

**Surface Water Quality Monitoring and Additional Data Collection Activities
to Support the Implementation of the Plum Creek Watershed Protection Plan**
Guadalupe-Blanco River Authority
Contract No. 10-07

Quarterly Report Number 1

Covering work accomplished November 1, 2010 through December 31, 2010

January 15, 2011

TASK 1: Project Administration and Coordination

Subtask 1.1: GBRA will prepare electronic quarterly progress reports (QPRs) for submission to TSSWCB. QPRs shall document all activities performed within a quarter and shall be submitted by the 15th of January, April, July and October. QPRs shall be distributed to all project partners and posted on the project website.

- The Agreement became effective November 1, 2010. GBRA prepared the progress report for November 2010 through December 2010 to be submitted on January 15, 2011.

5% complete – On-going

Subtask 1.2: GBRA will perform accounting functions for project funds and will submit appropriate reimbursement forms to TSSWCB at least quarterly.

- GBRA will submit an invoice covering activities conducted in the months of November 2010 through December 2010 on or before January 31, 2011.

5% complete – On-going

Subtask 1.3: GBRA will participate in coordination meetings or conference calls with the TSSWCB, hosted by AgriLife Extension through TSSWCB project 08-07, at least quarterly to discuss project activities, project schedule, communication needs, deliverables, and other requirements. GBRA will develop lists of action items needed following each project coordination meeting and distribute to project personnel.

- No activities were conducted under this task in this quarter.

0% complete – On-going

Subtask 1.4: GBRA will attend and participate in the PCWP, Steering Committee and TAG meetings and other meetings as appropriate in order to communicate project goals, activities, achievements, and accomplishments to affected parties.

- GBRA followed up on discussion to fund a local watershed coordinator.

- Called the second meeting of funding partners on November 2, 2010 to discuss sustainability of implementation projects, interlocal agreement for funding local watershed coordinator and possible grant application.
- Prepared 2011 319 grant application for local watershed coordinator and submitted to TSSWCB.
- Drafted interlocal agreement to establish funding mechanism for consideration by each partners' governing body.
- Assisted Nikki Dictson with review of calculations for proportioning match between entities.
- November 17 - GBRA Board gave approval to enter into interlocal agreement and contribute funds for match, based on proportioning calculations.
- December 9, 2010 - GBRA, along with TSSWCB, made presentation to PCWP steering committee on sustaining PCWP and grant for watershed coordinator.
- November 11 and 29 - GBRA was briefed by AgriLife on the Hillside Terrace subdivision and any assistance that GBRA could provide.
- GBRA called USGS to discuss feasibility of isotope studies to determine source of elevated nitrates.
- December 7, 2010 - Debbie Magin attended the city of Buda's council meeting to be back up to Nikki Dictson as she presented PCWP status report.
- GBRA is assisting the city of Lockhart with certain aspects of their 319 nonpoint source grant funded through TCEQ:
 - Provided city with example illicit discharge scope of work.
 - Provided city with example Request for Qualifications.
 - Will draft QAPP for illicit discharge monitoring project.
- December 9, 2010 - Debbie Magin presented a report on the new monitoring project to the PCWP steering committee quarterly meeting in Lockhart.

5% complete – On-going

Subtask 1.5: GBRA will develop and disseminate project informational materials, but not limited to flyers, brochures, letters, news releases and other appropriate promotional publications. As appropriate, GBRA will include information about the project, in the GBRA River Run and other publications. TSSWCB must approve all announcements, letters and publications prior to distribution.

- Lee Gudgell maintained the continuous water quality monitoring station at Plum Creek at CR 202 and made data available on TCEQ CWQMS webpage.
- GBRA Education Department (Cinde Thomas Jimenez, education coordinator,) conducted outreach and education activities, including dissemination of information about the Plum Creek, the Partnership and related projects:
 - Watershed Model Presentations, highlighting the Plum Creek watershed, made to over 900 4th and 5th graders:
 - November 2, 2010 - Hemphill Elementary in Kyle; Stream team member trained on watershed model. Texas Stream Team will help GBRA with watershed

demonstrations. Stream team demonstrated at Bluebonnet in Lockhart and Kyle Elementary in Kyle.

