Appendix I. Segment 0833 Anecdotal Record

First Supplemental Survey - 26-27 July 2001- Clear Fork Trinity Project

On the first supplemental, Jeff Stroebel and Tim Jones visited all locations identified as sampling stations and additional stations which will be used in the modeling effort in FY2001-2002. At all sites, notes were made, GPS data were collected and photographs taken. At the sampling stations for the Clear Fork Trinity project, stream velocity was measured.

Station 17459 - the headwaters of the Clear Fork northwest of Pooleville. This station is located on Turpin Lake Rd. downstream (east) of a soil conservation reservoir (No.2) locally named Turpin Lake. The investigators arrived there at approximately 0705 CST on 26 July. The weather was clear and calm with temperature in the 80s. There was no water at the station and no evidence there had been for some time. GPS coordinates were collected and photos were taken.

Station 16415 - a TNRCC designated sampling site. This station is located just north of the Pooleville community on FM920. The station was visited at approximately 0720 CST on 26 July. Weather was clear and calm with temperature in the 80s. There was a small pool in a depression upstream of the highway bridge that is very shallow (less than 1-foot) and approximately 7 meters long by 2 meters wide and exhibited a pea green color. Downstream the channel is crossed by a corrugated watergap. There was no flow and no evidence of any recently. GPS coordinates and photos were collected.

Station 17460 - is at the junction of the Clear Fork and Erwin Rd. southeast of Pooleville. This station was visited at approximately 0727 CST on 26 July. Weather conditions were similar to conditions described above. No flow was observed at this station as well, although a small pool lies upstream of the bridge. Approximate depth was less than 1-foot and the dimensions were approximately 5 meters long by 2 meters wide and the color was a olive green. Downstream showed no evidence of water of flow. This station may be used for local dumping at times as tires were observed in the channel downstream of the stream. GPS coordinates were collected and photos were taken

Station 17463 - is located at Sarra Rd. and the Clear Fork. This station was visited at approximately 0747 CST on 26 July. Weather conditions were clear and calm with temperatures in the mid to upper 80s. This station is downstream of a large ranching operation. Several cows were observed in the pasture on the northeast (upstream) side of the road and the northwest pasture appears to be a coastal Bermuda hay field. The upstream portion of this station cuts between the hayfield and the cattle pasture (fenced from the creek) and is devoid of trees. Upstream is characterized by a long pool that covers the width of the channel and continues upstream beyond view. The lower end of the pool in bounded by a riffle area beginning just upstream of the bridge and ending just downstream (almost under the south edge of the bridge. Downstream, the stream cuts through a fairly deep channel lined with trees but the trees, and understory, end at the top of the stream bank. Hayfields border the stream on both sides. During this visit, GPS coordinates, physicochemical parameters (dissolved oxygen, water temperature, specific conductance and pH) and photos were collected. Velocity measurements were also made at this station in the only area found to be flowing which was in the riffle just below the bridge. The remainder of the area appeared to be pooled. The water downstream of the bridge did not appear stagnant but was very dark.

Station 11062- also a TNRCC designated site. This station is located on FM51 north of Weatherford. The investigators arrived at this station at approximately 0843 CST. Weather conditions were clear and calm with temperatures in the low 90s. Investigation of the station revealed that water was flowing in a riffle beneath the FM51 bridge. Long, deep pools extended both upstream and downstream of the riffle, so velocity measurements were made at the lower end of the riffle, were the stream could be channelized. Activities upstream of the crossing appear to be cattle ranching on both sides of the stream. Downstream, a large estate in located on the north side and only a couple of horses were observed. To the south of the downstream portion, no agricultural activities were observed, only rural residential. Upstream, the water surface appeared to be clear of floating material though downstream, floating algae covered the surface. A pipe of some sort crosses the channel approximately 20 meters downstream of the bridge and a large, somewhat longish organism moved across the stream near the pipe. Distance made in impossible to discern the identity of the organism though it is suspected that it was a large carp. GPS, physicochemical parameters, and photos were collected in addition to the velocity measurements.

Station 17461 - located at the Clear Fork and Old Springtown Rd. This station was visited at approximately 0919 CST. Though clear and clam the temperature was beginning to rise rapidly, in the mid 90s. The stream was clearly flowing at this site. Upstream, the channel was bounded on either side by fallow fields with little or no riparian area. A couple of small willows were the only trees observed upstream. The surface of the upstream portion exhibited floating mats of dead algae and scum. Downstream, the riparian zone was much better developed with a variety of trees and forbes and grasses. The flowing nature of the stream appeared to reduce the scum observed upstream of the bridge. A riffle directly beneath the bridge aided in mixing the water thereby breaking down the surface scum. Velocity measurements, physicochemical parameters, GPS coordinates and photos were collected at this station.

Station 17462 - located at the Upper Denton Rd. bridge over the Clear Fork. This station was visited at approximately 0951 on 26 July. Weather was clear and calm with temperatures in the mid to upper 90s. Though flowing at this site, the stream was very shallow at this location. The substrate is also sandy with fine pebble sized gravel intermixed. Though none were directly observed, there are signs of cattle visiting the stream recently. Hoof prints and fresh piles of manure were common. There has been an attempt to erect a water gap across the stream but it appears that the effort was unsuccessful. The stream at this point is very shaded by trees, but the understory is virtually nonexistent. The entire suite of data were collected at this location, velocity, physicochemical, GPS and photos.

First Intensive Survey - 07-23 August 2001- Clear Fork Trinity Project

The intensive survey for this upper segment of the Clear Fork Trinity occurred from 21-23 August 2001.

Station 17459- at Turpin Lake Rd. west of Pooleville was visited at 1215 CST on 21 August 2001. As previously observed, the station was dry. Photographs were taken of both upstream and downstream views.

Station 16415- on the Clear Fork at Pooleville was visited at 1221 CST on 21 August 2001. The small pool upstream of the crossing still persists though visibly smaller that observed in July. The channel downstream is dry. Photographs were taken both upstream and down stream at this time.

Station 17460- at Erwin Rd. east of Pooleville was visited at 1237 CST on 21 August 2001. The small pool upstream of the crossing was still present though demisit since July. Downstream the channel is dry and the tires are still present. Photographs were taken both upstream and down stream at time.

Station 17462 - TIAER field staff set the 5 transects and deployed a datasonde for 24-hr DO measurements and performed a habitat survey and at this station on 21 August. The five transects were placed 40 m intervals for a total reach length of 160 m, all of which ran down stream of the bridge crossing on the Lower Denton Rd. Transect A (the downstream most cross section was set in a glide, as was Transect B, Transects C and D were placed at pools and Transect E was at a riffle. The investigation began at 1253 CST and was completed at approximately 1700 CST on 21 August. Biological data, samples for water chemistry and physicochemical samples were collected beginning at 0745 CST on 22 August . Water transparency at the deepest pool where the datasonde was deployed was 20-inches in a total depth of 20-inches. Water at this station was generally clear, very shallow and slowmoving. Riffle are poorly developed and no large rock or cobble was found in the reach, as substrate is mostly very fine gravel. The slope of the station is gentle with no pronounced drops observed. There was no unusual odor to the water, but as the area is apparently accessed by cattle, as evidenced by prints and manure, there was a □cattle smell□ to the area. As previously noted, there had been attempts to fence the creek. Weather conditions were clear to partly cloudy with light and variable winds and a temperature around 98F.

Habitat assessments were performed at each of the five transects, benthic samples were collected by 5-minute kicknets in the riffles and fish were collected using seines and electroshock (see monitoring plan). All biological samples were preserved for return to the lab for further analysis. In addition to the biological data, water chemistry samples, velocity measurements, and physicochemical parameters were collected,

and photographs were taken at each transect and upstream and downstream from the midpoint of the reach. 24-hour dissolved oxygen values at 30 minute intervals were also measured.

Generally the aesthetics of the area were rated as common. Trash is evident, though not abundant. The riparian buffer is poor due to the lack of understory, most likely as a result of the cattle that access the stream. The understory was non-existent, almost no grass and a few shrubs. The area is well shaded from the fairly large and numerous trees that lined the bank. The sandy soil of the bank indicated a propensity for erosion in high flow times.

