

REPORT OF FLOODING
NEAR 32ND STREET AND THE ARIZONA CANAL

August 28-29, 1986

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AUGUST 28-29, 1986

Flood Control District of Maricopa County
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REPORT OF FLOODING
NEAR 32ND STREET AND THE ARIZONA CANAL
AUGUST 28-29, 1986

On the evening of August 28-29, 1986, severe thunderstorms struck sections of the Phoenix metropolitan area resulting in flooding in a number of areas below the Arizona Canal. The most extensive flooding damages occurred below Spillway #3 located a few hundred feet east of 32nd Street. This report will describe the storm and the flooding in that area which resulted from it.

The National Weather Service (NWS) Significant Weather/Event Log and radar observations for Thursday, August 28, 1986, indicate that severe weather was in the Phoenix area as early as 6:00 p.m. A severe storm statement was issued at 7:40 p.m. Another severe weather statement was issued at 8:00 p.m. and a flash flood watch issued at 8:50 p.m. The NWS continued to issue severe weather statements and to extend the flash flood watch through the evening.

Most of the severe storm cells were located in the north central portions of the Phoenix metropolitan area, particularly in the area bounded by Scottsdale Road on the east, 55th Avenue on the west, Camelback Road on the south, and Bell Road on the north. A Flood Control District (FCD) telemetered rain gauge at Indian Bend Wash near McKellips Road recorded .87" between 6 p.m. and 7 p.m., while another at Dreamy Draw Dam recorded .67" between 10 p.m. and midnight. Reports from observers in the Scottsdale area indicate that intense rainfall in that area occurred between 9:30 p.m. and 11:00 p.m. Apparently, as is typical of "monsoon" storms in this area, a number of short lived but quite intense storms developed over a number of hours.

It appears that one of the most intense of these storm cells was centered over 40th Street and Montebello Avenue. A NWS spotter at that location reported 5.53" of rainfall, and another at 42nd Street and McDonald Drive reported 3.90". Other observers within two miles of these points reported total rainfall values ranging from 1.10" to 2.20". Most of this rainfall occurred during a 2-3 hour period beginning about 9:30 p.m. Unfortunately, there is not

enough data for the area above the Arizona Canal to determine the average rainfall over the Cudia City Wash drainage area.

The major source of inflow to the Arizona Canal upstream of 32nd Street was Cudia City Wash. Field investigations after the storm support the indication that the storm was centered near 40th Street and Montebello Avenue. The high water marks on the upstream side of the culverts beneath McDonald Drive show that the peak flow was three feet deep. The discharge associated with that depth of flow is 480 cfs according to the rating curve developed by SRP for that culvert. The flow in the wash increased to 1200 cfs less than one-half mile downstream at 44th Street, and to 1400 cfs at 40th Street and Stanford Drive. These discharge values were calculated based upon high water marks (depth of flow = 5'-5.5') and the channel geometry of Cudia City Wash. The peak was attenuated as water ponded and spread to the west beneath the office complex located astride Cudia City Wash on the north bank of the Arizona Canal (5080 N. 40th Street). The peak flow into the Arizona Canal at this point was 1150 cfs.

Another wash enters the Arizona Canal just east of 32nd Street directly across from Spillway #3. Flow into the Canal at this point is estimated, based on high water marks, to have been 350-400 cfs. Additional runoff entered the Arizona Canal east of 32nd Street at numerous locations, both overflowing the maintenance access road after ponding on the northside, and through storm drains. Total flow from these sources is estimated to have been at least 200 cfs.

As a result of the above listed inflows, the capacity of the Arizona Canal was exceeded. Flow through Spillway #2 is estimated to have been 100 cfs, and 860 cfs through spillway #3. The latter of these flows caused damage to a number of houses below the spillway. SRP releases through/over the gates at 32nd Street peaked at 790 cfs at the time that Spillway #3 was flowing at its maximum rate. Water was also flowing out through the spillway on the northside of the canal near 32nd Street, but it is not possible to estimate the magnitude of this flow. The maximum depth of the water in the forebay at 32nd Street was 8.19'.

Water which exited the Canal through Spillway #2 (40th Street) flowed south through a parking lot to Camelback Road and then west. Water which exited the Canal through Spillway #3 (32nd Street) flowed south causing extensive damages to a number of residences before crossing 32nd Street and entering the property of the Arizona Biltmore Country Club in the vicinity of Oregon Avenue and Colter Street. It then flowed through a series of small lakes on that property before entering Camelback Road where it combined with other flows moving to the west. The flow from Camelback Road then entered the property of the Biltmore Fashion Park where damage to businesses was experienced.

Another intense storm was centered over the 53rd Avenue and Peoria Avenue area. A NWS observer in that area reported 3.80" of rainfall, and there were numerous reports from NWS and FCD observers of rainfall totaling over 2.00". SRP observers reported in excess of 300 cfs flowing in Cave Creek Wash at 10:30 p.m. The anticipated flows from this storm in part shaped SRP's response in the upper reaches of the Arizona Canal.

In an effort to accept as much of the runoff resulting from the storm as possible, SRP began wasting water from the Arizona Canal at a number of locations including Evergreen Wasteway, Indian Bend Wash and the Old Cross Cut Canal. Table 1 presents a summary of SRP's releases upstream of 48th Street. SRP records indicate that they were releasing as much as was physically possible (i.e., their gates were out of the water) into the old Cross Cut Canal from 9:45 p.m. until midnight. Despite these efforts, the Arizona Canal overflowed at nearly every spillway location between 40th Street and 43rd Avenue. The Canal has a design capacity of 700 cfs in this reach, with a top of bank capacity of 1200-1600 cfs. This latter number varies along the Canal due to variations in channel geometry.

Table 1. Summary of flows wasted by Salt River Project out of the Arizona Canal above 48th Street.

<u>Time</u>	<u>Evergreen Wasteway</u>	<u>IBW</u>	<u>56th Street*</u>	<u>Old Cross-cut</u>
2045	0 cfs	0 cfs	465 cfs	200 cfs
2115			478 cfs	300 cfs
2130				350 cfs
2145	200 cfs			**
2200		300 cfs	450 cfs	
2225	400 cfs	400 cfs	260 cfs	
2230	600 cfs			
2235		600 cfs	233 cfs	
2245			95 cfs	
2300			55 cfs	
0015	800 cfs			530 cfs
0030	700 cfs	400 cfs		
0040	600 cfs	300 cfs		
0105		0 cfs		
0120	300 cfs			
0135	0 cfs			
0155				0 cfs

* Flow at 56th Street is in the Arizona Canal past that point.

** From 9:45 pm until approximately midnight the gates passing flow from the Arizona Canal into the Old Cross Cut Canal were out of the water. No estimate of discharge by that point is available for that period of time.

SURVEY OF RESIDENTIAL FLOODED AREA

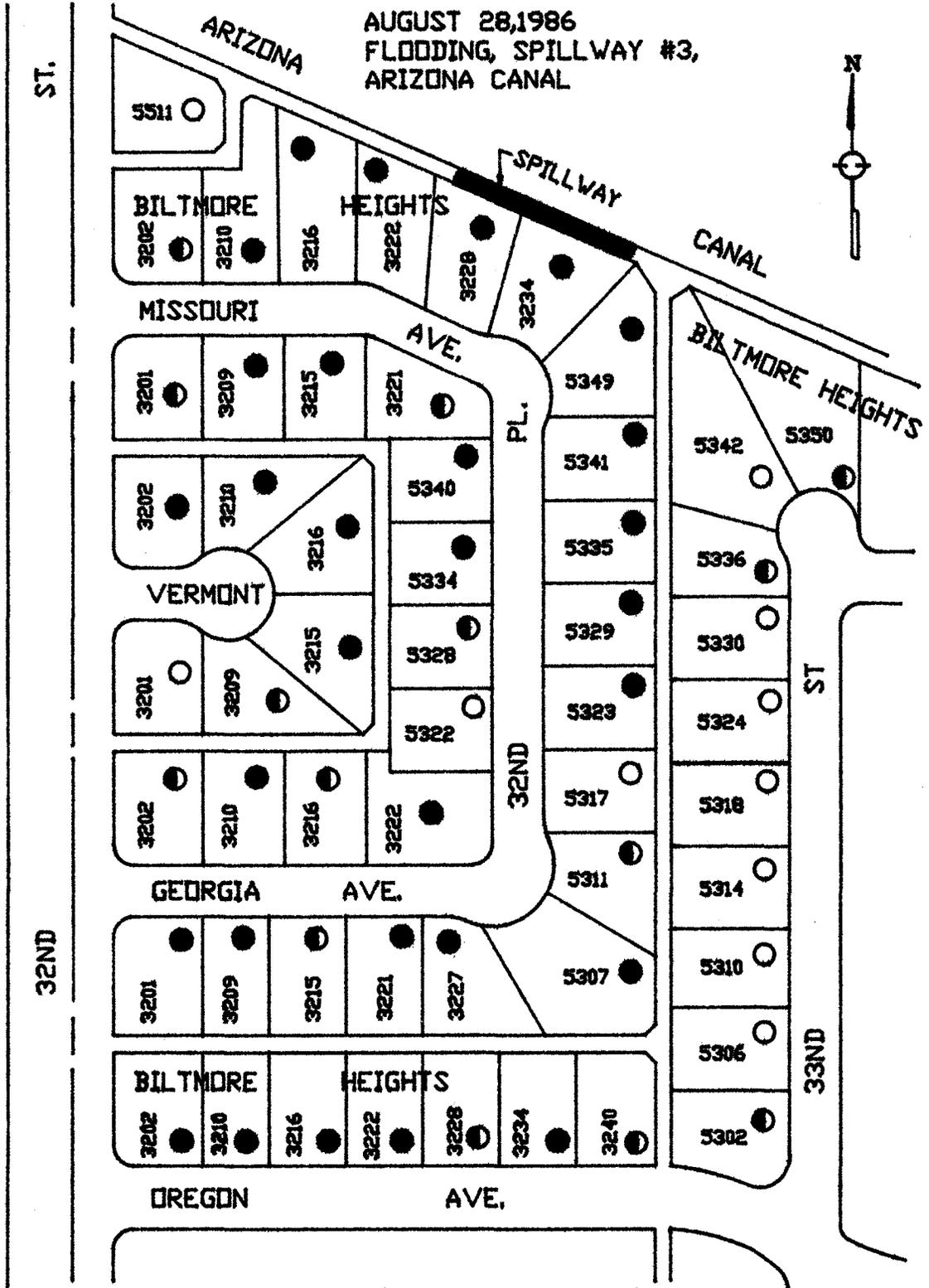
In order to learn the extent of the flooding in the area near 32nd Street and the Arizona Canal, a District staff member walked through the area and interviewed residents on September 6, 7, and 9, 1986. The intent of the survey was to find out which houses were flooded rather than to tally the exact flood damages. The accompanying map shows the houses that were flooded or not flooded. For this purpose, "flooded" is defined as water in the house with no reflection as to the amount of water or the damages done by that water.

The County Civil Defense and Emergency Services Department, in conjunction with representatives of the City of the Phoenix and the Flood Control District, later gathered information regarding flood damages. The Civil Defense survey was able to contact several residents not available during the earlier interviews, and the information from the Civil Defense survey has been added to the map.

ACDC, REACH 1

Reach 1 of the Arizona Canal Diversion Channel (ACDC) was under construction on August 28-29, 1986, and was approximately 90% complete. Reach 1 extends from Skunk Creek to 51st Avenue. Floodwaters entered the Channel and the Channel was running approximately 15 inches deep.

AUGUST 28, 1986
 FLOODING, SPILLWAY #3,
 ARIZONA CANAL



LEGEND: ○ = NOT CHECKED ● = NO FLOODING ● = FLOODING

BY FLOOD CONTROL DISTRICT
 OF MARICOPA COUNTY

CIVIL DEFENSE AND EMERGENCY SERVICES DEPARTMENT

SUMMARY OF STORM DAMAGE

This information was obtained by interviews with the residents concerned. In general, the damages were from water in the yards that washed out fencing, flooded swimming pools, and flooded houses causing extensive damage to carpeting and flooring. Most residents did not have flood insurance.

The individual survey forms are filed in this office and will be available when needed.

A summary of the information contained in these survey forms is shown below:

<u>Address</u>	<u>Type of Damage</u>	<u>Owners Estimate</u>
3222 East Missouri	Carpeting and linoleum damaged. Several appliances on floor ruined. Pool full of muddy water. Landscaping washed away.	\$ 10,000
3210 East Missouri	All carpeting water-soaked. Pool silted.	\$ 3,000
3215 East Missouri	Carpeting water soaked. Some flooring damaged. Pool filled with mud.	\$ 4,750
3216 East Missouri	Carpeting and baseboards soaked. Some furniture items water damaged. Pool needs replastering.	\$ 6,000
3221 East Missouri	Water in yard, but none in house.	None
3234 East Missouri	All carpeting ruined. Many furniture items water damaged. Drapes ruined. Wallboards damaged. Fence knocked down.	\$ 6,000
5340 North 32nd Pl	Water in garage - ruined some clothing. Granite in yard washed away.	\$ 1,500

<u>Address</u>	<u>Type of Damage</u>	<u>Owners Estimate</u>
5334 North 32nd Pl	Laundry room off carport flooded. Owner cleaned up.	None
5307 North 32nd Pl	All carpeting soaked. Baseboards loosened. Storage room flooded and quilt material ruined (business).	\$ 14,000
5335 North 32nd Pl	Water in yard and utility room. No damages sought.	None
5349 North 32nd Pl	About 8" of water in house. All carpeting ruined. Furniture items ruined. Part of fence knocked down.	\$ 4,800
5341 North 32nd Pl	Water and mud in house. Carpeting ruined. Some baseboard damage.	\$ 2,000
5323 North 32nd Pl	Water in family room and utility room but was cleaned out.	None
3227 East Georgia	6" water in house. All carpeting ruined. Pool needs replastering. Pool motor ruined.	\$ 20,000
3221 East Georgia	House flooded. All carpeting ruined.	\$ 2,000
3216 East Oregon	3" of water in house. All carpeting ruined. Baseboards soaked and cracked. Damage to pool. Some fur- niture items damage.	\$ 7,000
3234 East Oregon	Carpeting ruined. Furniture water soaked.	\$ 2,000
3209 East Vermont	Some water in yard. No damages.	None
3216 East Vermont	Water on patio. Furniture items and freezer damaged. Mud in pool.	\$ 1,150

<u>Address</u>	<u>Type of Damage</u>	<u>Owners Estimate</u>
3202 East Vermont	Water in one room. Carpet ruined. Muddy water in pool.	\$ 1,000
3215 East Vermont	Family room filled with water. Ruined only a rug pad on brick floor. No damages being sought.	None
3210 East Vermont	House flooded. Parquet floors damaged. Baseboards damaged. Carpeting in two bedrooms ruined.	\$ 1,458
3210 East Georgia	Water in laundry room. No damages in house. No damages being sought.	None
3202 East Georgia	Water in carport - but none in house. No damages being sought.	None
3210 East Oregon	Water in storage shed. Books soaked. Some furniture items soaked.	\$ 300
3201 East Georgia	Carport and utility room flooded. Granite washed away.	\$ 200
3209 East Georgia	Water in one room. Some granite washed away.	\$ 200
3202 East Oregon	Water in house. Carpeting soaked. Furniture and cartons fo wedding gifts soaked. Hundreds of slides soaked. Fence knocked down. Pool filled with muddy water.	\$ 15,000
3228 East Missouri	Water in house. All carpeting ruined. Water damage to some furniture items. Fence washed out.	\$ 7,500
Total		\$ 109,858

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Mrs. Mary Schweikher Phone 952-1876
Husband Off 955-8200

Address: 3222 East Missouri

1. Did you get water in house? Yes No
2. Did you get water in yard? $2\frac{1}{2}$ ft Yes No
3. Description of damages: Water throughout house (4 to 6 inches) - all carpets
and linoleum ruined, baseboards ruined. Dry wall work required and
repainting. Refrigerator motor burned out.

4. Estimated costs of repairs/replacement of -
- a. Damages to house (includes pool costs) \$ 10,000
- b. Damages to yard area \$ "
- Total \$ 10,000

5. Do you have receipts of repairs/replacements done? Yes No
6. Were pictures of the damage taken? Yes No
7. Do you have flood insurance coverage? Yes No
8. Do you know what your insurance coverage will pay? Yes No
- How much? \$

9. Remarks: Several small appliances on floor ruined. Dryer was full of water -
needed cleaning. Pool motor burned out - pool had to be pumped out. All
landscaping washed away. Fence broken down. A couch had to be thrown out.
Channel 3 filmed this house.

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Ms. Carol Thomason Phone _____

Address: 3210 East Missouri

1. Did you get water in house? Yes x No _____

2. Did you get water in yard? Yes x No _____

3. Description of damages: All carpeting water soaked including kitchen and dining room (1500 sq ft). 1½ ft of water in yard.

4. Estimated costs of repairs/replacement of -

a. Damages to house Carpeting \$ 3,000

b. Damages to yard area \$ _____

Total \$ 3,000

5. Do you have receipts of repairs/replacements done? Yes _____ No x

6. Were pictures of the damage taken? Yes _____ No x

7. Do you have flood insurance coverage? Yes _____ No x

8. Do you know what your insurance coverage will pay? Yes _____ No x

How much? \$ _____

9. Remarks: No dry wall damage. Pool silted.

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Mr. Eugene Kinder Phone 956-6588

Address: 3215 East Missouri

1. Did you get water in house? Yes No

2. Did you get water in yard? Yard filled w/water Yes No

3. Description of damages: Water in house from wind driven rain from roof onto patio. A few hours later saw that water was under carpeting. Yard filled with water, swimming pool filled with mud.

4. Estimated costs of repairs/replacement of -

a. Damages to house Carpeting - \$3000 \$ 4,500
Floor Repair - \$1500
b. Damages to yard area *\$ 250

Total \$ 4,750

5. Do you have receipts of repairs/replacements done? Yes No

6. Were pictures of the damage taken? Yes No

7. Do you have flood insurance coverage? Yes No

8. Do you know what your insurance coverage will pay? Yes No

How much? \$ _____

9. Remarks: * Also had to replace sprinkler box, lights and drained pool - Spent \$250.

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Ms. Carrie Withey Phone 955-5983

Address: 3216 East Missouri

1. Did you get water in house? Yes No

2. Did you get water in yard? Yes No

3. Description of damages: Patio stained, some bricks taken out. 2 ft of water in house - all carpeting soaked, baseboards soaked. Some furniture, beds, etc., got wet and need to be replaced. Pool needs replastering.

4. Estimated costs of repairs/replacement of -

a. Damages to house (includes cost of replastering pool) \$ 6,000

b. Damages to yard area \$

Total \$ 6,000

5. Do you have receipts of repairs/replacements done? Yes No

6. Were pictures of the damage taken? Yes No

7. Do you have flood insurance coverage? Yes No

8. Do you know what your insurance coverage will pay? Yes No

How much? \$ 500

9. Remarks: Roof needed repair - cost of \$500. The \$6,000 was out of pocket.

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Mr. George Moszuk Phone 956-0003

Address: 3221 East Missouri

1. Did you get water in house? Yes No

2. Did you get water in yard? Yes No

3. Description of damages: Sustained no damages to be claimed

4. Estimated costs of repairs/replacement of -

a. Damages to house \$ None

b. Damages to yard area \$ _____

Total \$ _____

5. Do you have receipts of repairs/replacements done? Yes No

6. Were pictures of the damage taken? Yes No

7. Do you have flood insurance coverage? Yes No

8. Do you know what your insurance coverage will pay? Yes No

How much? \$ _____

9. Remarks: _____

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Mr. Michael Davitt Phone 955-3843

Address: 3234 East Missouri

1. Did you get water in house? Yes No

2. Did you get water in yard? Yes No

3. Description of damages: Water throughout house. All carpeting needs replacement. Pool filled with muddy water. Many furniture items soaked. 3 ft of water against house.