- November 8, 2010 - Pfluger Elementary in Buda
- November 15, 2010 - Fuentes Elementary in Kyle
- November 16, 2010 - Camino Real Elementary in Neiderwall
- November 23, 2010 - Shanklin Elementary in Luling
- Lee Gudgell met with Lockhart students at Lockhart State Park to collect and helped identify macroinvertebrates in Plum Creek.
- Started Plum Creek class water quality monitoring project:
 - Prepared packets for Plum Creek class monitoring project.
 - November 29 - December 2 - Conducted first water sample and testing at elementary schools in watershed.
 - Stream Team and GBRA took water to classes for monitoring project.
 - Provided chart for teachers use during project.

25% complete – On-going

Subtask 1.6: GBRA will continue to host and maintain an internet webpage <http://www.gbra.org/plumcreek/> for the dissemination of information.

- November 23, 2010 - GBRA updated data tables. Those tables were posted to the GBRA Plum Creek webpage.

5% complete - On-going

Subtask 1.7: GBRA will summarize the results and activities of this project through inclusion in GBRA's Clean River Program Basin Highlights Report and/or Basin Summary Report.

GBRA will provide updates on the results and activities of this project to the PCWP Steering Committee and in revisions to the Plum Creek WPP.

GBRA will develop a final Assessment Data Report summarizing water quality data collected through Tasks 3-8. The Report shall, at a minimum, provide an assessment of water quality with respect to effectiveness of BMPs implemented and a discussion of interim short-term progress in achieving the Plum Creek WPP water quality goals.

- December 9, 2010 - Debbie Magin gave a presentation on the monitoring project (#10-07) to the Plum Creek Watershed Partnership Steering Committee.

5% complete – On-going

TASK 2. Quality Assurance

Subtask 2.1: GBRA develop a QAPP for activities in Tasks 3-10 consistent with EPA *Requirements for Quality Assurance Project Plans (QA/R-5)* and the *TSSWCB Environmental Data Quality Management Plan*.

Consistency with Title 30, Chapter 25 of the Texas Administrative Code, *Environmental Testing Laboratory Accreditation and Certification*, which describes Texas' approach to implementing the National Environmental Laboratory Accreditation Conference (NELAC) standards, shall be required.

All monitoring procedures and methods prescribed in the QAPP shall be consistent with the guidelines detailed in the *TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue (RG-415)* and *Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data (RG 416)*.

- The QAPP was submitted to TSSWCB on December 7, 2010.

10% completed – On-going

Subtask 2.2: GBRA will submit revisions and necessary amendments to the QAPP as needed.

- No activity on this task in this quarter.

0% completed – On-going

Subtask 2.3: In anticipation of conducting Bacterial Source Tracking (BST) in the watershed as called for in the Plum Creek WPP, GBRA will work to obtain NELAC accreditation for EPA method 1603.

- No activity on this task in this quarter.

0% completed – On-going

TASK 3. Routine Ambient Surface Water Quality Monitoring

Subtask 3.1: GBRA will conduct routine ambient monitoring at 5 sites monthly, collecting field, conventional, flow and bacteria parameters groups.

Sampling period extends through 34 months. Total number of sample events scheduled for collection through this subtask is 170. Currently, routine ambient monitoring is conducted at 3 stations by GBRA (17406, 12640 and 12647) through the Clean Rivers Program. Sampling through this subtask will complement existing routine ambient monitoring regimes such that routine water quality monitoring is conducted monthly at 8 sites in the Plum Creek watershed.

GBRA's regional laboratory will conduct sample analysis.

Field parameters are pH, temperature, conductivity, and dissolved oxygen. Conventional parameters are total suspended solids, turbidity, sulfate, chloride, nitrate nitrogen, ammonia nitrogen, total kjeldahl nitrogen, chlorophyll a, pheophytin, total hardness, and total phosphorus. Flow parameters are flow collected by gage, electric, mechanical or Doppler, including severity. Bacteria parameters are *E. coli*.

- No monitoring scheduled for this project was conducted in this quarter. Waiting for approval of QAPP.
- Water Quality Monitoring was conducted at routine sites under the QAPP for Project #10-54, *Surface Water Quality Monitoring to Support the Implementation of the Plum Creek Watershed Protection Plan*, and submitted to TSSWCB. Labor for the sample events will be applied as match to this project and not to project #10-54.

