Wolf Creek Flood May 23rd – 25th 2007

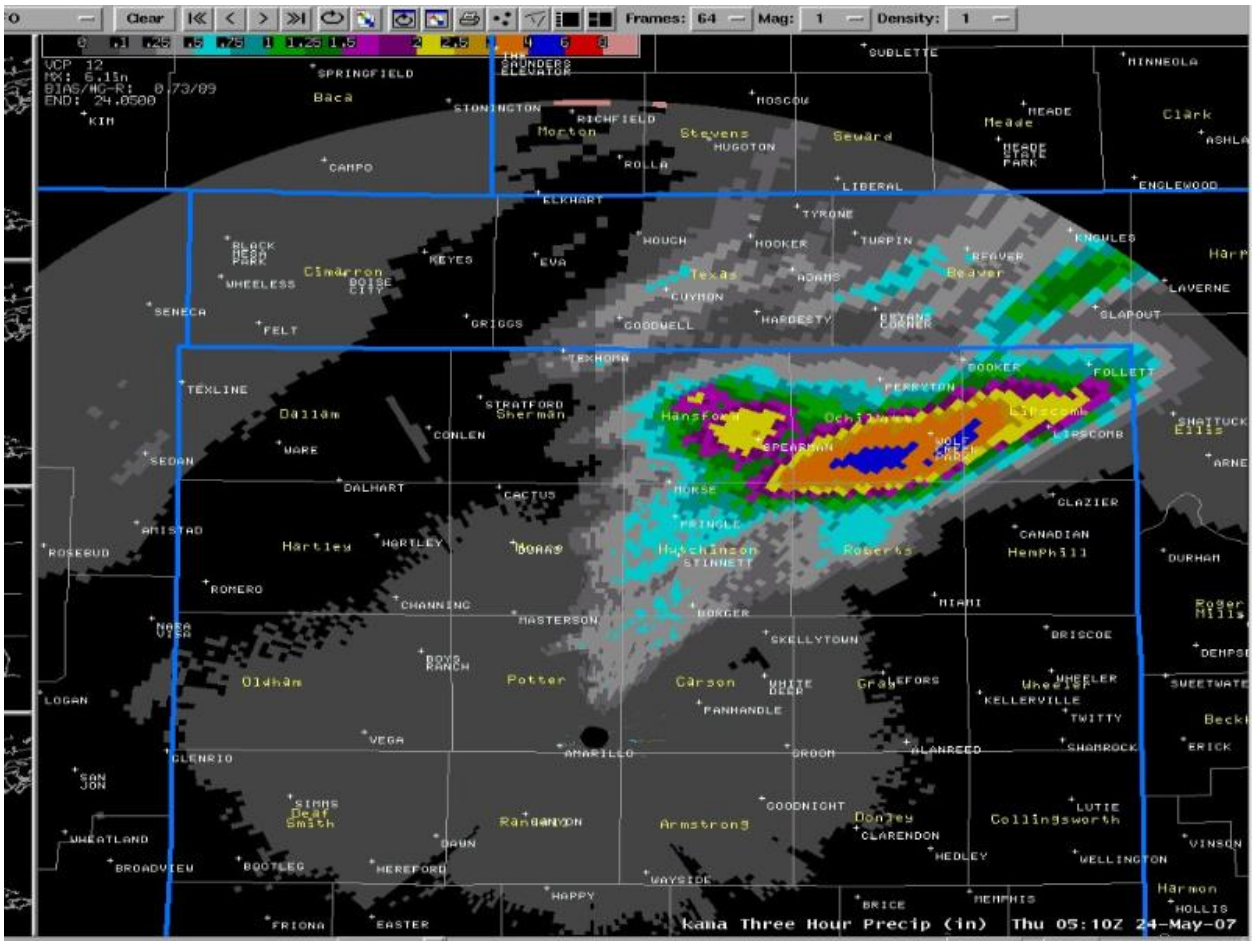
Introduction:

This is a report on the new record flooding that occurred along the Wolf Creek in Ochiltree and Lipscomb Counties. The objectives of this report are: 1) Give a brief synoptic overview of what caused the heavy rain event. 2). Chronicle the events that occurred in the Wolf Creek watershed from Ochiltree County downstream through Lipscomb County. 3) Compare this flood event with the flood event of 1996.

