

2022 Storm Reports

July 16th

Monsoon moisture had been in place for several days. A vigorous thunderstorm developed west of Upper Duck Creek Detention Basin (UDCDB) around 5:00pm. At 5:40pm the storm quickly collapsed, creating strong winds that blew across the valley. NWS radar estimated 2.62 inches of rain fell west of UDCDB. Runoff from the storm entered UDCDB and sufficient impoundment occurred at 6:30pm to register on the water level sensor, with an estimated depth of 2.30 feet at the outlet works. The interim outfall channel was sufficient to keep the basin's discharge away from downstream properties.

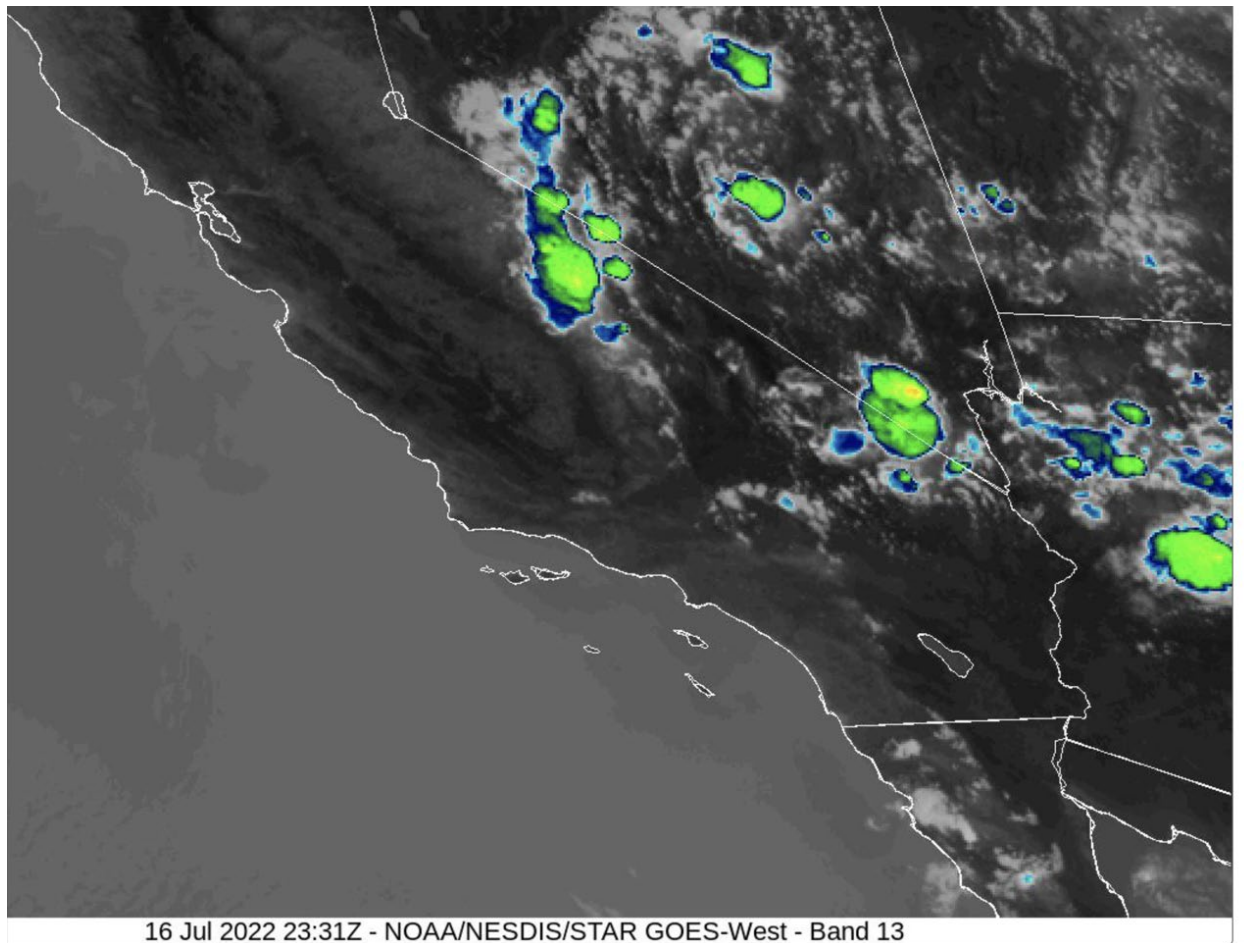


Figure 1 - Weather satellite imagery at 5:31pm

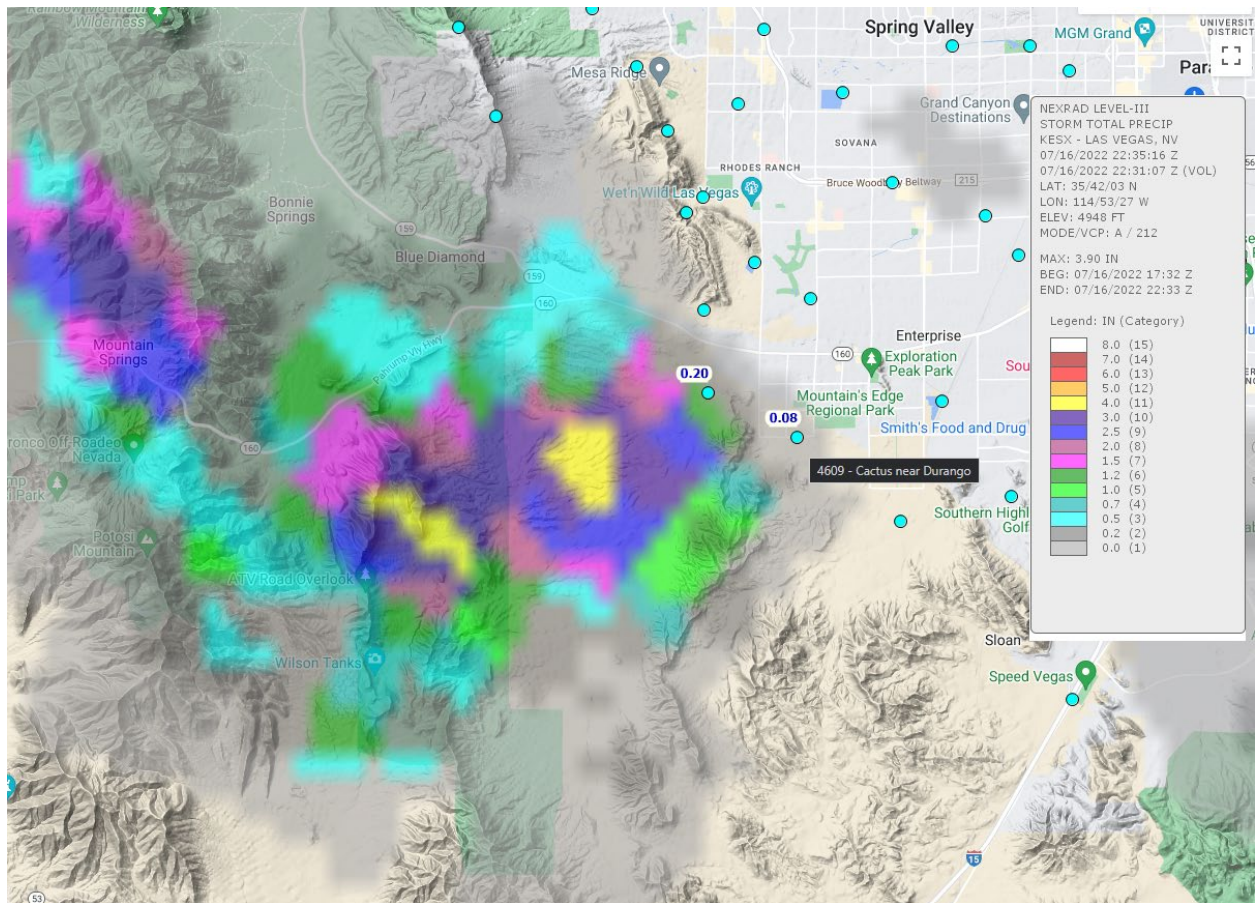


Figure 2 - NWS Radar - Storm Total Rainfall



Figure 3 - UDCDB outfall

July 18th

An area of thunderstorms developed rapidly in the Spring Mountains on the evening of July 18th. Rain was first detected by the District's Rainbow Canyon gauge at 6:13pm and in 27 minutes reached a rainfall accumulation of 1.34 inches, which is a 25-year return interval event. By 6:46pm 1.81 inches had fallen and exceeded the 100-year return interval. When precipitation stopped falling at the gauge by 7:36pm a total of 2.36 inches was recorded by the gauge. Gauge data was closely corroborated by National Weather Service doppler radar. Despite the rain amounts that have typically produced flooding conditions in Rainbow Canyon subdivision, the unusually low amount of precipitation in the Spring Mountains in 2022 created dryer than normal soil conditions that likely absorbed more runoff than normal. Also, in the eight years since the Carpenter One fire that destroyed much of the area's vegetation, numerous dead trees have since fallen, creating barriers to the sheet runoff, which may have allowed more time for the parched soil to absorb the precipitation.