0% completed – On-going

TASK 4. Targeted Watershed Surface Water Quality Monitoring

Subtask 4.1: GBRA will conduct targeted watershed monitoring at 35 sites twice per season, once under dry weather conditions and once under wet weather conditions, collecting field, conventional, flow and bacteria parameters groups. Of these 35 sites, 8 sites shall be the same as the sites for routine ambient monitoring described in Task 3 and 3 sites shall be the same as the sites for storm event monitoring described in Task 5, allowing for 24 sites for targeted watershed monitoring only.

Sampling period extends through 11 seasons. Total number of sample events scheduled for collection through this subtask is 770. Spatial, seasonal and meteorological variations will be captured in these snapshots of watershed water quality.

GBRA's regional laboratory will conduct sample analysis.

Field parameters are pH, temperature, conductivity, and dissolved oxygen. Conventional parameters are total suspended solids, nitrate nitrogen, ammonia nitrogen, total kjeldahl nitrogen and total phosphorus. Flow parameters are flow collected by gage, electric, mechanical or Doppler, including severity. Bacteria parameters are *E. coli*.

- No activity in this quarter. Waiting for approval of QAPP.

0% completed – On-going

TASK 5. Storm Event Water Quality Monitoring

Subtask 5.1: GBRA will conduct automated storm event monitoring at 3 urban/residential sites during 4 storm events annually collecting field, conventional, flow and bacteria parameter groups. The deployment sites will be located so that there is no duplication of monitoring with efforts funded through other projects or entities. Depending on meteorological conditions and availability of funds, additional sites may be identified for storm event monitoring.

Sampling period extends over 34 months. Total number of storm events scheduled for collection through this subtask is 4 per year, or 12 over the course of the project, resulting in 36 sampling events. Depending on meteorological conditions, seasonal variation in storm events will be captured.

GBRA's regional laboratory will conduct sample analysis.

Field parameters are pH, temperature, conductivity, and dissolved oxygen. Conventional parameters are total suspended solids, sulfate, chloride, nitrate nitrogen, ammonia nitrogen, total kjeldahl nitrogen and total phosphorus. Flow parameters are flow collected by gage, electric, mechanical or Doppler, including severity. Bacteria parameter is *E. coli*.

- No activity in this quarter. Waiting for approval of QAPP.

0% completed -- On-going

TASK 6. 24-Hour DO Surface Water Quality Monitoring

Subtask 6.1: GBRA will conduct 24-hour DO monitoring at 7 sites monthly during the index period collecting field and flow parameters groups. These sites shall be the same as the sites for routine ambient monitoring described in Task 3 except for the site at CR 202 because GBRA currently maintains a continuous water quality monitoring module that collects the flow and field parameters every hour.

Sampling period extends over 8 months during the index period between March 15 and October 15. Samples will be collected during the index periods that fall in 34 months of the project. Total number of sample events scheduled for collection through this subtask is 154.

Field parameters are pH, temperature, conductivity, and dissolved oxygen. Flow parameters are flow collected by gage, electric, mechanical or Doppler, including severity.

- No diurnal sampling was conducted in this quarter.

0% completed -- On-going

TASK 7. Effluent Surface Water Quality Monitoring

Subtask 7.1: GBRA will conduct effluent monitoring at 7 WWTFs once per month, collecting field, conventional, flow, bacteria and effluent parameter groups.

Sampling period extends through 34 months. Total number of sample events scheduled for collection through this subtask is 238.

GBRA's regional laboratory will conduct sample analysis.

Field parameters are pH, temperature, conductivity, and dissolved oxygen. Conventional parameters are total suspended solids, sulfate, chloride, nitrate nitrogen, ammonia nitrogen, total kjeldahl nitrogen and total phosphorus. Flow parameters are flow collected by gage, electric, mechanical or Doppler, including severity. Bacteria parameter is *E. coli*. Effluent parameters are BOD, CBOD, and COD.

- No wastewater treatment facilities were sampled in this quarter. Waiting for approval of QAPP.

0% completed - On-going

Subtask 7.2: To supplement the data collected in Subtask 7.1, GBRA will compile all the weekly permit effluent monitoring data as submitted by permittees that includes BOD, total suspended solids, volatile suspended solids, *E. coli*, ammonia nitrogen and total phosphorus from seven WWTFs.

- No activities were conducted on this task in this quarter.

0% completed - On-going

TASK 8. Springflow Water Quality Monitoring

Subtask 8.1: GBRA will conduct springflow monitoring at 3 springs once per season collecting field, conventional, flow, and bacteria groups.

