jurisdiction. Such knowledge, couples with the requirements of state law that they respond to disasters, make them the logical officials to be notified and to spread the warning message to all areas subject to flooding.

8. IMPLEMENTATION

8.1. Development

The draft Emergency Action Plan was sent to the TCEQ for review, and agency comments were incorporated into this document, copies of which are currently on file with TCEQ.

8.2. Testing

The Emergency Action Plan will be reviewed annually for contacts and numbers and will be tested every five years using a tabletop exercise conducted under the direction of the Webb County Engineer.

8.3. Training

The Webb County Engineer is responsible for training personnel as necessary for dam safety and emergency response planning.

8.4. Updating

This plan should be reviewed every five years and revised as necessary. A distribution list for this plan is included in Tab 9. The Notification Flowchart should be updated once a year. Approval of the plan is provided at the front of the report. A new approval should be attached to each annual update of the plan, as well as a log of any sheet changes.

TAB 1

PERTINENT DATA

Embankment

Type	**Earth fill**
Length	**5800 feet**
Maximum Height	**59 feet**
Top Width	**30-60 feet**
Top of Embankment Elevation	**465 feet msl**
Drainage Area	**117.6 square miles**

Service Spillway

Type	**Uncontrolled spillway**
Location	**East of Dam**
Crest Length	**546 feet**
Crest Elevation	**445 feet msl**

Emergency Spillway

Type	**Uncontrolled spillway**
Location	**West abutment**
Crest Length	**770 feet**
Crest Elevation	**456 feet msl**

Inlet-Outlet Works

Type	**N/A**
Location	**N/A**
Invert Elevation	**N/A**

Reservoir

Elev. Top of Conservation Pool	**445.0 feet msl**
Capacity Conservation Pool	**11,000 acre-feet**

TAB 2

EVIDENCE OF DISTRESS

General Observation	Specific Observation	Condition	Notification	Emergency Action	Equipment, Material and Supplies	Data to Record
Boils	Small boils, no increase of water flow, flowing clear water	Abnormal	Notify Webb County Engineer during normal working hours. Call Webb County Engineer for inspection.	Closely check all of downstream toe, especially in the vicinity of boil for additional boils, wet spots, sinkholes, or seepage. Closely monitor entire area for changes or flow-rate increases.	None	Site and location, approximate flow
	Large or additional boils near previously identified ones, without increasing flow rate, but carrying small amount of soil particles	Watch	Notify Webb County Engineer, Webb County Judge, National Weather Service, Department of Public Safety District Coordinator, state dam-safety officials, and TPWD Casa Blanca SP Ranger immediately.	Initiate 24-hour surveillance. Monitor as described above. Construct sandbag ring dikes around boils, to cover them with water to retard the movement of soil particles. Filter cloth may be used to retard soil movement, but do not retard the flow of water.	Sandbags, filter cloth	Site and location, approximate flow
	Large or additional boils near previously identified ones, increasing flow rate, carrying soil particles	Possible Failure	Notify Webb County Engineer, Webb County Judge, National Weather Service, Department of Public Safety District Coordinator, county-city emergency management coordinators, state dam-safety officials, and TPWD Casa Blanca SP Ranger immediately.	Continue 24-hour surveillance. Continue monitoring and remedial action as described above. Initiate emergency lowering of the reservoir. Issue a warning to downstream residents.	Sandbags, pump	Site and location, approximate flow
	Rapidly increasing size of boils and flow increasing and muddy water	Imminent Failure	Notify Webb County Engineer, Webb County Judge, National Weather Service, Department of Public Safety District Coordinator, county-city emergency	Downstream evacuation. Employ all available equipment to attempt to construct a large ring dike around the boil area.	Dozer, shovels, source of earthfill	Site and location, approximate flow

			management coordinators, state dam-safety officials, and TPWD Casa Blanca SP Ranger immediately.			

