

# DAM SAFETY

## EMERGENCY ACTION PLAN

**Dam Name: Apache Station Ash/Scrubber Waste Disposal Facility Dam**

**AZ Dam Number: 02.03**

**Location: Cochise, AZ, Cochise County**  
(Town, County, & Stream)

**Owner: Arizona Electric Power Cooperative, Inc.**

**Revision Date: April 13, 2017**

### PLAN IMPLEMENTATION

The purpose of this Emergency Action Plan (EAP) plan is to prepare for immediate defensive action in order to prevent or minimize property damage, injury, or loss of life due to an emergency flooding situation.

The Owner or his representative who is responsible for “day-to-day” monitoring of the dam to detect adverse or unusual conditions is identified by name in Section 3.1.1. When this person observes any adverse or unusual conditions at the dam, he will notify the owner.

When the owner determines that an adverse or unusual condition constitutes an **EMERGENCY SITUATION**, the owner will implement this EAP by referring to **EAP IMPLEMENTATION FLOWCHART (Figure I)**, and **EAP NOTIFICATION LIST (Figure II)**. These figures include information directing the user to the appropriate sections of the EAP for each sequential step required as part of the EAP implementation.

The inundation maps included in this EAP are used by local emergency management entities to define areas requiring evacuation of the affected public when the emergency situation threatens potential loss of life.

Effective implementation of this EAP requires that all participating emergency management entities be thoroughly familiar with the entire plan.

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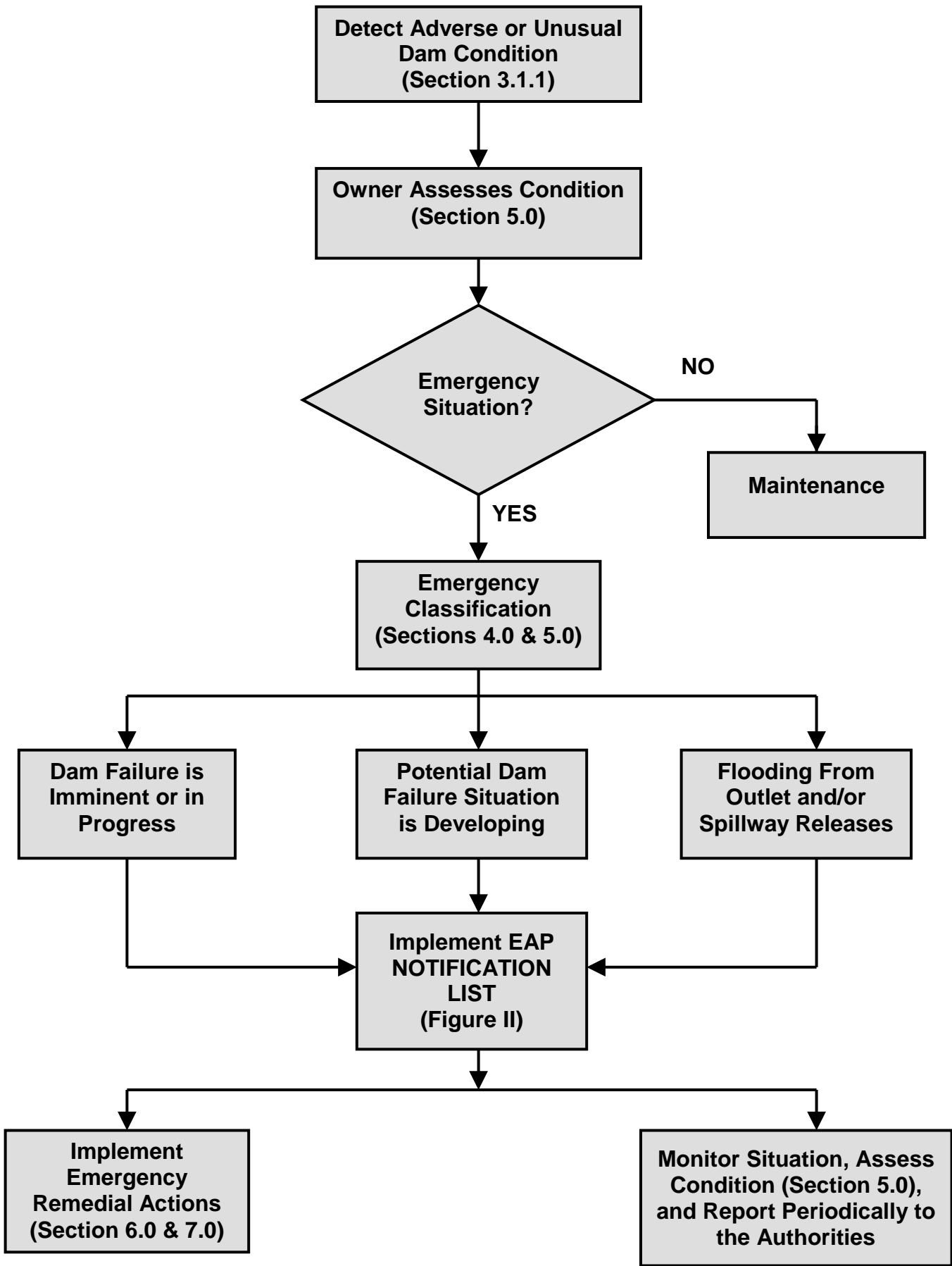
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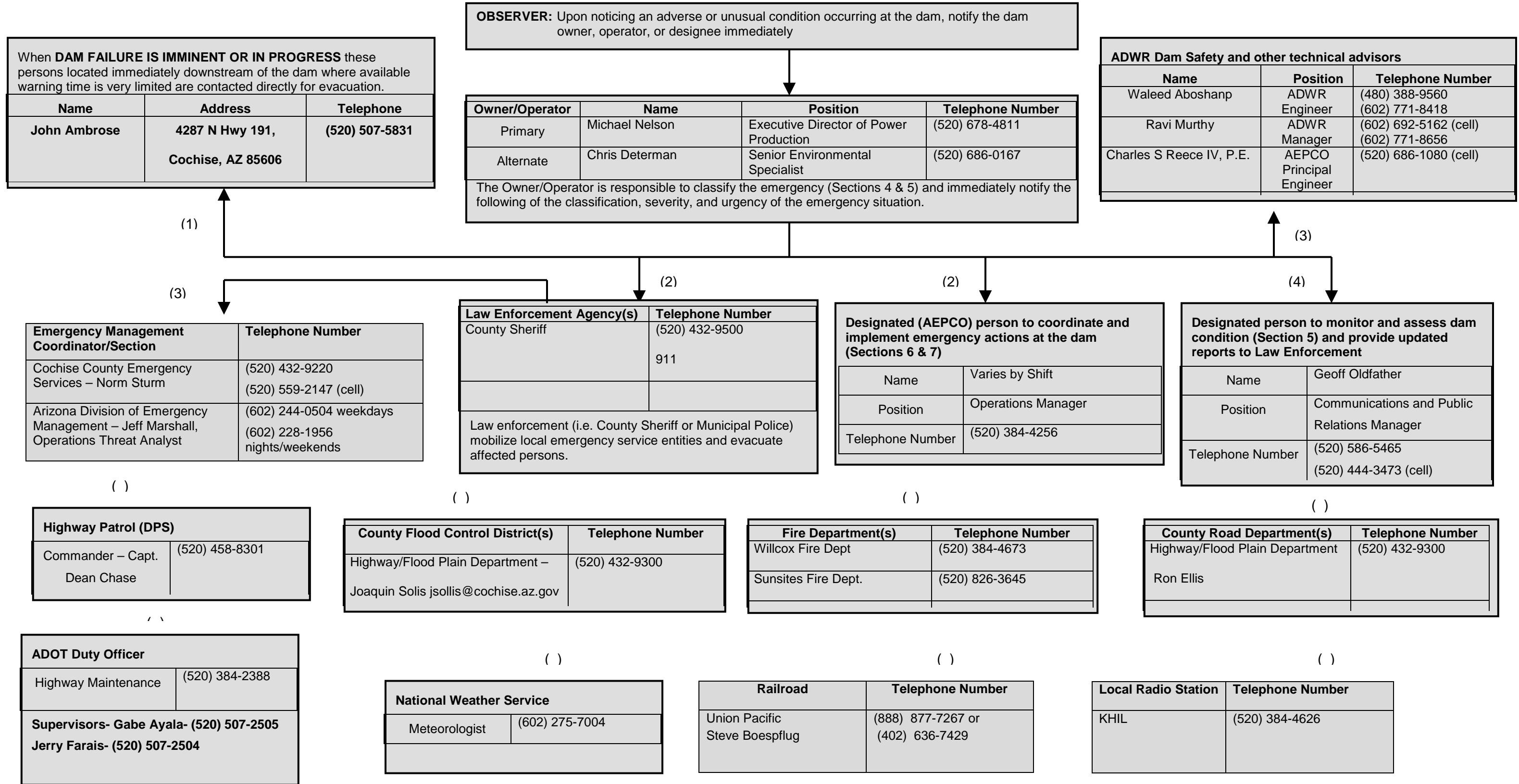
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**FIGURE I - EAP IMPLEMENTATION FLOWCHART**