Sampling period extends through 11 seasons. Total number of sample events scheduled for collection through this subtask is 33. Spatial and seasonal variation in springflow will be captured.

GBRA's regional laboratory will conduct sample analysis.

Field parameters are pH, temperature, conductivity, and dissolved oxygen. Conventional parameters are total suspended solids, sulfate, chloride, nitrate nitrogen, ammonia nitrogen, total kjeldahl nitrogen and total phosphorus. Flow parameters are flow collected by gage, electric, mechanical or Doppler, including severity. Bacteria parameter is *E. coli*.

- No spring locations were sampled in the quarter. Waiting for approval of QAPP.

0% completed – On-going

TASK 9. Leona Aquifer Groundwater Water Quality Monitoring

Subtask 9.1: GBRA will subcontract with PCCD to inventory up to 30 wells. Metadata, including water depth, installation method (hand-dug or mechanical), date of installation, cased, sealed or open, use of water, land use in immediate area of well, and proximity to Plum Creek or tributary will be collected. A map will be produced, using GPS coordinates that will display the location of each well.

- No activity for this task occurred in the quarter.

0% completed – On-going

Subtask 9.2: GBRA will subcontract with PCCD to collect water samples from the wells inventoried in Subtask 9.1. Total number of sample events to be collected through this subtask should not exceed 30.

- No activity for this task occurred in the quarter.

0% completed – On-going

TASK 10. Gain/Loss Study

Subtask 10.1: USGS will conduct a gain/loss study on the Plum Creek watershed, based on five locations within the watershed. Stations included in the study will be Plum Creek at Plum Creek Road (17406), Plum Creek at CR202 (12647), Plum Creek at CR135 (12640), Clear Fork at Salt Flat Road (12556), and West Fork Plum Creek at Biggs Road (CR 131) (20500). The study will include two synoptic condition surveys.

- GBRA started negotiations with USGS about the gain/loss study. The study will be added to the current USGS/GBRA annual agreement (attached).

10% completed – On-going

TASK 11. Water Quality Kiosks

Subtask 11.1: GBRA will design, construct and install three public information kiosks. Each kiosk will contain a computer that provides a link to the real-time flow data collected at USGS gaging stations in the Plum Creek watershed; provides a link to real-time data being recorded at the GBRA Plum Creek at

CR202 continuous water quality monitoring station; and, provides a link to the Plum Creek Watershed Partnership and GBRA project webpages. The kiosks will also have general water quality information and training for homeowners, such as the GBRA *River of Life*, and “*Don’t be Clueless about the Plum Creek Watershed*”, and the training modules produced by the “Taking Charge of Water Quality in the Plum Creek Watershed” (developed through TCEQ CWA 106 funds) project including the Wastewater Treatment Module and the On-site Waste Treatment module.

Kiosks will be installed in three locations in the watershed. One location will be in the Kyle area; one kiosk will be located in the Lockhart area; and one kiosk will be located in Luling. In order to have access to electricity and internet service, public libraries will be the preferred location for the kiosks.

- No activity for this task occurred in the quarter.

0% completed -- On-going

Subtask 11.2: GBRA will advertise the availability and locations of the kiosks through news releases, internet postings, newsletter announcements, public/conference presentations, flyers, etc., to enhance awareness. All announcements, letters, and publications will be reviewed and approved by the TSSWCB prior to dissemination.

- No activity for this task occurred in the quarter.

0% completed – On-going

TASK 12. Data Management

Subtask 12.1: GBRA will submit Station Location Requests as needed to obtain TCEQ station numbers for new monitoring sites from activities in Tasks 3-8.

- No activity for this task occurred in the quarter.

0% complete -- On-going

Subtask 12.2: GBRA will transfer monitoring data from activities in Tasks 3-8 to TSSWCB for inclusion in the TCEQ SWQMIS. Data will be transferred in the correct format using the TCEQ file structure, along with a completed Data Summary, as described in the most recent version of the TCEQ *Surface Water Quality Monitoring Data Management Reference Guide*.

Data Correction Request Forms will be submitted to TSSWCB whenever errors are discovered in data already reported.

All monitoring data files, Data Summary and Data Correction Request Forms will also be provided to AgriLife Extension.

GBRA will also transfer the data from activities in Tasks 9 and 10 to TSSWCB in the appropriate format for those monitoring activities.

- No activity for this task occurred in the quarter.