Station 17461 - The data sonde for 24-hour DO measurements was deployed at this station on 21 August at 1207 CST. On 22 August beginning at 1025 CST, TIAER field staff staked 5 cross sections at 37.5 m intervals for a total reach length of 150 m. Transect A (the downstream most transect) was located in a glide, Transect B in a riffle, Transect C in a run, Transect D in a run, and Transect E in a pool. Water transparency was 1-foot in a total depth of 3-feet in the pool where the datasonde was deployed. Water color was a gray-green and attached and floating algae were abundant. The attached appeared to be *Cladohora* while the floating may have been a cyanobacteria. Where a mud bottom was disturbed, a hydrogen sulfide smell was detected. Wading through the water produced a large amount of suspended sediments, great care was taken not to disturb areas where water chemistry and data sonde measurements were taken. Weather conditions were sunny to partly cloudy with light and variable winds a temperature in the upper 90s.

Habitat assessments were performed at each of the five transects, benthic samples were collected by 5-minute kicknets in the riffles and fish were collected using seines and electroshock (see monitoring plan). All biological samples were preserved for return to the lab for further analysis. In addition to the biological data, water chemistry samples, velocity measurements, and physicochemical parameters were collected, and photographs were taken at each transect and upstream and downstream from the midpoint of the reach. 24-hour dissolved oxygen values at 30 minute intervals were also measured.

Trash and litter was evident just below the bridge on Old Springtown Rd. but downstream of the road crossing did not appear to be disturbed. Beyond the riparian buffer of trees, shrubs, grasses and forbes, a hayfield abutted the right bank while a fallow field bordered the left. Over all the aesthetics of the station rated as natural.

Station 17463 - TIAER field staff setout 5 cross sections at 37.5 m intervals for a reach total of 150 m extending downstream of Sarra Rd. The upper end was bounded by a rocky drop (non-flowing riffle) from a large pool upstream of the bridge. Though pools were evident in the riffle under the bridge, there was no measurable flow here or at any other point of this station. The pool extended down stream for approximately 130 m where the channel was obstructed by a beaver dam. Below the dam another pool extended an additional 40 to 50 meters before encountering another beaver dam. All samples were collected under pool conditions. The deepest point at which the data sonde could be deployed was 20-inches and the transparency was equal to that depth. Water was dark but clear until the sediments were disturbed then it would turn almost black and the odor of hydrogen sulfide would become apparent. One thing that was noticed was an abundance of large tadpoles in various stages of development that would scurry away as the bottom was disturbed. Weather conditions were sunny with south winds at 0 - 5 mph and 80F temperatures, by far the most pleasant encountered this summer.

Habitat assessments were performed at each of the five transects, benthic samples were collected by 5-minute kicknets in the riffles and fish were collected using seines and electroshock (see monitoring plan). All biological samples were preserved for return to the lab for further analysis. In addition to the biological data, water chemistry samples, velocity measurements, and physicochemical parameters were collected, and photographs were taken at each transect and upstream and downstream from the midpoint of the reach. 24-hour dissolved oxygen values at 30 minute intervals were also measured.

The riparian buffer extended only as wide as the height of the banks, approximately 8-12 feet. Hay fields bordered the stream on both sides. Upstream of the reach, across Sarra Rd., a large cattle operation operates on both sides of the stream, though the cattle appear to be fenced out of the stream. As usual at

rural stream crossing, trash litters the area under the bridge including parts of appliances. Aesthetically, the station rated a low natural not bad enough for common but not great. The major impact at this location appears to be little or no flow, if the beaver dams were not present it is likely the station would be dry or at least very shallow.

Station 11062 - On the morning of 23 August at about 0800 CST, one team of TAIER field staff attempted to identify a reach within the stream for monitoring. Downstream was investigated as an option, however just immediately beneath the riffle/run area below the bridge, the stream became a long, deep pool. An effort was made to determine extent of this pool, but the further downstream one traveled the deeper it became until it became apparent that working the area would be very difficult. This was complicated by the fact that the bottom got so soft and mucky that walking became nearly impossible. From the farthest point to which field staff managed to wade, the configuration of the stream did not change within the vision of the investigators. Downstream monitoring was ruled out. Efforts were then turned to identify a suitable reach upstream of FM51. Again, the stream characteristics were such that a deep pool filled the channel of a very steep banked stream at this point. It was traversable empty handed, but not with the equipment necessary for monitoring. At this time a call was made to a staff member that had remained at the home office instructing this person to load up the two-man boat used in local PL-566 reservoirs, grab a gill net and meet the reminder of the team at the station around 1100 CST. Water chemistry samples, in addition to physicochemical parameters, were collected at this station at 1050 CST in the pool just upstream of the FM51 bridge. Once the boat was available, equipment and personnel were ferried upstream to a wadable location and transects began to be identified. Additionally, once all personnel were relocated, a 125-foot experimental gill net was deployed in the most downstream pool from near to bridge to upstream. Five transects were set at 37.5 m intervals with the exception of A and B. A 28-foot interval was used to catch a riffle. The total reach length was approximately 150 m. Transect A was set in a riffle, while Transects B - E all occurred in pools. Riffles and run/glides were virtually non-existent, thus the adjustment in the interval between Transects A and B. Otherwise Transect A would have found another pool. Water transparency was not good in the pools, 11-inches at the station of the data sonde deployment in a total depth of 3.5 feet. The only place the water appeared clear was in the shallowest areas where it was flowing. No unusual odors were detected at this site. Weather conditions were sunny and calm with temperatures in the upper 90s.

Habitat assessments were performed at each of the five transects, benthic samples were collected by 5-minute kicknets in the riffles and fish were collected using seines and electroshock (see monitoring plan). All biological samples were preserved for return to the lab for further analysis. In addition to the biological data, water chemistry samples, velocity measurements, and physicochemical parameters were collected, and photographs were taken at each transect and upstream and downstream from the midpoint of the reach. 24-hour dissolved oxygen values at 30 minute intervals were also measured.

Trash and litter were common under the bridge but upstream the major impact was from cattle. Cattle were observed in the stream while staff was at the site. It was apparent from the lack of understory and the trails on the stream bank that this was common. The substrate of the stream ranged from packed clay to fine gravel and sand. Gravel and cobble substrate was not found. Overall the area provided poor habitat and yielded few fish species. Though the overall aesthetics did not warrant an offensive rating, it was borderline common.

24-hour Dissolved Oxygen - 11-20 September 2001 - Clear Fork Trinity Project

Station 17459 - as usual this station was dry on 18 September. Photographs were taken upstream and down.

Station 16415 - no flow was observed on 18 September, the small pool upstream of the bridge persists but does not show appreciable change. Photographs were take of both upstream and downstream views.

Station 17460 - dry except for the small pool upstream of the bridge on 18 September. No change is apparent since the August visit. Photographs were take of both upstream and downstream views.

Station 17463 - flow was observed from the riffle below the bridge at the upper end reach on 18 September at 1120 CST when the sonde was deployed. At the time of the deployment, a side by side reading of physicochemical data were also collected with a different unit. The water level was up since August and a debris line indicated a rise of about 3 feet above bank level prior to our visit. Downstream of the bridge, the station is still pooled and the beaver dam intact. Water in the pool is very clear with transparency to the bottom but once sediments are disturbed it becomes black and yields a hydrogen sulfide odor. Algae is abundant on the bottom of the channel. On 19 September at 1215, the sonde was retrieved and water quality samples and velocity measurements were collected. A side by side reading of physicochemical parameters was made with a separate sonde. Observations of the cattle operation upstream revealed that most of the cows had calved since the last visit to the site, thus nearly doubling the number of head present in the pasture to the east of the creek. Weather conditions on 19 September were overcast with northerly winds at 10-15 mph and a temperature of 78 F.

