

RAINFALL EVENT REPORT

July 20-24, 1998

prepared by
Timothy E. Sutko
Hydrologist
Clark County Regional Flood Control District
Clark County, Nevada

The week of July 20-24 was a particularly wet one for the Las Vegas Valley and parts of Clark County with rainfall depths greater than one inch having been measured by Regional Flood Control District rain gages on three separate days during that period. The most damaging storm occurred during the early morning hours of July 20 when an intense rain cell moved southward through the Las Vegas Valley essentially following the I-15 alignment. Lightning associated with this storm caused power outages in the downtown area, including the Regional Flood Control District offices. This power outage prevented the District staff not only from collecting the data, but also prevented them from accessing the building which utilizes an electronic-keyed access system. District staff was, therefore, not capable of providing any information for emergency response personnel during the July 20 event. However, during this event the data was collected in real-time by the National Weather Service; rainfall and streamflow data presented for that storm in this report have been retrieved from the data files of the NWS and the U.S. Geological Survey.

Rainfall in the Las Vegas Valley on July 20, 1998 began shortly after midnight as an intense cell or cells moved from the north to the south before exiting the Valley to the southeast. The most intense rainfall appears to have been over an area bounded roughly by Charleston Blvd, Las Vegas Blvd, Rainbow Blvd, and the south end of the Las Vegas Valley. Within this area at least seven rain gages recorded at least one inch of rainfall in a 45 minute period. While the official rainfall total for Las Vegas as recorded by the NWS gage at McCarran International Airport was 0.26", another NWS maintained rain gage located at their offices approximately 1 ½ miles from the airport recorded 1.49" of rainfall.

Water level gages in the washes indicate that the maximum flow in the Flamingo Wash at Torrey Pines was approximately 400 cfs, increased to about 750 cfs at Decatur Blvd, and to over 3000 cfs at Nellis Blvd. Debris and sediment entrained in the flow clogged the inlets to the Winnick Avenue storm drain system, and as a result flow in Winnick Avenue was estimated to have been 2-3 feet deep across Koval Lane. Portions of the concrete channel lining in the vicinity of Spencer Avenue were damaged and flow across Spencer Avenue was estimated to have been 1 ½ feet deep. Flow in the Tropicana Wash was estimated to have been at least 2000 cfs at Swenson Street. Clark County Public Works estimates that 300 cubic yards of silt and sediment were removed from Harmon following this event. Flow in Duck Creek is estimated to have been in the 1000-1500 cfs range above Eastern Avenue. This flow overtopped Robindale Road and caused significant problems from Stephanie Street to below Boulder Highway.

The Public Works Departments with both Clark County and the City of Las Vegas closed a number of roadways due to the street flooding which resulted from this event. A listing of the road closures is attached to this report.

On the afternoon of July 21, another series of cells dumped significant amounts of rain over relatively small areas and caused some local flooding. Most notable were a 0.75" downpour in a 25- minute period in the vicinity of The Lakes, followed by a 1.10" rainfall in a similar period near Eastern Avenue and Twain. There were reports of hail associated with this second cell. The water level gage on the Flamingo Wash at Nellis Blvd recorded up to 1000 cfs of flow as a result of these storms. During the evening of July 21 there were scattered showers throughout much of the County, the most significant of which resulted in 0.91" of rain in the Boulder City area, and 1.14" at the Valley of Fire State Park. Both of these rainfall depths occurred over a period of about one hour.

During the evening of July 23, a fairly intense rain cell moved across the north edge of the Las Vegas Valley, with over one inch of rainfall being recorded at CCRFCD gages in a 20 minute period. This storm appears to have occurred mostly (if not entirely) above any development and above the Upper Las Vegas Wash DB, North Las Vegas DB, and the Range Wash Diversion Dike. A drive-by inspection of these completed flood control facilities indicated that they functioned as designed and there were no drainage problems reported as a result of this storm.

While two deaths may be attributed by the news media to the July 20 storm and subsequent flooding, one of those deaths was reportedly caused by a heart attack which may have been triggered by street flooding in the vicinity of the Charleston Underpass. A second death may have occurred when flood waters swept a car and its occupant(s) off Boulder Highway in the vicinity of the Flamingo Wash. Inasmuch as no bodies have been recovered, the second death had not been confirmed at the time that this report was written.

The problem of District staff accessing their offices during power failures has been corrected, and the possibility of utilizing uninterruptible power supplies for the Flood Threat Recognition System is being explored.

