Groundwater monitoring was conducted at 4 sites in western NV to evaluate potential hydrochemical effects on the regional groundwater systems following a series of earthquakes in 2020. The initial M6.5 shock on 5/15 was the largest one to occur in Nevada since 1954, resulting in left-lateral slip along the Candelaria fault. Monitoring that began on 5/16 is ongoing and includes measurements of temperature, pH, specific conductance (SpC), and flow rate (at two of the sites), and analysis of alkalinity. Measurement frequency that began as weekly was reduced to bimonthly by winter of 2020. All sites are located within the V isoseismal line on the USGS earthquake intensity map. The four sites include: a 16m-deep well from Columbus Marsh (CM) located about 1km from the fault; a 163 m deep artesian thermal well from Fish Lake Valley (FL); a 50m-deep residential well at Willow Ranch (WR) that taps cool water above the Fish Lake Valley thermal water; and a spring along Mina Dump Road (MD) located 15km north of the Candelaria fault on the NW trending Benton Springs Fault. No clear response in field measurements could be identified following the 5/15 event due to a lack of pre-event monitoring. However, clear responses in the field data were observed following three additional >M5 aftershocks (6/30, 11/13, and 12/1), especially in SpC and alkalinity. SpC dropped 0.2-1 mS/cm following the 11/13 event and increased 0.1 -0.7 mS/cm after the 12/1 event at all sites. In addition, WR also experienced a transient increase in temperature (3°C) measured on 10/30, two weeks prior to the 11/13 earthquake, that might represent a precursor effect from upward movement of underlying thermal waters. Alkalinity responds similarly to the June-December aftershocks, but with more variability than SpC. The SpC and alkalinity values from FL and CM track together for the 11/13 and 12/1 events, and may be related to their proximity south of the fault or indicate a shared groundwater hydraulic connection. In contrast, SpC and alkalinity values from MD showed opposite changes as compared to CM and FL, and may be a function of MD location north of the main fault. Flow rate increased at MD following the 11/13 event. Ongoing chemical analyses, coupled with strain analyses, are planned to further evaluate observed responses and to clarify groundwater relationships between sites.