(x): Indicates call priority

## FIGURE II - EAP NOTIFICATION FLOWCHART



## 1.0 INTRODUCTION

This Emergency Action Plan (EAP) defines responsibilities and procedures and provides information designed to:

- Aid the owner in identifying adverse and unusual dam conditions that constitute an emergency situation, which could cause property damage, injury, or loss of life.
- Aid the owner in immediately notifying the County Sheriff(s) of an emergency situation so the Sheriff(s) may alert other emergency service entities and, when necessary, implement evacuation of downstream residents from areas flooded by failure of the dam or large operational outlet and spillway releases.
- Aid the owner in identifying and notifying any persons located immediately downstream of the dam when immediate evacuation appears necessary and available warning time is very limited.
- Aid the owner in immediately notifying the Arizona Department of Water Resources, Office of Water Engineering (ADWR), and any appropriate technical advisors.
- Aid the owner in immediately coordinating and implementing appropriate emergency remedial actions, which will not impair the safety of the dam to prevent or minimize the downstream impacts of a dam failure.
- Identify for the owner which types of emergency remedial actions will impair the safety of the dam, and clarify that these actions shall not be implemented except as part of a plan which has been approved by ADWR.
- Aid the owner in monitoring the emergency situation and periodically reporting real-time conditions to County Sheriff(s) for updating other emergency service agencies and organizations.