The Wolf Creek watershed originates in western Ochiltree County. The main stem of the Wolf Creek starts just south of Farnsworth, TX and flows east into Lake Fryer and then into Lipscomb County. The south Wolf Creek starts in southern Ochiltree County near the Texas State Highway 70 and F.M. road 281 intersection. The south Wolf Creek then flows northeast and meets up with the main stem of the Wolf Creek less than one mile east of U.S. Highway 83…about 4 miles upstream of Lake Fryer. The land over western Ochiltree is flat with several farms. Further to the east where the Wolf Creek starts up, the land becomes gently rolling. A large valley is carved out where the south Wolf Creek meets up with the main stem of the Wolf Creek and the valley then continues eastward through Lipscomb County. Several small creeks feed into the Wolf Creek from the north and south from just above Lake Fryer downstream through Lipscomb County. Some of these small creeks that feed into the Wolf Creek can carry significant flow as the terrain gets fairly steep in spots, especially around Lake Fryer.

Meteorological Conditions:

A warm front was moving north across the eastern Texas Panhandle during the day of the 23rd. Plenty of moisture was brought northward with this front into the northeast Texas Panhandle. A strong upper level low pressure system was moving southeast across southern Colorado into northeast New Mexico. Winds were from the southeast along this warm front and the winds aloft veered from southeast to southwest to west and also increased in speed. This veering of the wind with height likely contributed to eruption of violent thunderstorms. Several reports of tornadoes and large hail were received from these storms. Very heavy rain also resulted from these intense thunderstorms across southeast Hansford county into Ochiltree and Lipscomb counties. The thunderstorms continued to develop and move over the same locations for several hours causing heavy rainfall in this area. National Weather Service Doppler Radar estimated that 5 to 6 inches of rain fell in a swath from northwest Roberts county across southern Ochiltree county into western Lipscomb county. Higher, unofficial, amounts of 12 inches were received at the junction of highway 70 and F.M road 759 in southern Ochiltree county.