0% complete – On-going

Subtask 12.3: GBRA will post monitoring data from activities in Tasks 3-8 and effluent monitoring data from Subtask 7.2 to the GBRA website in a timely manner.

- November 23, 2010 - Data collected under Project #10-54, *Surface Water Quality Monitoring to Support the Implementation of the Plum Creek Watershed Protection Plan*, was posted to the GBRA Plum Creek webpage. Labor to do the posting is being applied as match to this project and not to Project #10-54.

0% complete – On-going

Related Issues/Current Problems and Favorable or Unusual Developments

GBRA investigated a fish kill on the Plum Creek caused by a release of insufficiently treated wastewater from the City of Kyle Wastewater Treatment Plant. Data and reports are included in this submittal.

A rancher with property that lies between Town Branch and Plum Creek, near the city of Lockhart, contacted Texas Parks and Wildlife that a cow died and the vet found some evidence of nitrate poisoning. The land owner had the creek water tested and found extremely high nitrates. TPWD and TCEQ have sampled both creeks and the City of Lockhart Larremore WWTP that discharges to the Town Branch multiple times and found normal and non-toxic concentrations. Reports, data and emails are attached.

Projected Work for Next Quarter

The following will be accomplished during the coming quarter:

- a. Contact three libraries in watershed to negotiate spot for kiosks.
- b. QAPP will be approved.
- c. Monitoring described in tasks 3-8 will begin.
- d. Begin preparation of screen shots that will be loaded onto kiosks after TSSWCB approval.

Attachments – Task 1

**INTERLOCAL AGREEMENT AMONG
HAYS COUNTY, CALDWELL COUNTY, CITY OF LULING, CITY OF KYLE,
CITY OF BUDA, CITY OF LOCKHART, GUADALUPE-BLANCO RIVER AUTHORITY,
PLUM CREEK CONSERVATION DISTRICT, CALDWELL-TRAVIS SOIL AND WATER CONSERVATION
DISTRICT, HAYS COUNTY SOIL AND WATER CONSERVATION DISTRICT #351 REGARDING
IMPLEMENTATION OF THE PLUM CREEK WATERSHED PROTECTION PLAN**

This Interlocal Agreement is made and entered into, effective the ____ day of _____, 2010 ("Effective Date") by and among Hays County Texas ("Hays County"), Caldwell County Texas ("Caldwell County"), City of Luling ("Luling"), City of Kyle ("Kyle"), City of Buda ("Buda"), City of Lockhart ("Lockhart"), Guadalupe-Blanco River Authority ("GBRA"), Plum Creek Conservation District ("PCCD"), Caldwell-Travis Soil and Water Conservation District ("Caldwell-Travis SWCD"), and Hays County Soil and Water Conservation District #351 ("Hays County SWCD"), jointly known as the "Parties." This Interlocal Agreement is entered into by the Parties pursuant to the authority granted and in compliance with, the provisions of the "Interlocal Cooperation Act," as amended, Texas Government Code, Chapter 791. This Interlocal Agreement is intended to further the purpose of the Interlocal Cooperation Act, which is to increase the efficiency and effectiveness of local governments.

WHEREAS in 2006, the Plum Creek Watershed Partnership ("PCWP") was established to restore and protect the water quality in Plum Creek and each Party named above has had representatives in the PCWP throughout that time; and

WHEREAS since that time over 2 million dollars have been dedicated to the development and implementation of the highly recognized Plum Creek Watershed Protection Plan ("PCWPP"); and

WHEREAS, the PCWPP is a roadmap to restore water quality in Plum Creek and includes data collection and water quality monitoring, implementation of best management practices to address pollution from agriculture and urban sources, and outreach and education; and

WHEREAS, the PCWPP is the first watershed protection plan in the State of Texas to be fully accepted by the US Environmental Protection Agency ("EPA"); and

WHEREAS the Plum Creek Watershed Coordinator, currently Texas AgriLife, facilitates the PCWPP and meetings; secures funding through writing grants, tracks the progress of implementing the PCWPP; and reports water quality trends resulting from implementation of the PCWPP; and

WHEREAS, in 2011, current federal funding for the Plum Creek Watershed Coordinator will end; and

WHEREAS, the Parties desire to continue to work together in a cooperative manner in an effort to continue to develop and implement the PCWPP and to obtain additional funding to support such efforts;

NOW THEREFORE, the Parties have mutually agreed to enter into this Interlocal Agreement regarding implementation of the Plum Creek Watershed Protection Plan and to proceed as follows:

ARTICLE I
PILOT PROGRAM

The Parties agree to establish a three (3) year pilot program for the funding of a watershed coordinator for implementation of the PCWPP. Such program will be the responsibility of the PCWP. The PCWP will appoint a Managing Partner who will hire a Plum Creek Watershed Coordinator.