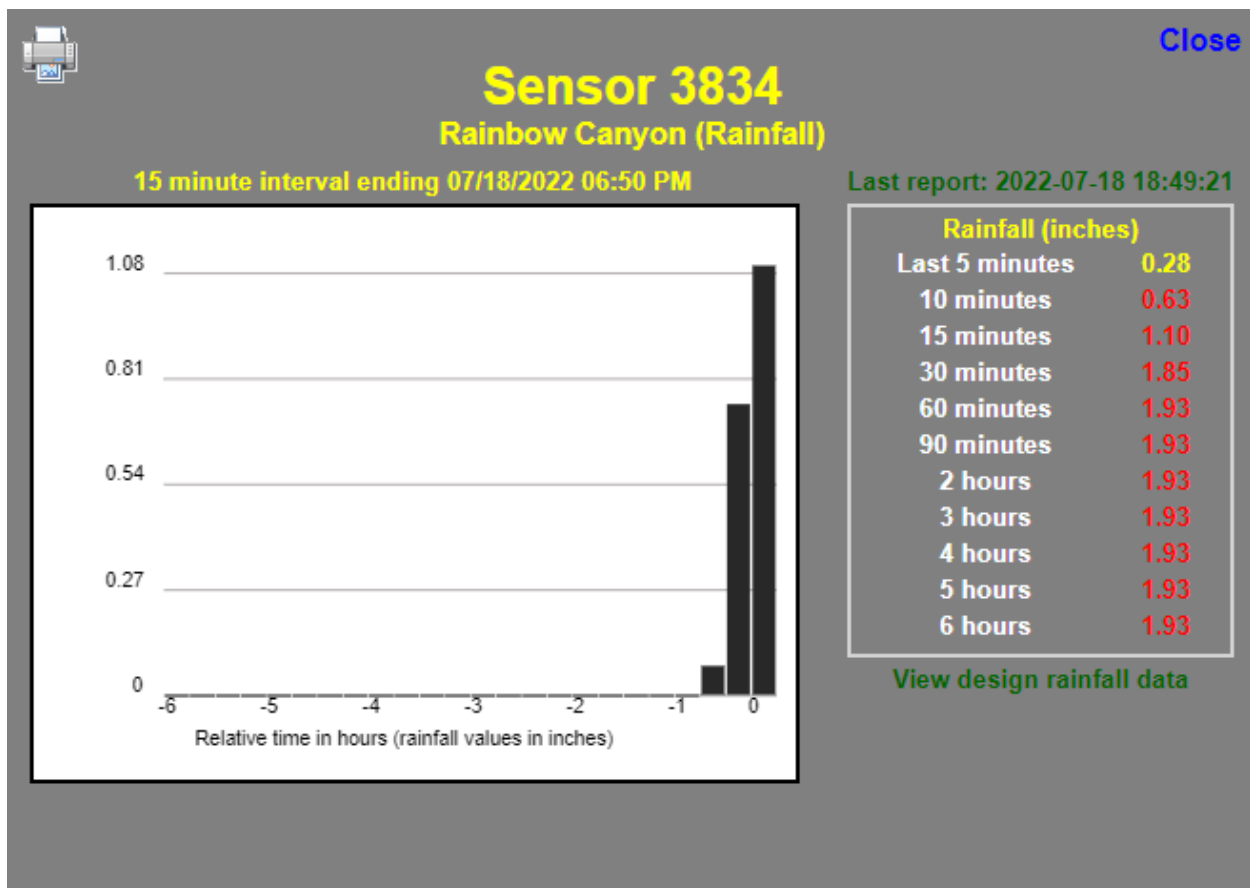


Figure 4 - 100-year return interval is 1.79" in 30 minutes. This has been exceeded.