TAB 2 (continued)

EVIDENCE OF DISTRESS

General Observation	Specific Observation	Condition	Notification	Emergency Action	Equipment, Material and Supplies	Data to Record
Seepage	Minor seepage of clear water at toe, on slope of embankment, or at the abutments	Abnormal	Notify Webb County Engineer, Plant Coordinator and Plant Engineer during normal working hours. Call Webb County Engineer for inspection.	Closely check entire embankment for other seepage areas. Use wooden stakes or flagging to delineate seepage area. Try to channel and measure flow. Look for upstream whirlpools.	Wooden stakes, flagging	Site and location, approximate flow
	Additional seepage areas observed flowing clear water and/or increasing flow rate.	Watch	Notify Webb County Engineer, Webb County Judge, Department of Public Safety District Coordinator, state dam-safety officials, and TPWD Casa Blanca SP Ranger immediately.	Initiate 24-hour surveillance. Monitor as described above. Construct measuring weir and channel all seepage through weir. Attempt to determine source of seepage.	Dozer, shovels	Site and location, approximate flow
	Seriously or rapidly increasing seepage, underseepage, or drain flow	Possible Failure	Notify Webb County Engineer, Webb County Judge, National Weather Service, Department of Public Safety District Coordinator, county-city emergency management coordinators, state dam-safety officials, and TPWD Casa Blanca SP Ranger immediately.	Continue 24-hour monitoring and remedial action as described above. Initiate emergency lowering of reservoir. Construct large ring dike around the seepage area.	Dozer, shovels, source of earthfill	Site and location, approximate flow
	Additional seepage areas	Imminent Failure	Notify Webb County Engineer,	Downstream evacuation. Employ	Dozer, shovel,	Site and location,

	with rapid increase in flow and muddy water.		Webb County Judge, National Weather Service, Department of Public Safety District Coordinator, county-city emergency management coordinators, state dam-safety officials, and TPWD Casa Blanca SP Ranger immediately.	all available equipment to attempt to construct a large ring dike around the boil area.	source of earthfill	approximate flow

TAB 2 (continued)

EVIDENCE OF DISTRESS

General Observation	Specific Observation	Condition	Notification	Emergency Action	Equipment, Material and Supplies	Data to Record
Slides or severe erosion	Skin slide or slough on slope of embankment. No further movement of slide and embankment crest not degraded.	Abnormal	Notify Webb County Engineer, Webb County Judge during normal working hours. Call Webb County Engineer for inspection.	Examine rest of embankment for other slides. Place stakes in slide material and adjacent to it for determining if further movement is taking place.	Stakes, tape measure	Distance between stakes
	Slide or erosion involving large mass of material, crest of embankment is degraded, no movement or very slow continuing movement.	Watch	Notify Webb County Engineer, Webb County Judge, Department of Public Safety District Coordinator, state dam-safety officials, and TPWD Casa Blanca SP Ranger immediately.	Initiate 24-hour surveillance. Mobilize all available resources and equipment for repair operations to increase freeboard and to protect the exposed embankment material. Start filling sandbags and stockpile near slide area.	Dozer, shovels, sources of earthfill, sandbags.	Distance between stakes
	Slide or erosion involving large mass of material, crest of embankment is degraded, progressively increasing in size.	Possible Failure	Notify Webb County Engineer, Webb County Judge, National Weather Service, Department of Public Safety District Coordinator, county-city emergency management coordinators, state dam-safety officials, and TPWD Casa Blanca SP Ranger immediately.	Continue monitoring and remedial actions as described above. Place additional material at the toe of the slope to stop the slide.	Dozer, shovels, source of earthfill, pump.	Distance between stakes
	Slide or erosion involving large mass of material, crest of embankment is severely degraded,	Imminent Failure	Notify Webb County Engineer, Webb County Judge, National Weather Service, Department of Public Safety District Coordinator, county-city	Downstream evacuation. Utilize all available equipment and personnel to sandbag the degraded slide area to prevent it from overtopping.	Dozer, shovels, sandbags, pump.	Distance between stakes

	movement of slide is continuing and may reach pool level.		emergency management coordinators, state dam-safety officials, and TPWD Casa Blanca SP Ranger immediately.			

TAB 2 (continued)