## 2.0 DAM AND RESERVOIR DATA

Listed below is general information related to the dam and reservoir, which may prove necessary during an emergency situation:

ADWR Dam Name: Apache Sta. Ash/Scrubber WDF Dam ADWR Dam Number: 02.03

ADWR Reservoir Name: Apache Sta. Ash/Scrubber Waste Disposal Facility

Dam Owner and Operator: Arizona Electric Power Cooperative, Inc.

General Location - Nearest City/Town: Cochise, Arizona

Section: 4 Township: 16S Range: 24E G&SR B&M County: Cochise

Map Location: See Vicinity Map on Following Page

Access Route to Dam: Plant Roads, North Cochise Stronghold Road

Type of Dam: Earthen Purpose of Dam: Waste Disposal

Dam Height: 31 ft (Max.) Crest Length: N/A Crest Width: 20 ft

Slope of Upstream Face: 3 Horizontal: 1 Vertical

Slope of Downstream Face: 3 Horizontal: 1 Vertical

Reservoir Volume to Crest (acre-ft): 687

Year Constructed: 1995

Downstream Hazard Potential Classification: High

Description and Maps of Potential Inundation Areas: See Section 8.0 of this EAP

Outlet Discharge at Maximum Flood Pool (cfs): Zero Discharge

Spillway Inflow Design Flood (IDF): Zero Discharge

Spillway Maximum Flow Depth during IDF (ft): Zero Discharge

Dam Crest Freeboard at Spillway Maximum Flow Depth during IDF (ft): 3

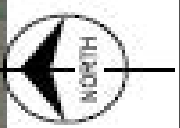
Spillway Maximum Discharge during IDF (cfs): Zero Discharge

Estimated Dambreak Maximum Discharge (cfs): 32,525

Warning Systems at Dam: None

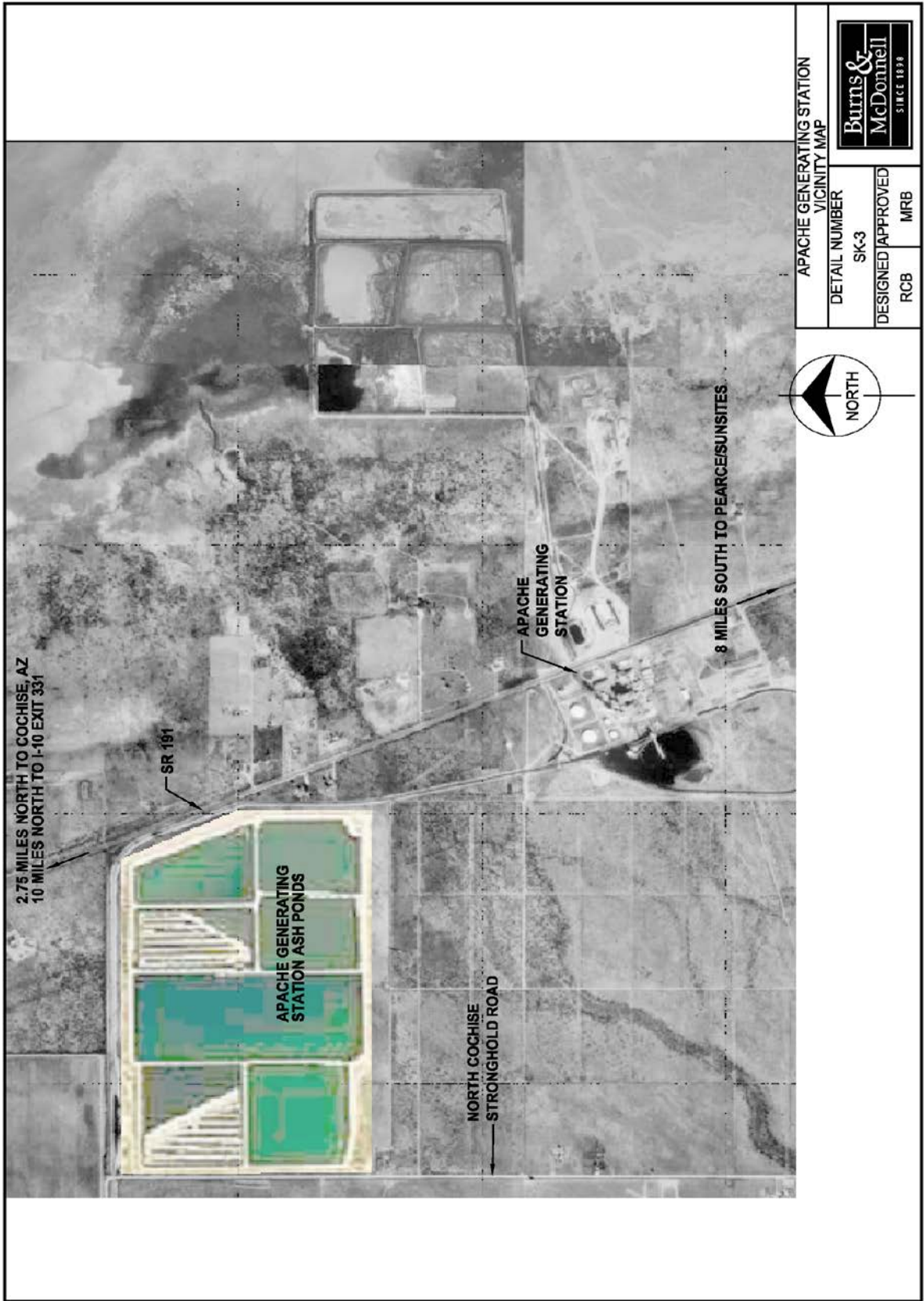
Communication Systems at Dam: None

Historical Safety Deficiencies at Dam: None



APACHE GENERATING STATION VICINITY MAP	
DETAIL NUMBER	84-4
DESIGNED/APPROVED	R/CB M/RB





## 3.0 PARTICIPANTS RESPONSIBILITIES

### 3.1 DAM OWNER, OPERATOR, OR DESIGNEE

The dam owner is responsible for maintaining a safe dam, which includes management of operations, periodic inspections, maintenance, repair, and rehabilitation.