4. Estimated costs of repairs/replacement of -

a. Damages to house replace carpeting	\$ <u>3,000</u>
b. Damages to yard area Fence down and repairs	* \$ <u>1,010</u> ⁸⁵⁰
Total	\$ <u>4,860</u>

5. Do you have receipts of repairs/replacements done? Yes No

6. Were pictures of the damage taken? Yes No

7. Do you have flood insurance coverage? Yes No

8. Do you know what your insurance coverage will pay? Yes No

How much? \$ _____

9. Remarks: Yard had about 2 ft of water. The refrigerator and pool motor went out. Drapes need replacing, there was wall board damage. Need to replace air conditioner compressor and pool motor (650 + 150). Pump out on pool (\$180). *total (\$1,010)

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Mrs. Yde Phone 955-6144

Address: 5340 32nd Place

1. Did you get water in house? Yes No

2. Did you get water in yard? Yes No

3. Description of damages: Water in garage and storage room - ruined some clothing. No water in house. Granite in yard washed away.

4. Estimated costs of repairs/replacement of -

a. Damages to ~~house~~ clothing \$ 500

b. Damages to yard area replace granite \$ 1,000

Total \$ 1,500

5. Do you have receipts of repairs/replacements done? Yes No

6. Were pictures of the damage taken? Yes No

7. Do you have flood insurance coverage? Yes No

8. Do you know what your insurance coverage will pay? Yes No

How much? \$ _____

9. Remarks: She stated that SRP did not open gates into the Biltmore area.

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Ms. Carol Lamone-Walker Phone 955-3182

Address: 5334 32nd Place

1. Did you get water in house? No water in house Yes No

2. Did you get water in yard? Debris in yard Yes No

3. Description of damages: Laundry room flooded. No damages being sought.

4. Estimated costs of repairs/replacement of -

a. Damages to house \$ None

b. Damages to yard area \$

Total \$

5. Do you have receipts of repairs/replacements done? Yes No

6. Were pictures of the damage taken? Yes No

7. Do you have flood insurance coverage? Yes No

8. Do you know what your insurance coverage will pay? Yes No

How much? \$

9. Remarks: No damages except to clean laundry room and yard - no claim.

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: George & Marsha Flint Phone 956-8598

Address: 5307 N. 32nd Place

1. Did you get water in house? Yes No

2. Did you get water in yard? Yes No

3. Description of damages: 9" of water throughout the house. All carpeting needed replacement. Baseboards loosened and came off. Storage room flooded and quilt material ruined.

4. Estimated costs of repairs/replacement of -

a. Damages to house \$ 14,000

b. Damages to yard area \$

Total \$

5. Do you have receipts of repairs/replacements done? Yes No

6. Were pictures of the damage taken? Yes No

7. Do you have flood insurance coverage? Yes No

8. Do you know what your insurance coverage will pay? Yes No

How much? \$

9. Remarks: Storage room held quilt materials that was business materials.

The total of \$14,000 includes business loss and house damages. Channel 3 took pictures and has video on file.

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Mr. Harold Felton Phone 955-7187

Address: 5335 32nd Place

1. Did you get water in house? Yes No

2. Did you get water in yard? Yes No

3. Description of damages: Water came to bottom of door. None in house.
4 to 5 inches of water in yard. Passed through carport - 6" of water in
utility room.

4. Estimated costs of repairs/replacement of -

a. Damages to house \$ None

b. Damages to yard area \$

Total \$

5. Do you have receipts of repairs/replacements done? Yes No

6. Were pictures of the damage taken? Yes No

7. Do you have flood insurance coverage? Yes No

8. Do you know what your insurance coverage will pay? Yes No

How much? \$

9. Remarks: No damages sought.

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Jean DiOrio Phone 957-8008

Address: 5349 32nd Place

1. Did you get water in house? Yes No
2. Did you get water in yard? Debris in Yard/1 ft of water Yes No
3. Description of damages: About 8" of water in house. Carpeting needs replacement. One wall badly soaked. Furniture sat in water. An electric organ was ruined. Dryer motor damaged.

4. Estimated costs of repairs/replacement of -

a. Damages to house Carpeting - \$3,000, Furniture Repair - \$1500, Ceiling Repair - \$300	\$ <u>4,800</u>
b. Damages to yard area	\$ <u> </u>
Total	\$ <u>4,800</u>

5. Do you have receipts of repairs/replacements done? Yes No
6. Were pictures of the damage taken? Yes No
7. Do you have flood insurance coverage? Yes No
8. Do you know what your insurance coverage will pay? Yes No
- How much? \$ 3,000'

9. Remarks: Ceiling needed repair. Part of fence knocked down. She stated that her insurance said would do carpeting costs only on basis of wind driven rain.

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Ms. Mary Seabright Phone 955-8036/952-1876

Address: 5341 32nd Place

1. Did you get water in house? Yes No

2. Did you get water in yard? Yes No

3. Description of damages: Water throughout house - mud in house. Patio
carpeting ruined. White carpeting throughout house damaged. Also baseboards
need repairs.

4. Estimated costs of repairs/replacement of -

a. Damages to house Carpeting \$ 2,000

b. Damages to yard area \$..

Total \$

5. Do you have receipts of repairs/replacements done? Yes No

6. Were pictures of the damage taken? Yes No

7. Do you have flood insurance coverage? Yes No

8. Do you know what your insurance coverage will pay? Yes No

How much? \$

9. Remarks: Was not home at time of incident. Arrived home 3 to 4 days later.

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Mr. Al Wilson Phone 955-8291

Address: 5323 32nd Place

1. Did you get water in house? Yes No

2. Did you get water in yard? Yes No

3. Description of damages: Water in family room and utility room. Cleaned
it out.

4. Estimated costs of repairs/replacement of -

a. Damages to house \$ None

b. Damages to yard area \$..

Total \$

5. Do you have receipts of repairs/replacements done? Yes No

6. Were pictures of the damage taken? Yes No

7. Do you have flood insurance coverage? Yes No

8. Do you know what your insurance coverage will pay? Yes No

How much? \$

9. Remarks: No damages sought.

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Mrs. Bales Phone 955-6424

Address: 3227 East Georgia

1. Did you get water in house? Yes No

2. Did you get water in yard? Yes No

3. Description of damages: Had 6" of water in house. All carpeting ruined.
Outside refrigerator motor damaged - needs new motor. Asphalt driveway
washed away. Pool needs replastering. Pool motor needs replacing.

4. Estimated costs of repairs/replacement of -

a. Damages to house (total includes house/yard damages)	\$ <u>20,000</u>
b. Damages to yard area	\$ <u>..</u>
Total	\$ <u>20,000</u>

5. Do you have receipts of repairs/replacements done? Yes No

6. Were pictures of the damage taken? Yes No

7. Do you have flood insurance coverage? Yes No

8. Do you know what your insurance coverage will pay? Yes No

How much? \$

9. Remarks: The front room/dining room area ceiling leaked along a seam. Front
west wall door needs replacing and new foot boards needed. Will need to be
painted also. Portion of sidewalk was buckled.

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Mrs. Allen Woody Phone 957-9246

Address: 3221 East Georgia

1. Did you get water in house? Yes No

2. Did you get water in yard? Yes No

3. Description of damages: House flooded. All carpeting to be replaced

4. Estimated costs of repairs/replacement of -

a. Damages to house Replace carpeting \$ 2,000

b. Damages to yard area \$..

Total \$ 2,000

5. Do you have receipts of repairs/replacements done? Yes No

6. Were pictures of the damage taken? Yes No

7. Do you have flood insurance coverage? Yes No

8. Do you know what your insurance coverage will pay? Yes No

How much? \$

9. Remarks: _____

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Mr. Bill Schoens Phone

Address: 3209 East Vermont

1. Did you get water in house? Yes No

2. Did you get water in yard? Yes No

3. Description of damages: Received no damages.

4. Estimated costs of repairs/replacement of -

a. Damages to house \$ None

b. Damages to yard area \$

Total \$

5. Do you have receipts of repairs/replacements done? Yes No

6. Were pictures of the damage taken? Yes No

7. Do you have flood insurance coverage? Yes No

8. Do you know what your insurance coverage will pay? Yes No

How much? \$

9. Remarks: No claim sought.

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Ms. Joyce Wojeiehaski Phone 954-6648

Address: 3216 Vermont

1. Did you get water in house? Yes No

2. Did you get water in yard? On Patio Yes No

3. Description of damages: No water in house. Cabinet, stereo and freezer
on patio damaged, mud in pool, fence destroyed. Shrubs destroyed.

4. Estimated costs of repairs/replacement of -

a. Damages to house \$ 350

b. Damages to yard area Replace Fence \$ 800

Total \$ 1,150

5. Do you have receipts of repairs/replacements done? Yes No

6. Were pictures of the damage taken? Yes No

7. Do you have flood insurance coverage? Yes No

8. Do you know what your insurance coverage will pay? Yes No

How much? \$

9. Remarks: Pool motor replaced - \$200. \$150 to clean pool (\$350)

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Sandra & Michael Juszkiewicz Phone 956-7707

Address: 3215 East Vermont

1. Did you get water in house? Yes No

2. Did you get water in yard? Yes No

3. Description of damages: Family room and office filled with 2" of water -
brick floor but had to throw out rug pad.

4. Estimated costs of repairs/replacement of -

a. Damages to house \$ None

b. Damages to yard area \$..

Total \$

5. Do you have receipts of repairs/replacements done? Yes No

6. Were pictures of the damage taken? Yes No

7. Do you have flood insurance coverage? Yes No

8. Do you know what your insurance coverage will pay? Yes No

How much? \$

9. Remarks: No damages being sought.

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Sandra & Michael Juszkievicz Phone 956-7707

Address: 3210 East Vermont *

1. Did you get water in house? Yes No

2. Did you get water in yard? Yes No

3. Description of damages: Badly flooded. Parquet floors buckled (1,000 sq ft)
Linoleum in kitchen buckled. Baseboards damaged. Two bedroom carpets need
replacing. Will use carpeting in lieu of linoleum in kitchen.

4. Estimated costs of repairs/replacement of -

a. Damages to house	\$ <u>1,208</u>
b. Damages to yard area	\$ <u>250</u>
Total	\$ <u>1,458</u>

5. Do you have receipts of repairs/replacements done? Yes No

6. Were pictures of the damage taken? Yes No

7. Do you have flood insurance coverage? Yes No

8. Do you know what your insurance coverage will pay? Yes No

How much? \$

9. Remarks: *Owner lives at 3215 East Vermont and was renting this house
out. Renter had to move out as result of house flooding.

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Mr. Charles Kupcik Phone 955-3906

Address: 3210 East Georgia

1. Did you get water in house? Yes No

2. Did you get water in yard? Yes No

3. Description of damages: Laundry room got a lot of water. Water in driveway.

4. Estimated costs of repairs/replacement of -

a. Damages to house \$ None

b. Damages to yard area \$

Total \$

5. Do you have receipts of repairs/replacements done? Yes No

6. Were pictures of the damage taken? Yes No

7. Do you have flood insurance coverage? Yes No

8. Do you know what your insurance coverage will pay? Yes No

How much? \$

9. Remarks: No damages in house. No damages being sought.

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Mr. Joseph H. Cohen Phone 955-2792

Address: 3202 East Georgia

1. Did you get water in house? Yes No

2. Did you get water in yard? Yes No

3. Description of damages: Water in carport. No damages.

4. Estimated costs of repairs/replacement of -

a. Damages to house \$ None

b. Damages to yard area \$ _____

Total \$ _____

5. Do you have receipts of repairs/replacements done? Yes No

6. Were pictures of the damage taken? Yes No

7. Do you have flood insurance coverage? Yes No

8. Do you know what your insurance coverage will pay? Yes No

How much? \$ _____

9. Remarks: No damages sought.

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Mr. Harry Webster Phone 954-6822

Address: 3210 East Oregon

1. Did you get water in house? Yes No

2. Did you get water in yard? Ft of water in backyard Yes No

3. Description of damages: Storage shed had water - books, etc soaked. Some furniture items wet. Water marks on wall.

4. Estimated costs of repairs/replacement of -

a. Damages to house \$ 300

b. Damages to yard area \$

Total \$ 300

5. Do you have receipts of repairs/replacements done? Yes No

6. Were pictures of the damage taken? Yes No

7. Do you have flood insurance coverage? Yes No

8. Do you know what your insurance coverage will pay? Yes No

How much? \$

9. Remarks: Renting this house.

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Marcia Gage Phone 224-0700

Address: 3209 East Georgia

1. Did you get water in house? Yes x No

2. Did you get water in yard? Yes x No

3. Description of damages: Water in one room. Carpet to be replaced. Washed
some granite away.

4. Estimated costs of repairs/replacement of -

a. Damages to house \$ 200

b. Damages to yard area \$

Total \$ 200

5. Do you have receipts of repairs/replacements done? Yes No x

6. Were pictures of the damage taken? Yes No x

7. Do you have flood insurance coverage? Yes No x

8. Do you know what your insurance coverage will pay? Yes No

How much? \$

9. Remarks: Damages are minor.

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Mr. Allen H. Bearden Phone 955-0494

Address: 3202 East Oregon

1. Did you get water in house? Yes No

2. Did you get water in yard? Yes No

3. Description of damages: Water in living room, den and AZ room. Carpeting badly soaked. Paneling buckled and tiling came up in AZ room. Furniture items and cartons of wedding gifts soaked.

4. Estimated costs of repairs/replacement of -

* a. Damages to house \$ 15,000

b. Damages to yard area \$

Total \$ 15,000

5. Do you have receipts of repairs/replacements done? Yes No

6. Were pictures of the damage taken? Yes No

7. Do you have flood insurance coverage? Yes No

8. Do you know what your insurance coverage will pay? Yes No

How much? \$

9. Remarks: Record collection and hundreds of slides soaked. The cedar fence was knocked down and needs replacing. Pool filled with mud - pool cleaned at cost \$325. Carpets cost \$1200. The total cost including the carpeting, the tiling in AZ room is estimated at \$15,000.*

MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE
AND EMERGENCY SERVICES

STORM DAMAGE SURVEY

Name: Mr. Gene Nelson Phone 957-1761

Address: 3228 East Missouri

1. Did you get water in house? Yes No

2. Did you get water in yard? Yes No

3. Description of damages: Water throughout house. Need to replace all
carpeting and wallpaper in 3 bedrooms. Water damage to some furniture items.
Air conditioner and pool was damaged.

4. Estimated costs of repairs/replacement of -

a. Damages to house Total is estimated at \$

b. Damages to yard area \$

Total \$ 7,500

5. Do you have receipts of repairs/replacements done? Yes No

6. Were pictures of the damage taken? Yes No

7. Do you have flood insurance coverage? Yes No

8. Do you know what your insurance coverage will pay? Yes No

How much? \$

9. Remarks: The fence was washed out along with the fence on the adjacent yard.
Driveway was washed out.

SPECIAL REPORT

Information, facts and figures about the Salt River Project canal system, the storm of August 28, 1986, and the Arizona Canal Diversion Channel.

Flash flood.

The term evokes images of water rolling down washes in a desolate desert. Animals bolt and run to escape the torrent as heavy rains hit the dry desert floor. Following the natural contours of the earth, rainwater gathers speed and volume as it rushes along gullies and washes, eventually finding its way into creeks and rivers. Then, just as suddenly as it started, the storm ends.

That's the way it is in the desert. And that's the way it is here in the Salt River Valley, part of the Sonoran Desert. The washes that have carried water for centuries are still here, although most are now covered with pavement and all the other trappings of civilization. The washes have been camouflaged by development and urbanization, but they are still there. Gentle contours along the surface of the desert are barely evident—until it rains.

Cudia City Wash

Cudia City Wash is one of several desert washes that flow southward to the Salt River. Actually, it has two main branches which converge just north of Stanford Drive, west of 40th Street. The eastern branch originates on the west side of Mummy Mountain in Paradise Valley and is fed by smaller washes coming off the north side of Camelback Mountain. The western branch originates in the Phoenix Mountain Preserve east of Squaw Peak.

In comparison to some others, Cudia City Wash has a relatively small drainage area of about 3,800 acres, or 5.9 square miles. But even a two-inch rain on 5.9 square miles can produce a lot of water. If none of the rain was absorbed or diverted, it would amount to 633 acre feet—or more than 200 million gallons—of water.

Topographic maps of Phoenix show that Cudia City Wash continues from the 3,800-acre watershed south toward the Salt River. From the point where the two main branches converge, the wash

gets wider and wider, spreading out into an alluvial fan.

Man-made features

The first residents of the Valley were the Hohokams. Ingenious and industrious, the Hohokams dug an elaborate system of canals to irrigate thousands of acres of crops. For unknown reasons, the Hohokams abandoned the Valley in about 1400 A.D.

Anglo settlers first arrived in the 1860s. Some cleared out the irrigation ditches left by the Hohokams. Other pioneers constructed entirely new canals. The three canals in the Cudia City Wash area are the Grand Canal, the Arizona Canal, and the Old Crosscut Canal.

The Grand Canal is the oldest remaining pioneer canal on the north side of the Salt River. It was planned in 1877 and constructed in 1878 by the Grand Canal Company.

The Arizona Canal was the largest canal built by the pioneers. It stretches 38 miles from the Salt River at Granite Reef to the New River. The Arizona Canal was built in 1883 by the Arizona Improvement Company, which later purchased the Grand Canal.

The Old Crosscut Canal, which parallels 48th Street, was built in 1888 by the owners of the Arizona Improvement Company. In 1886 a spring flood had washed out the old heading for the Grand Canal near Scottsdale Road in the river bottom. In order to get water, a "crosscut" was constructed from the Arizona Canal to the Grand Canal. The three canals were operated by the Arizona Improvement Company as a unified system for the north side of the river.

In 1897, a prolonged drought hit the Valley and the flow in the Salt River wouldn't support all the land that had been cleared for farming. Disputes arose over water rights, and many farmers resorted to guarding the headgates that diverted water to their land.

The National Reclamation Act of

1902 provided a method of obtaining federal loans to build storage dams and other water projects. In February 1903, Valley landowners—mainly farmers—formed the Salt River Valley Water Users' Association in order to negotiate a loan to build Roosevelt Dam. It took some effort, but the landowners got the loan and built the dam. When government engineers came to Phoenix, they referred to the engineering job as the "Salt River Project" and the name stuck.

Up to this time, the canals had been in private hands. But in order to operate the system efficiently and get the water from the dams to the farms, the government purchased the canal companies and made them part of the Project.

The U.S. Reclamation Service operated the canals until 1917, when operation was turned over to the Salt River Valley Water Users' Association. The Association still operates the system, even though the title is still held by the U.S. government.

Canals not for flood control

An irrigation canal, by design, is not intended for flood control. The Arizona Canal, for example, has a capacity of 1,900 cubic feet per second (cfs) at its origin, Granite Reef Diversion Dam. At the other end, the canal's capacity is about 600 cfs. Because the canal has fewer deliveries to make downstream, the capacity or size of the canal gets smaller toward the end of the system.