EVIDENCE OF DISTRESS

General Observation	Specific Observation	Condition	Notification	Emergency Action	Equipment, Material and Supplies	Data to Record
Sinkholes	Sinkholes anywhere on the embankment or within 500 feet downstream from the toe.	Abnormal	Notify Webb County Engineer, Webb County Judge during normal working hours. Call Webb County Engineer for inspection.	Carefully walk the entire embankment and downstream area looking for additional sinkholes, movement, or seepage.	Stakes, flagging	Size, Location
	Sinkholes with corresponding seepage anywhere on the embankment or downstream from the toe.	Watch	Notify Webb County Engineer, Webb County Judge, Department of Public Safety District Coordinator, state dam-safety officials, and TPWD Casa Blanca SP Ranger immediately.	Initiate 24-hour surveillance. Monitor as above. Construct sandbag dike around the seepage exit point to reduce the flow rate. Start filling sandbags and stockpile near sinkhole.	Dozer, shovels, pump	Size, Location
	Large sinkholes with corresponding seepage anywhere on the embankment or downstream from the toe.	Possible Failure	Notify Webb County Engineer, Webb County Judge, National Weather Service, Department of Public Safety District Coordinator, county-city emergency management coordinators, state dam-safety officials, and TPWD Casa Blanca SP Ranger immediately.	Continue monitoring and remedial action as described above. Utilize sandbags to increase the freeboard on the dam if necessary.	Sandbags, dozer, pump	Size, Location
	Sinkholes rapidly getting worse, seepage flowing muddy water and increasing flow.	Imminent Failure	Notify Webb County Engineer, Webb County Judge, National Weather Service, Department of Public Safety District Coordinator, county-city emergency management coordinators, state dam-safety officials, and TPWD Casa Blanca SP Ranger immediately.	Downstream evacuation. Utilize all available equipment and personnel to attempt to construct a large ring dike around area.	Dozer, shovels, pump	Size, Location

TAB 2 (continued)

EVIDENCE OF DISTRESS

General Observation	Specific Observation	Condition	Notification	Emergency Action	Equipment, Material and Supplies	Data to Record
Settlement	Obvious settlement of the crest of the embankment, especially adjacent to concrete structures.	Abnormal	Notify Webb County Engineer, Webb County Judge during normal working hours. Call Webb County Engineer for inspection.	Look for bulges on slope or changes in crest alignment.	None	Size, Location
	Settlement of crest of embankment that is progressing, especially adjacent to concrete structures or if any corresponding seepage is present.	Watch	Notify Webb County Engineer, Webb County Judge, Department of Public Safety District Coordinator, state dam-safety officials, and TPWD Casa Blanca SP Ranger immediately.	Initiate 24-hour surveillance. Mobilize all available resources for repair operation to increase freeboard. Fill and stockpile sandbags. Identify any boils near settlement points for flowing material and pursue action for boils.	Sandbags, dozer, shovels, source of earthfill	Size, Location
	Settlement of crest of embankment that is rapidly progressing especially adjacent to concrete structures or if any corresponding seepage is flowing muddy water or increasing flow.	Possible Failure	Notify Webb County Engineer, Webb County Judge, National Weather Service, Department of Public Safety District Coordinator, county-city emergency management coordinators, state dam-safety officials, and TPWD Casa Blanca SP Ranger immediately.	Continue monitoring and remedial actions as described above. Use sandbags to increase the freeboard on the dam if necessary.	Sandbags, dozer, shovels, source of earthfill	Size, Location
	Progressing settlement that is expected to degrade the embankment to reservoir level.	Imminent Failure	Notify Webb County Engineer, Webb County Judge, National Weather Service, Department of Public Safety District Coordinator, county-city emergency management coordinators, state dam-safety officials, and TPWD Casa Blanca SP Ranger immediately.	Downstream evacuation. Utilize all available equipment and personnel to build up the crest in the area that is settling. Identify any boils near settlement points for flowing material and pursue action for boils.	Dozer, shovels, source of earthfill	Size, Location

TAB 2 (continued)

EVIDENCE OF DISTRESS

General Observation	Specific Observation	Condition	Notification	Emergency Action	Equipment, Material and Supplies	Data to Record
Cracking	Cracks in the embankment crest or on slopes.	Abnormal	Notify Webb County Engineer, Webb County Judge during normal working hours. Call Webb County Engineer for inspection.	Walk on entire crest and slope and check for additional cracking.	Stakes, tape measure	Size, Location
	Numerous cracks in crest that are enlarging, especially those perpendicular to the centerline of the dam.	Watch	Notify Webb County Engineer, Webb County Judge, Department of Public Safety District Coordinator, state dam-safety officials, and TPWD Casa Blanca SP Ranger immediately.	Initiate 24-hour surveillance. Carefully monitor and measure cracking to determine the speed and extent of the problem. Mobilize to fill cracks. Cracks parallel to the centerline indicate the slide. Follow remedial action for slides.	Stakes, tape measure, dozer, shovels, source of earthfill	Size, Location
	Large cracks in the crest that are rapidly enlarging, especially those perpendicular to the centerline of the dam.	Possible Failure	Notify Webb County Engineer, Webb County Judge, National Weather Service, Department of Public Safety District Coordinator, county-city emergency management coordinators, state dam-safety officials, and TPWD Casa Blanca SP Ranger immediately.	Continue monitoring and remedial action as described above.	Dozer, shovels, source of earthfill	Size, Location
	Cracking that extends to pool elevation.	Imminent Failure	Notify Webb County Engineer, Webb County Judge, National Weather Service, Department of Public Safety District Coordinator, county-city emergency management coordinators, state dam-safety officials, and TPWD Casa Blanca SP Ranger immediately.	Downstream evacuation. Continue remedial actions as described above.	Dozer, shovels, source of earthfill	Size, Location

