

**Bacterial Monitoring for the Buck Creek Watershed
FY 03 CWA 319(h)
TSSWCB Agreement No. 03-7**

Quarter no. 5 From 10/01/04 Through 12/31/04.

I. Abstract

Sample collection and analysis continued during quarter 5. Due to increase rainfall, *E. coli* and *Fecal coli* counts dropped, but still exceed EPA Texas Surface Water Standards. Communication between TAES personnel and local SWCDs continued on a monthly basis. In looking forward to future activities, project personnel will work to host a project meetings for all involved as well as an information session for the general public.

II. Overall Progress and Results by Task

TASK 1: Program Coordination with Project Participants

Subtask 1.1: Conduct meetings as appropriate with project participants, landowners, and other interested parties to discuss water quality monitoring activities, project schedule, lines of responsibility, communication needs, and other requirements. (month 1 thru 24)

The following actions have been completed during this reporting period:

- a. TAES personnel attended Red River Authority annual meeting on 10-28-04 to discuss current data collection and the possibility of coordinating efforts.
- b. TAES personnel provided Hall-Childress SWCD a monthly update and attend Board Meetings upon request or as needed.
- c. TAES personnel began sharing Project data with Dr. C. Santhi at the TAMU Blackland Research and Extension Center. Dr. Santhi is currently modeling Buck Creek and the Lower Prairie Dog Fork of the Red River. TAES personnel provided site flow rates, wildlife and agronomic information of the Buck Creek Watershed, information pertinent to the modeling project, to Dr. Santhi.
- d. TAES personnel sent a year end update of *E. coli* colony counts to Dr. Di Giovanni in December.
- e. In December, Mr. Jason Ott, Research Associate for TAES, took a position with TCE and will no longer be involved in the Buck Creek Project.

40% Complete

Subtask 1.2: TAES will prepare electronic quarterly reports. All progress reports will also be provided to TCE project cooperators and participants, and Hall-Childress, Collingsworth, and Donley SWCD directors. (month 1 thru 24)

The following actions have been completed during this reporting period:

- a. Submitted Year 2, quarter 1 report to TSSWCB on 1-14-05.

50% Complete

Subtask 1.3: TCE will provide leadership for educational programs about water pollution and project findings. (month 1 thru 24)

The following actions have been completed during this reporting period:

- a. Presentation was developed outlining background of project area and purpose of sampling. The presentation was added to the Project Website.

10% Complete

Subtask 1.4: TAES and TCE will develop an electronic final report, which will include an executive summary of data collected during the project and educational program.

The following actions have been completed during this reporting period:

- a. No progress to report at this time.

0% Complete

Subtask 1.5: TSSWCB, TWRI, RRA and local SWCDs will assist, when needed, with composition, editing, and publication of final report (month 1 thru 24)

The following actions have been completed during this reporting period:

- a. No progress to report at this time.

0% Complete

TASK 2: Micro-Watershed Monitoring and Sampling

Subtask 2.1 Develop DQOs and a QAPP to be approved by USEPA. (month 1 thru 3)

100% Complete

Subtask 2.2: Select 12 or 13 sites to conduct water quality sampling. Maintain water quality monitoring equipment and collect water samples. (month 1 thru 24)

100% Complete

Subtask 2.3 TAES will obtain sampling locations and deploy in accordance with arrangements made. (month 4 thru 21)

100% Complete

Subtask 2.4 TAES will perform routine sampling, (grab sampling) at strategic locations within the Buck Creek watershed. (month 4 thru 21)

The following actions have been completed during this reporting period:

- a. GPS of sites 1 thru 7 was conducted on 10-18-04. GPS of sites 8-13 will be conducted when weather permits.
- b. Continued bi-weekly sampling activities on sites 1 thru 13.

- c. Due to variability in flow at each site, TAES personnel developed a site flow rate table (Table 1) to track sampling sites. Due to significant rainfall in area, Sites 3, 4, 5, 6, 10 and 11 are flowing consistently, which provides additional data for analysis.
- d. Using the North Plains EvapoTranspiration (NPET) Website, which collects information at a station near Wellington, Texas on Hwy 83, an approximate halfway point on Buck Creek, TAES researchers compiled a precipitation record (Table 2) for the Project starting in April 2004. Additional information about the Website was reported in the fourth quarterly project report.
- e. TAES personnel developed a Project Website to provide background information on Buck Creek and the Project. The address for the Buck Creek – Water Quality Project is http://vernon.tamu.edu/Agronomy/buck_creek.htm.

40% Complete

Subtask 2.5: TAES will collect a minimum of 8 rain event/high flow grab samples from the sites over the course of the study. (month 4 thru 25)

The following actions have been completed during this reporting period:

- a. Rainfall event reported on 11-18-04 and sites 4, 5 and 11 were sampled.
- b. Six of the required eight rainfall events have been collected to date. As new rainfall events occur, samples collected will replace those events where less data is present.