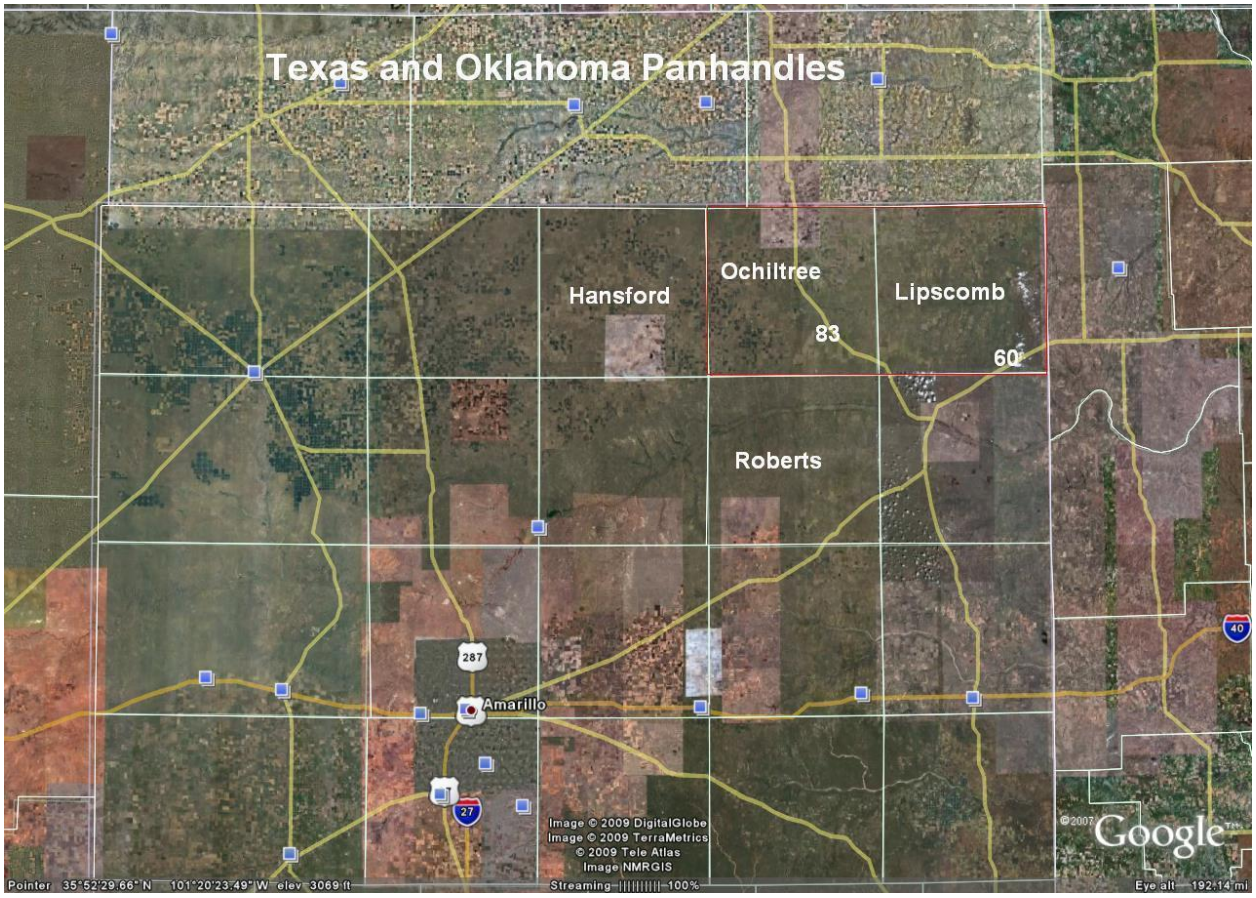


What happened:

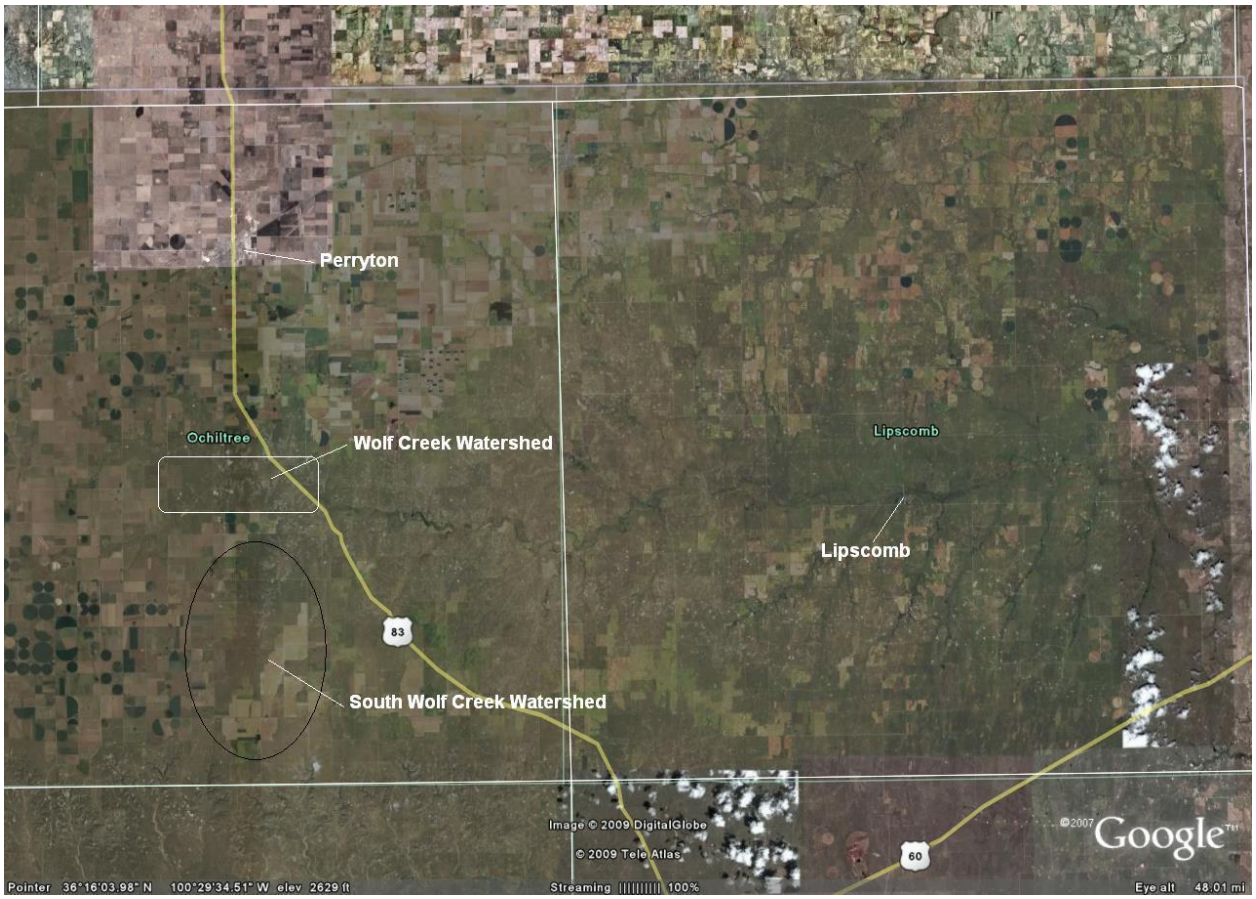
Severe and tornadic thunderstorms started in northwest Roberts County just ahead of the warm front after 4:00 pm on the 23rd. There were several reports of tornadoes and large hail between 4:00 pm and midnight. Hail up to the size of baseballs was reported with these storms across southern Ochiltree county. Flooding reports were received at WFO Amarillo around 8:30 pm. The first flooding report was from Wolf Creek Park where one foot of water was flowing over the low water crossing below the dam. The flooding worsened and became more widespread overnight into the early morning hours on the 24th. Flooding was reported from southeast Hansford county and northwest Roberts county through southern Ochiltree county into Lipscomb county.