TAB 2 (continued)

EVIDENCE OF DISTRESS

General Observation	Specific Observation	Condition	Notification	Emergency Action	Equipment, Material and Supplies	Data to Record
Upstream whirlpool	Whirlpool in the lake in the vicinity of the embankment	Imminent Failure	Notify Webb County Engineer, Webb County Judge, National Weather Service, Department of Public Safety District Coordinator, county-city emergency management coordinators, state dam-safety officials, and TPWD Casa Blanca SP Ranger immediately.	Downstream evacuation. Attempt to plug the entrance of the whirlpool with riprap from the slope of the embankment. Search downstream for an exit point and construct a ring dike to retard the flow of soil particles.		Size, location, flow rate
Rapidly rising lake	Lake level rising and rain continuing	Watch	Notify Webb County Engineer, Webb County Judge, Department of Public Safety District Coordinator, state dam-safety officials, and TPWD Casa Blanca SP Ranger immediately.	Initiate 24-hour surveillance of lake level and rainfall.		Lake level, rainfall
Dam being overtopped	Water flowing over the dam and lake continuing to rise	Possible Failure	Notify Webb County Engineer, Webb County Judge, National Weather Service, Department of Public Safety District Coordinator, county-city emergency management coordinators, state dam-safety officials, and TPWD Casa Blanca SP Ranger immediately.	Downstream evacuation. Continue monitoring.		Lake level, rainfall

TAB 3

SAMPLE NOTIFICATION MESSAGES

Note: These notification messages will be coordinated through the Webb County Judge, Webb County Engineer, the National Weather Service, the Department of Public Safety Liaison office, and the Emergency Management Coordinators for Webb County and the City of Laredo before they are disseminated to downstream organizations. Messages developed with the assistance of the National Weather Service may be used instead.

"Watch" Condition Message

This is an emergency message. Webb County Judge Tano E. Tijerina has declared a "watch" condition for Lake Casa Blanca Dam, Texas ID TX02267. (Briefly describe the problem or condition.) There is no immediate danger of the dam failing; however, the potential does exist. We request that you initiate appropriate emergency management procedures. For verification, call the phone numbers listed on the Notification Flowchart of the Emergency Action Plan for Lake Casa Blanca Dam. The Department of Public Safety District Coordinator has been notified of this condition and may be contacted for information on emergency procedures. Webb County Judge Tano E. Tijerina will supply additional information regarding the status of the dam as it becomes available.

"Possible Dam Failure" Warning

This is an emergency message. Webb County Judge Tano E. Tijerina has declared a "possible failure" condition for Lake Casa Blanca Dam, Texas ID TX02267. (Briefly describe the problem or condition.) There is a possibility that the dam could fail. Attempts to save the dam are under way, but there success cannot be determines as yet. Emergency water releases to lower the lake are not being made. We request that you initiate appropriate emergency management procedures and prepare for evacuation of the threatened areas. If Lake Casa Blanca Dam does fail, flooding will occur along Chacon Creek. For verification, call the phone numbers listed on the Notification Flowchart of the Emergency Action Plan for Lake Casa Blanca Dam. The Department of Public Safety District Coordinator and Emergency Management Coordinators for Webb County and City of Laredo have been notified of this condition and may be contacted for information on emergency procedures. Webb County Judge Tano E. Tijerina will supply additional information regarding the status of the dam as it becomes available.