Figure 5 - Storm water crossed multiple roads in Rainbow Canyon subdivision



Figure 6 - Runoff entered diversion channel



Figure 7 - Rainbow Canyon strewn with multiple fallen trees



Figure 8 - Rainbow Canyon subdivision entrance with runoff debris

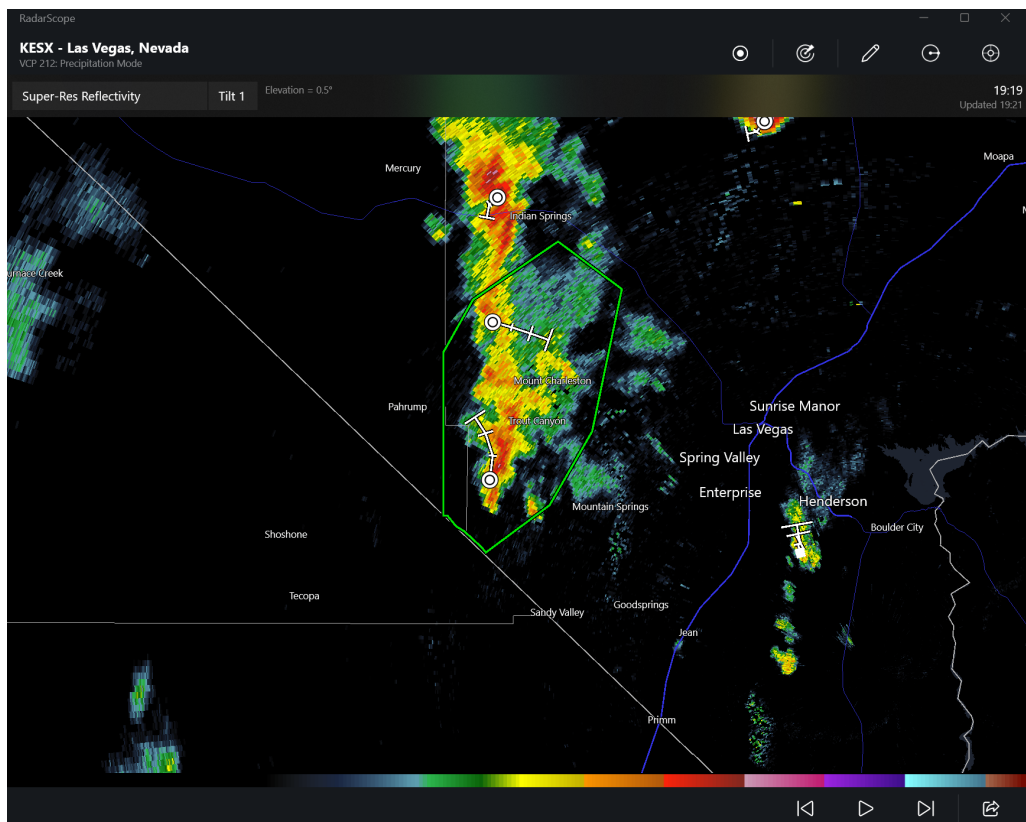


Figure 9 - NWS Radar Base Reflectivity

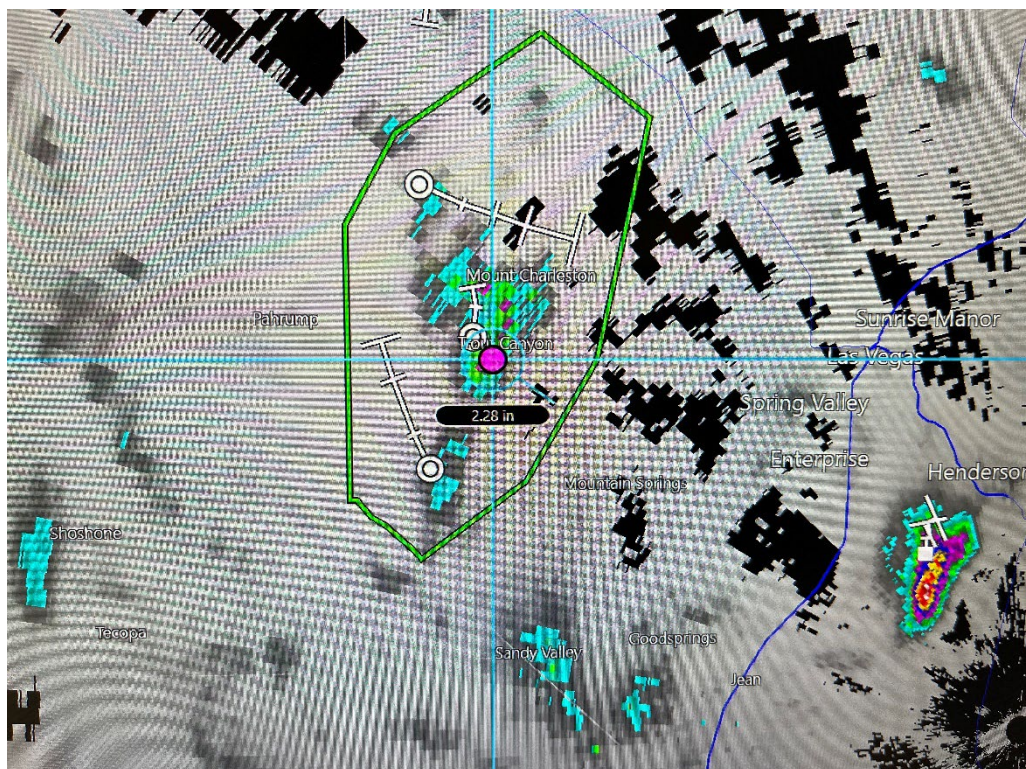


Figure 10 - NWS Radar Storm Total

July 25, 2022

See Rainfall & Flood Report

July 27 – July 29, 2022

See Rainfall & Flood Report

August 11, 2022

See Rainfall & Flood Report

September 13, 2022

Hurricane Kay moved northwestward and paralleling the western coast of Baja Mexico the previous week. Counter-clockwise flow from the hurricane pushed warm tropical moisture up the Colorado River Valley into Clark County. By Tuesday, September 13th the remnants of Tropical Depression Kay moved into southern Nevada, which enhanced thunderstorm intensities during the afternoon and evening hours.

The local National Weather Service (NWS) office issued multiple Flash Flood Warnings and Advisories throughout the day, primarily for the north central and northeastern portions of Clark County. Flooding occurred along US 93 south of Coyote Springs, Nevada during the afternoon hours.

At 6:32pm, NWS issued a Flash Flood Warning that included the areas of Overton, Moapa Town, Moapa Valley, and Logandale. Long duration rains resulted in a swift water rescue of two people from their van on Nevada State Route 169 in Overton. A big rig truck driver was also rescued in the area. Hidden Valley Road and Ute exits from I-15 were also closed due to flood waters from California Wash.