#### 3.1.1 Monitoring of the Dam

1. **During normal operation**, Jerry Ellis is the person responsible for conducting monthly observations of the dam to detect the development of any adverse or unusual conditions, which pose a potential emergency situation. Observations of the dam shall be made more frequently (minimum bi-weekly) when the reservoir is full or near full.
2. **Major Storm**, This series of dams impounds water and ash from an electrical generating station. The dam does not impound stormwater from off-site sources. In the event of a storm, the only additional water stored will be the volume of precipitation falling within the pond limits. Therefore, a major storm event will not have a significant effect on the dam.
3. **When an earthquake** is reported in the vicinity, or if strong ground motions or damage have been experienced from a large earthquake, Jerry Ellis is the person responsible to immediately conduct a general overall visual inspection of the dam to detect any adverse or unusual conditions, which pose a potential emergency situation. If no emergency situation is detected, frequent (minimum bi-weekly) inspections of the dam should be made for the following four weeks, as some types of damage may not be revealed immediately after the earthquake.

**In the event monitoring of Items 1, 2 or 3 above detects any adverse or unusual conditions which may constitute an emergency situation, as described in Sections 4.0 & 5.0, the monitor will notify the owner listed on the EAP NOTIFICATION LIST, Figure II.**

#### 3.1.2 Emergency Situation Response

1. When the owner becomes aware of any adverse or unusual conditions at the dam, the owner will assess the situation per Section 5.0, Emergency Situations, to determine if an **emergency situation** exists at the dam.
2. If an **emergency situation** exists, the owner will **classify** the emergency situation per Sections 4.0, Emergency Situation Classification, and immediately **implement** the EAP NOTIFICATION LIST, Figure II. The owner must indicate the **severity and urgency** of the emergency situation to the Sheriff(s) so they may respond appropriately in implementing evacuation or in coordinating monitoring of the situation.

3. The EAP NOTIFICATION LIST includes the names of persons who are responsible for implementing two critical actions (listed below) during an emergency situation. Lost time is avoided by assigning individual persons to implement each task:
  - a. Monitor and assess the severity and urgency of the emergency situation at the dam per Section 5.0, Emergency Conditions and report the status of conditions periodically to the Sheriff;
  - b. Coordinate with external assistance and implement emergency remedial actions to prevent or minimize the failure of the dam per Section 6.0, Emergency Remedial Actions and 7.0, Emergency Resources.
4. Complete the DAM SAFETY EMERGENCY SITUATION REPORT provided in Appendix IV of this plan following termination of the emergency situation and distribute copies to the Sheriff(s) and ADWR within five (5) days.

### **3.2 EMERGENCY SERVICES: COUNTY SHERIFF AND EMERGENCY SERVICES AGENCIES AND ORGANIZATIONS**

#### **3.2.1 Emergency Situation Response**

1. The County Sheriff must **notify** local emergency services agencies and organizations listed on the EAP NOTIFICATION LIST, Figure II, to alert the general public of the severity of the emergency situation and the related urgency. When flooding is not imminent, the Sheriff must coordinate and/or initiate monitoring of the dam. However, when flooding is imminent from failure of the dam or large operational outlet and spillway releases, the Sheriff must immediately **implement** road control and evacuation of persons located within the inundation areas shown on maps(s) provided in Section 8.0 of this EAP.
2. The Local Coordinator for Emergency Management must **notify** and **update** the Arizona Division of Emergency Management when an emergency situation exists:

**Contact:** Operations Section Switchboard @ (602) 244-0504 (M-F 8am-5pm)

#### **after duty hours**

**Contact:** ADEM Duty Officer Cell Phone @ (602) 469-3401

## **4.0 EMERGENCY SITUATION CLASSIFICATION**

Emergency situations at the dam are classified based on whether the dam is in imminent or potential risk of failure, as well as whether flooding is likely from operational outlet and spillway releases. Provided below are **three Emergency Classifications** defined for the purpose of this EAP. Section 5.0 describes some examples of adverse or unusual conditions that constitute emergency situations.

### **4.1 DAM FAILURE IS IMMINENT OR IN PROGRESS**

This emergency classification is extremely urgent and is applicable when a dam failure has occurred, is occurring, or obviously is just about to occur and cannot be prevented. No time is available to control the failure of the dam. It is critical that emergency services authorities be immediately notified and made aware of the emergency classification, so they can immediately begin road control and evacuation of the affected public.