"Imminent Dam Failure" Warning

Urgent! This is an emergency message. Webb County Judge Tano E. Tijerina has declared that Lake Casa Blanca Dam, Texas ID TX02267 is in imminent danger of failing. Attempts to save the dam will continue, but their success is unlikely. We request that you initiate appropriate emergency management procedures and begin evacuation of threatened areas. It is possible that the dam will fail in hours. If Lake Casa Blanca Dam fails, a flood wave will move down Chacon Creek downstream to the Rio Grande. For verification, call the phone numbers listed on the Notification Flowchart of the Emergency Action Plan for Lake Casa Blanca Dam. The Department of Public Safety District Coordinator and Emergency Management Coordinators for Webb County and City of Laredo have been notified of this condition and may be contacted for information on emergency procedures.

Dam Failure Message

Emergency! This is an emergency message. Webb County Judge Tano E. Tijerina has declared that Lake Casa Blanca Dam, Texas ID TX02267, has failed. A flood wave is moving down Chacon Creek towards the Rio Grande through Laredo. The flood waters have already reached Lloyd Bentson Highway (US-59) at Bob Bullock High (Loop 20), and Clark Blvd. across Chacon Creek. The City of Laredo will begin flooding immediately. SH-359 on the Chacon Creek will begin flooding at (time—approximately 20 minutes after breach). Zapata Highway (SH-83) and S. Meadow Ave. in Laredo will begin flooding at (time—approximately 35 minutes after breach). Evacuate threatened areas immediately. For verification, call the phone numbers listed on the Notification Flowchart of the Emergency Action Plan for Lake Casa Blanca Dam. The Department of Public Safety District Coordinator and Emergency Management Coordinators for Webb County and City of Laredo have been notified of this condition.

TAB 4

SAMPLE NEWS RELEASES

Note: Coordinate with the National Weather Service, the Department of Public Safety Laredo District District Coordinator, and the emergency management directors for Webb County and the City of Laredo prior to release. Messages developed with the assistance of the National Weather Service may be used instead.

Announcement for Slowly Developing "Watch" Condition
Webb County Judge Tano E. Tijerina has declared a "Watch" condition for Lake Casa Blanca Dam on Chacon Creek as of (time and date). (Briefly describe the problem or condition.) There is no immediate danger of the dam failing; however the potential does exist. (Describe what actions are being taken to monitor and control the situation.)

Announcement for Possible Dam Failure
Webb County Judge Tano E. Tijerina has declared a possible dam failure at Lake Casa Blanca Dam on Chacon Creek as of (time and date). (Briefly describe the problem or condition.) It is possible the dam could fail. Attempts to save the dam are under way, but their success cannot be determined as yet. (Describe what actions are being taken to monitor and control the situation.) Additional news will be made available as soon as it is received.

Announcement for Imminent Dam Failure
Urgent! Webb County Judge Tano E. Tijerina has announced that Lake Casa Blanca Dam on Chacon Creek is in imminent danger of failing. (Describe what actions are being taken to monitor and control the situation.) It is possible the dam will fail in (##) hours. Residents in low lying areas within the city of Laredo along Chacon Creek and its tributaries should prepare for immediate evacuation. Additional news will be made available as soon as it is received.

Announcement of a Dam Failure
Emergency! Lake Casa Blanca Dam on Chacon Creek failed at (time and date). Residents of the City of Laredo who have not yet done so should immediately evacuate low-lying areas along Chacon Creek and its tributaries. The flood waters have already reached (Highway) and (Road). Additional news will be made available as soon as it is received.

TAB 5

EQUIPMENT AND SUPPLIES

The following equipment and supplies may be necessary for use during emergencies.

EQUIPMENT	LOCATION
Backhoes Dump trucks Portable welding equipment Generators Dozers Excavators Loaders Motor graders	Webb County Road & Bridge 7210 E. Saunders, Laredo, TX 78041 (956) 721-2585
Crane	Modern Construction Co. 2120 Blaine, Laredo, TX (956) 724-9001
Sandbags	Webb County Road & Bridge 7210 E. Saunders, Laredo, TX 78041 (956) 721-2585
Rock riprap	Leyendecker Construction, Inc. 4220 Saunders, Laredo, TX (956) 722-0531

TAB 6

EMERGENCY CONTRATOR SUPPORT

CONTRACTOR	EQUIPMENT	CONTACT	ADDRESS	PHONE
Briggs Equipment	Dozers Trackhoe Dump trucks Grader Steel Mechanical repairs Electrical repairs Small crane Large crane Backhoe Emergency lighting Generators	George Manager	8422 Tejas Loop Laredo, TX 78045	(956) 795-0100