A true flood-control structure would be designed and built in an opposite manner, with a small capacity at the head of the system and a much greater capacity near the other end, to handle inflows during a storm.

Canal structures

SRP operates a gravity flow canal system. In order to control the water, SRP canals are equipped with two

(continued next page)

Information, facts and figures...

(continued from previous page)

general kinds of water control structures. There are water delivery features and safety features.

Radial gates are the most noticeable of the water delivery features. These are metal, arc-shaped gates which are used to raise or lower the level of water in a section of canal. By adjusting the opening of the gates, the water level can be raised to reach the height of various delivery gates built into the canal banks.

Major drains are important safety features in the canals. These are places where large amounts of storm water can be emptied from the canals to help prevent overflows downstream.

On the Arizona Canal, there are four major drains. Three of them are located upstream from Cudia City Wash. The drains are:

- **Evergreen**, located on the Salt River Indian Reservation,
- **Indian Bend**, in Scottsdale,
- **the Old Crosscut Canal**, which parallels 48th Street in Phoenix down to the Joint Head drain gates into the Salt River near the Pueblo Grande Indian Ruins, and
- **Skunk Creek**, which is at the tail end of the Arizona Canal, at about 73rd Avenue.

It's significant to note that west of the Old Crosscut Canal, there are no major drains for the remaining 20 miles of canal down to Skunk Creek. Ironically, this is an area that includes several major washes, including Dreamy Draw Wash, Sunnyslope Wash, and Cave Creek Wash.

Storm drain connections are another safety feature of the canals. These are relatively small pipeline connections to city storm drains to the Salt River. Typical capacity of the storm drain connections is about 50 cubic feet per second (cfs).

Spillways are safety features designed to prevent canal breaks when canal capacity is exceeded. These are low points built into the canal where the canal intersects major washes.

Canal operations—the Association Dispatch Center

At one time, canal gates were operated by SRP employees who rode the canal banks in pickup trucks. Before two-way radios became common,

employees received storm operating instructions by telephone—if the telephone lines were working.

Today, the canal system is operated by remote-control from a central dispatching office—the Association Dispatch Center (ADC)—in Tempe.

Using a computer, a SRP water master gets data from 80 stations on the canal system. Information on the computer screen includes water depth and rate of flow at each particular location. There are warning lights and buzzers that go off if water reaches a certain height. By pushing a button on the control panel, the water master can raise or lower any of 331 radial gates to help correct problems. In the event of a system problem, the gates can be operated manually.

Normally, one water master controls all of the canals on the north side of the Salt River, and another water master controls all of the canals on the south side.

The water masters have two other important sources of information—real time, color radar; and SRP's storm patrol.

The Association Dispatch Center has a direct tie-in to the color radar system operated by the National Weather Service. This information gives the general direction and intensity of heavy storm cells in the Valley and helps indicate where heavy storm runoff might enter the canal system.

The storm patrol is composed of experienced employees who are dispatched to the various washes upstream of the canal system. Patrolmen read the stream gages located in the washes and radio reports of stream flow and weather conditions to ADC.

For more information, contact:

Sue Mutschler *Public Involvement Coordinator Flood Control District of Maricopa County 262-1501*

Larry Crittenden *Press Representative Salt River Project 236-8333*

This report prepared by the Salt River Project and the Flood Control District of Maricopa County.

THE STORM

August 28, 1986

Reports of moderate rain began at about 7 p.m. in Tempe. The storm was moving from east to west with strong winds. SRP dispatched storm patrols shortly after 8 p.m. Heavier rains began about 9 p.m.

As the storm moved into Phoenix, SRP began taking actions to protect the northside canals—opening various storm drains and the tail end of the Arizona Canal.

SRP received a report of runoff in Cudia City Wash at 8:24 p.m. Three minutes later, SRP opened the city drain at 32nd St. and the Arizona Canal to begin moving water out of the canal. At that time, the flow in the Arizona Canal at 32nd St. was 450 cfs. The

downstream water order was 485 cfs.

The Joint Head Drain into the Salt River east of 48th Street was opened, along with the gates from the Arizona Canal into the Old Crosscut.

Meanwhile downstream, Cave Creek Wash and other runoff poured into the Arizona Canal. Silt and debris flowed into the canal and reduced its carrying capacity downstream of Cave Creek Wash. Upstream measures continued. Drain gates were opened at Evergreen, Granite Reef and Indian Bend.

Shortly after 10 p.m., inflows into the downstream portion of the Arizona Canal were greater than

the canal's capacity, and water began to flow out of the canal through Spillway #9, west of 27th Avenue.

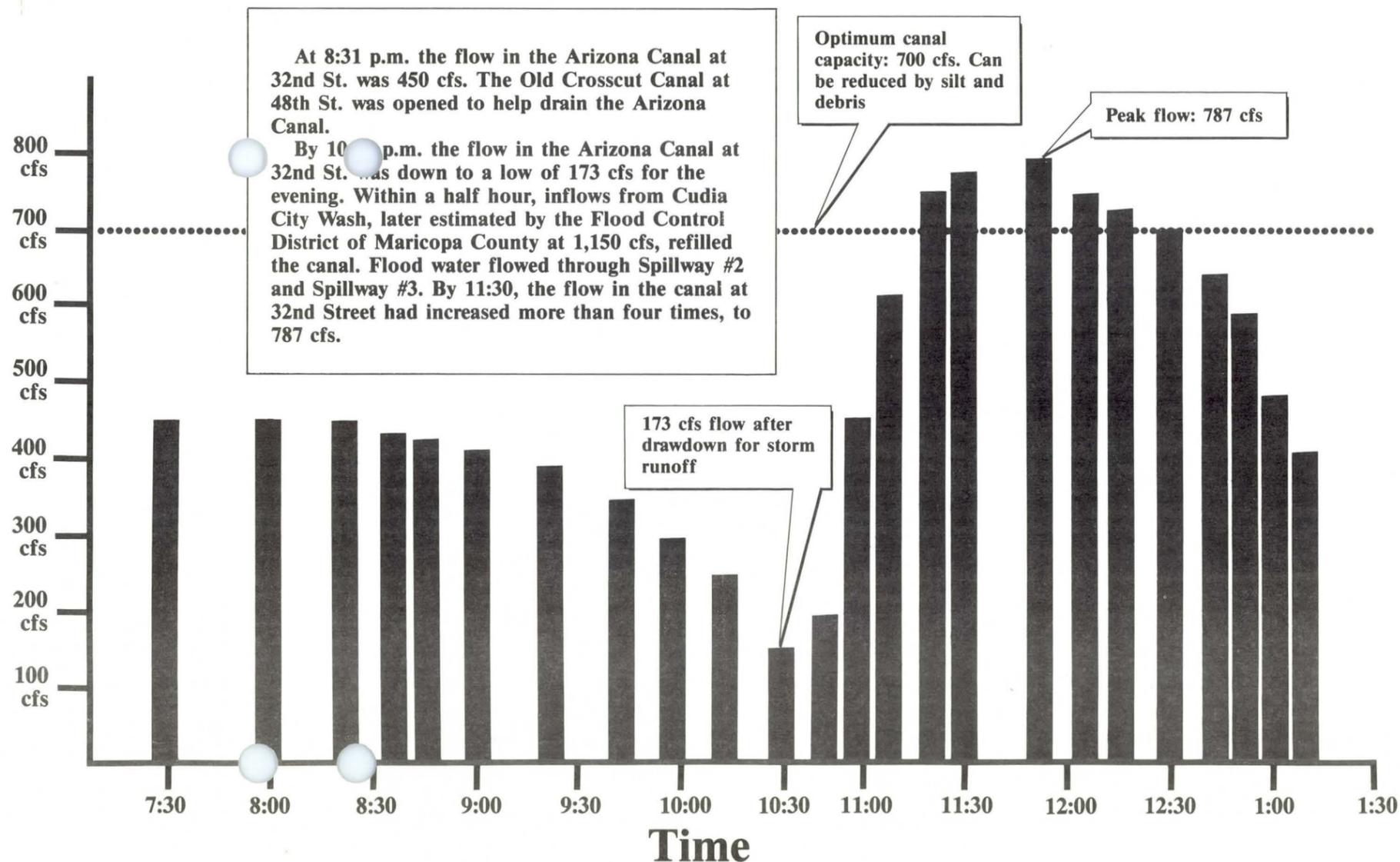
Overtopping continues

At 10:30 p.m., flow in the Arizona Canal at 32nd Street reached a low of 173 cfs, but downstream runoff continued to be heavy.

Shortly before 11 p.m., the Arizona Canal was overtopped west of 35th Avenue. Just a few minutes later, flood water began flowing through Spillway #3, east of 32nd Street, below Cudia City Wash.

For the next hour along the Arizona canal, five other spillways flowed.

Arizona Canal flow at 32nd Street



The Arizona Canal Diversion Channel

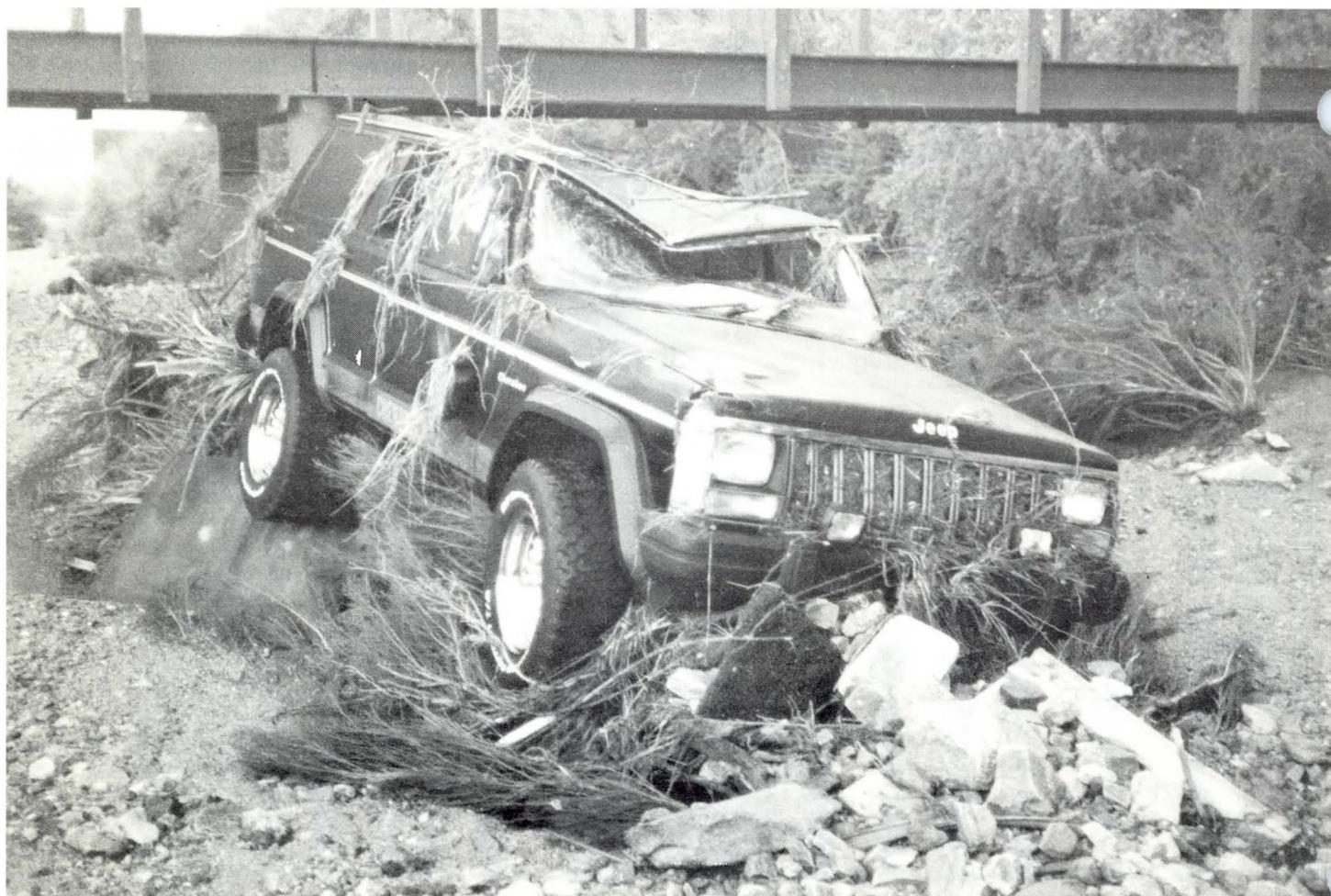
The Arizona Canal Diversion Channel (ACDC) is a flood control project being designed and constructed by the U.S. Army Corps of Engineers. The Flood Control District of Maricopa County is the local sponsor. The Corps is building the ACDC parallel to and upstream of the Arizona Canal from Skunk Creek to Cudia City Wash, a distance of 17 miles. The first segment, from Skunk Creek to 51st Avenue, is now under construction and should be completed this fall. Construction on the second segment will begin this year.

The ACDC is designed to prevent flooding from waters ponding along the north side of the Arizona Canal and from waters overtopping or breaking through the Arizona Canal to the south. The channel will intercept flood waters from the Phoenix Mountains and from Cudia City Wash, Dreamy Draw, Cave Creek and other tributaries, as well as from uncontrolled overland flows and storm drains. ACDC's capacity is expected to intercept and convey to Skunk Creek the flows of a 100-year flood. (A 100-year flood is estimated to have a one percent chance of occurring in any one year.)

According to approved plans, Reach 4 of the ACDC will run 4.2 miles from Dreamy Draw at 12th Street to Cudia City Wash near 40th Street. Reach 4 is designed as a rectangular channel approximately 40 feet wide and up to 24.5 feet deep. The channel will be open, except for a 1,297-foot covered portion along Stanford Drive and another covered portion—4,625 feet—from just east of the Arizona Biltmore Hotel to 24th Street. These portions will be covered because the additional costs of covering the channel will be offset by savings in right-of-way acquisition costs.

An alternative to Reach 4, consisting of four detention basins and a smaller channel, is presently under study by the Corps of Engineers, at the request of the Phoenix City Council.

The Flood Control District estimates the cost of the ACDC, including construction, rights-of-way, relocation of roads, bridges and utilities, and recreation facilities will be \$210,087,261. The cost of Reach 4 is estimated to be \$58,537,000.



Flash floods move with surprising force and velocity. Storm runoff in Cudia City Wash swept away this vehicle Aug. 28.

ARIZONA CANAL DIVERSION CHANNEL
Rainstorms of August 28/29, 1986
Summary of Pertinent Drainage Complaints Locations
which Might be Alleviated by Future ACDC

1. **Biltmore Fashion Park**
Drainage Ditch Overflowed. Damage to carpeting, etc. at Biltmore Fashion Park, 24th Street & Camelback Road.
2. **3216 E. Oregon**
Canal overflowed - house flooded.
3. **3222 E. Missouri**
Canal overflow - 5 homes affected on Missouri, 5 behind.
4. **10603 N. 43rd Avenue**
Mud 1' deep in parking lot.
5. **10620 N. 43rd Avenue**
Mud and debris from drainoff overflowed ditch on east.
6. **5222 N. 34th Place**
Pooling water back and east.
7. **3612 W. Puget Avenue & 35th Avenue & Dunlap Avenue**
Canal overflow - house flooding

DAW/nf/DAW02

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Gazette Plus

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The Phoenix Gazette

Fri., Oct. 17, 1986

East Phoenix group ponders suit against SRP over flood

By Connie Cone
Gazette Central Bureau

A group of east Phoenix residents is considering suing Salt River Project, which they blame for the floodwaters that hit their homes during a storm Aug. 28.

Civil Defense officials say 29 homes suffered about \$109,000 in damage when water from a spillway at the Arizona Canal just east of 32nd Street overflowed, flooding the neighborhood below.

But officials at SRP, which manages the Arizona Canal, contend the company is not at fault. "We are not in the business of flood control," Sid Friar, SRP manager of water operations, said. That, he added, will be the role of the Arizona Canal Diversion Channel, which is being built parallel to the canal by the U.S. Army Corps of Engineers and scheduled for completion in 1991.

Still, residents in the area are angry at how SRP handled the influx of water into the canal that night. To answer their concerns, representatives from SRP, the Maricopa County Flood Control District and the U.S. Army Corps of Engineers, met with residents Oct. 9 at Camel-

back High School.

Also attending were representatives from Biltmore Fashion Park, which had about 20 businesses flooded that night. Karen Holman, who manages the shopping center at 24th Street and Camelback Road, said they were there just "to gather information."

As rain fell outside the school cafeteria, Stan Smith, deputy chief engineer for the flood control district, tried to joke with the audience. "With it raining, I'm surprised you didn't stay home and start filling the sandbags," he said.

"We thought about it," one woman called out.

Smith tried again, "I feel like the man from back east who lived through the Johnstown Flood."

The residents weren't finding the topic a laughing matter, but listened intently as Smith ran down the events of Aug. 28.

The "severe thunderstorm," which eventually dumped about 5 inches of rain near 40th Street and Montebello, was recognized in the Valley about 6 p.m., he said. At about 8:30 p.m., SRP opened various storm drains to reduce the level in the canal. A flash flood warning was issued by

8:50 p.m. and by midnight, at least six of the spillways along the canal had overflowed.

"The major source of inflow (into spillway No. 3) was the Cudia City Wash," Smith said. The wash, which starts about three miles above the canal, has two branches that converge just north of Stanford Drive, west of 40th Street.

Smith said that by the time the water from the wash got to the canal, it was traveling too fast for the canal to handle.

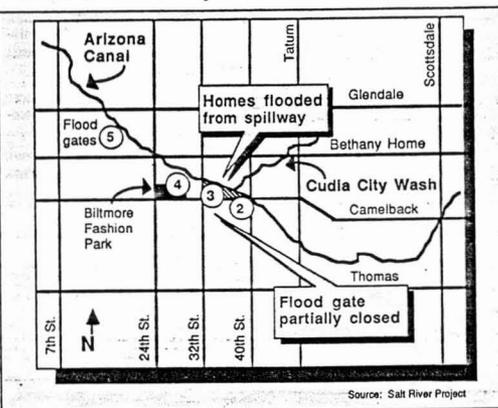
Residents asked SRP officials why a gate near spillway No. 3 was partially closed. They said this caused water to enter the spillway, which eventually overflowed into their neighborhood.

Friar said if the gate hadn't been partially closed, the water would have surged downstream toward spillways No. 4 and No. 5, in an area that also was being taxed by heavy rain. "The result could have been more serious, such as a break in the canal itself," he said.

"The canal was not designed for flood control but for water distribution," he emphasized.

Doris Bale, who lives in the 3200 block of East

Site of canal spillover



La Verne Harris, The Phoenix Gazette

See ■ Flood, Page C

■ Flood

From Page A

Georgia, said she is mad at SRP, adding that some residents are "considering a class-action suit" against the company.

She also wanted to know why she wasn't warned that the spillway was about to overflow.

"Nobody came to our area to warn us," Bale said, adding that her home had \$20,000 in damage.

Anthony Sammons, an official with Civil Defense, said there wasn't enough time to let the residents know.

He said warnings can be given during controlled releases of SRP.

"But when you have an act of God, there's no way you can notify people," Sammons said.

Hindsight also was missing in terms of flood insurance.

And although any resident in the Valley can obtain flood insurance, only two homeowners whose property was damaged had any.

Ron Nevitt, flood plain representative for the flood control district, said the area is "considered at least hazard-free enough that flood insurance is not a mandatory requirement."