Unlike the September 8, 2014, flood event also caused by a strong tropical moisture surge from Hurricane Norbert, resulting in intense rainfall over a shorter duration and comparatively smaller geographic area near Moapa, the September 13, 2022, storm intensities were much weaker, covered a greater area, and occurred over a 10-hour period. Most District gauges reported storm intensities below the 5-year return interval, except for the gauge at Silica Dome, which reported a storm intensity exceeding a 10-year event.

Report: Rain Summary 03C (Muddy River)

Edit

Data analysis: Period Rainfall

Ending time: 09/14/2022 03:00:00 Interval: 1 hour

Now

Date and Time	Interval	3239	3244	3254	3264	3274	3279	3284	3294	3384	3184	3012400	3012300
Units		in	in	in	in	in	in	in	in	in	in	in	in
09/13/2022 18:00:00	1 hour	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09/13/2022 19:00:00	1 hour	0.00	0.00	0.00	0.00	0.24	0.04	0.00	0.24	0.00	0.00	0.00	0.31
09/13/2022 20:00:00	1 hour	0.00	0.00	0.04	0.00	0.04	0.31	0.08	0.47	0.00	0.00	0.00	0.47
09/13/2022 21:00:00	1 hour	0.00	0.08	0.00	0.00	0.00	0.04	1.06	0.04	0.00	0.00	0.00	0.00
09/13/2022 22:00:00	1 hour	0.00	0.00	0.00	0.16	0.12	0.04	0.04	0.04	0.04	0.12	0.12	0.12
09/13/2022 23:00:00	1 hour	0.00	0.47	0.00	0.04	0.67	0.00	0.00	0.16	0.28	0.12	0.08	0.16
09/13/2022 24:00:00	1 hour	0.04	0.71	0.28	0.04	0.24	0.35	0.28	0.43	0.08	0.24	0.47	0.63
09/14/2022 01:00:00	1 hour	0.04	0.16	0.08	0.00	0.08	0.16	0.39	0.08	0.04	0.08	0.12	0.08
09/14/2022 02:00:00	1 hour	0.08	0.08	0.16	0.08	0.04	0.47	0.43	0.20	0.12	0.04	0.04	0.28
09/14/2022 03:00:00	1 hour	0.00	0.04	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.16	1.54	0.87	0.31	1.42	1.42	2.28	1.65	0.55	0.59	0.83	2.05