Clark County Regional Flood Control District
July 20, 1998 Rainfall Totals (inches)

Stn ID	4124	4134	4104	4109	4114	4239	4274	4249
07/20/98								
0515	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.20
0500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0445	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00
0430	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00
0415	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0400	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00
0345	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00
0330	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0315	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00
0300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0245	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0230	0.00	0.04	0.00	0.00	0.04	0.00	0.00	0.00
0215	0.35	0.51	0.00	0.00	0.00	0.00	0.00	0.00
0200	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0130	0.20	0.08	0.00	0.00	0.08	0.00	0.00	0.00
0115	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.00
0100	0.00	0.00	0.00	0.00	0.00	0.28	0.16	0.08
0045	0.12	0.00	0.00	0.00	0.00	0.31	0.31	0.31
0030	0.00	0.00	0.04	0.00	0.00	0.12	0.00	0.08
0015	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00
TOTALS:	0.83	0.63	0.20	0.12	0.20	0.83	0.59	0.67

- 4124** 5 miles N of Nellis AFB
- 4134** 6 miles NW of Nellis AFB
- 4104** near north end of Nellis AFB runway
- 4109** near Hollywood Blvd entrance to Nellis AFB
- 4114** Las Vegas Blvd North, 1/4 mile E of Lamb Blvd
- 4239** Carey/Lake Mead DB
- 4274** RFCDC Offices
- 4249** Oakey DB

Clark County Regional Flood Control District
July 20, 1998 Rainfall Totals (inches)

Stn ID	4364	4379	4454	4484	4614	4644	4654	4744
07/20/98								
0530	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00
0515	0.00	0.00	0.04	0.00	0.00	0.04	0.00	0.04
0500	0.16	0.00	0.00	0.08	0.00	0.00	0.00	0.00
0445	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00
0430	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
0415	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0400	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00
0345	0.00	0.12	0.00	0.00	0.08	0.00	0.00	0.00
0330	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
0315	0.00	0.00	0.04	0.00	0.00	0.00	0.04	0.00
0300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0245	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0230	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.04
0215	0.00	0.00	0.04	0.00	0.00	0.04	0.00	0.16
0200	0.00	0.00	0.00	0.00	0.04	0.00	0.04	0.79
0145	0.00	0.00	0.08	0.00	0.04	0.12	0.20	0.51
0130	0.20	0.12	0.39	0.08	0.20	0.08	0.59	0.00
0115	0.39	0.00	0.35	0.12	0.20	0.24	0.16	0.00
0100	0.28	0.12	0.43	0.12	0.55	0.51	0.12	0.00
0045	0.12	0.04	0.28	0.16	0.43	0.28	0.20	0.00
0030	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00
0015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS:	1.14	0.51	1.65	0.63	1.57	1.38	1.38	1.57

- 4364** Torrey Pines Drive 1/4 mil N of Tropicana
- 4379** near intersection of Eastern Ave and Twain
- 4454** near intersection of Warm Springs and Jones
- 4484** near intersection of Flamingo Rd and Swenson Ave
- 4614** Torrey Pines Dr 3/4 mi S of Blue Diamond Rd
- 4644** NWS Offices near Industrial Rd and Blue Diamond Rd
- 4654** Rainbow Blvd 3 1/2 miles S of Blue Diamond Rd
- 4744** 1 1/2 mi S of Sky Harbor Airport

Clark County Regional Flood Control District
July 20, 1998 Rainfall Totals (inches)

Stn ID	4924	4934	4954	4964	5124	5134	5144
07/20/98							
0515	0.00	0.00	0.04	0.00	0.00	0.00	0.00
0500	0.04	0.00	0.00	0.00	0.00	0.00	0.00
0445	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0430	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0415	0.08	0.00	0.04	0.00	0.00	0.00	0.08
0400	0.00	0.00	0.00	0.04	0.08	0.00	0.08
0345	0.00	0.00	0.12	0.00	0.08	0.00	0.08
0330	0.00	0.00	0.00	0.04	0.20	0.00	0.00
0315	0.00	0.00	0.00	0.00	0.24	0.00	0.20
0300	0.20	0.00	0.00	0.00	0.16	0.00	0.39
0245	0.12	0.00	0.00	0.12	0.39	0.00	0.59
0230	0.00	0.00	0.00	0.51	0.24	0.00	0.04
0215	0.00	0.00	0.00	0.08	0.08	0.08	0.00
0200	0.00	0.00	0.00	0.12	0.00	0.04	0.00
0145	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0130	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0115	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0100	0.00	0.00	0.04	0.00	0.00	0.00	0.00
0045	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0030	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0015	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS:	0.43	0.00	0.24	0.91	1.46	0.12	1.46

- 4924** 2 miles SW of Goodsprings
- 4934** 1 1/2 miles NW of Goodsprings
- 4954** Jean Airport
- 4964** 9 miles SE of Jean
- 5124** 1 mile SE of Searchlight
- 5134** 4 1/2 miles E of CalNevAri
- 5144** 6 1/2 miles SW of Searchlight