Northwest Roberts and Southeast Hansford counties:

Several roads had water over them in Southeast Hansford county. No roads were closed and they were passable at slow speeds. 6 feet of water covered Wilson road in Roberts county 4 miles south of the Ochiltree county line and 5 miles west of Texas state highway 70. Water and debris were reported over North River Road, which was only passable with large vehicles with high clearance.



Map of WFO Amarillo's HSA.



Southern Ochiltree county upstream of Wolf Creek Park.

Southern Ochiltree county upstream of Wolf Creek Park

Southern Ochiltree county upstream of Wolf Creek Park:

Several roads had water flowing over them, including:

County road 8 to the south of F.M. road 281.

State highway 70 about 15 miles south of Perryton had water covering it.

Two playa lakes merged over Highway 70, closing this road for about 2 weeks.

About 4 feet of water was flowing over F.M. road 759 at the south fork of the Wolf Creek, 3 miles east of State Highway 70. The flooding eroded part of F.M. road 759 and it dug out a huge hole on the north side of the road. Dirt was also eroded from around the culverts under the road.

5 feet of water was flowing over U.S. Highway 83 at the south fork of the Wolf Creek, 12 miles south of Perryton. U.S. Highway 83 was closed for over 15 hours due to water flowing over it and then for debris clean up and repair once the water receded. The water eroded about 3 feet of silt and sand from under the highway 83 bridge.

According to post storm analysis it appeared that water did not flow over the U.S. Highway 83 bridge further north where the highway crosses the North Fork of the Wolf Creek at about 9 miles south of Perryton. Debris was noticed up above the banks and onto the bridge abutment…but not on the road surface.