### **4.2 POTENTIAL DAM FAILURE SITUATION IS DEVELOPING**

This emergency classification is applicable when it appears a dam failure may eventually occur but there is not an immediate threat of dam failure. Time appears available to obtain external assistance and to evaluate and initiate remedial actions to moderate or prevent failure. The time available to employ remedial actions may be hours, days, or weeks. Emergency services authorities must be notified of this emergency classification, and placed on alert. The Sheriff may initiate independent monitoring of the situation. The dam owner must initiate remedial actions, closely monitor the dam condition, and periodically report the dam condition to emergency services authorities. If the dam condition worsens and failure becomes imminent, emergency services authorities must be immediately notified of the change in the emergency classification to enable evacuation of the affected public.

### **4.3 FLOODING FROM DAM FAILURE**

This emergency classification is applicable when releases are observed from uncontrolled outlets or if a dam failure is observed. Emergency services authorities must be immediately notified of this emergency classification to enable evacuation of the public from the inundation areas. The condition of the dam must be closely monitored during major storm events to detect any development of a Potential or Imminent Dam Failure Emergency Situation.

**ANY EMERGENCY SITUATION REQUIRES IMPLEMENTATION OF THE  
EAP NOTIFICATION LIST, FIGURE II**

## 5.0 EXAMPLES OF EMERGENCY SITUATIONS

The following are typical examples, but not necessarily all, adverse or unusual conditions that may occur at a dam and usually constitute an emergency situation. Adverse or unusual conditions that threaten the failure of a dam are typically related to aging or design and construction oversights. However, accidental or intentional damage to the dam may also result in similar conditions. The conditions have been grouped to identify the most likely emergency classification. The groupings are provided as guidance only. Not all emergency conditions may be listed and the owner is urged to use conservative judgement in determining whether a specific condition should be defined as an emergency situation at the dam.

### 5.1 SEEPAGE AND INTERNAL EROSION OF EMBANKMENT DAM, ABUTMENTS, OR FOUNDATION

#### 5.1.1 Potential Dam Failure Situation is Developing

1. Small amount of cloudy seepage or soil deposits at seepage exit points or from internal drain outlet pipes.
2. New or increased areas of wet or muddy soils are present on the downstream slope, abutment, and/or foundation of the dam, and there is an easily detectable and unusual increase in volume of downstream seepage.
3. Significant new or larger sinkhole(s) or crest settlement.
4. Reservoir level is falling without apparent cause.
5. During an impending or actively occurring storm the following dam defects may become inundated by a rise in the reservoir:
  - Sinkhole(s) located on the upstream slope, crest, abutment, and/or foundation of the dam; and
  - Transverse cracks extending through the dam, abutments, or foundation.

#### 5.1.2 Dam Failure is Imminent or in Progress

1. Rapidly increasing cloudy seepage or soil deposits at seepage exit points to the extent that failure appears imminent or is in progress.
2. Rapid increase in volume of downstream seepage to the extent that failure appears imminent or is in progress.
3. Water flowing out of holes in the downstream slope, abutment, and/or foundation of the dam to the extent that failure appears imminent or is in progress.
4. Water turbulence or other evidence exists indicating that the reservoir is draining rapidly through the dam or foundation.
5. Rapidly enlarging sinkhole(s) are forming on the dam or abutments to the extent that failure appears imminent or is in progress.
6. Rapidly increasing flow through crack(s) eroding materials to the extent that failure appears imminent or is in progress.

## **5.2 SLIDING, SETTLEMENT, AND CRACKING OF EMBANKMENT DAM, ABUTMENTS, OR FOUNDATION**

### **5.2.1 Potential Dam Failure Situation is Developing**

1. Detectable and progressive landsliding or settlement of the crest, slopes, abutments and/or foundation of the dam, which may eventually result in breaching of the dam.
2. Significant increase in length, width, or offset of cracks in the crest, slopes, abutments, and/or foundation of the dam which may eventually result in breaching of the dam.

### **5.2.2 Dam Failure is Imminent or in Progress**

1. Sudden or rapidly proceeding landsliding, settlement, or cracking of the crest, slopes, abutments, and/or foundation, and breaching of the dam appears imminent or is in progress.

## **5.3 EMBANKMENT DAM SURFACE EROSION**

### **5.3.1 Potential Dam Failure Situation is Developing**

1. On-going storm wave erosion over the crest of the dam is reducing the freeboard at one or more locations.
2. On-going storm wave erosion of upstream slope at the crest of the dam is reducing the crest width at one or more locations
3. On-going surface runoff is significantly eroding the embankment.

### **5.3.2 Dam Failure is Imminent or in Progress**

1. Storm wave erosion over the crest of the dam has reduced or is rapidly reducing the freeboard at one or more locations to the extent that breaching of the dam appears imminent or is in progress.
2. Storm wave erosion of upstream slope at the crest of the dam has reduced or is rapidly reducing the crest width at one or more locations to the extent that breaching of the dam appears imminent or is in progress.
3. Surface runoff has severely eroded or is rapidly eroding the embankment to the extent that breaching of the dam appears imminent or is in progress.

## **5.4 ABNORMAL INSTRUMENTATION READINGS**

If any of the following threshold values are exceeded, an adverse or unusual condition exists at the dam and an emergency situation classified as a **Potential Dam Failure Situation is Developing** should be declared.

- A guide for **piezometers** may be the maximum elevation of the phreatic surface used in the slope stability analyses.

Instrument Type and ID

Critical Value

Reservoir Levels  
Survey Monuments  
Peizometers

Drop in level of 2 feet or more  
Change of more than 6 In./Yr.  
Phreatic surface used in the  
slope stability analyses.