Figure 11 - Muddy River Region Gauges

Report: Rain Summary 02 (NE County CA Wash)						
Data analysis: Period Rainfall						
Ending time: 09/14/2022 03:00:00 Interval: 1 hour Now						
Data for period ending at this Date/Time	3034	3044	3064	3144	3164	3184
Units	in	in	in	in	in	in
09/13/2022 18:00:00	0.00	0.00	0.00	0.04	0.51	0.00
09/13/2022 19:00:00	0.00	0.00	0.00	0.00	0.39	0.00
09/13/2022 20:00:00	0.00	0.00	0.00	0.00	0.00	0.00
09/13/2022 21:00:00	0.00	0.00	0.00	0.00	0.00	0.00
09/13/2022 22:00:00	0.00	0.00	0.00	0.12	0.08	0.12
09/13/2022 23:00:00	0.00	0.00	0.20	0.31	0.47	0.12
09/13/2022 24:00:00	0.00	0.08	0.04	0.51	0.04	0.24
09/14/2022 01:00:00	0.04	0.12	0.08	0.28	0.16	0.08
09/14/2022 02:00:00	0.00	0.00	0.04	0.47	0.24	0.04
09/14/2022 03:00:00	0.04	0.00	0.04	0.04	0.04	0.00
Monthly Totals	0.08	0.20	0.39	1.77	1.93	0.59