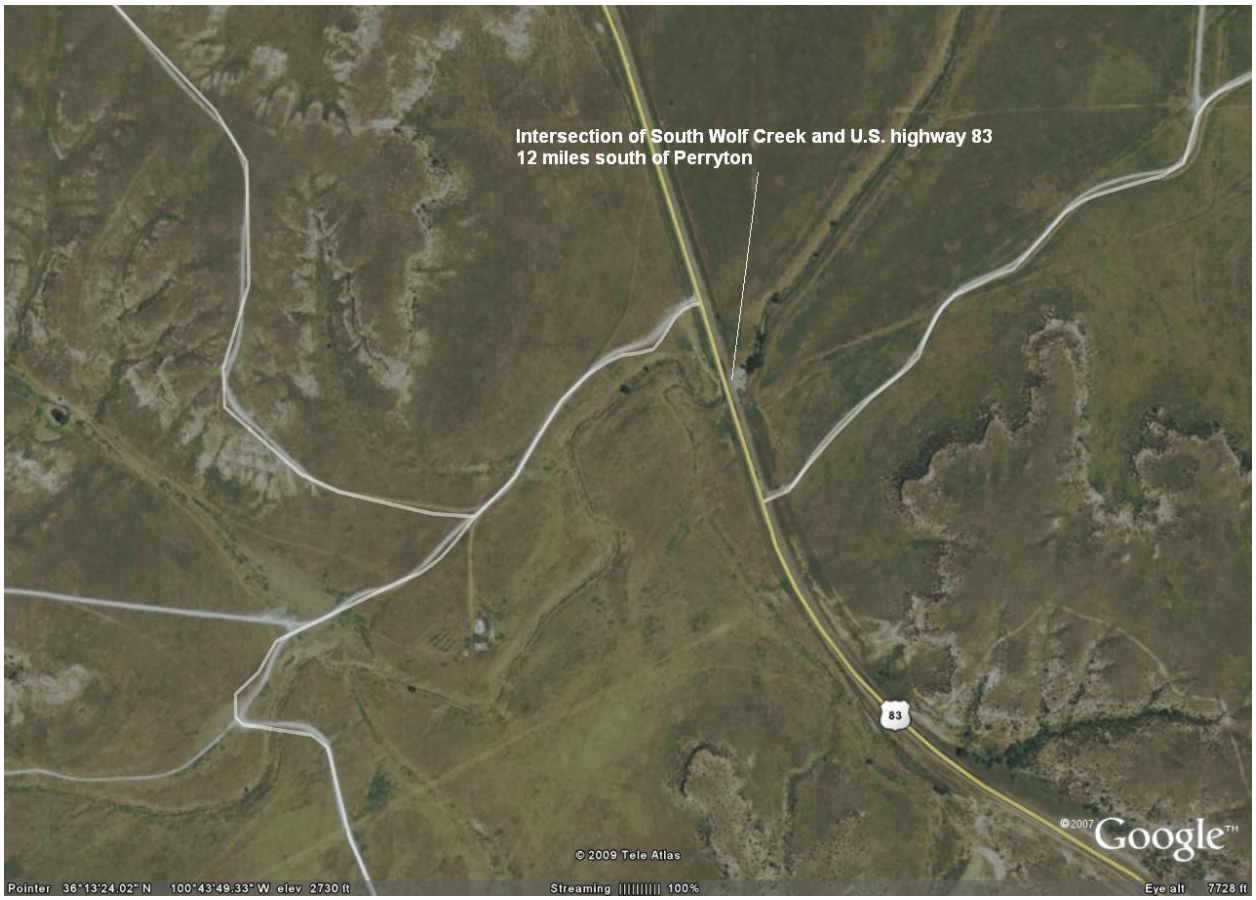
State highway 70 about 15 miles south of Perryton

High water mark on garage about one half of a foot up on the door. This farm is located on the north side of the playa lake on the west side of Texas State highway 70 about 15 miles south of Perryton.

F.M. road 759 at the south fork of the Wolf Creek, 3 miles east of State Highway 70

Mr. John Lipe (SH LUB) showing the high water mark on F.M. road 759 at the south fork of the Wolf Creek, 3 miles east of State Highway 70.