Station 11062 - flow was observed at this station beneath the bridge on FM51 when the sonde was deployed in the pool upstream of the bridge at on 18 September 1230 CST. Water transparency was 11-inches at a pool depth of 3-feet 3-inches but was 1-foot 3-inches when the sonde was retrieved. Color was a tan and no odors were detected. The area under the bridge remains trashy. On 19 September, TIAER staff returned to the station to retrieve the sonde, measure flow, collect water quality samples, photograph the site, and re-sample fish. The fish samples collected in August were not preserved properly thus necessitating re-sampling. Observed results of the effort did not yield an apparent difference between either quality or quantity of fish collected. A side by side reading of physicochemical parameters was made with a separate sonde at 1256 when the sonde was retrieved. The weather on 19 September was cool, 78° F, and overcast with north winds at 10-15 mph. Upstream at Transects A and B, cattle were observed crossing the creek. Track and manure are evident at the stream edge.

Station 17461 - was flowing and the pool in which the sonde was deployed on 18 September at 1310 CST was coated with mats of algae. Again, a debris line was evident in vegetation on the stream bank, similar to that observed at 17463. Water transparency was 1-foot 8-inches at the time of deployment but increased to 2.5 feet at the time of retrieval, same as total depth. No unusual odors were detected at this site. On 19 September, TIAER staff returned to the station to retrieve the sonde, measure flow, collect water quality samples, and photograph the site. No change in transparency was recorded but weather conditions had change overnight from partly cloudy with southeast winds at 10-15 mph and a temperature of 84° F to overcast, north winds at 10-15 and a temperature of 78° F. Other than the evidence of a substantial runoff event, not much else in the way of change was observed at this station since last visit.

Station 17462 - TIAER staff deployed at data sonde at this station on 19 September at 1430 CST. Flow measurements, water quality samples and velocity measurements were collected at this time along with a photographic record of the site. Presence of cattle is still evident and the recliner sofa is still in mid-stream. Water transparency in the pool in which the sonde is deployed was 2-feet 2-inches, same as total depth. No unusual odors were detected while investigators were present. A large white leather-like recliner sofa has appeared midstream just above the point at which velocity measurements are collected. This may have washed downstream following the rainfall event of 5 September. On 20 September at 1440, the sonde was retrieved.

Second Supplemental Survey - 4 October 2001- Clear Fork Trinity Project

All stations were visited on 4 October 2001. Generally, the day was cool, temperatures ranged from 72 to 79°F, and the sky began as overcast changing to mostly cloudy with a south wind at 15-20 mph. Forecasters are calling for rain later in the week and during the weekend. Seasonal changes are apparent. At all stations, leaves are falling as trees are showing signs of dormancy. In general, water levels and velocities appear elevated since the last trip to the stations.

Station 17459 - still dry, leaves starting to fall and litter the stream bed. Photos of upstream and downstream views taken at 0806 CST.

Station 16415 - no flow but pool upstream of bridge persists, though diminished since September. Photos of upstream and downstream views taken at 0812 CST.

Station 17460 - no flow although pool upstream of bridge still evident but smaller than in September. Photos of upstream and downstream views taken at 0823 CST.

Station 17463 - flow was very slight in riffle beneath bridge, velocity measurement were collected at 0844, though the stream was only 1.7 feet wide at the point at which flow was visible. Additionally, physicochemical data were collected and a photographic record of the station was made. Hay was being baled in the field on the west side of the creek upstream of the bridge. Cattle were still in the pasture to the east. The water appeared the same as previous trips.

Station 11062 - at 0913 CST, TIAER staff arrived at this station a measured velocity and collected physicochemical data. Velocity measurements were made in the riffle under the bridge and sonde data was collected in the pool at the bottom end of the reach for the station. Only an upstream photograph was taken.

Station 17461 - water at this station was flowing and velocity measurements and physicochemical data were collected at a riffle downstream of the bridge crossing at 0935 CST. Algal mats were present on the surface of the pools and attached algae were observed in areas of clear water. Water level at this station was notably higher that previous visits. A photographic record was made of upstream and downstream views.

Station 17462 - was visited at 1010 CST, water velocity was measured and sonde data collected. The recliner sofa is still present and evidence of cattle in the stream still exists. Water at this station is flowing and clear even in the pooled areas. Leaves litter the stream bed and black walnuts are falling in abundance. A photographic record was made from mid reach both upstream and downstream views.

Supplemental Survey 26 and 27 March, 2002

Jeff Stroebel and Tim Jones conducted a supplemental survey of segment 0833 on 26 March 2002. Data were collected at Stations 17462, 17461, 11062, 17463 and 16415 and Stations 17460 and 17459. Data collected included velocity measurements, physiochemical parameters (DO, pH, specific conductance and water temperature), photographs, and anecdotal information. In an interview with two local residents of Pooleville, Texas, it was determined that the rains that passed through the area on 18 and 19 March 2002, deposited 7 to 9 inches in a little over 24-hours. This heavy rainfall was responsible for creating flowing conditions at three stations at which flow had not previously been observed since beginning the study in July 2001. There were also evidences of movement of bed materials and bank erosion as well as debris in trees and on the on the bank at all sampling locales in segment 0833.

Station 17459
TIAER field staff observed flow at this station for the first time since starting the project in July 2001. Between 1030 and 1100 CST, all supplemental measurements were made. Velocity measurements were collected and physiochemical data were recorded. Photographs of an upstream and a downstream view were also made. Water color at this station was tan due to large amount of sediment but no odor was detected. The substrate was sand only with no gravel or clay detected. Weather conditions were clear with a north wind of 10-15 mph. Air temperature was approximately 48° Fahrenheit.

Station 16415
Flow at this station was observed for first time since starting the project in July 2001. Velocity measurements, physiochemical parameters, photographs and a written record were collected between 1105 and 1125 CST. Water was turbid and tan in color, again as a result of the large amount of sediment carried in the stream. No odors were detected. A large sand bar that had built up under the bridge (previous

observations) was dramatically rearranged and pushed to the left side of the streambed. A channel, 1-foot deep and up to 2-feet wide had been cut next to the south apron of the bridge through which water was flowing. A water gap across the creek down stream of the bridge had been damaged. Out of the channel, grass was bent and debris was collected on the fence across the stream, indicating water level had risen 4 to 5 feet. Weather conditions were clear with a north wind of 10-15 mph. Air temperature was approximately 48 Fahrenheit.

Station 17460
As with the previous two locations, flow was observed here for the first time. All data were collected at this station between 1135 and 1205. The water at this station had the same color characteristics as the previous two stations and again no unusual odors were detected. At this site, evidence of debris was in trees above the stream bank and an automobile tire that had been partially buried in the streambed since first observations were made in July 2001 had been washed away, indicating a significantly elevated velocity during the previous week's storm. It was estimated that the water level at this station exceeded 6 feet during some time of the event. Weather conditions were clear with a north wind of 10-15 mph. Air temperature was approximately 50 Fahrenheit.

Station 17463
Though low at times, flow had always been observed at this station. On 26 Mar 2002, velocities at this station were the highest observed by TIAER field staff while sampling. Collection of required data occurred between 1215 and 1235 CST. Water was muddy with a tan to brown color and a sour odor was evident. It was not determined if it was actually the water in the stream or pools of water that had collected at the bottom of the pasture at the cattle ranch just upstream of Sarra Road. Extensive erosion was evident, a large sand bar on the right side of the streambed was exposed, and all vegetation was scoured off it. A large amount of sand had been deposited or exposed below the bridge. Debris was observed in tree limbs above the stream bank, indicating a rise of approximately 6 to 7 feet. This station is usually pooled with no flow observed other than at the riffle below the bridge. On this date, the stream was flowing in its entirety. Weather conditions were clear with a north wind of 10-15 mph. Air temperature was approximately 52 Fahrenheit.

Station 11062
Flow at this station was observed to be greater than previous visits. Velocity, physiochemical data, and photographs were collected between 1245 and 1300 CST. Water was turbid with a milky coffee color, but no odor was detected. Debris was observed 6 to 7 feet in snags on stream bank. Sand bar under bridge had been moved around to some degree. There is a lot of large concrete and asphalt debris beneath the bridge that appears to be remnants of an old bridge that was not noticeably disturbed, although a discarded riding lawnmower had been washed from above the debris to below it. Down stream of the bridge, a pool that had perennially been covered with algae was flushed clear of floating algal mats. Weather conditions were clear with a north wind of 10-15 mph. Air temperature was approximately 56 Fahrenheit.