ARTICLE II
PCWP

The PCWP will designate one (1) PCWP member to be the Managing Partner. The PCWP is also responsible for the development of the job description and responsibilities of the Plum Creek Watershed Coordinator and the annual budget for the three (3) year pilot program.

ARTICLE III
MANAGING PARTNER

The Managing Partner, after consulting with PCWP members, will hire an individual, on a temporary contract basis to be the Plum Creek Watershed Coordinator. Additionally the Managing Partner will supervise the Plum Creek Watershed Coordinator. The Plum Creek Watershed Coordinator will be temporarily housed in Seguin or Lockhart or such other location that the Managing Partner, after consulting with the PCWP, decides.

ARTICLE IV
PLUM CREEK WATERSHED COORDINATOR

The primary responsibilities of the Plum Creek Watershed Coordinator are stated and listed on Attachment A to this Interlocal Agreement. Additionally various tasks of the Plum Creek Watershed Coordinator are stated and listed on Attachment B to this Interlocal Agreement.

ARTICLE V
FUNDING

The Parties agree to cooperate and coordinate together in determining the amount of funds that will be necessary to financially support the pilot program over the next three (3) years. The PCWP will develop the annual budget. In developing the budget the PCCD has committed to provide 25% of the funds needed for the pilot program, with the anticipation that other local entities will provide the balance. Additionally the TSSWCB has committed to utilize Clean Water Act 319 funding to provide the balance of the remaining funds needed to support the Plum Creek Watershed Coordinator position for at least the three (3) year pilot program. The

Parties understand and agree that any funding commitment by a particular PCWP member is subject to approval and appropriation by the governing body of such PCWP member. Any payments made by or financial obligations of any party under this Agreement shall be made from current revenues available to the paying party. The Parties estimate that the annual cost for the pilot program will be approximately \$80,000, consisting of funds for a computer, cell phone, supplies, publications and travel expenses.

The Parties further agree that other opportunities for funding shall be actively pursued throughout the course of this Interlocal Agreement. Other sources of funding which shall be pursued include, but are not limited to, federal, state, non-profit, non-government affiliated private or public grants; and various state and federal funding opportunities. The Parties agree to cooperate and coordinate to present a unified approach for federal and state funding requests.

ARTICLE VI STATISTICS AND DOCUMENTS

The Parties shall properly, accurately and completely maintain all documents, papers, records, and other evidence regarding implementation of the PCWPP. To further the purpose of cooperative administration of the activities described within this Interlocal Agreement, the Parties agree to make document and record materials available to one another, upon reasonable notice, and as often as each Party may require for purpose of inspection, examination, and/or copying of same.

The Managing Partner shall maintain and retain a complete set of any and all documents, papers, records, and other evidence produced as a result of this Interlocal Agreement. All relevant documents in possession of each of the Parties shall be available at all times to the other Parties. If necessary, a reproduction of a document may be submitted and it shall be so marked, and the original shall be maintained and made available to the Party retaining said original document.

Where proprietary records and documents that are not necessarily a product of the activities conducted under this Interlocal Agreement are needed to further an activity or function of this Interlocal Agreement, the Parties agree to communicate to one another the specific time, place and document or record needed and the time parameters within which the document or record is being requested for examination prior to the actual examination in order that proper arrangements can be made for optimum use of time and personnel. The Parties specifically agree to make available for examination all records of financial transactions and expenditures, along with the proper personnel to explain the records and the nature of the expenditures or transaction, insofar as the expenditure or transaction is related to the activities described within this Interlocal Agreement. This provision shall be agreed to by the Parties in order to provide full accountability and complete honesty in documenting and sharing the information generated by this Interlocal Agreement.

ARTICLE VII
ASSIGNMENT

The Parties acknowledge that they may not assign their obligations and duties under this Interlocal Agreement to any outside entity, consultant or manager without the prior written approval of the other Parties to this Interlocal Agreement.