60% Complete

Subtask 2.6 TAES will compile and analyze the sampling data. Data will be for informational and assessment purposes due to the limited data previously collected. (month 4 thru 24)

The following actions have been completed during this reporting period:

- a. Sample analysis continued with counts produced for sites 3, 4, 5, 10 and 11. On sites where previous data were collected (sites 3, 4 and 10), personnel observed a reduction in both *E. coli* and *Fecal coli* (taken only at site 11) counts. The reduction can possibly be attributed to cooler weather and additional rainfall creating more creek flow.
- b. Although numbers continue to exceed EPA Texas Surface Water Standards, it is possible within the months of January and February, three or more sites could meet the geometric means with the current trend in declining colony counts.

40% Complete

Table 1: Flow rates of sampling sites along Buck Creek from project inception.

Date:	Site 01	Site 02	Site 03	Site 04	Site 05	Site 06	Site 07	Site 08	Site 09	Site 10	Site 11	Site 12	Site 13
10-May	6	2	2	3	3	3	2						
17-May								6	6	3	2	2	6
24-May	6	1	2	2	3	3	1						
1-Jun								6	6	3	3	1,2	1
5-Jun	6	6	2	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
8-Jun	6	1	2	3	3	1	1						
15-Jun								6	6	3	3	3	3
20-Jun	6	6	RC-NC	3	5	6	1	6	6	RC-NC	5	5	3
27-Jun	6	6	RC-NC	3	5	1	6	6	6	RC-NC	3	3	3
7-Jul	6	6	3	3	3	6	6						
13-Jul							6	6	6	3	3	3	3
19-Jul	6		2	2,3	1	6	6						
28-Jul	RC-NC	RC-NC	RC-NC	3	3	6	2	RC-NC	RC-NC	RC-NC	3	2	
3-Aug							6	6	6	3	1	1	1
11-Aug	6	6	2	2	6	6	6	6	6	3	6	1	6
24-Aug	6	6	2	3	6	1	6	6	6	2,3	6	6	6
9-Sep	6	6	3	3	6	6	6	6	6	3	6	6	6
22-Sep	6	6	2	1,2	6	6	6	6	6	3	6	6	6
6-Oct	1	1	RC-NC	2	5	6	6	6	6	RC-NC	6	6	6
18-Oct	6	6	2	2	2,3	6	6	6	6	2,3	6	6	6
4-Nov	6	1	3	3	3	6	6	6	6	RC-NC	2	6	6
16-Nov	RC-NC	RC-NC	RC-NC	3	5	RC-NC	6	RC-NC	RC-NC	RC-NC	5	6	RC-NC
1-Dec	6	6	5	5	5	3	6	1	6	3	3	6	1
8-Dec	6	6	5	5	3,5	3,5	6	1	6	3	3	6	6
20-Dec	6	6	5	5	3	3	6	6	6	3	3	6	1
3-Jan	6	6	3,5	3,5	3	3	6	6	6	3	3	6	6

Dates in bold indicate a rainfall event

Flow Rating System:

RC – Road condition was bad and project personnel were unable to check flow rate

NC – Unable to check for flow

1 – Water, no flow

2 – Low flow, barely moving

3 – Moderate, normal flow

4 – Flood

5 – High water, fast flowing

6 – Dry

Table 2: Precipitation record for Buck Creek since project inception. Rainfall amounts were collected from the North Plains EvapoTranspiration (NPET) station, which is located near Wellington Texas on Hwy 83 (an approximate halfway point on Buck Creek).

Date	Rainfall (inches)
April	2.87"
May	0.46"
June	4.02"
July	1.53"
August	1.00"
September	1.79"
October	3.07"
November	6.05"
December	0.20"
2004 Total	20.99"

III. Related Issues/Current Problems and Favorable or Unusual Developments

TAES personnel have had difficulty in locating a meeting area for the informational session for the general public. Efforts will be made during the next quarter to arrange a meeting location and agenda and take the necessary steps to promote meeting attendance.

IV. Projected Work for Next Quarter

The following will be accomplished during the coming quarter:

- a. Quarterly Project Reports as well as other pertinent information will be added to the Project Website.
- b. TWRI will become more involved in ensuring County Extension Agents are kept abreast of project activities.
- c. An assessment of data collected during the first year will be conducted in February to determine if BST will be necessary in Buck Creek.
- d. Meeting arrangements will be made to host an information session for the general public and a progress update meeting for project personnel involved and affected.
- e. Weather permitting, sites 8 thru 13 will be recorded with GPS.