Station 17461
Flow was elevated at this location as well. Velocity, physiochemical data, and photographs were collected between 1315 and 1330 CST. Though still turbid and tan in color, it was less so than stations upstream. Debris was observed in trees 6 to 8 feet above the current water level. Erosion was evident on unprotected portions of bank as well. A sand bar on the right side of the stream that usually supports blood ragweed and other vegetation was stripped clean of any remnants of that vegetation. Runoff from the storm had a major impact on this site. Most of the substrate was covered with sand and little gravel was exposed. Weather conditions were clear with a north wind of 10-15 mph. Air temperature was approximately 55 Fahrenheit.

Station 17462
Flow was elevated and the water in the stream was bank to bank in most of reach, much wider than observed in all of 2001. Data were collected at this station between 1345 and 1400 CST. At this station, the water was clearer than any previous station though the cloudiness of the water made it evident that some sediment was still in suspension. No odor was detected. Lots of evidence of erosion along the bank and in the streambed. This location has been historically characterized by very little understory and a lot of

bare ground is exposed. Sand had been deposited on several ledges 6 to 7 feet above the water level and debris was collected in snags along the bank. A large recliner sofa that had appeared in the stream during the summer of 2001 had been moved a considerable distance downstream as a result of the flooding. Previously, the substrate was mostly small gravel to pebble in composition, however at the time of this visit, most of the substrate was covered by sand, and very little gravel was observed. There is still evidence that livestock have access to the creek, though none were observed in the stream at this time. Weather conditions were clear with a north wind of 10-15 mph. Air temperature was approximately 57 Fahrenheit.

Supplemental Survey 16 and 17 April, 2002

Jeff Stroebel and Tim Jones conducted a supplemental survey of segment 0833 on 16 April 2002. Data were collected at Stations 17462, 17461, 11062, 17463 and 16415 and Stations 17460 and 17459. Data collected included velocity measurements, physiochemical parameters (DO, pH, specific conductance and water temperature), photographs, and anecdotal information. Rain fall had occurred the previous weekend, 13 April, and evidence of a rise is water level was noted at several sites.

Station 17459
TIAER field staff collected supplemental survey measurements at this station between 1400 and 1420 CST. Velocity measurements were collected and physiochemical data were collected in the stream upstream of the bridge crossing. Additionally, photographs of an upstream and a downstream view were taken and field notes recorded. Water color at this station was brownish tan due to large amount of suspended sediment but no odor was detected. This stream location was shallow with a sandy substrate. Flow was slightly higher than previously observed but would be considered normal under base flow conditions. Some debris was observed in the surface current. Weather conditions were partly cloudy with a south wind of 15-25 mph. Air temperature was approximately 83° Fahrenheit. Some attached algae and new growth macrophytes were observed and a few aquatic beetles of the family Gyrinidae were seen swimming in calmer water areas.

Station 16415
Flow at this station appears to have continued at this station since the March supplemental survey. Velocity measurements and physiochemical parameters, collected immediately downstream of the bridge, and photographs and a written record were collected between 1425 and 1445 CST. Water was turbid and tan in color, again as a result of the large amount of sediment carried in the stream. No odors were detected. The large sand bar that had built up under the bridge (previous observations) showed signs of recent inundation (snagged debris and smoothed sand). The channel next to the south apron of the bridge that had previously been observed remained the only channel between the upstream pool are and the downstream channel. This station is characterized by a sandy bottom and is relatively shallow, < 1-foot. The water gap across the creek down stream of the bridge had not been repaired. Weather conditions were clear with a south wind of 15-25 mph. Air temperature was approximately 85° Fahrenheit. Some aquatic macrophytes and a small amount of attached algae were observed along with some aquatic invertebrates, e.g. Gyrinidae and Gerridae.

Station 17460
All data were collected at this station between 1450 and 1505 CST. All data were collected at this location with velocity and physiochemical parameters being collected at a riffle downstream of the Erwin Rd. bridge. The water at this station had the same color and turbidity characteristics as the previous two stations and again no unusual odors were detected. As with the upstream sites, the substrate is dominated by sand, but the riffle at which velocity was measured was characterized by a few rocks and tree roots embedded in the sand. It was noted that water level had been elevated recently by observing debris collected in grass along the stream bank. Weather conditions were clear with a south wind of 15-25 mph. Air temperature was approximately 85° Fahrenheit. Very little aquatic vegetation was present and no aquatic invertebrates were observed.

Station 17463
Collection of required data occurred between 1515 and 1535 CST. Water was muddy with a tan to brown color but the sour odor detected at the last visit was not noticed, in fact it was commented that the odor was absent. The substrate at this station is dominated by gravel. Evidence of a recent rise of 1 – 1.5 feet was noted as a result of the "smoothing" of sand on the sand bar on the right side of the streambed. Debris still remained along the stream bank and in trees. Some shore vegetation had begun to sprout on the sand bar that had been scoured clear. As before, the stream was flowing in its entirety, and velocity measurements were collected downstream of the Sarra Rd. bridge. Weather conditions were clear with a south wind of 15-20 mph. Air temperature was approximately 84° Fahrenheit. Some algae had begun to attach but no aquatic organisms were observed.

Station 11062
Flow at this station was observed to be greater than previous visits, including the last, with water flowing onto the riprap beneath the bridge before reentering the channel. Velocity and physiochemical data were collected immediately downstream of the bridge in the riffle created by the riprap left during bridge construction and photographs were collected between 1545 and 1610 CST. Water was turbid with a milky coffee color, but no odor was detected. Substrate at the velocity measurement location was predominantly cobble. The downstream pool was still free of algae, presumably due to the flushing action created by the elevated water velocity. Weather conditions were clear with a south wind of 10-15 mph (deep channel and protected). Air temperature was approximately 78° Fahrenheit. No aquatic organisms, fauna or flora, were observed.

Station 17461
Flow was higher and depth was greater than previously experienced. All riffles were covered by elevated water levels and the stream was channel full. Velocity and physiochemical data were collected downstream of the bridge and photographs were collected between 1615 and 1635 CST. Though still turbid and tan in color, it was less so than stations upstream, visibility to the bottom occurred in depths to 1-foot. Evidence that recent rains had raised the water level to an additional foot was observed in the sand along the stream. Substrate was sand with clay mixture. Weather conditions were clear with a south wind of 15-25 mph. Air temperature was approximately 78° Fahrenheit. Some attached algae were observed but not macrophytes or fauna. (At this time we began to notice large clouds building which eventually caused the large hail and tornadoes in Ft. Worth during the afternoon.)

Station 17462
This station was channel full but was shallow, < 1foot. All required supplemental data were collected at this station between 1645 and 1710 CST. Measurements were collected at a narrow portion of the stream approximately 150 meters downstream of the road crossing. The water was clear to the bottom along the entire reach examined. Smoothing of the sand along the bank indicated that water levels had recently been 2 – 2.5 feet above the current level. No odor was detected. The substrate was predominantly sand mixed with pea gravel sized particles. Not as much evidence of livestock at this time. Neither aquatic vegetation nor aquatic fauna were observed. Weather conditions were clear with a southeast wind of 20-25 mph, thunder was heard from the east. Air temperature was approximately 75° Fahrenheit. The shift in wind and drop in temperature was associated with the development of the large thunderstorms that pounded Ft. Worth.

Second Intensive Survey – 30 April - 15 May 2002- Clear Fork Trinity Project

Station 17459 - at Turpin Lake Rd. west of Pooleville was visited at 1135 CST on 30 April 2002. Photographs were taken of both upstream and downstream views. This station was flowing and velocity and physiochemical parameters were recorded. Water was relatively clear with little turbidity, the substrate is primarily sand. Considerable quantity algae were in the stream at the shallow approach to the culverts under the road and macrophytes had begun to sprout along the bank. A small herd of calves was observed

in an area near and with access to the creek but were not in the creek at the time we were on site. There was a bovine odor detectable, but not emanating from the water.