## 6.0 EMERGENCY REMEDIAL ACTIONS

### 6.1 EMERGENCY REMEDIAL ACTIONS WHICH IMPAIR THE SAFETY OF THE DAM

**Any action which impairs the safety of the dam, even when failure is imminent, requires prior approval of the ADWR Dam Safety Section:**

An owner shall not excavate into or near the crest or toe of the dam embankment to lower the water, or plug the spillway to retain water. These actions will impair the safety of the dam and can only be initiated if failure is imminent and the owner follows a plan approved by ADWR. A plan, including equipment, supplies and type of breach, is required to provide the greatest probability the planned failure will be controlled to within safe limits. Time permitting, any remedial action should be developed through consultation with a professional engineer with knowledge of dam technology.

### 6.2 EMERGENCY REMEDIAL ACTIONS WHICH DO NOT IMPAIR THE SAFETY OF THE DAM

**Any action which does not impair the safety of the dam may be taken immediately.**

Emergency remedial actions are described for typical adverse or unusual conditions, which result in an emergency situation at the dam. The emergency remedial actions described below do not require prior approval of ADWR. Immediate implementation of these remedial actions may delay, moderate, or prevent the failure of the dam after an emergency situation is first discovered. Several of the listed adverse or unusual conditions may be apparent at the dam at the same time, requiring implementation of several modes of remedial actions. Close monitoring of the dam must be maintained to confirm the success of any remedial action taken at the dam. Time permitting, any remedial action should be developed through consultation with a professional engineer with knowledge of dam technology.



### **6.2.1 Actions for Reduction in Freeboard and/or Loss of Dam Crest Width Due to Storm Wave Erosion**

1. Place additional riprap, sandbags, or other materials in damaged areas to prevent or minimize further embankment erosion.
2. Place sandbags or earth and rockfill materials in the damaged area to restore freeboard.

### **6.2.2 Actions for Sliding or Slumping on the Upstream or Downstream Slope of the Embankment**

1. Repair settlement of the crest by placing sandbags or earth and rockfill materials in the damaged area to restore freeboard.
2. Stabilize slides on the downstream slope by placing a soil or rockfill buttress against the toe area of the slide.

### **6.2.3 Actions for Seepage Producing Internal Erosion (Piping) of the Embankment, Foundation, or Abutments**

1. If the entrance to the seepage origination point is observed in the reservoir (possible whirlpool), reduce the flow by plugging the entrance with readily available materials, including hay bales, bentonite, soil or rockfill, or plastic sheeting.
2. Cover the seepage exit area(s) with several feet of sand/gravel to hold fine-grained embankment or foundation materials in place. Alternatively, construct sandbag or other types of ring dikes around seepage exit areas to retain a pool of water, back-pressuring and reducing the erosive nature of the seepage.
3. Prevent vehicles and equipment from driving between the seepage exit points and the embankment to avoid potential loss from the collapse of an underground void.

### **6.2.4 Actions for Mass Movement of the Dam on its Foundation (Spreading or Mass Sliding Failure)**

1. Stabilize sliding in the downstream direction by placing a soil or rockfill buttress on and/or against the toe area of the slide.
2. Repair settlement of the crest or separation at the abutments by placing sandbags or earth and rockfill materials in the damaged area(s).

### **6.2.5 Actions for Abnormal Instrumentation Readings**

1. Conduct immediate detailed inspection of the dam and surrounding area for any unusual or adverse conditions.
2. Review abnormal instrumentation readings to evaluate whether any unusual adverse conditions are occurring internal to the dam, abutments, foundation, or reservoir.

## 7.0 EMERGENCY RESOURCES

In an emergency situation, equipment, supplies and construction personnel will likely be needed on short notice. The table below lists general emergency resources, and also indicates how to access them.

Item	Contact/Telephone	Location
Earthmoving Equipment:		
General	Danny Tapia (520) 904-2908	<u>On-site</u>
Bulldozers	Danny Tapia (520) 904-2908	<u>On-site</u>
Excavators	Danny Tapia (520) 904-2908	<u>On-site</u>
Sand and Gravel	Danny Tapia (520) 904-2908	<u>On-site</u>
Sandbags	Danny Tapia (520) 904-2908	<u>On-site</u>
Pumps	Danny Tapia (520) 904-2908	<u>On-site</u>
Pipe	Danny Tapia (520) 904-2908	<u>On-site</u>
Laborers	Danny Tapia (520) 904-2908	<u>On-site</u>
<u>Engineering Services</u> <sup>1</sup>	Charles S. Reece IV, P.E. (520) 686-1080	<u>On-site</u>
<u>Alternate Communications</u>	Use AEPCO plant radios to circumvent possible failure of local phone lines.	
_____	_____	_____
_____	_____	_____
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_____	_____	_____
_____	_____	_____

<sup>1</sup>Professional Engineer with knowledge of dam technology

## 8.0 INUNDATION AREA TO BE EVACUATED

### 8.1 DESCRIPTION OF INUNDATED AREA

#### 8.1.1 Dam Break Releases

1. Evacuation Areas: See designated areas on Inundation Map in Section 8.2  
(Evacuation areas should be prioritized to correspond to level of danger and evacuation

resources)

2. Estimated No. of Habitations to Evacuate: 1

3. Stream Name: Big Draw

4. General Description: N/A

### 8.2 MAPS OF INUNDATED AREA & EVACUATION ROUTE

**Inundation & Evacuation Route Maps Follow**

**Notes to Users**

HEC-RAS 5.0.3 was used to create a 2-dimensional flow model to generate a dam breach and route the breach flood wave downstream.