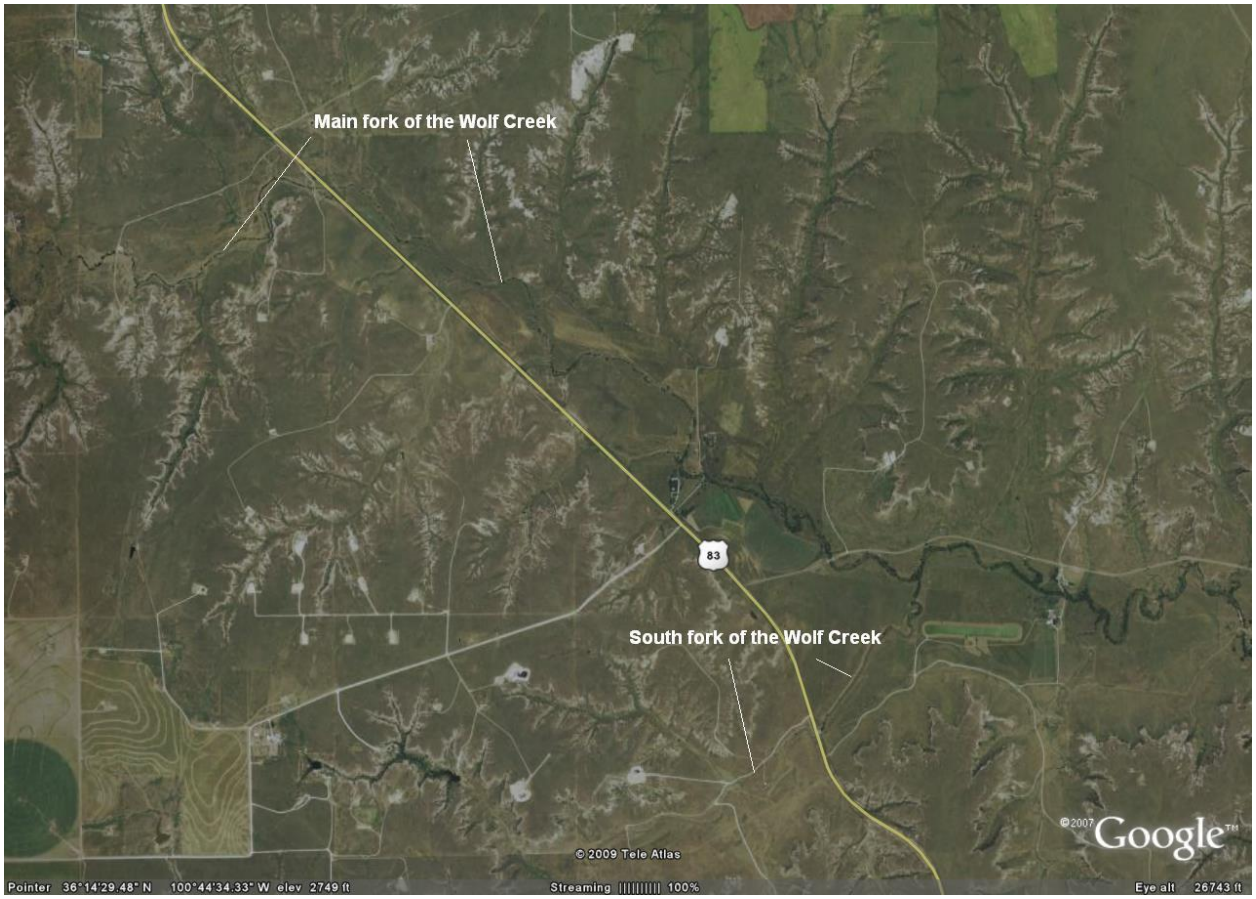
Water washed out the downstream side of F.M. road 759 at the south fork of the Wolf Creek, 3 miles east of State Highway 70.



U.S. Highway 83 at the south fork of the Wolf Creek, 12 miles south of Perryton.

Mr. John Lipe (SH LUB) showing the high water mark where U.S. Highway 83 crosses the south fork of the Wolf Creek, 12 miles south of Perryton.

U.S. Highway 83 bridge at the south fork of the Wolf Creek, 12 miles south of Perryton (looking upstream (west)).



Main fork of the Wolf Creek and the South fork of the Wolf Creek.

Convergence of the main stem of the Wolf Creek with the South Wolf Creek upstream of Wolf Creek Park and Lake Fryer.

Wolf Creek Park and Lake Fryer:

As reported by park manager Steven McKinney,

> Water began going over the spillway at Lake Fryer at 9:00 pm on the 23rd. The flood crested around 3:00 am on the 24th with an estimated 11 feet of water going over the spillway. Water reached the top of the concrete structure on either side of the spillway. Water was 2 feet above the ledge that runs parallel to the creek on the concrete wall that forms the sides of the spillway below the outlet from the lake. This ledge is located on the north side of the spillway structure.

Below the spillway at Lake Fryer at Wolf Creek Park.

3 R.V.'s were flooded. 2 were drawn into the lake but not over the spillway. These R.V.'s came to rest along the dam just south of the spillway and just north of the intake structure. The other R.V. that was flooded stayed on the bank wedged between 2 trees.

A Ford F-350 truck was trying to leave a campsite when a large limb was broken by the tornado and crushed the cab of the truck. The truck was abandoned and later flooded as well.

A bait house was totally destroyed by flood waters and a shop next to the bait house was flooded. Everything in the shop was damaged.

Following a post storm survey, it appeared that water almost went all the way around the dam both on the north and south sides. Flood waters also reached the floor of the bath house just to the north of the spillway.

Aerial view of Lake Fryer at Wolf Creek Park in Ochiltree County. Photo courtesy of Ochiltree county Sheriff.