Station 17460 - at Erwin Rd. east of Pooleville was visited at 1129 CST on 30 April 2002 (a second crew). The streambed is predominantly sand and the water was clear although algae were common. There is a lot of household trash; e.g. clothing, in the stream. Velocity and physicochemical parameters were collected at this site. Photographs were taken both upstream and down stream at time.

Station 16415- on the Clear Fork at Pooleville was visited beginning at 1215 CST on 30 May 2002. The stream continued to flow spurred on by the heavy rains in mid-March. An intensive survey was performed at this site. A sonde was deployed on 30 April, however, due to logging problems it was re-deployed on 2 May and retrieved on 3 May. Six transects were set at 30-m intervals. Transect F was in a riffle, transects E, B and a in pools, transect D in a run and transect C in a glide. On 30 April, fish samples were collected using both seine and electroshock methods. Only seven specimens were collected, attributed to the short duration of water present at this location. Benthic macroinvertebrates were collected by kick net in the riffle just below FM920. Velocity, physicochemical parameters and water chemistry grabs were collected at this station on 30 April. The water was clear in the shallow runs but turbid in pools. Substrate is predominantly sand with an abundance of tree roots (willow) criss-crossing the stream. Little aquatic vegetation was observed at this time. Overall, the habitat was poor. Photographs were taken both upstream and down stream and at each transect at which a habitat assessment was performed.

Station 11062 – on the Clear Fork at FM51 north of Weatherford Texas. This station was visited on 1 May 2002 beginning about 0718 CST. A sonde was deployed on 30 May for a 24 hour DO study, however a logging error made it necessary to re-deploy on 2 May 2002. Water chemistry samples, physicochemical parameters, velocity measurements, fish and benthic samples and photographs were collected at this station during the visit. Fish were samples using a seine, electroshock and a 125-foot experimental gill net, deployed in the most downstream pool to bridge. Five transects were set at 40 m intervals. The total reach length was approximately 160 m. Transects A and B were set in pools, C and D in glides and E in a run. No riffles were observed at this time. The only place the water appeared clear was in the shallowest areas where it was flowing. In the pools, water color was green and turbid. Water transparency was 1 foot at the station of the data sonde deployment in a total depth of 3.5 feet. No unusual odors were detected at this site. Aquatic vegetation and algae were rare to absent at this station. Weather conditions were sunny with south winds 10 – 15 mph and a temperature of 31C. On 2 May when the data sonde was re-deployed for 24 hour DO measurements, winds were from the north at 20 – 25 mph, mostly cloudy skies and temperature of 17C.

Habitat assessments were performed at each of the five transects. All fish samples were identified in the field and returned to the site. Benthic samples were collected from debris packs in the flowing part of the stream and picked live in the field. All benthic specimens were preserved and returned to TIAER for analysis. A four-hour effort yielded only 35 bugs, attributable to the lack of benthic environment.

Trash and litter were common under the bridge but upstream the major impact was from cattle. Though no cattle were observed in the stream while staff was at the site, it was apparent from the lack of understory and the trails on the stream bank that cattle were common to the area. The substrate of the stream ranged from packed clay to fine gravel and sand. Gravel and cobble substrate was not found. Overall the area provided poor habitat and yielded few fish species. Though the overall aesthetics did not warrant an offensive rating, it was borderline common.

TIAER staff did talk to some fishermen that had collected several large bullheads, carp and a bass.

Station 17463 - TIAER field staff set out 5 cross sections at 40-m intervals for a reach total of 160 m extending downstream of Sarra Rd. A rocky drop bound the upper end from a large pool upstream of the bridge. Flow was observed at several points along the reach and was flowing across and through the two beaver dams at the downstream boundary of the reach. The primary pooled section of the reach extended down stream for approximately 130 m where the channel was obstructed by a beaver dam. Below the dam another pool extended an additional 40 to 50 meters before encountering a second beaver dam.

The major difference at this station from that of last summer, is that there is more visible flow in the stream. Although the beaver dams are still present, more water movement is observed. A gentleman working the fields along the stream indicted he had removed some beaver so it is possible that the dams are not being as well kept as previously. The deepest point at which the data sonde could be deployed was 1.5 feet and the transparency was equal to that depth. Again, the original deployment occurred on 30 April with retrieval on 1 May. A logging error required that the sonde was re deployed on 2 May and retrieved on 3 May. Water was clearer than the previous year. The sediments that became black when disturbed had been flushed out and only sandy substrate remained for the majority of the reach. There were some areas of gravel to cobble in the riffles encountered. Tadpoles are still very common at this station. Weather conditions were sunny with south winds at 10 – 15 mph with a temperature of 33 C.

Habitat assessments were performed at each of the five transects, benthic samples were collected by a 5-minute kick net in a riffle and fish were collected using seine and electroshock (see monitoring plan). All fish were identified in the field and returned to the stream. Benthic samples were picked in the field and preserved for return to the lab for further analysis. In addition to the biological data, water chemistry samples, velocity measurements, and physicochemical parameters were collected, and photographs were taken at each transect and upstream and downstream from the midpoint of the reach. 24-hour dissolved oxygen were measured values at 30 minute intervals.

The riparian buffer extended only as wide as the height of the banks, approximately 8-12 feet. Hay fields bordered the stream on both sides. Upstream of the reach, across Sarra Rd., a large cattle operation operates on both sides of the stream, though the cattle appear to be fenced out of the stream. As usual at rural stream crossing, trash litters the area under the bridge including parts of appliances. Aesthetically, the station rated a low natural not bad enough for common but not great. The major impact at this location appears to be little or no flow, if the beaver dams were not present it is likely the station would be dry or at least very shallow.

Station 17461 - The data sonde for 24-hour DO measurements was deployed at this station on 1 May 2002 at 1400 CST. On 2 May beginning at 0840 CST, TIAER field staff staked 5 cross sections at 40 m intervals for a total reach length of 160 m. Transect A (the downstream most transect) was located in a glide, Transect B in a run, Transect C in a glide, Transect D in a riffle, and Transect E in a glide. No truly pooled environments were located as water was visibly moving at all sites. Water transparency was 1.3 feet in a total depth of 2.6 feet at the location where the data sonde was deployed. Water color was clear with a slight green tint. Algae were rare and no odors were detected even when the sediments were disturbed. Wading through the water produced a large amount of suspended sediments, great care was taken not to disturb areas where water chemistry and data sonde measurements were taken. Weather conditions were mostly cloudy with north wind to 25 knots and the temperature was 17 C at 08:40.

Habitat assessments were performed at each of the five transects, benthic samples were collected by 5-minute kicknets in the riffles and fish were collected using seines and electroshock (see monitoring plan). All fish were identified in the field and returned to the stream. Benthic samples were picked in the field and preserved for return to the lab for further analysis. In addition to the biological data, water chemistry samples, velocity measurements, and physicochemical parameters were collected, and photographs were taken at each transect and upstream and downstream from the midpoint of the reach. 24-hour dissolved oxygen values were measured at 30 minute intervals from 1 May at 1400 through 3 May at 1047 CST.

Trash and litter was evident just below the bridge on Old Springtown Rd. but downstream of the road crossing did not appear to be disturbed. Beyond the riparian buffer of trees, shrubs, grasses and forbes, a hayfield abutted the right bank while a fallow field bordered the left. Over all the aesthetics of the station rated as natural.