The starting water surface elevation for the dam breach was the maximum allowable water surface elevation in the ponds from the original design of 421.0 feet.

USGS 10-meter DEM was used to create model geometry and the inundation area plot.

The dam breach inundation area represents a rapidly developing dam failure resulting from upstream failure. In the event of an actual dam failure, conditions may vary, resulting in a variation of the breach inundation area shown on the map.

This overall inundation map is a combination of multiple scenarios that consider multiple breach locations. The inundation area from any single breach would be less. The predicted inundation areas for the individual breach locations are color coded on the inundation map.

Elevations are referenced to the North American Vertical Datum of 1988 (NAVD 1988).

**Legend**

Evacuation Route

Potential Hazards

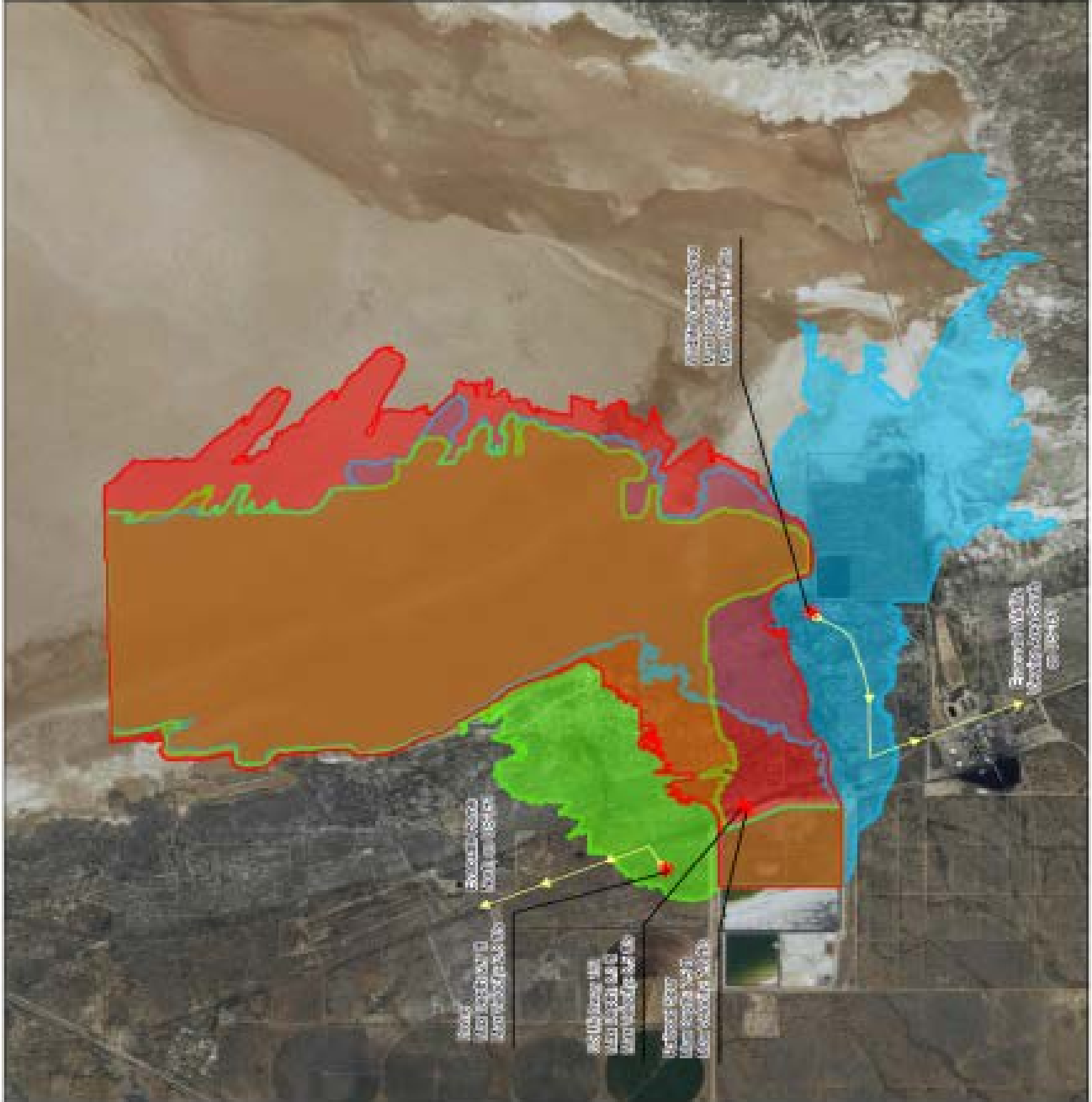
East Breach Inundation Area

North Breach Inundation Area

South Breach Inundation Area



**Apache Generating Station  
Breach Inundation Map**



**APPENDIX I  
EAP APPROVAL PAGE**

The undersigned persons have reviewed this Emergency Action Plan and concur with the proposed responsibilities and procedures.