"If someone were to ask if they live in a flood plain, technically, yes, but they'd probably be told no because they are not in an area where insurance is required. But then, the whole Valley is in a flood plain."

Paul Schweikher, who bought his home 2½ weeks before the flood, said he asked about flood insurance but wasn't encouraged to buy it.

Schweikher, who said his home had about \$5,000 to \$8,000 worth of damage, said he wished he had pursued it.

Frank Russo, Civil Defense acting director, said his office surveyed the homes after the damage in an effort to see if they qualified for any federal assistance.

"We looked at Small Business Association loans but there was not enough damage to qualify," he said. Damage equaling 40 percent of the home's value would have been required to obtain the SBA loans, Russo said.

Homeowners' anger intensifies as flood damage goes unrepaired

By ANN KOONCE
The Arizona Republic

Heavy storms poured over east Phoenix on Aug. 28. Twenty-nine homes on the eastern side of 32nd Street south of the Arizona Canal were flooded with silt- and fish-filled water about 11 p.m.

Some say the destruction was an act of God. The neighbors think it was an act of the Salt River Project.

More than a month later, no solution has been reached, and much of the home damage remains unrepaired.

Residences along Missouri, Vermont, Georgia and Oregon avenues were hurt. The Maricopa County Flood Control District estimates the total damage at \$109,000, but several residents said that figure is too low.

As time passes and more agencies and companies say they will not pay for the repairs, the owners' anger grows.

They think that SRP decided to protect affluent homes near the Arizona Biltmore resort at 24th Street and Missouri Avenue by keeping water gates that control flows at 32nd Street partially closed, allowing water to back up and top a spillway a few hundred feet east of 32nd.

SRP says locally heavy storms dropped water into washes near 40th Street and Camelback Road and near 32nd Street and Stanford Drive. The rainwater flowed into the canal, which did not have the capacity to carry the sudden load, even if the gates had been open, officials said.

"The water level was so high, it

didn't make any difference what we did with the gates," said Don Womack, SRP's executive engineer for water. "The canal would have overflowed anyway."

Other SRP officials added that five other spillways along the canal also flooded that night, but no other serious damage to homes was reported.

The Biltmore Fashion Park at 24th Street and Camelback Road had some flooding when lakes in the Arizona Biltmore golf course apparently overflowed.

The SRP explanation doesn't satisfy the residents.

"Everybody says they are not responsible for this," Doris Bale said Friday. "The Salt River Project says they are not responsible. The insurance company says it won't pay because I didn't have flood insurance. The county Flood Control District can't help. The civil-defense people can't help.

"We are left with nowhere to go. I am still living on bare floors. I had a new roof put on because I would have panicked if that weren't done. But I have foundation damage, \$5,000 in pool damages, furniture damage, and I need carpeting and a new fence."

Bale, along with about 30 of her neighbors, attended a public meeting Thursday night at Camelback High School while rain fell outside.

The meeting was sponsored by the Salt River Project, which operates the Arizona Canal, and the flood-control district.

There were more than two hours of presentations explaining the canal, what happened along the

canal the night of the storm, flood-insurance options and future flood protection.

Only one or two of the homes were covered by flood insurance because it is not required by mortgage companies. There has been no flooding in the area since 1972, when much of central Phoenix was awash after the canal broke in several places during heavy storms.

At the end of the presentation, the residents left unsatisfied.

"I think there clearly is some SRP liability involved in the gates," said Paul Schweikher. "And nobody is responding to our questions about needing help.

"There is a lot of psychological damage that has occurred that nobody is taking into account. It will be at least another couple of months before (our family) is back to normal."

Schweikher was softspoken, compared with some participants.

"You have been totally worthless to us," one angry resident said before leaving. "Both the Flood Control District and SRP are very culpable in this."

The flood-control district was represented at the meeting because it is working with the U.S. Army Corps of Engineers to build a flood-control channel, known as the Arizona Canal Diversion Channel, on the northern side of the Arizona Canal.

However, that project cannot be completed until 1990, at the earliest, and the district does not have any responsibility for the Arizona Canal.

Officials Business Consultants

said now "appeared to be a time to go," as the agency awarded contracts with HMOs in the program's fifth year, began Wednesday, and the sales of two HMOs state contract have been let.

his job is purely a political appointment, and the new governor has a right to choose" the AHCCCS administration, Miller said.

er the news conference, he said: "People thought I was to take this job. But it's fun."

Chief among the pair's accomplishments, Anderson said, was adding lawmakers to add poor children to AHCCCS and opening up AHCCCS slots to small employers, who have trouble finding affordable health insurance. The State Employers Program is to start next year.

think Joe and I leave with a sense of pride in what the AHCCCS can provide," Miller said.

Abbitt, who announced last week that he would not seek reelection, said he has received an avalanche of inquiries from "interested and promising AHCCCS-like prospects," and Anderson said that is one of markets he and Schaller target as consultants.

Flood victims invited to meeting

Victims of recent flooding in the area of 32nd Street and Camelback Road will have a chance to sound off Thursday at a meeting with engineering and flood control experts.

Officials from the Maricopa County Flood Control District, Salt River Project and the U.S. Army Corps of Engineers will attend, showing videotapes of some of the flood damage and suggesting how future flooding can be prevented.

Representatives of the agencies will be available to answer ques-

tions about an Aug. 28 incident in which about 30 homes and several businesses at Biltmore Fashion Park were flooded after heavy rainfall.

County officials attributed the problem to the inundation of washes in north-central Phoenix, which in turn filled the Arizona Canal and caused overflow into several spillways, including one just east of 32nd Street.

The meeting will begin at 7 p.m. Thursday in the cafeteria of Camelback High School, 4612 N. 28th St.

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Presented by a
special representative
Wednesday and Thursday,
October 8 and 9.

Your opportunity to see
the complete collection
of dresses, suits and
ensembles all at once,

PANASONIC VACUUMS

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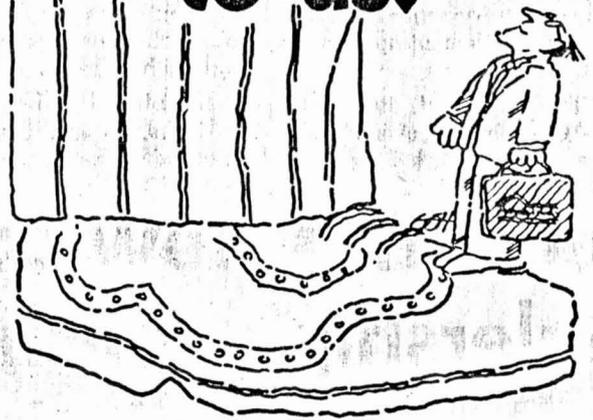
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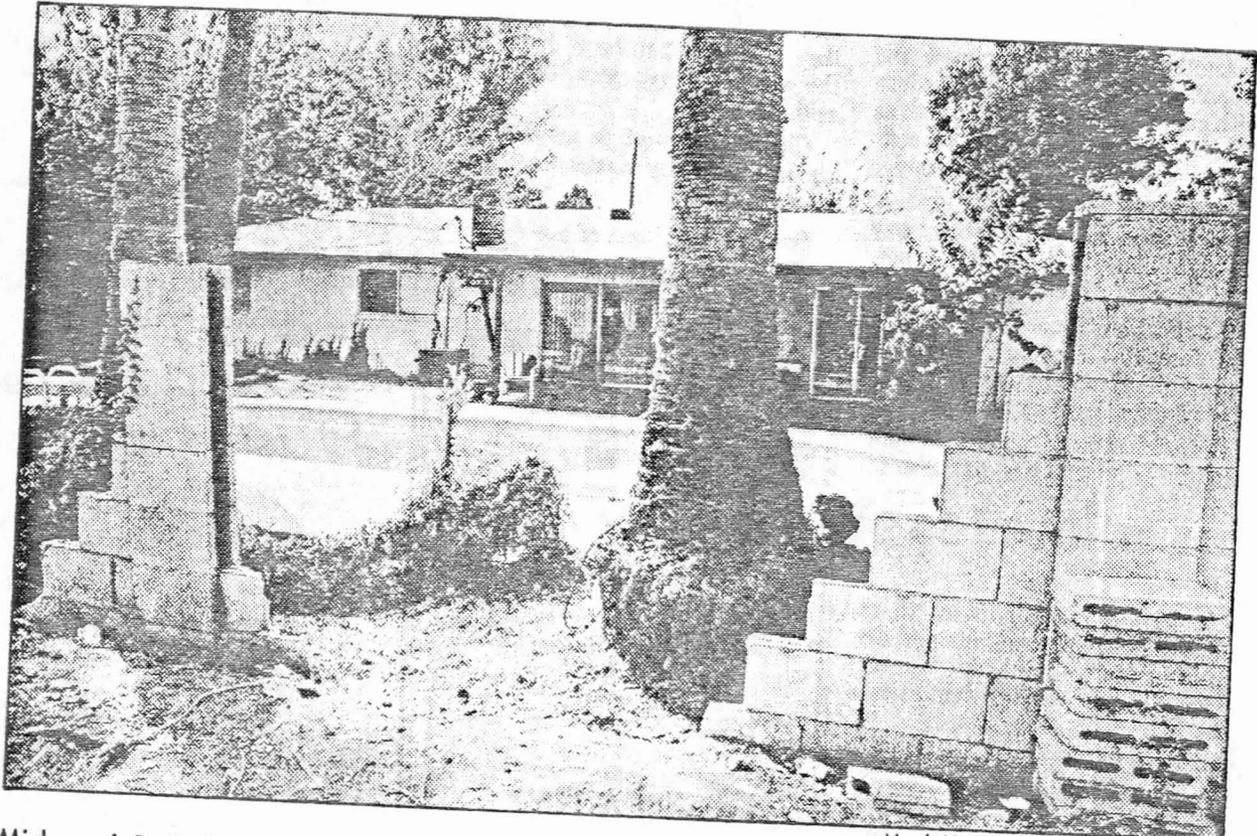
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● Residents blame SRP for flood damage to homes



Mick and Ruth Davitt's fence came down after the Arizona Canal flooded.

Mark Henle, *The Phoenix Gazette*

By David Rossmiller
The Phoenix Gazette

Angry residents in the vicinity of 32nd Street and Camelback Road are blaming Salt River Project for extensive damage to their homes from last month's flash floods.

But while SRP "wants to do what it can to be a good neighbor," according to SRP spokesman George Poteet, the company will not assume responsibility or compensate homeowners.

The Arizona Canal, a water distribution project managed by SRP, overflowed between 32nd and 36th streets near midnight Aug. 28 because of heavy rains, residents and state officials said.

The runoff flooded homes south of the canal and north of Camelback Road with up to a foot of water, leaving behind silt and filth from the canal, residents said.

Bob Bishop, an official of the Maricopa County Department of Civil Defense, said his office has received reports that about 30 homes were damaged in the flash flooding.

Civil Defense investigators have interviewed 18 homeowners and estimate damage at about \$85,000.

The investigation should be completed by today, and, Bishop said, Civil Defense will send a report to state officials to help them decide whether to apply for federal disaster funds.

Any funds obtained likely would be low-interest loans, possibly from the Small Business Administration, Bishop said.

Residents of the area criticize

SRP officials for allegedly changing their position on the cause of the flooding several times.

A resident of the 5000 block of 32nd Place who did not wish to be identified said SRP has "come up with a lot of different stories in the last two weeks."

"First they said it was all because of the rain and had nothing to do with the canal. But if the rains were really that bad, more people in Phoenix would have been flooded out," she said.

Ruth Davitt of 3234 E. Missouri said an SRP official also told her the canal had not overflowed. "He didn't change his mind until I told him we had catfish in our swimming pool. It's obvious those fish didn't rain down out of the sky," Davitt said.

However, Jack Pfister, SRP general manager, said SRP has not "given any different positions regarding our liability. We've been to court and the court said we are not in the flood control business."

Pfister was referring to an Arizona Court of Appeals decision against SRP in 1978 in a class action lawsuit brought by residents in the same area because of flooding in 1972.

The court ruled SRP was negligent in that instance. "We take that ruling to mean that negligence consisted of not emptying the canal when heavy rains were falling," Pfister said.

"This time we had the canal empty, and the overflow happened solely because of the rain."

A spokeswoman for the Maricopa

County Flood Control District said SRP notified district officials about 9 p.m. Aug. 28 that the canal was being drained.

The National Weather Service records for Aug. 28 at Sky Harbor Airport show the heaviest rainfall occurred after 11 p.m., although local conditions might have varied, a spokesman said.

"SRP is not responsible for flood control," Poteet said. "The Arizona Canal is designed for water distribution to various areas of the Valley, and we cannot be responsible for an act of God," he said.

Several residents were upset because they said SRP officials had claimed at first that a radial gate on the canal at 32nd Street had been open, while some residents maintained it was closed or partially closed during the flooding.

Poteet said the gate was partially closed "because SRP had received reports earlier of flooding farther down the canal at 23rd and 27th avenues."

Because the Arizona Canal is a municipal water distribution channel, it narrows as it goes along. Poteet said that if the gate had been opened wider "there would have been flooding somewhere else down the canal."

Residents were not the only ones to suffer flood damage. Thirty of the 53 stores in the Biltmore

See ■ Flood, Page B

Flood

From Page A

Fashion Park sustained water damage to furnishings or merchandise from the heavy runoff Aug. 28, Chuck Carlise, the Biltmore's landlord, said.

Carlise, president of Grossman Co. Properties, which owns the shopping center, said no dollar amount has been established for the damage, but his estimate was "well over \$100,000."

Karen Holman, Biltmore manager, said engineers are still evaluating where all the water came from.

Carlise said: "There are all kinds of possibilities. We are trying to find out whether we are unlucky or victims."

Rain exceeded 5½ inches at 40th Street and Camelback Road, according to an unofficial measurement taken by a part-time National Weather Service employee.

The Biltmore complex is at 24th Street and Camelback.

Poteet said SRP has not received any information about an overflow of floodwater from the canal west of 32nd Street, but that water from the overflow east of 32nd Street might have run into Biltmore Fashion Park.

"With localized flood conditions like that and so much rain falling, you really can't tell where the water comes from or goes in many cases," Poteet said.

Opposed channel could have held flood, officials say

Sept 86

A flood control project meeting with opposition in east Phoenix could virtually eliminate flash flood damage like that seen last month in that part of the city, according to city officials.

The Arizona Canal Diversion Channel, under construction in Glendale, would have been able to accommodate the freak amounts of water that damaged homes and businesses near Camelback Road between 24th and 32nd streets, David Harmon, assistant city engineer, said.

The channel would act as an outlet for surface floodwaters and storm drains, Harmon said. "Currently the storm drains are not being built in northeast Phoenix because there is no place to release the water," Harmon said.

A Salt River Project spokesman said the channel, which would run parallel to SRP's Arizona Canal, would be able to take potentially destructive overflows like the one from the canal Aug. 28 in the 32nd Street and Camelback Road area.

The channel, which is scheduled for completion in 1991, is projected to cost \$260 million in 1983 dollars, Harmon said. About two-thirds of the money would come from the federal government and the rest from the Maricopa County Flood Control District.

See ■ ACDC, Page B

ACDC

From Page A

Officials at the Flood Control District and Maricopa County Civil Defense also said the channel could have largely prevented last month's flooding.

The channel would take flows ranging from 6,800 cubic feet per second at its start near 39th Street to more than 29,000 cfs where it

dumps into Skunk Creek in Peoria.

By way of contrast, the Arizona Canal, not designed for floodwaters, can handle less than 1,200 cfs near the area of last month's flooding and only about 700 cfs at its end point in Peoria.

— David Rossmiller



E.J.
Montini
Republic
Columnist

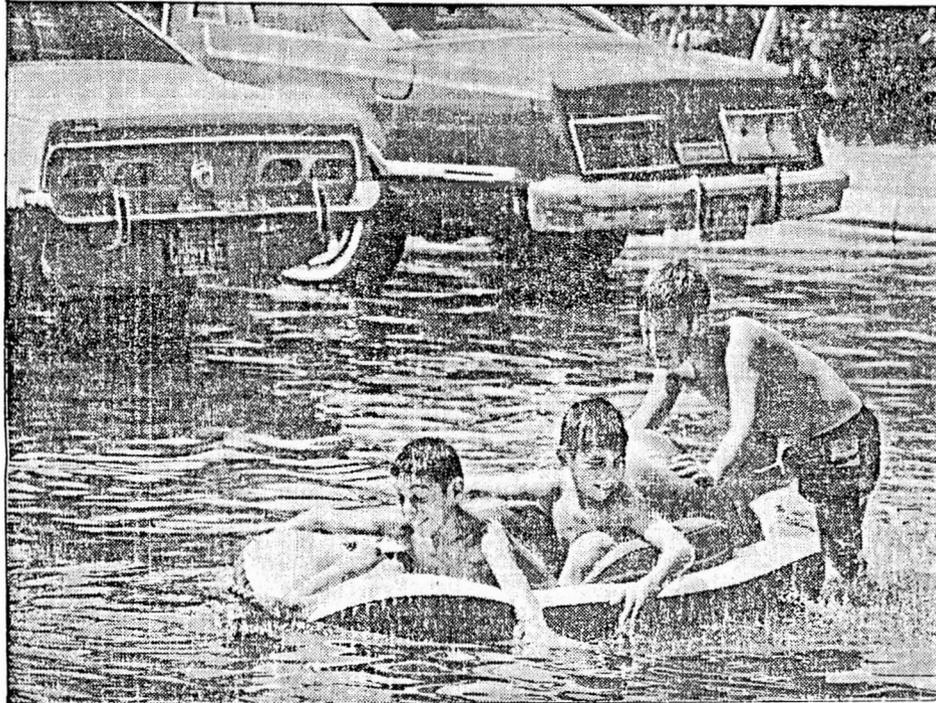
A slow-motion crisis viewed in pale wisps

Shortly before 3 a.m. Friday, a Phoenix Transit Authority bus backed up to the entranceway of John C. Lincoln Hospital & Health Center. Not long afterward, the first of the patients who could walk — many at the arm of a nurse or fireman, or on crutches — began a slow procession toward it.

The patients wore hospital gowns with blankets wrapped over their shoulders. They wore pajamas brought from home. They were sleepy-eyed and disheveled.

Nurses scurried along beside them with white garbage bags filled with clothes and other belongings. Orderlies and candy-stripers carried bouquets of flowers, helium-filled balloons and potted plants and set them on the bus.

A few patients were taken to the vehicle in wheelchairs and helped into it with a hydraulic lift. Most of the critically ill had long since been driven in ambulances to other hospitals.



Michael Ging/Republic

Aaron Atkinson, 9, pushes Sammy Salinas (left), 10, and his brother, Tommy, 11, around a flooded parking lot at the Palm Lane Apartments at 40th Street and Palm Lane, where all three boys live.

The decision to evacuate all of the hospital's patients, about 130, came near 1 a.m. Since 11 p.m. — shortly after the hospital's transformer exploded in a raging thunderstorm, leaving the hospital without air conditioning — a number of patients had been waiting in the first-floor lobby.

Spectators, some of them rela-

tives of patients, waited and watched from outside.

What they saw was an occasional hectic swirl amid a setting in which patients slept on lounge chairs, others talked quietly, and firemen and nurses laughed and joked together.

People standing outside the hospital could see that a crisis does not

always sweep along like a flood, but instead can be a series of small drips. To combat it, one needs only enough people standing about with buckets, waiting.

That is what happened in the early-morning hours Friday.

