

## COMAL SPRINGS COMPLEX

June 18, 2013, the contract laboratory dropped off sample kits, labels, and COC forms for stormwater sampling.

June 22, 2013, the necessary basic water rescue training was completed and staff went on standby for stormwater sampling events.

July 14, 2013, an atmospheric disturbance from the west approached Texas' Panhandle and daytime heating triggered scattered showers in the Comal Springs complex. EAA field staff mobilized at approximately 14:00 in an attempt to sample the stormwater runoff at Comal Springs. At 15:00 the sampling event was cancelled because the total amount of rainfall was insufficient for a valid sample.

July 15, 2013, a rain event was triggered by an atmospheric disturbance which weakened the high pressure system in the Comal Springs complex. Local forecasts had predicted a 60 percent chance of showers and thunderstorms. Two teams of EAA field staff prepped and mobilized at 12:00. The rain event occurred at approximately 16:15. A third team of EAA field staff prepped and mobilized at approximately 19:00 to collect the final samples. Significant increases in spring flow at the historic Comal Springs gauging station were observed and National Weather Service rainfall images indicated the Comal Springs complex received about an inch of rain.

August 25, 2013, the contract laboratory dropped off sample kits, labels, and COC forms for stormwater sampling.

September 20, 2013, the remnants of Hurricane Manuel were lingering, a cold front approaching from the north, and an atmospheric disturbance increased the chances of a storm event in the Comal Springs complex. At 11:30 EAA field staff prepped and mobilized. New Braunfels Fire Station #4 located at 242 South Castell Avenue, New Braunfels, Texas, was utilized as a staging area and place to conduct field alkalinity titrations. The sampling event was later cancelled because the total amount of rainfall was insufficient for a valid sample.

September 28, 2013, EAA field staff were on call as a cold front approached from the west and increased the chances of rain throughout the day and into the evening. At 21:00 EAA field staff agreed to stand down for the night since no significant rain was predicted. Unfortunately, a significant rain event occurred in the Comal Springs complex at 02:00 on September 29, 2013. National Weather Service rainfall images indicated that two to four inches of precipitation fell in the Comal Springs study area, but EAA field staff were unable to mobilize in time.

October 6, 2013, a cold front approached from the west which increased the chances of rain throughout the early morning in the Comal Springs complex. EAA field staff prepped and mobilized at 06:00 in an attempt to sample stormwater runoff in the Comal Springs study area. EAA field staff proceeded to collect one stormwater runoff sample at each of the established sample locations. Unfortunately, the sampling event was cancelled after the initial samples were collected because the total amount of rainfall was insufficient for a valid sample.

October 9, 2013, the contract laboratory dropped off sample kits and labels in order to replace the water quality sample sets from the sampling event cancelled on October 6, 2013.

October 12, 2013, EAA field staff were on call due to significant chances of rain caused by moisture that had moved in from the Pacific and atmospheric disturbances in the area. At approximately 05:00 on October 13, 2013, EAA staff prepped and mobilized when a line of storms was observed on radar about two hours away from the Comal Springs complex. The sampling event began at approximately 07:00. The staging area was again located at New Braunfels Fire Station #4 located at 242 South Castell Avenue, New Braunfels, Texas. Significant increases in spring flow at the historic Comal Springs gauging station were observed and National Weather Service rainfall images indicated the area received half an inch to an inch of rain.

### **SAN MARCOS SPRINGS COMPLEX**

July 23, 2013, the contract laboratory dropped off sample kits, labels, and COC forms for stormwater sampling.

August 10, 2013, EAA field staff were on call due to a chance of showers in and around the San Marcos Springs complex. At approximately 14:00, EAA field staff prepped and mobilized in an attempt to sample storm water runoff in the San Marcos Springs complex. However, the sampling event was cancelled because the total amount of rainfall that occurred was insufficient for a valid sample.

August 14, 2013, EAA field staff were on call due to an atmospheric disturbance that moved in from the north and increased the chance of precipitation in the San Marcos Springs complex. At approximately 17:00 EAA field staff prepped and mobilized in an attempt to sample stormwater runoff in the San Marcos Springs complex. However, the precipitation stayed north of the San Marcos Springs complex and the sampling event was cancelled.

August 15, 2013, EAA field staff prepped and mobilized at approximately 17:00 due to an atmospheric disturbance that had stalled in the San Marcos Springs complex. The sampling event began at approximately 21:00. Field staff utilized a pavilion near sample site HSM 240 as a staging area and place to conduct field alkalinity titrations. Significant increases in spring flow at the historic San Marcos Springs gauging station were observed and National Weather Service rainfall images indicated the area received half an inch to three-quarters of an inch of rain.

October 14, 2013, the contract laboratory dropped off the sample kits, labels, and COC forms for stormwater sampling.

October 19, 2013, EAA field staff were on call when radar indicated precipitation north of the San Marcos Springs complex. At 03:30 on October 20, 2013, EAA field staff prepped and mobilized. However, the precipitation stayed to the northwest of the San Marcos Springs complex and the sampling event was cancelled.

October 30, 2013, EAA field staff prepped and mobilized at approximately 15:00 in anticipation of a rain event predicted to occur due to a dry line that was moving from West Texas into unstable, humid, warm air over the San Marcos Springs complex. The San Marcos Nature Center allowed EAA field staff to utilize their facilities as a staging area and a place to conduct field alkalinity titrations. The sampling event occurred on October 31, 2013, at 01:00. In this instance, a fourth stormwater sample was collected at each of the established sampling sites since another round of storms were produced after the

second stormwater sample was collected. Significant flooding occurred in and around the San Marcos Springs complex during this event. The fourth stormwater sample was not obtained until November 1, 2013. Significant increases in spring flow at the San Marcos Springs gauging station were observed and National Weather Service rainfall images indicated the area received two to four inches of rain.