Bridge out to the intake structure at Lake Fryer at Wolf Creek Park.

Wolf Creek about 2 miles downstream of the Lake Fryer Dam.

Wolf Creek about 2 miles downstream of the Lake Fryer Dam.

Wolf Creek at Lipscomb.

Northeast side of Lipscomb with Glen Turner Memorial Park, the blue home, and the brick home labeled.

The Wolf Creek at Lipscomb:

The flood waters continued downstream of Wolf Creek Park through eastern Ochiltree county and into Lipscomb County. The Wolf Creek was well out of its banks through eastern Ochiltree County according to a post flood analysis. It is still unclear how many if any homes were affected by flood waters from Wolf Creek Park downstream to the Lipscomb county line along county road U. The flood crest continued downstream through the city of Lipscomb, TX. The Wolf Creek went above its 9.5 foot flood stage at the gage site on the north side of Lipscomb at 7:05 am CDT on May 24th on its way to a crest of 15.3 feet at 10:45 am CDT. The creek did not return to below flood stage until almost 30 hours later at 12:33 pm CDT May 25th. This crest was the highest for the period of record. The previous record was 12.4 feet set back in 1996. The highest stage outside of the period of record was estimated at 16.0 feet in 1890.

Glen Turner Memorial Park had 5 to 6 feet of water covering it during the peak of the flood. A few homes on the northeast side and a few miles east of Lipscomb had water surrounding them. It is unclear if any of these homes sustained damage. Water was

covering the gravel road that parallels the creek on the north side of Lipscomb. The gravel road that leads into the park was also flooded from the entrance to about two blocks to the south of the entrance.

The creek was about ¼ of a mile wide at Lipscomb. The bridge across the creek is about 300 yards long. Water was confined under the bridge, but the creek spread out both upstream and downstream of the bridge.

Oil tanks to the north of the creek downstream of the bridge were flooded. The USGS from Woodward, OK and Wichita Falls, TX were taking measurements of the creek on the 24th. At a stage of 14.5 feet the discharge was measured at 22,400 cfs.

The water got up to within 3 feet of a blue home just to the southwest of Glen Turner Memorial Park.

Water made it to the bottom of the bridge deck (hwy 305), but never crossed the bridge at Lipscomb.

Wolf Creek at the Texas State highway 305 bridge at Lipscomb. Looking north along the upstream side of the bridge. Note the high water mark on the bridge abutment.

Glen Turner Memorial Park on the northeast edge of Lipscomb, TX.

Blue home in northeast Lipscomb, TX.

Brick home in northeast Lipscomb, TX.

Wolf Creek at Texas State highway 305 at Lipscomb, TX (looking north at the downstream side of bridge.

Wolf Creek Flood 1996 VS. Wolf Creek Flood 2007

Similarities

1996	2007
Severe and tornadic thunderstorms developed and moved toward Ochiltree and Lipscomb counties	Several severe and tornadic thunderstorms developed over northwest Roberts and eastern Hutchinson counties and then moved into Ochiltree and Lipscomb counties
10 to 12 inches of rain fell in the headwaters of the Wolf Creek	5 to 6 inches of rain fell across the headwaters of the Wolf Creek with an unofficial amount of 12 inches near the headwaters of the south Wolf Creek.

Two 5th wheel campers were drawn into Lake Fryer at Wolf Creek county park. Three other R.V. campers were flooded.	Two R.V. campers were drawn into Lake Fryer at Wolf Creek county park. One other R.V. was damaged along with a pickup.
Strong upper trough was approaching the panhandles from the west. Thunderstorms developed along and ahead of stationary/slowly moving warm front. Plenty of low level moisture was brought northward from the Gulf of Mexico.	Strong upper level low was moving southeast from northeast New Mexico toward the panhandles. Storms formed on the northeast side of slowly advancing warm front. Plenty of low level moisture was brought northward from the Gulf of Mexico.
No injuries or deaths due to flooding.	No injuries or deaths due to flooding.

Differences

It took 18 hours for the crest at Lake Fryer to move to LCBT2	It took 8 hours for the crest at Lake Fryer to move to LCBT2
Most of the rain fell in the main Wolf Creek basin to the northwest of Lake Fryer and Wolf Creek Park.	Most of the rain fell across southern Ochiltree county in the South Wolf Creek basin.
Happened in September.	Happened in May.