If on television or in initial newspaper reports, events seemed

— Montini, B2

Montini

Continued from B1

to unfold rapidly, dramatically, it is because journalists report such happenings with a kind of time-lapse photography. Waiting for the hospital to be evacuated was like waiting for a flower to unfold. Drama was achieved only by stringing together flashes of action caught between hours of waiting.

Television cameramen with their bulky machines and lights stood just outside the hospital doors. The lights were turned on as patients emerged, making their white faces and white legs more pale under the glare, their thin hospital clothing even more thin.

From the darkness of the hospital, patients passed through a gantlet of floodlights and flash bulbs. Even the hospital's own public-relations staff was taking pictures. The Fire Department had both a still photographer and a video crew recording events.

Every few minutes, there was another brightly lighted image: A mother and a newborn wheeled out at about 12:30 a.m.; an old woman asleep on a folding stretcher, her family walking beside her, at 12:50 a.m.; nurses rushing from nearby facilities with bags of ice to cool medicines and blood at 1 a.m.; a young "overdose" patient, awake

and staring blankly at the lights, at 1:20; a woman with a head wound lying on a stretcher, wearing her shoes, at 1:50. And on and on.

The most dramatic events had occurred beyond the sight of newsmen and photographers. Fireman carried some of the first patients to be evacuated down six flights of stairs. There was no one to see it. A child was said to have been born at the moment the lights went out.

Outside, as the rain began to subside, hospital spokesmen granted the same interviews to different people over and over again. At 2 a.m., network news producers telephoned from New York.

By the time the bus arrived at 3 a.m., it was nearly over. Stars were visible in the sky, along with a quarter moon. The orange, yellow and white bus, a shining sun emblazoned on its side, waited for the slow-moving men and women to board it.

Some of the patients wore slippers. Some walked in socks. A few made due with their bare feet. None hurried or spoke, except to the firemen walking alongside, or to nurses.

On the wrist of each one, or attached to clothing, was a colored tag, as if the hospital were running an all-night sale on the injured and the infirm, and the city had purchased the lot.

THE ARIZONA REPUBLIC

Valley & State

Fatal stabbing puzzles police

The stabbing of an 83-year-old north Phoenix man described by his next-door neighbor as "absolutely harmless" remains a mystery to Phoenix police. B3.



Michael Meister/Republic

Cars are partially submerged in a parking lot at Valley West Mall in Glendale. Heavy rains late Thursday night and early Friday morning turned the parking lots into minilakes.

Storm overturns Mesa mobile homes

Lincoln hospital is contaminated with PCB traces

High winds from a heavy thunderstorm that struck east Mesa overturned six mobile homes in a trailer park Friday.

No serious injuries were reported, but several people were left homeless for the night, said Gary Rains, an investigator for the Mesa Fire Department.

The storm came the night after a lightning bolt struck an electrical transformer at John C. Lincoln Hospital & Health Center in Phoenix, setting off a small fire that spread low-level concentrations of cancer-causing PCBs throughout the facility.

Rains said several people suffered minor injuries when Friday's storm struck at about 9:30 p.m. and were transported to local hospitals by private cars.

Some people left homeless for the night were planning to bed down in the recreation hall at the Monte Vista Travel Trailer Resort, 8865 E. Baseline Road, he said.

"We have some large mobile homes that have been overturned," he said. "There is debris throughout the trailer resort. We have telephone lines down along Baseline Road."

Rains said four double-wide and two single-wide trailers overturned in the storm, which also brought rain to Mesa and Chandler.

Two residents of the mobile-home park waited apprehensively behind police lines Friday night to

—Storm, B2

Storm

Continued from B1

see if their mobile homes were among those damaged.

Duane and Fay Brandt said they moved to the park from Minneapolis only five days earlier. They have two homes in the park, a 33-foot model and a larger double-wide trailer, they said.

"Everything we own is in the park," Fay Brandt said. "You move here, then 'bingo,' this happens."

She said she and her husband were visiting two sons who live in Mesa when the mobile homes were blown over.

Paula Angerhofer, a spokeswoman for the Salt River Project, said about 2,500 customers were without power in east Mesa and south of Gilbert.

The lightning that struck the John C. Lincoln transformer Thursday night knocked out all power to the hospital and caused officials to evacuate all 133 patients. The last patient left about 4:45 a.m. Friday.

Tests there Friday discovered PCBs in the burned-out transformer, said Brad Parker, spokesman for Arizona Public Service Co.

He said the amount of PCBs, or polychlorinated biphenyls, is not significant and does not present a threat to humans.

"This morning (Friday) about 10:30, we found minute quantities" of PCBs in the transformer, Parker said.

He said the flame retardant was placed in mineral oil used to cool the transformer.

Because of the discovery of PCBs at the transformer, it was assumed by APS that water and smoke that inundated the site had spread the contamination throughout the hospital, Parker said.

An outside independent firm has been brought in to investigate, he said. Meanwhile, a cleanup of the affected areas is continuing, along with work being done on the transformer.

But patients will not be brought back to the building until environmental experts ensure the safety of the facility, Parker said.

Meanwhile, police said a Phoenix man was killed late Thursday in an automobile accident attributed to the storm.

David A. Jones, 18, of 618 S. Third Ave., was killed when a car he was driving slammed into a palm tree at Central Avenue and Culver Street shortly before midnight Thursday.

Five injured passengers were taken to Valley hospitals, police said. They were identified as Willie J. Willie, 16; John Paredéz, 18; Ruben Contreras, 18; Robert Pena, 16; and Delvin Lewis, 21. All were residents of the Third Avenue address, which is a Job Corps home, police said.

Willie and Paredéz were listed in fair condition at Good Samaritan Medical

Center, and Contreras was listed in good condition at Maricopa Medical Center.

No information was available on Pena or Lewis.

Michael Wardrop, manager of community relations at John C. Lincoln, said that nine patients were discharged and that the remainder were transferred to other Valley hospitals.

He said power should be restored to the hospital sometime this afternoon, as soon as air-conditioning units are able to cool the facility.

John C. Lincoln and Humana Hospital-Desert Valley, which had a 30-minute power outage, were among an estimated 36,000 customers of Arizona Public Service and the Salt River Project whose electricity was cut off as high winds and rain moved through the Valley.

At Paradise Valley High School, Principal Hal Buckley found his welcoming speech to students and parents rudely interrupted.

Students and parents had filed into the auditorium of the school at 3950 E. Bell Road, the marching band was playing, and Buckley was preparing to deliver his welcome.

"Then we were plunged into darkness," Buckley said. "No lights, no air conditioning, no power."

"The funny thing was, our theme for the orientation was, 'Getting Off on the Right Foot.'"

Biltmore's shops shut by flooding

Carpets, merchandise ruined by water, mud

By BOB WILSON
The Arizona Republic

Sherry Morley watched customers step over puddles Friday on the hardwood floor of Beaton's Carriage House in Biltmore Fashion Park.

Dresses hanging near the floor were wet 8 inches up from their hems.

A cleaning man vacuumed water out of the saturated carpet.

"He's already taken about 100 gallons out of here," Morley said.

She said the sidewalk on the mall outside was covered with mud when she came in Friday morning, but it had been hosed off.

An overflowing artificial lake started a river of water down Camelback Road on Thursday night during a heavy thunderstorm, flooding about 20 stores in the upscale mall.

On Friday afternoon, water still was flowing west along the northern side of Camelback Road from the lake, which is a quarter-mile to the east between the Tishman Biltmore and Tishman Camelback office parks.

The water was whirlpooling down a parking-lot drain in front of the Gucci store at the east end of the mall. The store was closed Friday because of the flooding. Rolled-up carpets were piled outside.

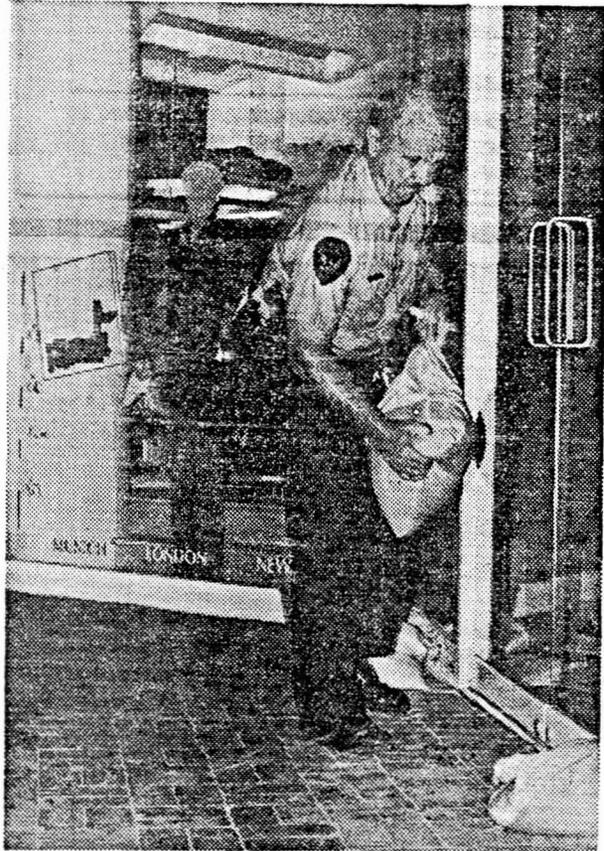
"All the carpets are a total loss, and some of our merchandise is ruined," store manager Mary Kelly said.

"There was 2 inches of water in here this morning when our office manager came in," she said. "Water came in under the doors and windows."

Kelly could not estimate the amount of damages but said the store has flood insurance.

Other storeowners did not.

Claude Amiel, co-owner of Paris Match, said he was not prepared for a flood. Another co-owner of the



Kevin J. Larkin/Republic

Paul Thomson, a security guard at Biltmore Fashion Park, places sandbags at the entrance to Mon-di Ascot as a precaution against more flooding. All of the mall's stores were sandbagged Friday night.

store, Serge Venezia, said he does not have flood insurance.

The basement of Paris Match, a clothes boutique, was flooded, but the store was open Friday.

Amiel said clothes that had been placed on the floor to make room for a new shipment were ruined.

"Would you buy this \$200 shirt if it was recleaned?" Amiel asked. "No."

Fashion Park manager Karen Holman said the mall's drainage system works, but Thursday night's rain was too much for it.

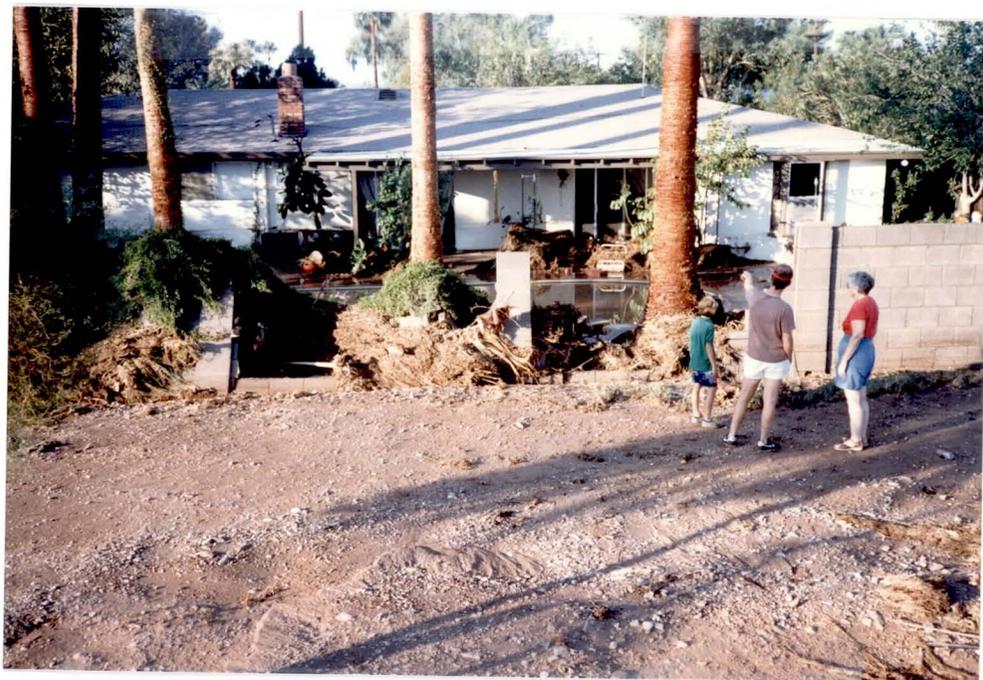
Saks Fifth Avenue was closed Friday as workers from RSI Carpet Cleaning and Restoration were removing carpets from the store and vacuuming up water. The floor inside was wet and muddy. There were puddles several inches deep on the red-brick sidewalk outside.

Roger Ohrt, an RSI worker, said there was 3 feet of water in the Saks basement.

Cudia City Wash
entering the north
bank of the Arizona
Canal between 32nd
and 40th Street. At
dawn on August 29,
the Wash was still
running.



3234 East Missouri -
Note accumulation of
debris along the
wall and in the back
yard from Spillway
#3 as well as the
waterline on the
house.



3234 East Missouri -
The house is
downstream of
Spillway #3. Note
the muddy pool, the
debris, and the
waterline.



This late model Jeep
was swept about 100
yards down Cudia
City Wash from
Stanford Drive.



3228 East Missouri -
House is directly
downstream of
Spillway #3.



3228 East Missouri -
Note waterline,
leaning fence, and
debris.

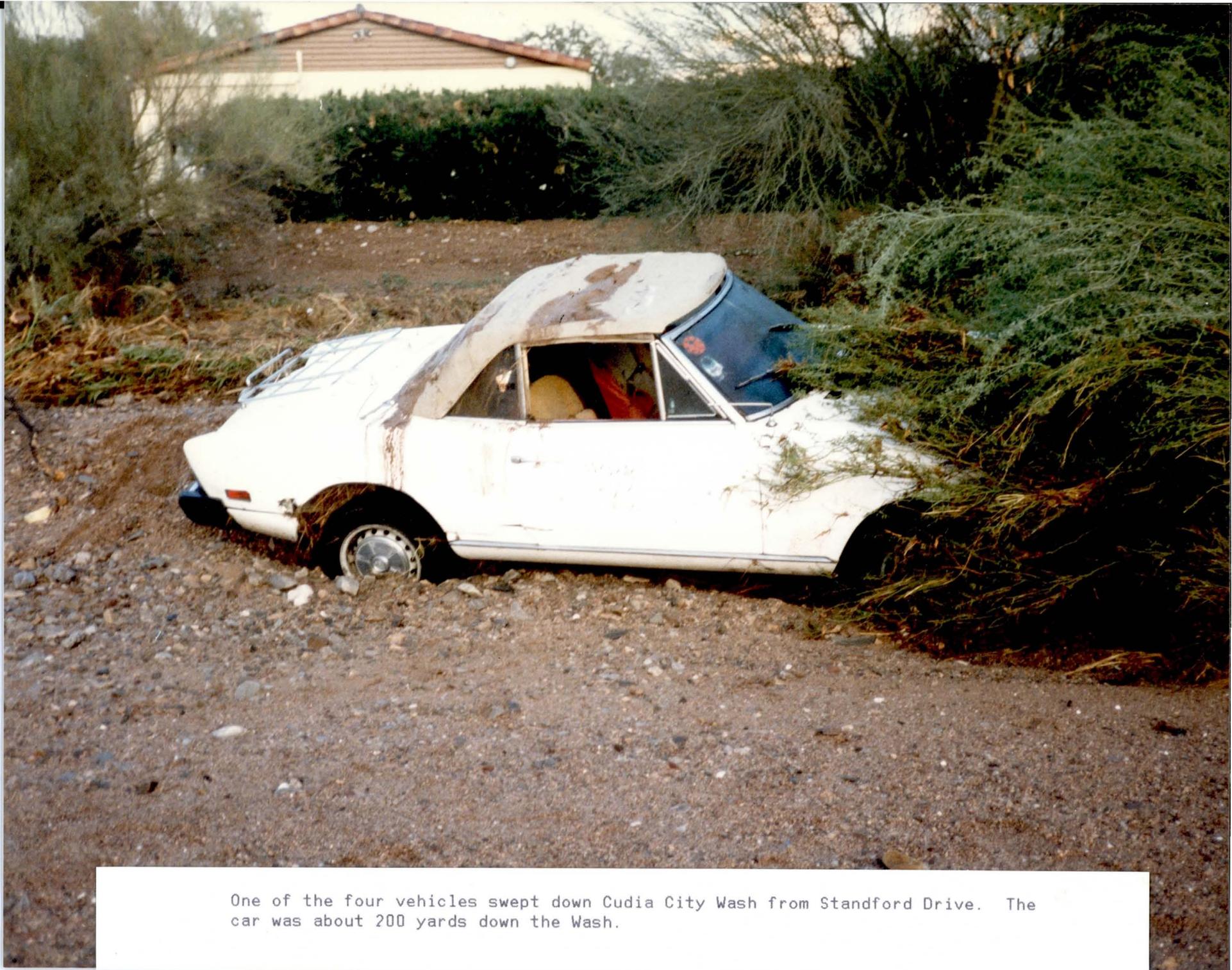


3222 East Missouri -
The water from
Spillway #3 knocked
down the fence and
caused the
accumulation of
debris.



The detention basins
on the north side of
the Arizona Canal
between 35th and
43rd Avenues were
filled and had to be
pumped. They were
still spilling water
into the street by
the middle of the
morning.





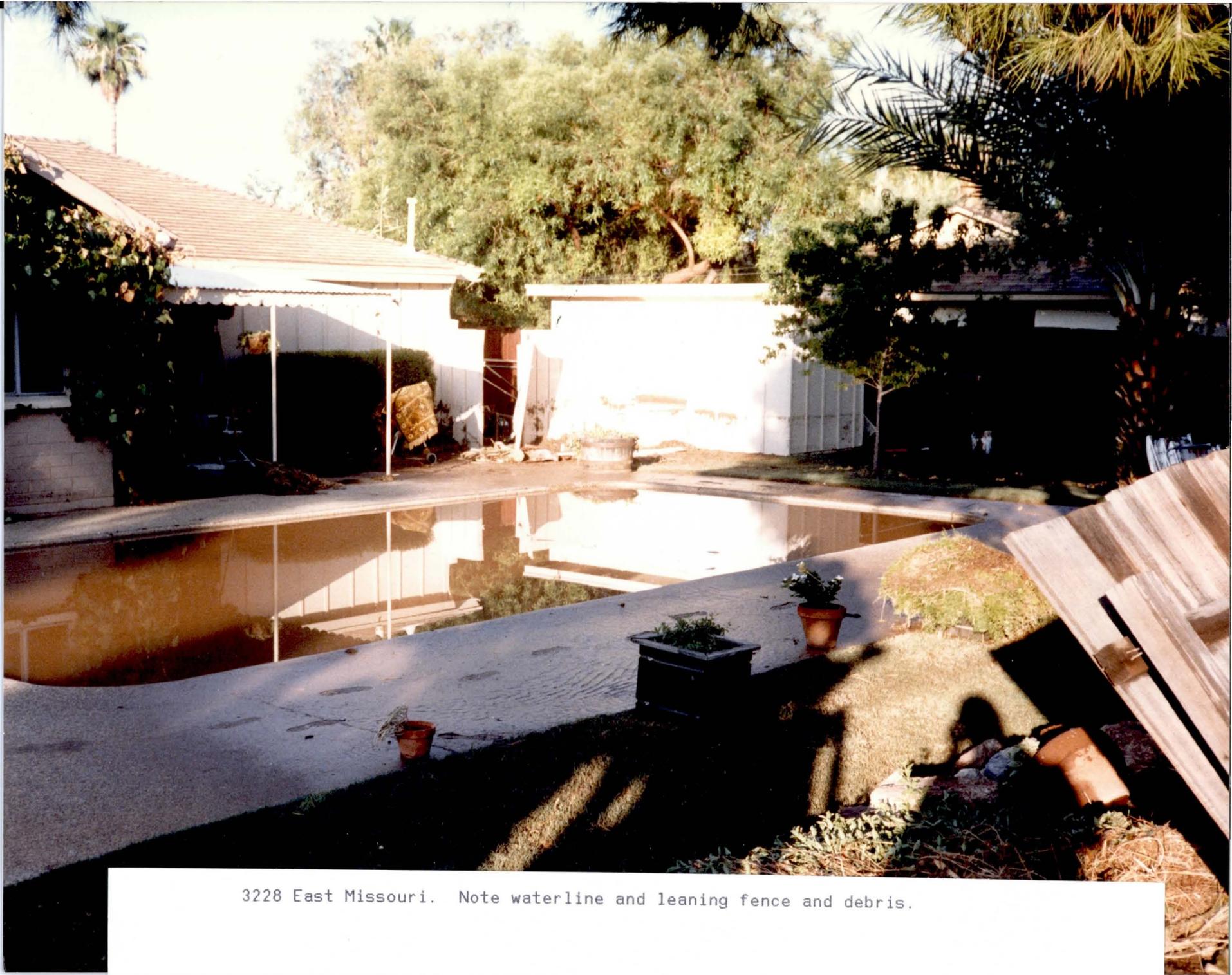
One of the four vehicles swept down Cudia City Wash from Stanford Drive. The car was about 200 yards down the Wash.