Station 17462 - TIAER field staff deployed a data sonde for 24-hr DO measurements on 1 May 2002 at 1433 CST and retrieved the sonde on 2 May 2002 at 1641 CST. On 2 May TIAER field staff set the 5 transects and performed a habitat survey, fish and benthic sampling, water chemistry and took photographs and recorded field notes at this site. The five transects were placed at 50 m intervals for a total reach length

of 200 m, all of which ran down stream of the bridge crossing on the Lower Denton Rd. Transect A (the downstream most cross section was set in a run, Transect B was sited in a riffle, Transects C and D were placed at runs and Transect E was at a glide. No pool situations were observed as water was visibly flowing throughout the reach. The survey began at 1253 CST. Water transparency at the deepest area where the data sonde was deployed was 2.3 feet in a total depth of 2.3 feet. Water at this station was generally clear, deeper than previously observed and relatively swift. Riffles are poorly developed and no large gravel or cobble was found in the reach, substrate is mostly very fine gravel and sand. The kick net sample for benthos was taken in a riffle such as described, however, the target number of 200 organisms was easily attained. The slope of the station is gentle with no pronounced drops observed. There was no unusual odor to the water, and the evidence of cattle, as previously observed, was still present though diminished. As previously noted, there had been attempts to construct a water gap fence across the creek, but the fence had been washed out. Weather conditions were mostly cloudy with north winds at 20 to 25 mph and a temperature of 25 C.

Fish were collected using seines and electroshock (see monitoring plan). All fish were identified in the field and returned to the stream. Benthic specimens were preserved and returned to the lab for further analysis. In addition to the biological data, water chemistry samples, velocity measurements, and physicochemical parameters were collected, and photographs were taken at each transect and upstream and downstream from the midpoint of the reach. 24-hour dissolved oxygen values at 30-minute intervals were also measured.

Generally the aesthetics of the area were rated as common. Trash is evident, though not abundant. The riparian buffer is poor due to the lack of understory, most likely as a result of the cattle that access the stream. As in August 2001, almost no grass and a few shrubs were observed. The area is well shaded from the fairly large and numerous trees that lined the bank. The sandy soil of the bank indicated a propensity for erosion in high flow times.

24-Hour Dissolved Oxygen Survey –June 2002

On 3 June 2002, Jeff Stroebel and Tim Jones deployed data sondes at five stations in segment 0833 of Clear Fork Trinity River in order to log dissolved oxygen (DO) for at least 24 hours. Sampling interval was set at 15-minutes. In addition to DO, physicochemical parameters logged in included pH, specific conductance and water temperature. On 4 June 2002 sondes were retrieved and additional data were collected including water grabs analyzed for total alkalinity, chloride, TSS, VSS, nitrate + nitrite, sulfate, orthophosphate-phosphorous, TDS, chlorophyll-α, pheophytin-α, ammonia, total phosphorous, TOC, TKN, and BOD_5 as well as photographs (3 June 2002), field observations and velocity measurements. In addition to the five stations, velocity, physicochemical and photographic and anecdotal records were made at two supplemental sites.

Station 17459 – On 3 June photographs and field observations were made at this site. On 4 June, velocity measurements and physicochemical parameters were measured and field observations recorded. Water at this station was very turbid and brown with sediments and the water level was very low but flowing. No odors were detected at this location.
Data were collected upstream of the road crossing. Velocity and depth were such that the stream had to be "pinched down" by building a dike across the stream with an opening of approximately 1-foot that allowed the water to gain enough velocity to register on the flow probe. Since March 2002, aquatic vegetation has increased in abundance, as water has been continuously present since that time. Vegetation observed includes cattails, a common water weed and a fine leafed submerged macrophyte. No wildlife was observed.
Just below the road crossing, household trash has been dumped. The materials observed included cabinets and some PVC plumbing parts.

Station 16415 – A data sonde was deployed at this station on 3 June and retrieved on 4 June 2002. Upstream and down stream photos were taken 3 June and the remaining data were collected 4 June. This station was flowing but velocity appeared reduced since last visit (May). Since 1 May 2002 a beaver dam

has been built at the head of the riffle just downstream of the FM920 bridge, which is backing up water under the bridge and west. The sonde was deployed at the first substantial pool approximately 100 meters downstream of FM920. The sonde was anchored to a tree root growing out of the side of the stream bank and draped across a root below the water surface in order to keep the sonde and protective housing away from the stream bank and off the bed. Water was brown and turbid, with Secchi disc depth less than 1-foot. No odors were detected initially, however on disturbing the bottom sediments, the water turned black and the rotten egg odor of H_2SO_4 was released. Side by side physicochemical data were collected both at deployment and retrieval. Aquatic vegetation was abundant in the small riffle area below the beaver dam but no aquatic vegetation was observed in the pools.

Station 17460 - On 3 June photographs and field observations were made at this site. On 4 June, velocity measurements and physicochemical parameters were measured and field observations recorded. Water at this station was very turbid and olive-brown and the water level was very low but flowing. No odors were detected at this location, although there was a film of "scum" on the surface and some patches of bubbles. Jeff saw a large snake and lived to tell about it.

Station 17463 - A data sonde was deployed at this station on 3 June and retrieved on 4 June 2002. Upstream and down stream photos were taken 3 June and the remaining data were collected 4 June. This station was flowing but velocity appeared reduced since last visit (May). The water at this station was clear with no algae. Some algae were observed attached to rocks but were rare. There is still some evidence of scouring at location from the heavy rains of early March 2002. The sonde was deployed in a 2-foot hole just below a fallen tree and debris dam approximately 150 m downstream of Sarra Rd. Some fish were observed at this location, primarily *Gambusia* and *Fundulus*. Side by side physicochemical data were collected both at deployment and retrieval.

Station 11062 - A data sonde was deployed at this station on 3 June and retrieved on 4 June 2002. Upstream and down stream photos were taken 3 June and the remaining data were collected 4 June. Thought somewhat diminished since the May intensive survey, water velocity at this station was greater than observed at the upstream station (17463). Water color was brown to green with no noticeable odors. Some fish were observed breaking the surface in the pool where the sonde was deployed but identifications were not made. Side by side physicochemical data were collected both at deployment and retrieval.

On 3 June, it was observed that Carter Creek, a small tributary that enters the pool just upstream of FM51 bridge was dry with no evidence of recent flow. On 4 June when the sonde was retrieved, it was observed that a substantial amount of water was flowing from the tributary. Velocity measurements were made in this creek and an effort to find the source of the water was made. Staff traveled up FM51 to Murry Rd. where a left turn was made and proceeded westward for a distance to locate a source. No information was observed that allow the crew to determine where this water originated.

Station 17461 - A data sonde was deployed at this station on 3 June and retrieved on 4 June 2002. Upstream and down stream photos were taken 3 June and the remaining data were collected 4 June. Flow was moderate at this site. Water was generally clear but had a green tint. The highest DO readings were recorded here. Algae were common and the pool upstream of the bridge on Friendship road was very green. No odors were detected and sediments were tan in color as opposed to black as observed at Station 16415. Several species of fish were observed, including *Gambusia*, *Cyprinella lutrensis* and *Fundulus*. *Cyprinella* males were observed in breeding colors. Side by side physicochemical data were collected both at deployment and retrieval.

Station 17462 - A data sonde was deployed at this station on 3 June and retrieved on 4 June 2002. Upstream and down stream photos were taken 3 June and the remaining data were collected 4 June. Flow was moderate at this site. Water was very clear with no evident color alteration. Algae were rare. No odors were detected. Several species of fish were observed, including *Lepomis megalotis* and *Fundulus*. *L. megalotis* males were observed in breeding colors. Side by side physicochemical data were collected both at deployment and retrieval. No recent evidence of livestock was found along the bank, although the couch is still present. There as a considerable quantity of cottonwood seed on the surface of the stream.

Third Intensive Survey – 23 July – 1 August 2002- Clear Fork Trinity Project

TIAER field staff initiated the third intensive survey on 23 July in Segment 0833 of the Clear Fork Trinity completing this segment on 25 July 2002.

Station 17459 - at Turpin Lake Rd. west of Pooleville was visited at 1350 CST on 25 July 2002. Photographs were taken of both upstream and downstream views. This station was dry therefore no velocity or physiochemical parameters were recorded. Algae present at last visit was gone but shore plants were still present. Trash was still in stream on downside of bridge.

Station 17460 - at Erwin Rd. east of Pooleville was visited at 1420 CST on 25 July 2002. Photographs were taken both upstream and down stream at time. There was no flow and the location at which velocity and physicochemical parameters are usually collected was dry. There was a small puddle upstream of the bridge, similar to what was observed during the summer of 2001.