ORGANIZATION

SIGNATURE & DATE

**Owner** \_\_\_\_\_ Date \_\_\_\_\_

Printed Name and Title: Michael Nelson, Manager of Power Production

**Owner** \_\_\_\_\_ Date \_\_\_\_\_

Printed Name and Title: Chris Determan, Senior Environmental Specialist

**Owner** \_\_\_\_\_ Date \_\_\_\_\_

Printed Name and Title: Jerry Ellis, Safety & Environmental Technical Assistant

**Owner** \_\_\_\_\_ Date \_\_\_\_\_

Printed Name and Title: Charles S. Reece IV, P.E., Principal Engineer

**Owner** \_\_\_\_\_ Date \_\_\_\_\_

Printed Name and Title: Geoff Oldfather, Communications & Public Relations Manager

**County Sheriff** \_\_\_\_\_ Date \_\_\_\_\_

Printed Name and Title: \_\_\_\_\_

**Cochise County Emergency Services** \_\_\_\_\_ Date \_\_\_\_\_

Printed Name and Title: \_\_\_\_\_

**Arizona Department of Transportation** \_\_\_\_\_ Date \_\_\_\_\_

Printed Name and Title: \_\_\_\_\_

\_\_\_\_\_ Date \_\_\_\_\_

Printed Name and Title: \_\_\_\_\_

## **APPENDIX II EAP UPDATING AND MOCK EXERCISES**

1. **EAP UPDATING:** Charles S. Reece IV, P.E. is responsible for reviewing the current EAP annually. This person is also responsible for providing revisions to the record copyholders when major changes have occurred. Major changes include the following:
  - Changes in assignments of personnel or telephone numbers.
  - Changes in Equipment and Supplies information.
  - Changes made to the dam.
  - Changes in the flood inundation areas, downstream developments, or in the reservoir.
  - Other items as applicable.
  
2. **EAP MOCK EXERCISES:** Jerry Ellis is responsible for initiating mock exercises of this EAP each year. The EAP shall be revised to incorporate information learned from the mock exercises. Mock exercises may vary from only telephone notification per Figure II, EAP NOTIFICATION LIST, to both notification and site response, as agreed upon by the emergencies services agencies and organizations involved in each exercise.

## APPENDIX III EAP DISTRIBUTION

This section lists which owner(s), agencies and entities have record copies of this EAP. Provide all updates to each record copy holder. Make a complete copy of the EAP available to all dam tenders, emergency service agencies and entities, and appropriate local officials.

**POST:** Post copies of the **EAP IMPLEMENTATION FLOWCHART** and the **EAP NOTIFICATION LIST** at appropriate locations, including the dam, at the operator's office or residence, and the owner's office or residence.

### EAP DISTRIBUTION

<u>Contact/Agency</u>	<u>Responsible Person/Title</u>	<u>Telephone/Address</u>
1.Owner	Michael Nelson, Manager of Power Production	(520) 384-4256
2.Owner	Chris Determan, Senior Environmental Technician	(520) 384-4256
3.Owner	Charles Reece, P.E., Principal Engineer	(520) 586-5158
4.Owner	Geoff Oldfather, Communications and Public Relations Manager	(520) 586-5000
5.Owner	Jerry Ellis, Safety & Environmental Technical Assistant	(520) 384-4256
6.Owner	Apache Station Control Room, Operations Manager	(520) 384-4256
7.Owner	Apache Station Security	(520) 384-4256
8.Cochise County Emergency Services	Norm Sturm, Coordinator	(520) 432-9220 1415 Melody Lane, Bldg. G Bisbee, AZ 85603
9. Cochise County Sheriff, Willcox Substation	Dan Keil, Sargeant	(520) 384-7050 450 S. Haskell Ave., Ste. C Willcox, AZ 85643

10. Arizona Division of Emergency Management	Paul Culberson, Operations Threat Analyst	(602) 244-0504 5636 E. McDowell Rd, M- 5103 Phoenix, AZ 85008-3495
10. Arizona Department of Water Resources	Ravi Murthy, Manager, Office of Surface Water Engineering	(602) 771-8649 3550 N. Central Ave. Phoenix, AZ 85012
11. Arizona Department of Transportation	Jerry Farais, Maintenance Supervisor	(520) 384-2388 709 S. Haskell Ave. Willcox, AZ 85644



## APPENDIX IV DAM SAFETY EMERGENCY SITUATION REPORT

(Photocopy and fill-out after termination of Emergency Situation. Complete ALL sections that are applicable to the situation.  
Distribute copies to Sheriff(s) and ADWR with five (5) days.)

Dam Name: Apache Sta. Ash/Scrubber Waste Disp. Facility Dam ADWR Dam Number: 02.03

Dam Location: Cochise Cochise N/A  
(City) (County) (Stream/River)

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Weather Conditions: \_\_\_\_\_

General Description of Emergency Situation: \_\_\_\_\_

Area(s) of Dam Affected: \_\_\_\_\_

Extent of Dam Damage: \_\_\_\_\_

Possible Cause(s): \_\_\_\_\_

Effect on dam's operation: \_\_\_\_\_

Effect on operational capabilities of outlet works: \_\_\_\_\_

Initial Reservoir Elevation: \_\_\_\_\_ Time: \_\_\_\_\_

Maximum Reservoir Elevation: \_\_\_\_\_ Time: \_\_\_\_\_

Final Reservoir Elevation: \_\_\_\_\_ Time: \_\_\_\_\_

Description of area flooded downstream/damages/injuries/loss of life: \_\_\_\_\_

Other Data and Comments: \_\_\_\_\_

Observer's name and telephone number: \_\_\_\_\_