3234 East Missouri. Note accumulation of debris along the wall and in the back yard from Spillway #3 as well as the waterline on the house.



3234 East Missouri. House is downstream of Spillway #3. Note the muddy pool, the debris, and the waterline.



3228 East Missouri. Note waterline and leaning fence and debris.



3222 East Missouri. The water from Spillway #3 knocked down the fence and caused the accumulation of debris.



Cudia City Wash entering the north bank of the Arizona Canal between 32nd and 40th Street. At dawn the Wash was still flowing.



Pumps were used to empty the basins on the north side of the Arizona Canal between 35th and 43rd Avenue.



3234 East Missouri. The picture is from the back yard of the house and the car is parked on Spillway #3. The rush of the water knocked down the block wall.



The detention basins on the north side of the Arizona Canal between 35th and 43rd Avenue were filled. This one was still spilling water into the street by the middle of the morning.



3714 East Orange. This house is south of the Arizona Canal and slightly west of Spillway #2. Note the mud about a foot off the ground.



3216 East Missouri. Note the waterline on the block wall and on the house.



NEWS RELEASE

PO. BOX 52025
PHOENIX, ARIZONA 85072-2025

PUBLIC INFORMATION SECTION: 236-8240

George Poteet: 236-8239

FOR IMMEDIATE RELEASE

September 10, 1986

After dark Thursday, Aug. 28, members of Salt River Project's "Storm Patrol" drove to checkpoints along desert washes in the north Valley. They each relied on water gauges "and a lot of experience" to monitor volume and velocity of storm waters headed toward SRP's Arizona Canal.

An evening storm earlier sent some runoff flowing into the major metropolitan Phoenix area. National Weather Service radar at Sky Harbor International Airport and SRP's own weather-tracking systems correctly indicated more rain and potential flash floods that night.

Fortunately, a cooperative effort between SRP and the City of Phoenix helps channel local runoff.

Given adequate warning, SRP canals transport some of the flow. Twenty-four release points--drains and wasteways--spill water from the canals into smaller laterals and storm drains which eventually reach the Salt and Agua Fria rivers. For the most part, the system is electronically operated from SRP's Association Dispatch Center (ADC) in Tempe, though some gates are manually operated.

-MORE-

0910

Advance notice the night of Aug. 28 enabled SRP employees to reroute normal flows from the Arizona Canal. Zanjeros, the Yaqui Indian term for ditch-riders, busily oversaw water turnouts into the SRP and city drains.

Meanwhile, three SRP hydrology specialists, Ken McTeer of Tempe, Forrest Dodge of Ahwatukee, and Tom Whitmer of Phoenix, stood vigil over major washes upstream. The three said they spend many call-out nights staring at sandy gullies--literally dry runs--but that wasn't the case on that wet night in August.

About 10 p.m., shortly after the Arizona Canal drained, the three each radioed to ADC that flood flows were building.

"In just a matter of minutes the Arizona Canal was flowing at capacity and none of it was SRP water," McTeer said. "The flood was the worst this summer season, which generally runs from June 1 through Sept. 30."

McTeer, in the northeast Valley, reported rainfall so intense he was unable to see from one side of the Arizona Canal bank about 60 feet to the other side. Dodge, along Cudia City Wash north of Camelback Road near 40th Street, witnessed local flows course off Squaw Peak into and over the south side of the Arizona Canal.

Floodwaters damaged some homes and businesses downstream of the wash. Only a designed spillway, or depressed area in the Arizona Canal bank opposite the wash, prevented wholesale damage to the canal bank and more extensive property losses. There are 12 of the spillways along the canal.

Whitmer, stationed along Cave Creek Wash, reported flows of more than 350 cfs entered the canal at the confluence near 23rd Avenue. According to the U.S. Army Corps of Engineers, this deceptively small wash can dump more than 10,000 cfs into central Phoenix.

"Most of the summer flood problems come from runoff on the north side of the city," said Hank Clow, SRP's superintendent of water transmission and communications. "A large watershed spills into the metropolitan area--more than 300,000 acres of desert washes. Winter storms generally don't create the same local flood problems because a similar amount of rain will fall over a much longer period.

"We try to do what we can with the canals in summer, but the system is limited by design," Clow explained.

As a water distribution system, SRP canals taper in size from their origins at Granite Reef Diversion Dam northeast of Mesa. A maximum of 3,600 cfs can enter the canal system north and south of the Salt River. But, the combined capacities at the canals' terminuses is only about one-third that amount.

"Each of the desert washes flowing into the Phoenix area can carry more water than the Arizona Canal," Clow said. "Timely operations are a critical concern. Our Storm Patrols must respond quickly in the field to avoid damage to the canal system."

A summer storm in 1977, for instance, caused a desert wash to breach the Arizona Canal. It took days to clean up and complete repairs--just the type of mess SRP and local agencies are cooperating to avoid.

The ability to redirect storm waters has improved in recent years because of major construction projects, Clow said. The Central Arizona Project Canal, crossing the desert north of the Valley, provides the first line of defense. Although major washes funnel under the CAP, the high canal banks serve to slow down some runoff.

Since 1973, the Corps of Engineers also has completed four earthen dams north of the Valley at a cost of about \$36 million. The dams limit but do not shut off runoff. Cave Buttes and Dreamy Draw dams span washes north of Phoenix; Adobe Dam extends between two buttes near Deer Valley Road west of Interstate-17; and New River Dam restricts floodwaters in the northwest Valley.

SRP recently realigned two reaches of the Arizona Canal in the northwest Valley to ease outbound flow toward Skunk Creek and New River.

Additionally, SRP spends millions of dollars annually to line portions of its canals with concrete to reduce losses through seepage and also to protect the banks against erosion. Burrowing animals can weaken earthen canal banks and cause them to fail at higher volumes.

The Indian Bend Wash Project channels runoff in the northeast Valley, Clow added. Retention basins help control floodwaters and limit the impact on people and property.

More help is on the way. The Maricopa County Flood Control District is cooperating with the Corps of Engineers to construct the \$195 million Arizona Canal Diversion Channel (ACDC). The federal government will fund more than 90 percent of the project.

The ACDC, begun in 1985, will parallel SRP's Arizona Canal from 75th Avenue to about 40th Street, with ample capacity to handle a 100-year flood. Reach One, from 75th Avenue to 47th Avenue, is 90 percent complete.

Members of SRP's Storm Patrol agree, when the entire ACDC is complete in about 1992, the central Valley's local flood headaches will be eased.

3714 E. ORANGE BOB THOMPSON
PHOENIX President
THOMPSON GUNDRILLING INC.



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3222 E. Missowii
Phx. 85018
952-1876

SCRIPT
PUBLIC MEETING OCTOBER 9, 1986

Sue Mutschler - Welcome (5 minutes)

Introduce myself

~~Give~~ ^{JOKE} purpose of meeting (provide information and answer questions on flooding south of Arizona Canal around 32nd Street)

Explain what I do to facilitate meeting, ~~video taping?~~

Discuss Agenda

 What Happened

 The Arizona Canal

 The Arizona Canal Diversion Channel

 Flood Insurance

 Questions and Answers

^{names & numbers}
Introduce VIP's

Ask people to hold questions until the end because they may be answered.

Introduce speakers

Stanley L. Smith, Jr., Deputy Chief Engineer of the Flood Control District

"What Happened on the Night of August 28" (8 minutes)

Don Womack, Executive Engineer-Water - Salt River Project (36 yrs) (8 minutes)

"Salt River Project and the Arizona Canal"

Sid Friar, Manager of Water Operations - Salt River Project (41 yrs) (8 mins.)

"The Arizona Canal near 32nd Street"

Video Tape

Stan Lutz, Project Manager, U. S. Army Corps of Engineers (8 minutes)

"Phoenix and Vicinity Flood Control Project"

Ron Nevitt, Floodplain Representative, Flood Control District (3 minutes)

"Flood Insurance"

Sue Mutschler - Questions and Answers

(Answer questions only until 9:00 - but agency people will remain to answer additional questions individually.) (Introduce agency people.)

Thank people for coming.

General Instructions

1. All agency people will have name tags so can be recognized by the audience.
2. Please sit down in audience during program as standees are distracting.
3. During question period, I will listen to question, paraphrase it so all audience will hear it, and select person to answer question. The responder will come up to get microphone from me, answer question, break eye contact with questioner, return microphone to me, then sit down.

People Expected to Attend and Responsibilities

Flood Control District

Stan Smith - Make presentation and answer questions
Ron Nevitt - Make presentation and answer questions
Sue Mutschler - Facilitator and floor manager
John Rodriguez - Stand by displays and answer questions
Joy Ketcham - Greeter, ask people to sign in, refreshments
Tim Sutko - Answer questions
Dave Brozovsky - Operate light switch, add chairs as needed

Salt River Project

Don Womack - Make presentation and answer questions
Sid Friar - Make presentation and answer questions
Joe Gacioch -
Larry Crittenden
Two Technicians to operate equipment

Corps of Engineers

Stan Lutz - Make presentation and answer questions

City of Phoenix

Dave Harmon - Answer questions
Paul Kienow - Answer questions

Civil Defense

Don Ballard (?) - Answer questions

Department of Water Resources

Les Bond - Answer questions

*Bob Bishop - Chief of Readiness Division
Don Ballard - Civil Defense Emergency Coordinator
Frank Russo - Acting Chief, Civil Defense
and Emergency Services
Department*

~~Dick Lockwood~~
*Marks - state Div. of Emergency
Services*

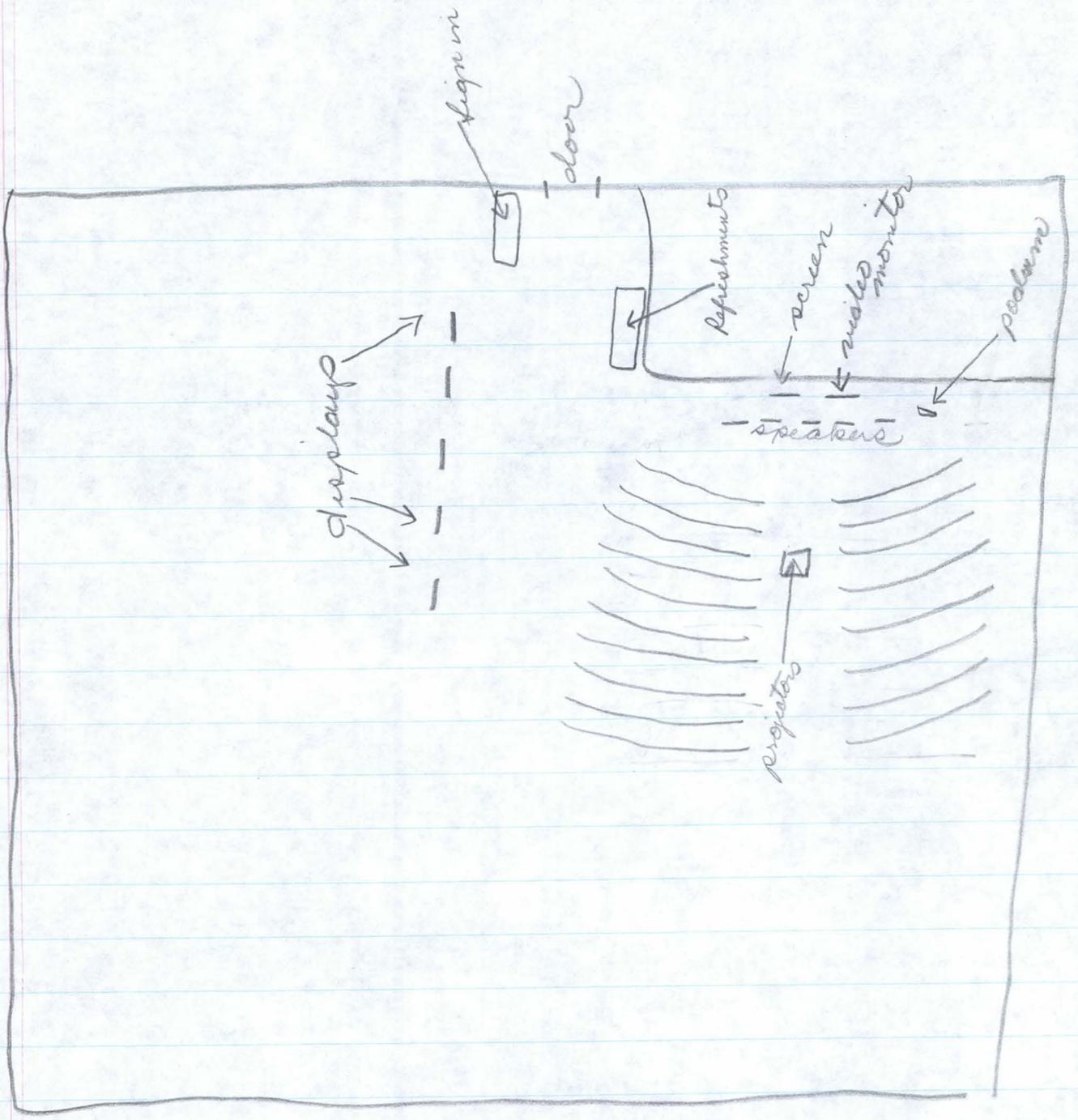
Equipment and Supplies

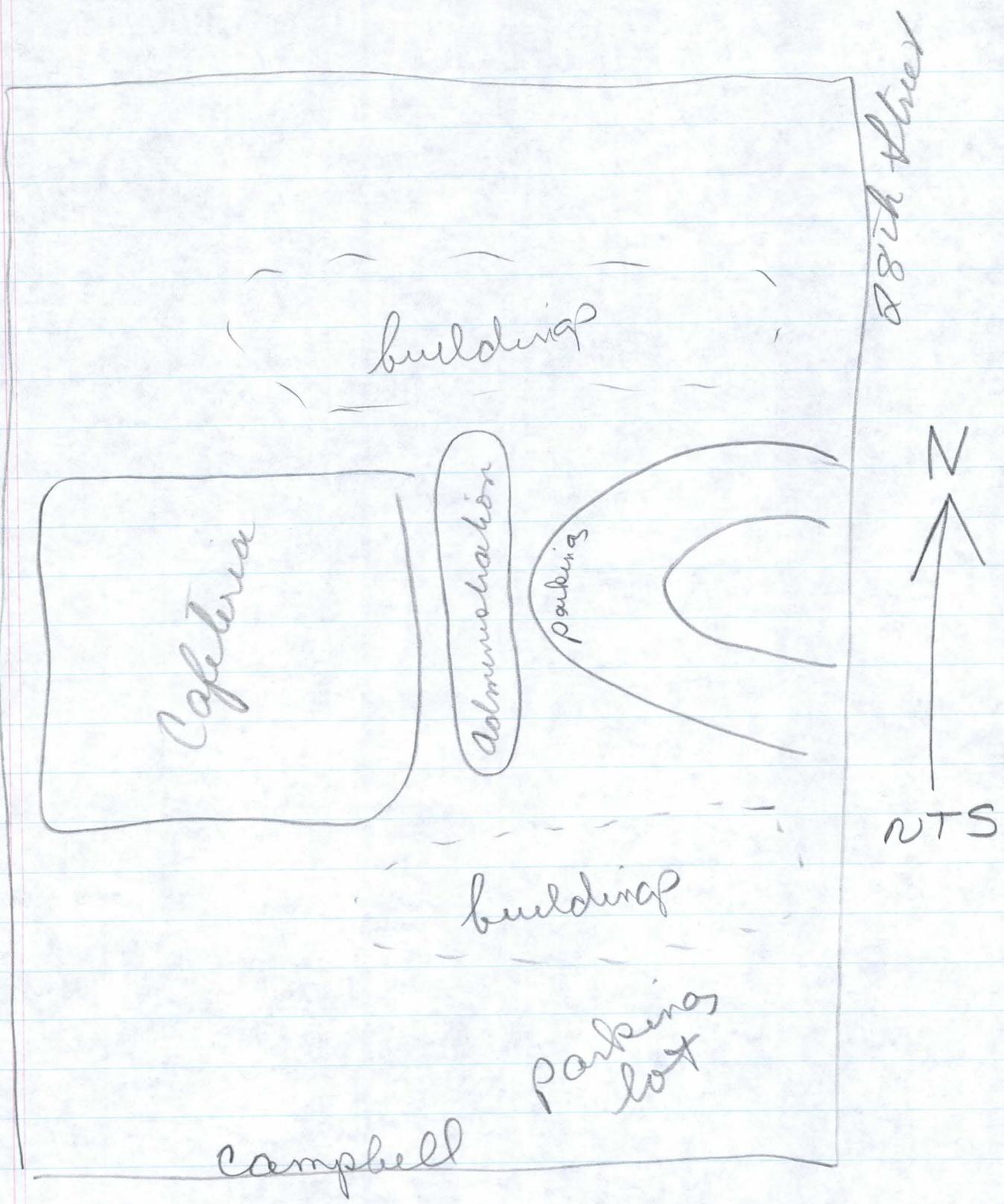
Video monitors/screen - SRP
Video tape - SRP
Slide projectors - SRP and FCD
Screen for slide projectors - SRP
Public address system - SRP
Podium - FCD?
Overhead projector - FCD
Refreshments - FCD
Easels for displays - FCD
Signs pointing to Flood Control meeting - FCD

Displays

FCD Reach 4 aerials with ACDC delineated - FCD
New colored aerial of 32nd Street area - FCD (aerial is now at SRP)
Biltmore aerial - FCD
ACDC map - FCD (map is now at SRP)

RTS
← 2







STATE OF ARIZONA
Department Of Emergency And Military Affairs



DIVISION OF EMERGENCY SERVICES
(602) 244-0504

MARK K. FOOKS
ASSISTANT DIRECTOR

PROGRAMS & PROJECTS

EXT. 218

HOME 244-8902

5636 E. MCDOWELL ROAD

PHOENIX, ARIZONA 85008

ACDC Reach 4
Flooding, Evening of August 28, 1986

The following information was collected in a house-to-house canvass on
September 6 and 7, ^{and 9} 1986.

