On July 14, 2010, TX-TF1 was activated by TDEM to deploy to South Texas due to continued flooding along the Rio Grande River. The NWS predicted that the Rio Grande River would continue to flood over the next week as more rain was predicted in South Texas and along the Texas/Mexico border with the arrival of a new tropical depression. This was the third deployment in 30 days due to flooding along the Rio Grande River and from rainfall associated with Hurricane Alex.

TX-TF1 initially mobilized 3 Water Rescue Squads to the Rio Grande Valley along with additional support personnel. The following afternoon, on July 15, TX-TF1 deployed an additional 3 Water Rescue Squads, 2 HSARTS, and 1 HSART Manager supporting 2 UH-60 Blackhawk helicopters and staged them in San Antonio. Additionally, TX-TF1 activated 9 members to support the ESF-9 Command Team, 1 ESF-9 Coordinator supporting the SOC, 2 ESF-9 Liaison Officers supporting McAllen and Laredo DDCs, and the ESF-9 Coordination Center in College Station, Texas.

All TX-TF1 resources worked with local officials throughout the event to provide assistance to jurisdictions when requested. On the evening of July 21, TDEM demobilized all TX-TF1 personnel after flooding began to subside.