TAB 7

TRAINING RECORD

Use this form to record training sessions. File the completed form in Tab 7 of the EAP. Thorough review of all items in the EAP should be thoroughly reviewed during training. Appropriate Webb County employees and EAP team members should attend a training session annually (or participate in a simulated exercise.)	
TRAINING LOCATION:_____	
DATE: _____ TIME: _____ INSTRUCTOR: _____	
CLASS SIGN-IN	

TAB 7 (continued)

SIMULATED EMERGENCY EXERCISE

Date of Exercise:	
Participant Sign-In:	
Type of Simulation Conducted:	**Circle Emergency Type:** Watch condition Imminent dam failure Actual dam failure
Comments, Results of Exercise:	
Revisions Needed to EAP Based on Results of Exercise?	☐ **Yes** ☐ **No** **If yes, list revisions required:**

TAB 7 (continued)

PLAN REVIEW AND UPDATE

This plan will be reviewed and updated annually and tabletop exercise will be conducted at least once every five years. Document these reviews below.

Date of review: _____ Participants:

Date of review: _____ Participants:

Date of review: _____ Participants:

Date of review: _____ Participants:

Date of review: _____ Participants:

TAB 8

ANNUAL EAP EVALUATION CHECKLIST

Was the annual dam inspection conducted?	☐ Yes ☐ No	If yes, is the checklist signed and included in the EAP?	☐ Yes ☐ No
Was the removal, brush clearing, animal-burrow removal, or other maintenance required?	☐ Yes ☐ No	If yes, describe actions taken and date:	
Was the spillway clear of trees and/or debris?	☐ Yes ☐ No	If no, describe actions taken and date:	
Does the Notification Flowchart require revision?	☐ Yes ☐ No	If yes, date revised Contact Information pages were distributed: (Note that revision of the Contact Information will not require EAP approval; however, the revised Contact Information pages will need to be distributed as a replacement pages.)	
Was annual training or an exercise conducted?	☐ Yes ☐ No	Circle: training exercise Date conducted:	
Are inspection and training records included in EAP?	☐ Yes ☐ No		
Was the EAP reviewed?	☐ Yes ☐ No	If yes review date:	
Were changes required to the EAP?	☐ Yes ☐ No	If yes, date of revised EAP approval:	

Signature of County Engineer: _____ Date completed: _____

TAB 9

DISTRIBUTION LIST

Authority	Name, Title, Phone	Address
Owner: Webb County	Tano E. Tijerina County Judge Office 956-523-4600 Cell 956-763-1111	1000 Houston Street Laredo, TX
Webb County Engineer	Luis Perez Garcia III, P.E., C.F.M. Office (956) 523-4055 Cell (956) 635-9611	1620 Santa Ursula, 2nd Floor Laredo, TX
National Weather Service	John Metz 888-579-9731 361-232-8289	Warning Coordination Meteorologist National Weather Service 426 Pinson Drive, Corpus Christi, TX
Department of Public Safety District Coordinator	DC Region 3B Office 956-728-2595 Cell 956-489-7083	1901 Bob Bullock Loop Laredo, TX
Department of Public Safety DDC Chairman	Captain Hank Sibley Office 956-728-2292 Alt 956-652-7973	1901 Bob Bullock Loop Laredo, TX
Webb County Emergency Management Coordinator	Laura Govea 956-523-4057 956-236-3523	1620 Santa Ursula, 2nd Floor Laredo, TX
City of Laredo Emergency Management Coordinator	Steve Landin Office 956-718-6000 956-285-1697	616 East Dal Mar Blvd. Laredo, TX
Texas Department of Transportation Laredo District Engineer	Pedro Alvarez Office 956-712-7402	1817 Bob Bullock Loop Laredo, TX
Texas Parks & Wildlife Department Lake Casa Blanca State Park Park Manager	Jorge Martinez Office 956-725-3826 Alt 800-792-1112 Cell 956-286-2835	Lake Casa Blanca State Park 5102 Bob Bullock Loop Laredo, TX
State of Texas Texas Commission on Environmental Quality Dam Safety Program	Warren Samuelson, P.E. Dam Safety Program Coordinator 512-239-0326 888-777-3186	Field Operations Support Division, MC 174 P.O. Box 13087 Austin, TX 78711

TAB 10

BREACH ANALYSIS

TAB 11

INUNDATION MAPS