Station 16415 - on the Clear Fork at Pooleville was visited beginning at 0920 CST on 24 July 2002. There was no flow at this visit, the stream was characterized by a long continuous pool that began approximately 50 m downstream of the sheet metal water gap on the upper end and ended at a beaver dam approximately 50 m down stream of Transect A. The riffle at Transect F was dry and all other transects were pooled. A sonde was deployed on 24 July and retrieved 25 July. On 24 July, between 0950 and 1200, fish samples were collected using both seine and electroshock methods. Considerable more specimens were collected during this visit thought the samples were dominated by *Gambusia affinis* and very small *Ameiurus melas*. Habitat assessment was performed beginning at 1250 CST and completed at approximately 1430 CST. No benthic macroinvertebrates were collected on 24 July due to questions about lack of suitable habitat. The riffle used in the previous intensive survey was dry and no suitable snags were found. No velocity measurements were taken as the station was pooled and no flow was found. Physicochemical parameters and water chemistry grabs were collected at this station on 24 July. The water was turbid with a tan-brown color. Substrate is predominantly sand with an abundance of tree roots (willow) criss-crossing the stream. Aquatic vegetation was slightly more abundant at this time but algae were generally rare. Overall, the habitat was poor. Photographs were taken both upstream and down stream and at each transect at which a habitat assessment was performed. On 25 July, the sonde was retrieved and benthic samples were collected. Initially, Ekman grab samples were attempted. Triplicate samples at three transects were taken but yielded very poor results. Further scouting revealed a very shallow and narrow (<.25 m width) segment where there appeared to be a trickle of flow from one pool to the next. This area was sampled with a kicknet for 3.5 minutes, it was too small for a full 5-minute effort. The sample yielded an abundance of pelecypods.

Station 11062 – on the Clear Fork at FM51 north of Weatherford Texas. This station was visited on 25 July 2002 beginning about 0809 CST. A sonde was deployed on 24 July for a 24 hour DO study and retrieved on 25 July at 1126. Water chemistry samples, physicochemical parameters, velocity measurements, fish and benthic samples and photographs were collected at this station during the visit. Fish were samples using a seine, electroshock and a 125-foot experimental gill net, deployed in the most downstream pool to bridge. Five transects were set at 40 m intervals. The total reach length was approximately 160 m. Transects A, B and D were set in pools, C in a glide and E in a riffle. The only place the water appeared clear was in the shallowest areas where it was flowing. In the pools, water color was tan or green and turbid. Water transparency was .9 feet at the station of the data sonde deployment in a total depth of 3.6 feet. No unusual odors were detected at this site. Aquatic vegetation and algae were rare to absent at this station. Weather conditions were sunny and calm with a temperature of 33C.

Habitat assessments were performed at each transects. All fish samples were identified in the field and returned to the site. Benthic samples were collected from a fine gravel substrate riffle at Transect E. All benthic specimens were preserved and returned to TIAER for analysis.

Trash and litter were common under the bridge but upstream the major impact is still cattle, horses were also observed this trip. Though no cattle were observed in the stream while staff was at the site, it was apparent from the lack of understory and the trails on the stream bank that livestock were common to the area. The substrate of the stream ranged from packed clay to fine gravel and sand. Gravel and cobble substrate was not found. Overall the area provided poor habitat and yielded few fish species. Though the overall aesthetics did not warrant an offensive rating, it was borderline common.

Station 17463 - TIAER field staff collected in the reach of 5 transects at 40-m intervals downstream of Sarra Rd established in May 2002. A rocky drop bound the upper end from a large pool upstream of the bridge. Though a pooled environment dominates the reach, there is observable flow at several points including through small breeches in the beaver dam down stream. It appears that beaver activity is absent, supported by a conversation with a landowner on our last visit that indicated he had killed several.

Flow is visibly less that in May though still present. The deepest point at which the data sonde could be deployed was 1.2feet and the transparency was equal to that depth. Again, the original deployment occurred on 30 April with retrieval on 1 May. Water was clear initially, but movement through the stream roiled sediments that blackened the water and releasing a less than pleasant odor. This condition was observed during 2001 but had abated during the May visit. Algae were abundant throughout the reach and duckweed covered the water surface in many areas. There were other rooted macrophytes that were not identified that also clogged much of the reach, causing a real nuisance to seining and shocking. Tadpoles are still very common at this station but *Gambusia* dominated the fauna. These fish were so abundant and algal mats were so thick, the last five seine efforts were preserved to save time in the field. Weather conditions were sunny and calm with temperatures in the lower 30s C.

Habitat assessments were performed at each of the five transects, benthic samples were collected by a 5-minute kick net in a riffle and fish were collected using seine and electroshock (see monitoring plan). Benthic samples were picked in the field and preserved for return to the lab for further analysis. In addition to the biological data, water chemistry samples, velocity measurements, and physicochemical parameters were collected, and photographs were taken at each transect and upstream and downstream from the midpoint of the reach. 24-hour dissolved oxygen were measured values at 15-minute intervals.

The riparian buffer extended only as wide as the height of the banks, approximately 8-12 feet. Hay fields bordered the stream on both sides. Upstream of the reach, across Sarra Rd., a large cattle operation operates on both sides of the stream, though the cattle appear to be fenced out of the stream. As usual at rural stream crossing, trash litters the area under the bridge including parts of appliances. Aesthetically, the station rated a low natural not bad enough for common but not great. The major impact at this location appears to be low flow, if the beaver dams were not present it is likely the station would be dry or at least very shallow. There is a large cattle operation upstream of the station that locals indicate may be causing some problems with runoff.

Station 17461 - The data sonde for 24-hour DO measurements was deployed at this station on 23 July 2002 at 0909 CST. TIAER field staff performed a habitat assessment the at 40 m interval transects and collected benthos beginning at 0950. Transects at this station are the same as described in the May intensive survey. No truly pooled environments were observed, as water was visibly moving at all sites. Water transparency was 2.2 feet in a total depth of 2.2 feet at the location where the data sonde was deployed. Water color was clear with a slight green tint. Algae were common and no odors were detected even when the sediments were disturbed. Wading through the water produced a large amount of suspended sediments, great care was taken not to disturb areas where water chemistry and data sonde measurements were taken. Weather conditions were sunny and calm was temperature ranging from 30 – 35 C.

Habitat assessments were performed at each of the five transects, benthic samples were collected by 5-minute kicknets in the riffles and fish were collected using seines and electroshock (see monitoring plan). All fish were identified in the field and returned to the stream. Benthic samples were picked in the field and preserved for return to the lab for further analysis. In addition to the biological data, water chemistry samples, velocity measurements, and physicochemical parameters were collected, and photographs were

taken at each transect and upstream and downstream from the midpoint of the reach. 24-hour dissolved oxygen values were measured at 15-minute intervals from 23 – 24 July.

Trash and litter was evident just below the bridge on Old Springtown Rd. but downstream of the road crossing did not appear to be disturbed. Beyond the riparian buffer of trees, shrubs, grasses and forbes, a hayfield abutted the right bank while a fallow field bordered the left. Over all the aesthetics of the station rated as natural.

Station 17462 - TIAER field staff deployed a data sonde for 24-hr DO measurements on 23 July 2002 at 0904 CST and retrieved the sonde on 24 July 2002 at 1604 CST. At the time of our arrival, a herd of approximately 100 head of cattle passed through the stream under the bridge. These cattle were pastured in a field on the northeast side of the creek. The rancher was on the southwest side of the creek in a wooded area. His truck was visible through the trees and he was calling the cattle to feed. We waited for several minutes as the herd passed under the bridge through the water to the oppostation side where the rancher was waiting. Surprisingly, there was little disturbance in terms of turbidity observed

On 23 July TIAER field staff performed a habitat survey, fish and benthic sampling, water chemistry and took photographs and recorded field notes at this site. The five transects comprising the reach for monitoring were described in the May 2001 anecdotal record. No pool situations were observed as water was visibly flowing throughout the reach. Fish collection began at 0918 CST and the biological sampling concluded at 1218 CST. Overall monitoring was completed at 1430 with the collection of a grab sample for water quality. Water transparency at the deepest area where the data sonde was deployed was 2.4 feet in a total depth of 2.4 feet. Water at this station was generally clear with no odors. Riffles are poorly developed and no large gravel or cobble was found in the reach, substrate is mostly very fine gravel and sand. The kick net sample for benthos was taken in a riffle such as described; however, the target number of 200 organisms was easily attained. The slope of the station is gentle with no pronounced drops observed. There was no unusual odor to the water, and the evidence of cattle, as previously observed, was still present though diminished. Attempts to construct a water gap fence across the creek had been abandoned. Weather conditions were clear with south winds at 5 – 10 mph and a temperature range of 30 – 36 C.