Figure 12 - California Wash Region Gauges

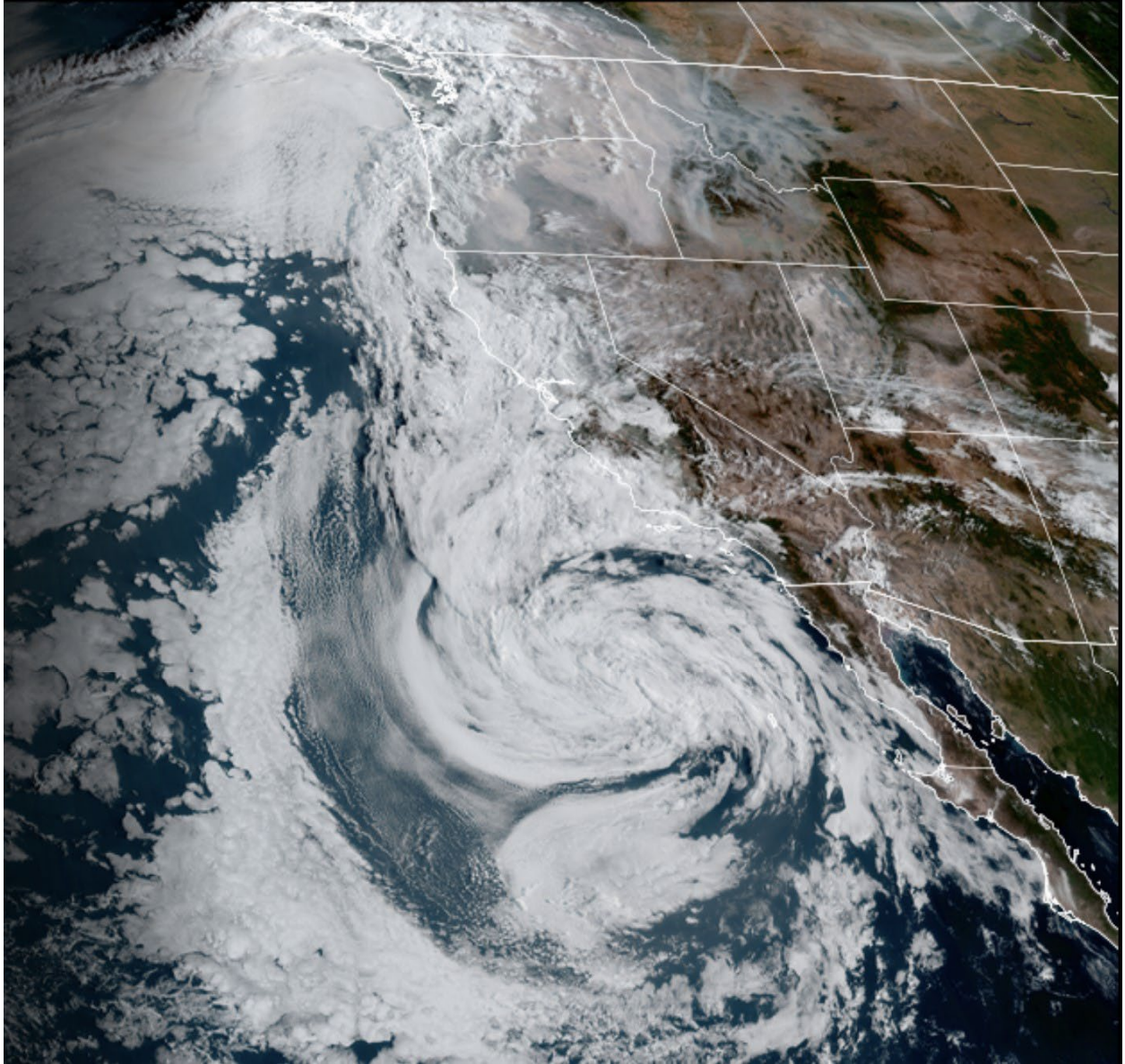


Figure 13 - Tropical Depression Kay September 11, 2022

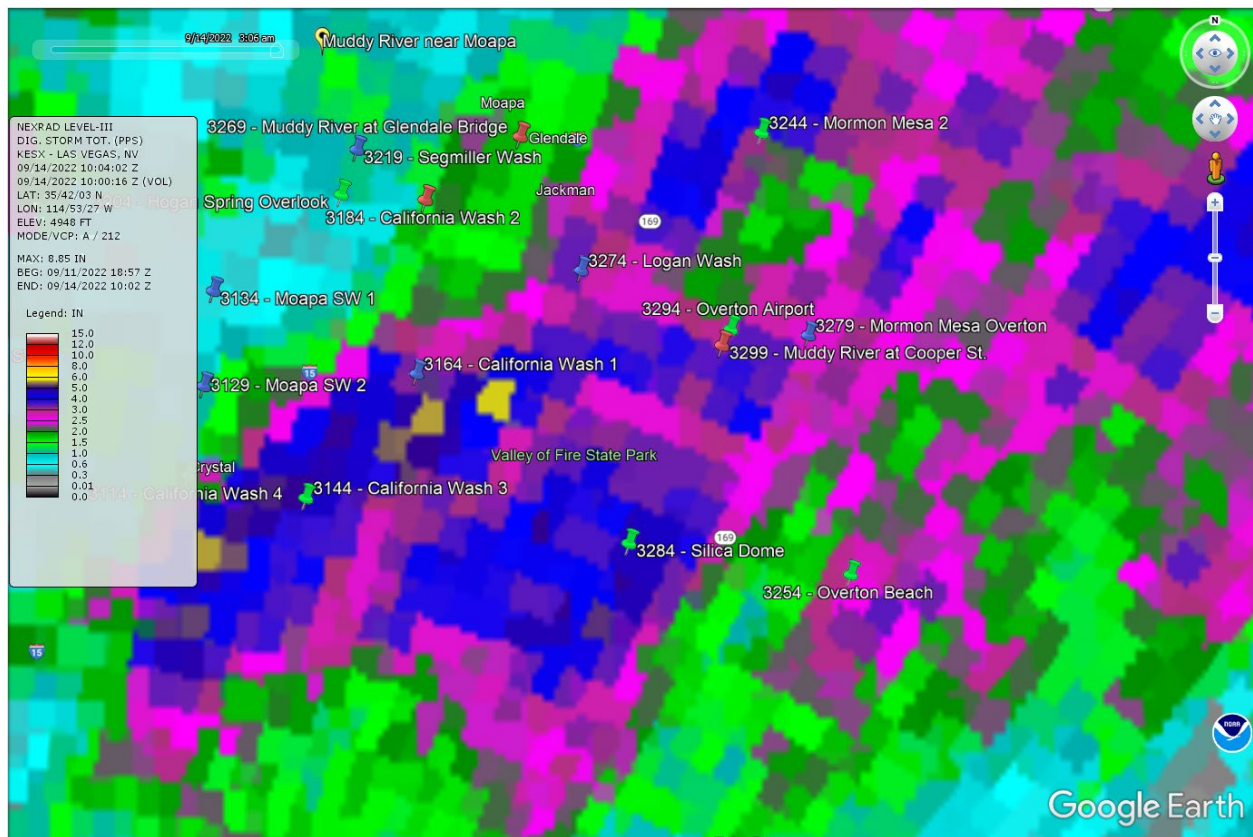


Figure 14 - Storm Total Radar Rainfall Ending Sep. 14 at 3:00am

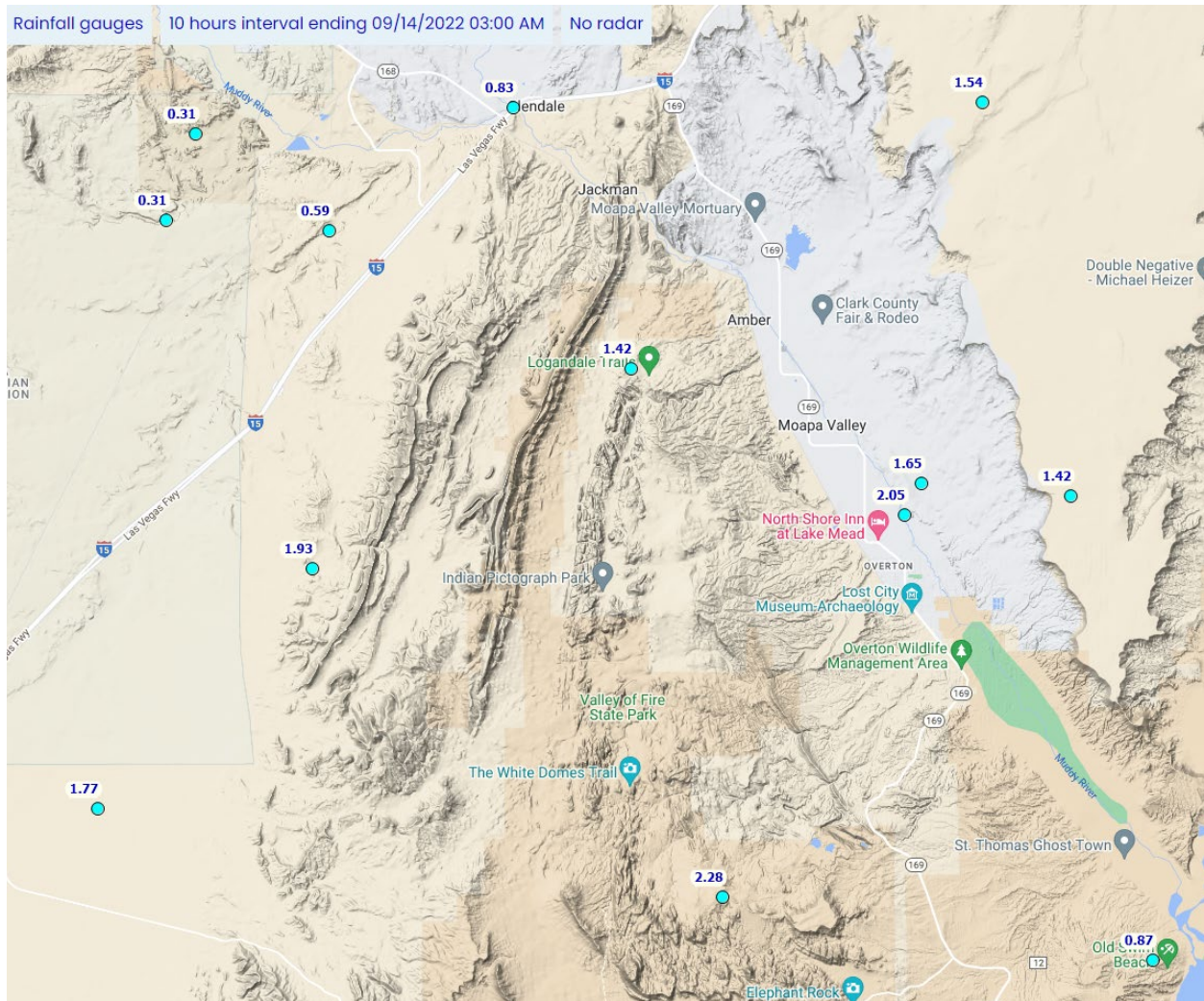


Figure 15 - FTRS Rain Gauge Data



└ This photo provided by Las Vegas Police Department shows a van awash amid rising water early Wednesday, Sept. 14, 2022, on Nevada State Route 169 in the Overton area outside Las Vegas. Police said two people in the vehicle were hoisted to safety using a police helicopter after the Muddy River flooded following intense thunderstorms in the area. No injuries were reported. (Las Vegas Metropolitan Police Department via AP)
© Provided by Associated Press

Figure 16 - LVMPD Photo



└ This photo provided by Las Vegas Police Department shows a tractor trailer stuck in floodwater early Wednesday, Sept. 14, 2022, on Nevada State Route 169 in the Overton area outside Las Vegas. The Moapa Valley Fire District said the big rig driver was rescued after the Muddy River flooded following intense thunderstorms in the area. No injuries were reported. (Las Vegas Metropolitan Police Department via AP)
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Figure 17 - LVMPD Photo



Figure 18 - SR-169 at Lamar Avenue. CCRFCD Photo.



Figure 19 - California Wash and Hidden Valley Road. CCRFCD Photo.



Figure 20 - California Wash east of I-15 exit at Ute. CCRFCD Photo.