3202 E. Missouri - No flooding.

3201 E. Missouri - No flooding.

3209 E. Missouri - Flooding - \$1300 for new carpeting. The bedrooms were o.k. but the rest of the house was flooded.

3210 E. Missouri - The flooding knocked the gate open and there was 2 1/2 to 3 feet of water in yard. The pool filled with silt. The water seeped into the house and the carpet may have to be replaced.

3215 E. Missouri - Six inches of water in front door. They laid towels and other materials in front of doors. Water got in pads and carpeting of every room. Heartache of cleaning up.

3216 E. Missouri - This is one of the houses below the spillway.

3221 E. Missouri - No one home.

3222 E. Missouri - This is one of the houses below the spillway.

3228 E. Missouri - This is one of the houses below the spillway.

3234 E. Missouri - This is one of the houses below the spillway.

5349 N. 32nd Place - House flooded. \$2700 to get carpet cleaned.

5340 N. 32nd Place - Water in carport and yard. Granite ruined and washed down the street. No water in house except slightly damp carpet inside front door.

5334 N. 32nd Place - Water in kitchen.

5341 N. 32nd Place - No one home but neighbor said they had flooding.

5335 N. 32nd Place - No one home but neighbor said they had flooding.

5329 N. 32nd Place - Water came in arcadia door and soaked carpet. Lots of water in yard. Garage flooded and everything on garage floor had to be tossed out - i.e. high school year books, luggage, everything. Later they found someone's dining room chair in their front yard. She was working at her desk in the kitchen at 11:00 p.m. when she realized her feet were getting wet.

5328 N. 32nd Place - No water in house - dirt and debris around outside.

5323 N. 32nd Place - Neighbor said they were flooded - Had carpeting out in front to dry.

5322 N. 32nd Place - No one home.

5317 N. 32nd Place - No one home.

5311 N. 32nd Place - Absolutely no flooding at all. He is 100% in favor of Reach 4 and will speak or whatever is necessary. Mo Stein, 954-9001.

5307 N. 32nd Place - Badly flooded. Replaced wallboard. Their new carpeting had been delivered eight hours before the flooding and it was completely ruined. A new sectional delivered that day was completely ruined. Dryer ruined but washing machine o.k. Antiques ruined. The silt and mud stained the wood and tile. She is a quilter and the quilts for her coming show were in boxes on garage floor. The quilts were a complete loss and that is a big loss of income for them. No flood insurance. One and 1/2 inches of silt through house. It was back breaking work cleaning it up.

3222 E. Georgia - Only water in foyer - they barred the door with towels, etc. The yard was covered.

3227 E. Georgia - Badly flooded. Six inches of water in house. Carpet ripped up and destroyed. Driveway ruined. Roof leaked and needs replacing. \$5000 damage to pool. Back fence falling down. Legs of furniture ruined. No one from City of State went out to see them. No one has flood insurance. Between rock and hard place. \$3000 for carpeting + new roof + driveway. The water raised walkway in front and that will have to be replaced. Can't use washer and dryer. Dishwasher barely working. Emotional wear and tear. So much you can't do alone. Requested information on Reach 4. Doris Bale, 3227 E. Georgia 85018.

3221 E. Georgia - Flooded. She said SRP is responsible because they closed gates at 32nd Street but SRP doesn't care. Their explanations won't hold water. She is definitely against ACDC. The lady was very angry at Flood Control District.

3215 E. Georgia - The neighbors alerted them so they blocked door. They had no particular damage to yard.

3216 E. Georgia - Just water in yard.

3209 E. Georgia - No one home.

3201 E. Georgia - No one home.

3201 E. Vermont - They were flooded. Carpet laid out front to dry.

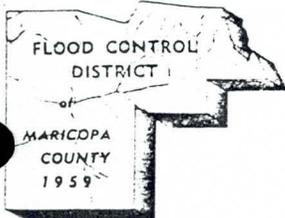
3209 E. Vermont - No one home but assume they were flooded.

3215 E. Vermont - Whole house was flooded. Carpet torn out and destroyed.

3216 E. Vermont - Flooded yard and pool but kept most water out of house. Damage to yard and pool.

- 3210 E. Vermont - Badly flooded. Parkay floors in house ruined and had to be pulled out. The tile humped up. Eight inches of water. The tenants immediately moved out of house. Carpets soaked. Pool was mud and the pump had to be replaced because it burned up. Whole house was a mess.
- 3202 E. Vermont - Husband was able to push water away from house into the pool but the pool was a mess.
- 3202 East Oregon - Flood damages. Needs to replace carpet because it was soaked and badly stained but doesn't have the money. Panelling buckled up. Tile pulling up in Arizona room. Pool needs work. Needs to replace fence. Wear and tear on nerves. Side gate broken.
- 3210 East Oregon - Slight damage only. Storage shed in back yard had water and they lost books, etc. that were stored there. Little stain on small part of carpet. Water was foot deep in back yard.
- 3216 East Oregon - Badly damaged - about three inches of water throughout house. She is concerned about people getting killed through electrical shock when stepping into water. This time they woke up sloshing in water. They are still cleaning up debris. They had fish in pool. Carpet had to be destroyed. They are still scrubbing. She farmed out her baby because of filth. Damage to pool. Big holes in yard. Tonie Williams 956-6710.
- 3222 East Oregon - Some damage per neighbor.
- 3228 East Oregon - No flooding.
- 3234 East Oregon - Water in house. Carpet dried but there are stains and would like to replace. Water was 12 inches on patio. All rooms flooded but front bedroom and bath.
- 3240 East Oregon - No flood damage.
- 5302 North 33rd Street - No flooding.
- 5336 North 33rd Street - No flooding.
- 5350 North 33rd Street - No flooding.

9-11-86 Ken Reedy called me and said they are not finding anything about flood damages on the night of August 28 in the vicinity of the ACDC. They had a number of problem areas but perhaps the residents around the ACDC are so used to flooding that they don't call each time. They are still looking and will call us with anything they have. He said our request for information did point up a problem they have of tracking such calls.



FLOOD CONTROL DISTRICT

of

Maricopa County

3335 West Durango Street • Phoenix, Arizona 85009
Telephone (602) 262-1501

13.10

BOARD of DIRECTORS

George L. Campbell, Chairman
Carole Carpenter
Tom Freestone
Fred Koory, Jr.
Ed Pastor

D. E. Sagramoso, P.E., Chief Engineer and General Manager

AUG 29 1986

MEMO TO: Robert G. Mauney, County Manager

VIA: R. C. Esterbrooks, Assistant County Manager, Director of Public Works/County Engineer

FROM: D. E. Sagramoso, Chief Engineer and General Manager

SUBJECT: Thunderstorms on the Evening of 8/28/86

On the evening of 8/28/86 locally severe thunderstorms were experienced in the North-Central metropolitan area of Phoenix. This is a preliminary summary of the rainfall and subsequent runoff events.

The National Weather Service (NWS) issued a severe weather warning for Central Maricopa County, including the Phoenix metropolitan area, at about 8:15 pm, 8/28/86. At 11:15 pm the NWS issued a flash flood warning for this same area. Preliminary reports suggest that at least two very intense, highly localized storms passed over the North Central and Eastern portions of the city beginning at 6:00 pm and lasting until 2:30 am. Flood Control District telemetered rain gauges in this area provided the following data:

Indian Bend Wash--1.02" between 6 pm and 10 pm with 0.87" between 6 pm and 7 pm.

Cave Buttes Dam--0.12" between 8 pm and 11 pm.

Dreamy Draw Dam--0.87" between 9 pm and midnight with 0.67" between 10 pm and 11 pm.

Adobe Dam--0.20" between 9 pm and midnight.

Three Flood Control District cooperative observers in this area reported precipitation amounts from this storm ranging from 2.00" to 2.22"

Salt River Project (SRP) released water from their Arizona Canal at a number of locations, as summarized on the following page:

Memo to: R. C. Esterbrooks
Page 2

Tail Drain (into Skunk Creek)

8:22 pm	75 cfs
8:40 pm	200 cfs
9:00 pm	500 cfs
11:00 pm	550 cfs
3:00 am	0 cfs

into Old Crosscut Canal

8:53 pm	200 cfs
9:17 pm	300 cfs
9:45 am	350 cfs

into Indian Bend Wash

10:13 pm	300 cfs
10:43 pm	600 cfs
12:35 am	400 cfs
12:44 am	300 cfs
1:04 am	0 cfs

Uncontrolled releases from the Arizona Canal occurred at Spillway #3 (32nd Street) and from the south embankment opposite the Cave Creek Wash inlet. Damage to at least four houses in the 32nd Street and Missouri Avenue area resulted from the former of these two uncontrolled outflows. Other flooding damage was reported in the vicinity of 37th Street and Orange Drive, though this was not attributed to spillway releases. Observers in the area reported some flooding along the north bank of the Arizona Canal between 35th and 40th Streets. A Phoenix police officer reported that 4 cars were washed into Cudia City Wash.

Field observations of these events are still on-going, including interviewing residents of the affected area. This memo will be updated if justified by the additional information.



D. E. Sagramoso, P.E.

Copy to: Civil Defense

DES/TES/sy

FILE:

Stephen E. Gerber
Director of Development



PHONE (602) 955-8200

PHOENIX COUNTRY DAY SCHOOL

P.O. BOX 15087

PHOENIX, ARIZONA 85060

21 September 1986

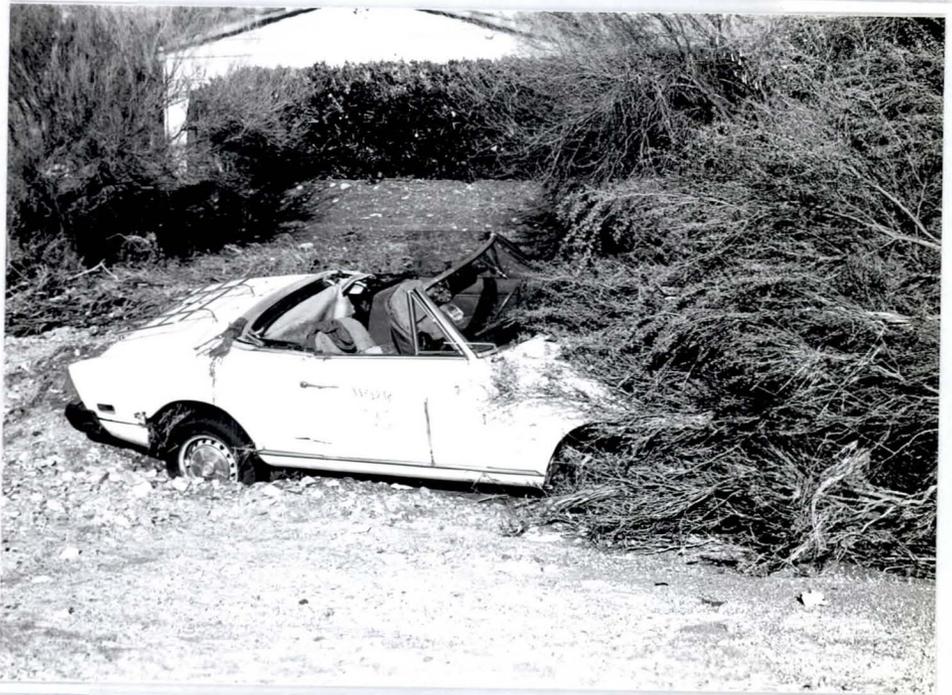
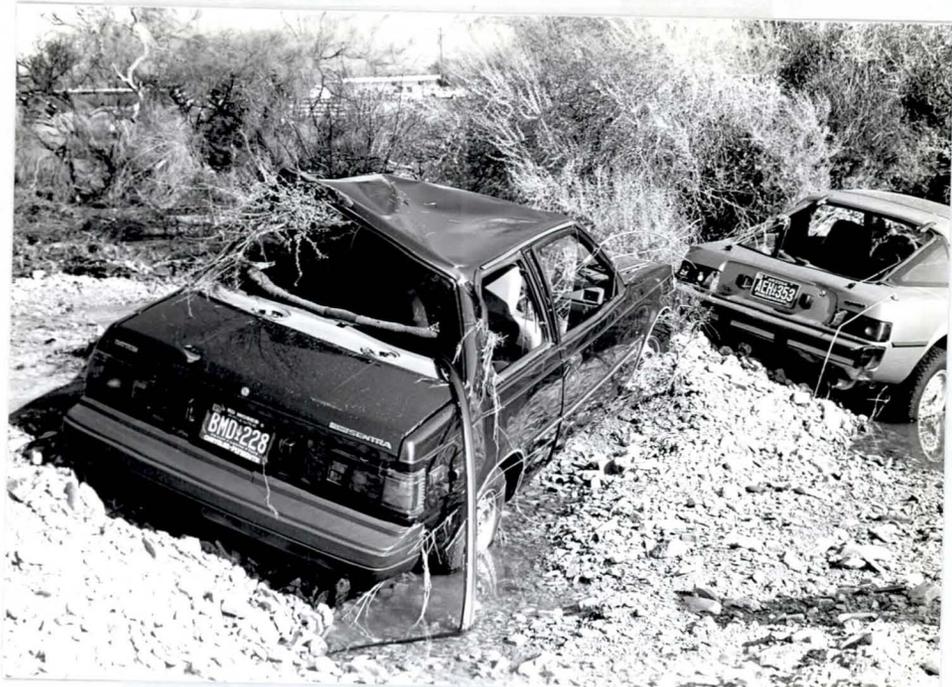
Dear Dan,

These are not exactly what one would consider as "action shots," but they do show the cars that ended up in the wash & the cleaning up of Buick Hall after this year's early September flood.

If you can put them to any use fine, otherwise do with as you see fit. They are copies, so I don't need them back.

Take care & see you at the next meeting.

Sincerely, Steve



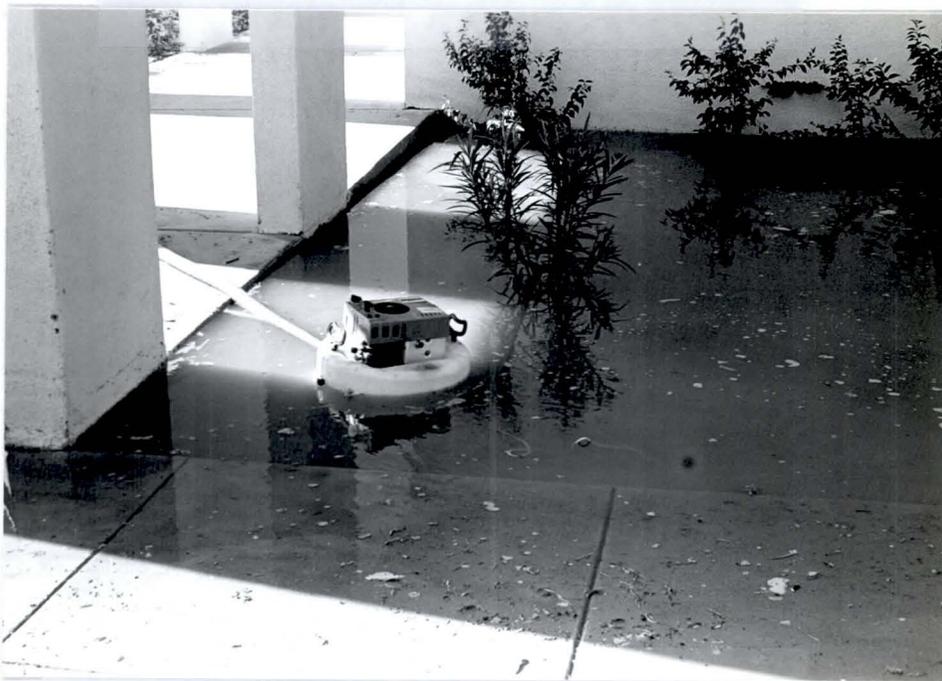
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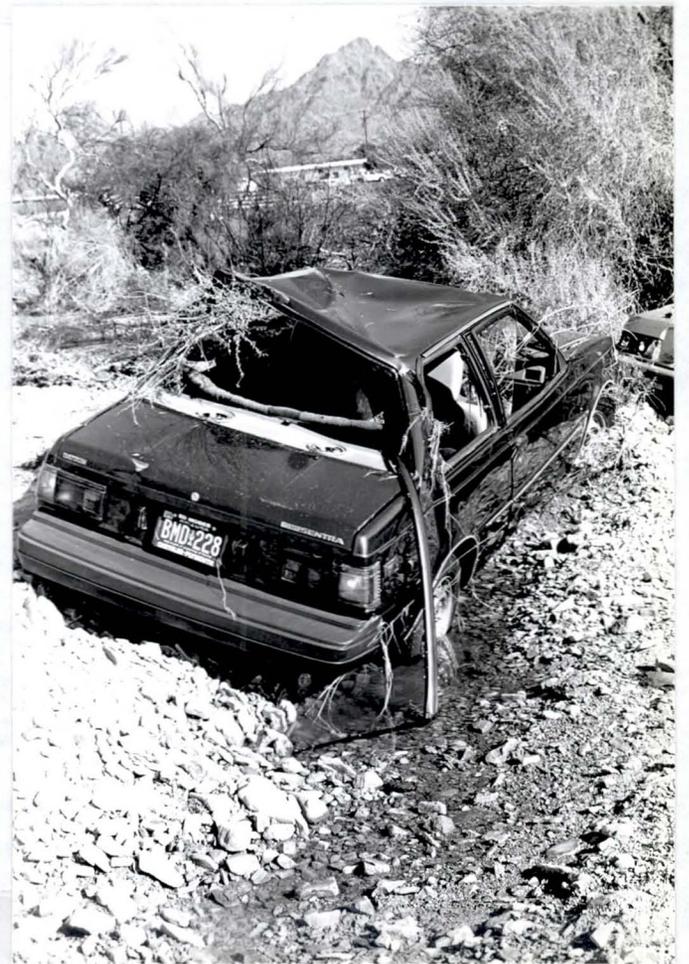
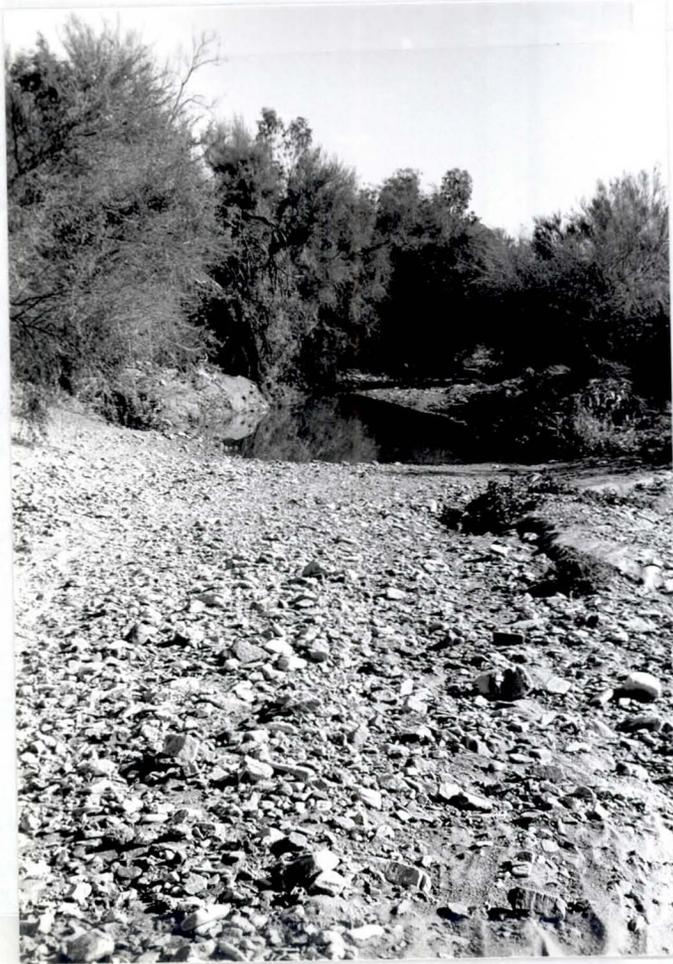
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THE POLICE

1974-75



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**NOTES ON INSURANCE UNDER THE
NATIONAL FLOOD INSURANCE PROGRAM (NFIP)**

October 7, 1987

Leslie A. Bond
Arizona Department of Water Resources
(602) 255-1566

Flood insurance is available to all structures in the City of Phoenix under the National Flood Insurance Program (NFIP). The City has agreed to manage all new development shown to be subject to flooding on the Flood Insurance Rate Maps (FIRMs) for the City to make this subsidized insurance available.