Fish were collected using seines and electroshock (see monitoring plan). All fish were identified in the field and returned to the stream. Benthic specimens were preserved and returned to the lab for further analysis. In addition to the biological data, water chemistry samples, velocity measurements, and physicochemical parameters were collected, and photographs were taken at each transect and upstream and downstream from the midpoint of the reach. 24-hour dissolved oxygen values at 15-minute intervals were also measured.

Generally the aesthetics of the area were rated as common. Trash is evident, though not abundant. The riparian buffer is poor due to the lack of understory, most likely as a result of the cattle that access the stream. As in previously noted, almost no grass and a few shrubs were observed. The area is well shaded from the fairly large and numerous trees that lined the bank. The sandy soil of the bank indicated a propensity for erosion in high flow times.

Supplemental Survey 20 thorough 22 August

Jeff Brister and Tim Jones conducted a supplemental survey of segment 0833 on 22 August 2002. Data were collected at Stations 17462, 17461, 11062, 17463 and 16415 and Stations 17460 and 17459. Data collected included velocity measurements, physiochemical parameters (DO, pH, specific conductance and water temperature), photographs, and anecdotal information.

Station 17459
This station was totally dry. Only photographs of an upstream and a downstream view were taken and field notes recorded. Weather conditions were clear with a south wind of 5 - 10 mph. Air temperature was 32.5

C. A heap of trash and what appears to be a new air conditioner (still attached to the wooed pallet) lies in the bed just downstream of the bridge.

Station 16415
No flow was observed at this site, pool only conditions prevailed. Physiochemical parameters, collected in a pool downstream of the dry riffle designated Transect F, and photographs and a written record were collected at 1047 CST. Water in the pool was turbid and tan in color. No odors were detected. The channel was dry beneath the bridge but the large pool upstream of the bridge that has persisted throughout the study remains. The substrate of this station is predominately sand, with large roots crisscrossing the bed in shallow (now dry) areas. The water gap across the creek down stream of the bridge remains but still has not been repaired. Weather conditions were clear with a south wind of 5 - 10 mph. Air temperature was 33 C. Some aquatic macrophytes and a small amount of attached algae were observed along with some *Gambusia* at the surface of the pool.

Station 17460
No flow was observed as the stream below the bridge crossing was totally dry and only a small puddle remained beneath the trees upstream of the bridge. Only photos and anecdotal information were collected at this location at 1156 CST. Weather conditions were clear with a south wind of 10-15 mph. Air temperature was 38 C.

Station 17463
No flow was observed at this station. Only pooled conditions were observed. Sonde data were collected at 1114 CST. It was not possible to determine water color as all pools were totally covered with duckweed obscuring the presence of algae. Shore vegetation was abundant. The pool above the bridge on Sarra Rd. had receded from the riffle area below the bridge by several feet, further than observed at anytime in the past. Weather conditions were clear with a south wind of 5 - 10 mph. Air temperature was 34 C.

Station 11062
Flow at this station was very low. It was difficult to find a spot at which flow was measurable, and the location selected was only wide enough to allow two measurements to be taken. Velocity and physiochemical data were collected beneath bridge in the riffle created by the riprap left during bridge construction and photographs were collected between 1130 and 1145 CST. Water was turbid with a milky coffee color, a “dead fish” odor was detected. Substrate at the velocity measurement location was predominantly cobble over clay. Floating algae was common on the surface of the downstream pool. Weather conditions were clear with a south wind of 15 -20 mph. Air temperature was 34 C. No aquatic fauna were observed.

Station 17461
Although flow was measurable at this location, it was considerably lower than the previous visit. The pools were covered with a film of “scum” and floating algae. Velocity and physiochemical data were collected downstream of the bridge and photographs were collected between 1228 and 1239 CST. The color of the water in the pools was a milky gray-green. No odors were detected. Weather conditions were clear with a south wind of 5 - 10 mph. Air temperature was 35 C. Vegetation along the bank was well established making travel along the bank very difficult. This is mentioned because the storms in the spring had scoured much of the plant life.

Station 17462
No flow was measured at this site. Only pools were observed to a distance of 150 m downstream of the bridge crossing. Sonde data were collected at 1256 CST on 22 August 2002. These measurements were collected at a small pool approximately 100 m downstream of the bridge. The water was clear to the bottom at this point and several sunfish were observed. No odor was detected, but it is evident that cattle cross through the stream to feed. There were also several pieces of furniture added to the stations since the last visit. These were apparently dropped off the bridge. The substrate was predominantly sand mixed with pea gravel sized particles. Attached algae were observed but not common. Weather conditions were clear to partly cloudy with a south wind of 10 - 15 mph. Air temperature was 34 C.

Supplemental Survey 23 September, 2002

Station 17462
Flow was very low but had recovered somewhat since August when it was pooled only. Physiochemical data were collected at this station at 1121 CST. Flow measurements were collected at a narrow portion of the stream by a float test as water velocity too low and depth too shallow to use the flow probe. The water was clear to the bottom along the entire reach examined. No odor was detected. The substrate was predominantly sand mixed with pea gravel sized particles. Evidence of livestock was observed along both banks. Some algae was present at the pool where sonde date were collected. The furniture observed in the stream below the bridge was still present. Weather conditions were clear with a northeast wind of 5 - 10 mph.

Station 17461
Flow was slightly higher and depth was greater than observed in August, but still very low. Physiochemical data were collected at 1142 CST. Water was clear but was covered with duckweed throughout most of the reach observed. Attached algae were abundant and some algal mats were present on the surface of the pool just downstream of the bridge. No odors were detected Weather conditions were clear with a northeast wind of 5 - 10 mph.

Station 11062
Flow was very low, similar to observations in August. Physiochemical data were collected at 1157 CST. Water was turbid with a milky coffee color, but no odor was detected. Substrate at the velocity measurement location was predominantly cobble to boulder over clay. The downstream pool was covered with floating algae, but the surface of the upstream pool was clear. Weather conditions were clear with a northeast wind of 5 –10 mph. No aquatic organisms, fauna or flora, were observed.

Station 17463
This station was visited at 1210 CST. This station was completely dry downstream of the Sarra Rd. bridge. Only a small puddle remained in the pool upstream of the bridge out of the reach. Only pictorial data were collected. Weather conditions were clear with a east northeast wind of 10 - 15 mph. No odors associated with the stream were detected but the odor from the feedlot upstream was offensive. It was not the usual bovine odor but a stale, oily food type of odor.

Station 17460
This station was visited at 1210 CST. This stations was completely dry downstream of the Erwin Rd. bridge and only a small puddle remained upstream. The usual trash was observed in the stream. Weather conditions were clear with a northeast wind of 5 – 10 mph.

Station 16415
This station was pooled with no flow observed. Physiochemical parameters were collected at 1227 CST. Water was at the point of measurement was black but clear. A sulfuric odor was detected when the mud was disturbed. The pool was 15 – 20 feet long and approximately .5 feet deep. Other small pools were observed downstream. Weather conditions were clear with a northeast wind of 5 - 10 mph. No aquatic organisms were observed

Station 17459
This station was visited at 1240 CST. This stations was completely dry both up and downstream bridge crossing. The trash from a home remodeling job and a new air conditioner remains in the stream downstream of the bridge. Weather conditions were clear with a northeast wind of 5 – 10 mph.