This insurance may be purchased through any casualty insurance agent. If your insurance agent is not familiar with this insurance, he may obtain information by writing or calling

John Bessermin, Manager
NFIP Region IX
1311 Clegg Street
Petaluma, CA 94952
(707) 765-1363

There are two types of coverage, "basic" and "additional". The basic coverage limits must be reached before the additional rates apply.

AMOUNT OF INSURANCE AVAILABLE

	Basic Limits	Additional Limits	Total Available
BUILDING COVERAGE			
Single Family Dwelling	\$35,000	\$150,000	\$185,000
2-4 Family Dwelling	\$35,000	\$215,000	\$250,000
Other Residential	\$100,000	\$215,000	\$250,000
Non-Residential	\$100,000	\$100,000	\$200,000
Small Business	\$100,000	\$150,000	\$250,000
CONTENTS COVERAGE (per unit)			
Residential	\$10,000	\$50,000	\$60,000
Non-Residential	\$100,000	\$100,000	\$200,000
Small Business	\$100,000	\$200,000	\$300,000

A policy is required for each structure to be insured. There is a \$32 policy constant, and the minimum premium per policy is \$50. The insured can save \$64 by applying for a three year policy.

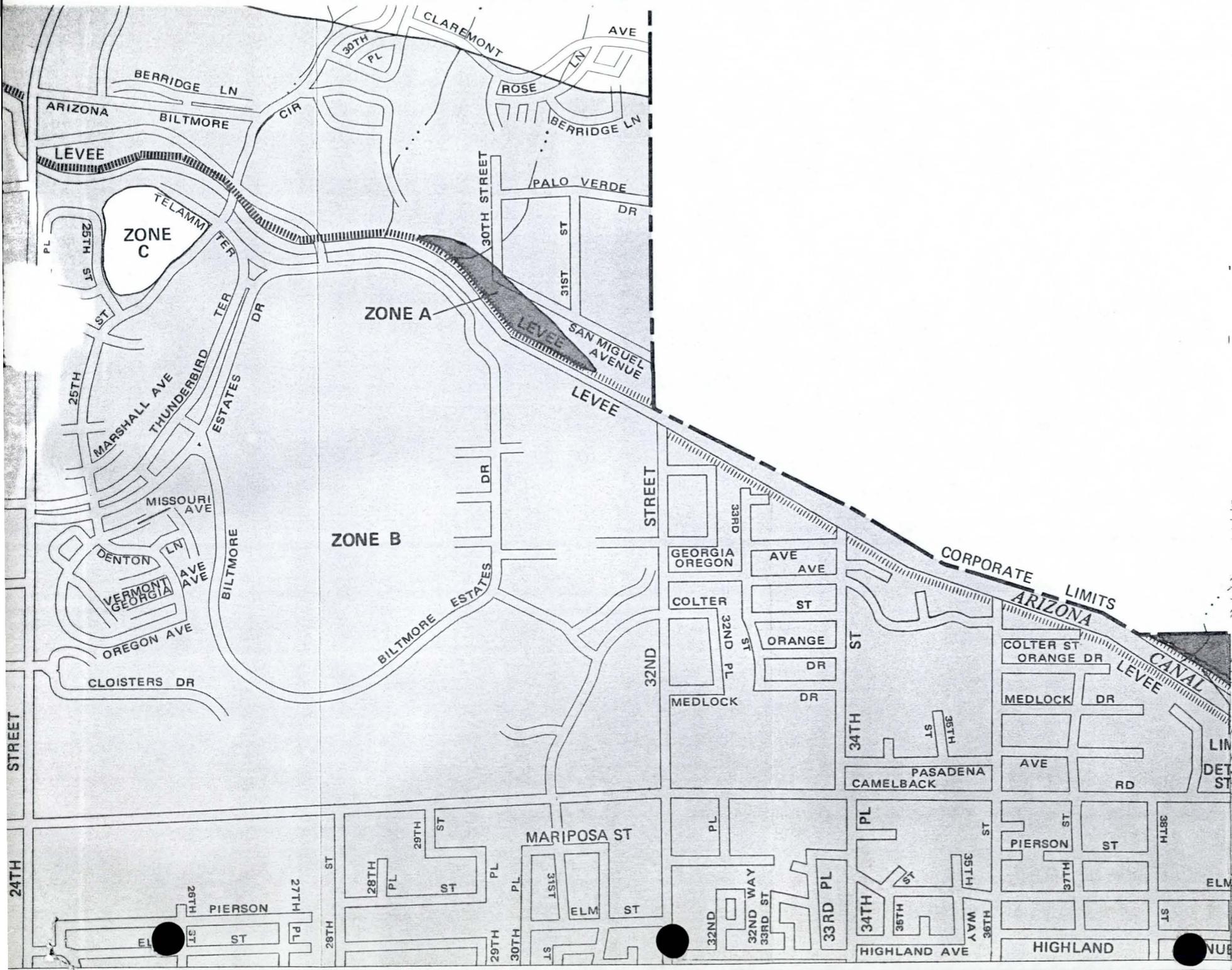
**BUILDING AND CONTENTS COVERAGE RATES
FOR STRUCTURES IN B AND C ZONES
(per \$100 of coverage)**

Type of Structure	Basic Limits	Additional Limits
Any structure, no basement	.25	.06
Any structure, unfinished basement	.35	.15
Mobile home	.30	.20
Contents, residential structures	.40	.11
Contents, non-residential structures	.30	.15
Contents, mobile home	.40	.20

**EXAMPLES OF PREMIUMS FOR STRUCTURES IN B AND C ZONES
(Structure/contents coverage)**

Type of building	\$10,000/ \$ 5,000	\$100,000/ \$ 50,000
Residential, no basement	\$77.00	\$243.00
Non-residential	\$72.00	\$249.00
Mobile home	\$82.00	\$387.00

These examples are for illustration only. Have your insurance agent explain the coverage, exclusions and deductibles to you.



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
PHOENIX, ARIZONA
MARICOPA COUNTY

PANEL 80 OF 135
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
040051 0080 C

MAP REVISED:
JUNE 1, 1984



Federal Emergency Management Agency

SPEECH FOR PUBLIC MEETING OCTOBER 9, 1986 @ CAMELBACK HS

INTRODUCTION:

GOOD EVENING LADIES AND GENTLEMAN, THANK YOU FOR TAKING THE TIME FROM YOUR BUSY SCHEDULE TO JOIN US TONIGHT.

AS MS. MUTSCHLER STATED. I AM STAN SMITH, DEPUTY CHIEF ENGINEER FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY. MY PRESENTATION WILL COVER THE FACTUAL DATA CONCERNING THE STORM EVENTS OF THE THE EVENING OF AUGUST 28th, 1986.

IN MANY RESPECTS, AS I STAND HERE, I FEEL LIKE THE OLD TIMER FROM BACK EAST WHO HAD SURVIVED THE JOHNSTOWN FLOOD AND MADE A CAREER OUT OF BEING AN EXPERT ON FLOODS. WHEN HE PASSED AWAY, AND APPEARED BEFORE SAINT PETER AT THE GOLDEN GATE, HE WAS INVITED BY SAINT PETER TO INTRODUCE HIMSELF TO THE MULTITUDE IN HEAVEN, BUT CAUTIONED THAT NOAH WAS IN THE AUDIENCE.

{SLIDE: TITLE SLIDE FCD}

I WILL STICK TO FACTS AS RELATED TO MEMBERS OF THE DISTRICT STAFF BY WITNESSES, OR AS DEVELOPED FROM FIELD OBSERVATIONS.

DISCUSSION:

{SLIDE: STORM CLOUDS}

ON THE EVENING OF AUGUST 28th, SEVERE THUNDERSTORMS STRUCK SECTIONS OF THE PHOENIX METROPOLITAN AREA. THE NATIONAL WEATHER SERVICE SIGNIFICANT WEATHER/EVENT LOG AND RADAR OBSERVATIONS FOR THAT EVENING INDICATE THAT SEVERE WEATHER WAS IN THE AREA AS EARLY AS 6:00PM AND THAT SEVERE WEATHER STATEMENTS WERE ISSUED AT 7:40PM AND 8:00PM. A FLASH FLOOD WATCH WAS ISSUED AT 8:50PM.

(SLIDE: MAP OF NORTH CENTRAL METRO AREA)

MOST OF THE SEVERE STORM CELLS WERE LOCATED IN THE NORTH CENTRAL PORTION OF THE METROPOLITAN AREA BOUNDED BY SCOTTSDALE ROAD, CAMELBACK ROAD, 55th AVENUE, AND BELL ROAD. THE CELLS APPEARED TO MOVE FROM THE SOUTHEAST TO THE WEST. MODERATE RAINS BEGAN IN TEMPE AROUND 7:00PM AND BECAME MORE SEVERE BY 9:00PM.

(SLIDE: CAVE CREEK WASH INFLOW TO ARIZONA CANAL)

SHORTLY AFTER 10:00PM RUNOFF FROM STORM CELLS NORTH OF THE ARIZONA CANAL HAD FILLED THE CANAL AND CAUSED IT TO OVERTOP AT SPILLWAY #9, WEST OF 27th AVENUE, AND SHORTLY BEFORE 11:00PM IT OVERTOPPED WEST OF 35th AVENUE.

(SLIDE: MAP OF CUDIA CITY WASH TO BILTMORE AREA)

CONCURRENTLY, ONE OF THE MOST INTENSE OF THE STORM CELLS WAS REPORT BY A NATIONAL WEATHER SERVICE OBSERVER IN THE PARADISE VALLEY AREA. OBSERVERS REPORTED RAINFALL OF 5.53 INCHES AT 40th STREET AND MONTEBELLO, AND 3.90 INCHES AT McDONALD DRIVE AND 42nd STREET. MOST OF THIS RAINFALL OCCURRED DURING THE 2 TO 3 HOUR PERIOD BEGINNING ABOUT 9:30PM. RUNOFF FROM THIS STORM CELL CAUSED THE ARIZONA CANAL TO OVERTOP AT SPILLWAY #3, EAST OF 32nd STREET AROUND 11:00PM, AND AT SPILLWAY #2, WEST OF 40th STREET BY 11:15PM. IT IS THE OUTFLOW FROM THE CANAL AT THESE TWO LOCATIONS THAT CAUSED THE MOST DAMAGES.

THE MAJOR SOURCE OF INFLOW INTO THE ARIZONA CANAL EAST OF 32nd STREET IS CUDIA CITY WASH. FIELD INVESTIGATIONS AFTER THE STORM SUPPORT THE OBSERVATION THAT A STORM CELL WAS CENTERED OVER 40th STREET AND MONTEBELLO AVENUE. HIGH WATER MARKS INDICATE THE FLOW IN THE WASH AT McDONALD DRIVE WAS 450 CFS, 1200 CFS AT 44th STREET, **(SLIDE: VEHICLE IN CUDIA CITY WASH)** 1400 CFS AT STANDFORD DRIVE, AND ATTENUATED TO 1150 CFS WHEN IT SPREAD

BENEATH THE (SLIDE: CUDIA CITY WASH UNDER OFFICE COMPLEX) OFFICE COMPLEX WEST OF 40th STREET AND ENTERED THE ARIZONA CANAL.

(SLIDE: MAP OF SPILLWAY #3 AREA) ANOTHER WASH, EAST OF 32nd STREET CONTRIBUTED TO THE INFLOW VOLUME BUT ALSO ACTED AS A SPILLWAY WHEN THE CANAL OVERTOPPED AT SPILLWAY #3. BASED ON HIGH WATER MARKS, WE ESTIMATE THAT 100 CFS EXITED THE CANAL AT SPILLWAY #2, AND 860 CFS EXITED AT SPILLWAY #3. THE FLOW FROM SPILLWAY #2 WENT SOUTH THROUGH A PARKING LOT AND THEN WEST ON CAMELBACK ROAD. THE FLOW FROM SPILLWAY #3 WENT SOUTH CAUSING DAMAGES TO A NUMBER OF RESIDENCES BEFORE CROSSING 32nd STREET NEAR COLTER STREET AND ENTERING THE SMALL LAKES IN THE BILTMORE AREA. WHEN THE LAKES CAPACITY WAS EXCEEDED, THE OUTFLOW ENTERED CAMELBACK ROAD AND OVERFLOWED INTO THE BILTMORE FASHION PARK WHERE DAMAGES TO BUSINESSES WERE EXPERIENCED.

MS. MTUSCHLER CANVASSED THE AREA SOUTH OF SPILLWAY #3 DURING THE EARLY MORNING OF AUGUST 29th AND SUBSEQUENTLY IDENTIFIED 29 HOMES THAT SUSTAINED WATER DAMAGES ESTIMATED IN EXCESS OF \$109,000. NO DOLLAR ESTIMATE OF THE DAMAGES IN BILTMORE FASHION SQUARE HAS BEEN RECEIVED.

(SLIDE: PHOENIX AND VICINITY PROJECT MAP) NO SPILLS FROM THE ARIZONA CANAL OCCURRED WEST OF 40th AVENUE. OBSERVERS REPORTED FLOWS IN THE CONSTRUCTED PORTIONS OF THE ARIZONA CANAL DIVERSION CANAL (ACDC) RANGING FROM 5 FEET IN DEPTH NEAR 53rd AVENUE TO 15 INCHES ACROSS ITS ENTIRE WIDTH UPSTREAM OF SKUNK CREEK. THE ACDC REACH 1 WAS APPROXIMATELY 90 PERCENT COMPLETE.

CONCLUSION:

THIS CAN HAPPEN AGAIN. AN EVENT SIMILAR, BUT COVERING A GREATER AREA OF THE WATERSHED THEN THE AUGUST 28th STORM OCCURRED DURING JUNE OF 1972.

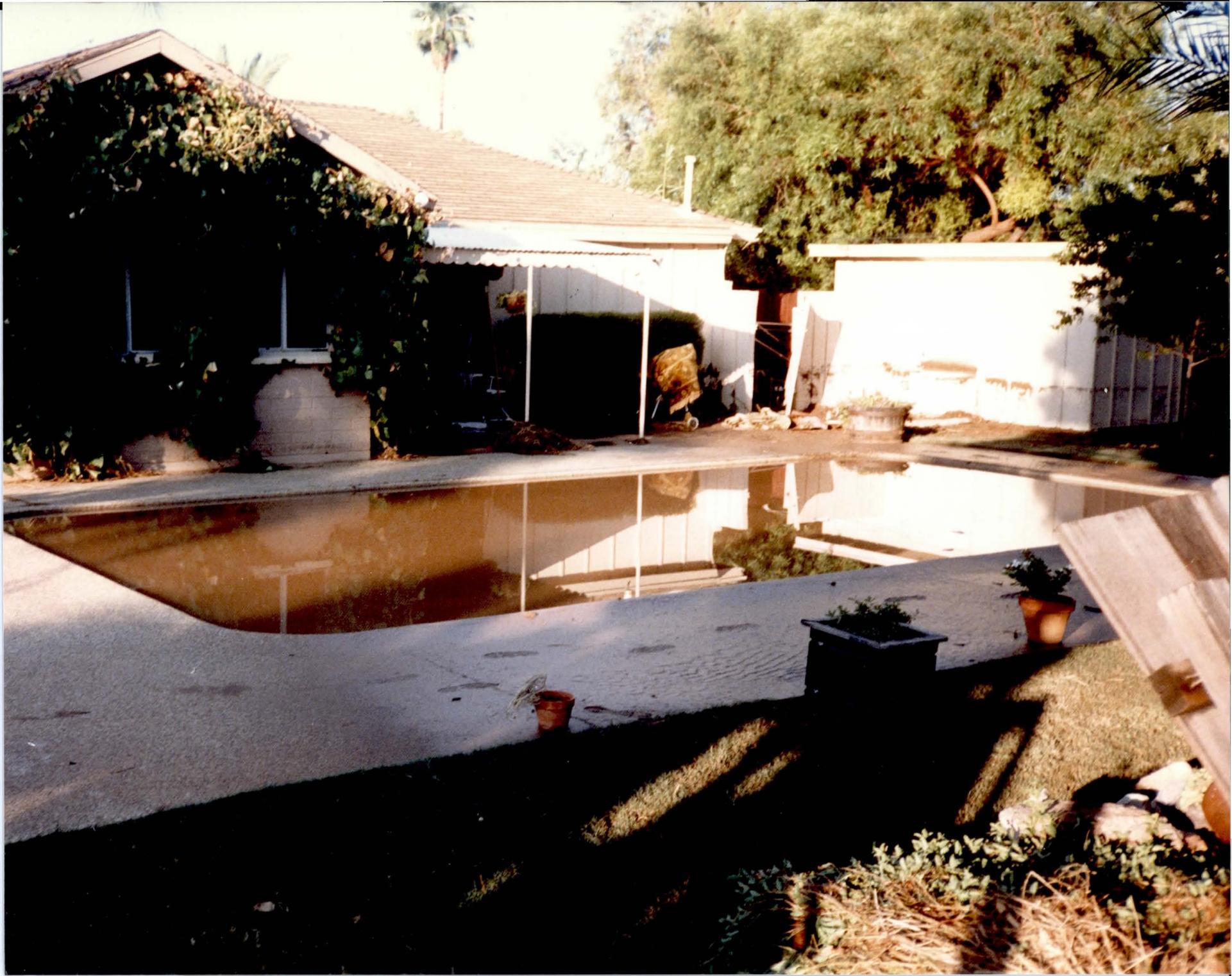
INTENSE STORM CELLS OF THE KIND THAT CENTERED OVER THE 40th STREET AND MONTEBELLO AVENUE ARE NOT THAT UNUSUAL.

THE INFLOW PEAK ESTIMATED AT 1,150 CFS FROM CUDIA CITY WASH DID NOT APPROACH THE DESIGN INFLOW FOR THE ACDC OF 6,700 CFS.

I THANK YOU FOR YOUR ATTENTION, WE WILL ADDRESS QUESTIONS WHEN ALL THE PRESENTATIONS ARE COMPLETED.



3216 East Missouri. House is downstream of Spillway #3.



3228 East Missouri. House is directly downstream of Spillway #3.



3228 East Missouri. House is directly downstream of Spillway #3.