ARTICLE VIII
DISPUTES

The Parties agree to use due diligence to cooperate and communicate with each other to resolve any and all disputes which may arise under this Interlocal Agreement. The Parties agree that before they will exercise the termination rights described in Article X, they will attempt to resolve the dispute and will allow the non-disputing Parties the opportunity to cure the alleged dispute. In the event they are unable to do so, the Parties agree to mediate the dispute prior to exercising their termination rights.

ARTICLE IX
TERM

This Interlocal Agreement shall be for a period of one year commencing upon the date the last of the Parties signs this Interlocal Agreement which shall constitute the Effective Date. The term of this Interlocal Agreement shall be automatically renewed each year not to exceed three (3) years unless terminated earlier as provided in Article X.

ARTICLE X
TERMINATION

The termination of this Interlocal Agreement shall occur three (3) years after the Effective Date. In the event a Party to this Interlocal Agreement determined it is in the best interest of that Party to withdraw from this Interlocal Agreement, the Party may withdraw by giving ninety (90) days written notice of such intent to the remaining Parties at the addresses provided in Section XII of this Interlocal Agreement.

The withdrawing Party shall cooperate with the remaining Parties to achieve a proper transition time period to allow the remaining Parties to restructure the services provided by the Parties. The withdrawing Party shall give the remaining Parties access to the materials and documents in the withdrawing Party's possession which could assist the remaining Parties in carrying out the plans and operations initiated under this Interlocal Agreement.

ARTICLE XI
AMENDMENT

No amendment, modification or alteration of the terms of this Interlocal Agreement shall be binding unless it is in writing, dated subsequent to the date hereof, and be agreed to and duly executed by each of the Parties after official action by each of the respective governing bodies of the ~~other~~ Parties.

ARTICLE XII
NOTICES

Notices to any Party required or appropriate under this Interlocal Agreement shall be deemed sufficient if in writing and mailed US postage prepaid.

To Hays County. Notices to Hays County shall be addressed to:

and to such other addresses as may hereafter be designated in writing by the Hays County Judge.

To Caldwell County. Notices to Caldwell County shall be addressed to:

and to other such addresses as may herein be designated in writing by the Caldwell County Judge.

To GBRA. Notices to GBRA shall be addressed to:

General Manager
Guadalupe-Blanco River Authority
933 East Court Street
Seguin, TX 78155

or to such other addresses as may herein be designated in writing by the General Manager of GBRA.

To Luling. Notices to Luling shall be addressed to:

and to other such addresses as may herein be designated in writing by the City Manager of Luling.

To Kyle. Notices to Kyle shall be addressed to:

and to other such addresses as may herein be designated in writing by the City Manager of Kyle.

To Buda. Notices to Buda shall be addressed to:

and to other such addresses as may herein be designated in writing by the City Manager of Buda.

To Lockhart. Notices to Lockhart shall be addressed to:

and to other such addresses as may herein be designated in writing by the City Manager of Lockhart.

To PCCD. Notices to Plum Creek Conservation District shall be addressed to:

and to other such addresses as may herein be designated in writing by the _____ of PCCD.

To Caldwell-Travis SWCD. Notices to Caldwell-Travis SWCD shall be addressed to:

and to other such addresses as may herein be designated in writing by the _____ of Caldwell-Travis SWCD.

To Hays County SWCD. Notices to Hays County SWCD shall be addressed to:

And to other such addresses as may herein be designated in writing by the _____ of Hays County SWCD.

ARTICLE XIII
RELATIONSHIP OF PARTIES

Nothing contained herein shall be deemed or construed by the Parties, or by any third party, as creating the relationship of principal and agent, joint venture or any other similar relationship

between the Parties. It is understood and agreed that no provisions contained herein nor any acts of the Parties hereto create a relationship between the Parties other than that of independent contractor. In keeping with the provision of its services as an independent contractor, each Party shall be responsible for its respective acts or omissions. No Party has the authority to bind the other or to hold out to third parties that it has the authority to bind the other.

ARTICLE XIV
APPLICABLE LAW

This Interlocal Agreement shall be construed under and in accordance with the laws of the State of Texas and all obligations of the Parties created hereunder are performable in either Hays or Caldwell Counties, Texas.

ARTICLE XV
LEGAL CONSTRUCTION

In case any one or more of the provisions contained in this Interlocal Agreement shall for any reason be held to be invalid, illegal or unenforceable in any respect, such shall not affect any other provisions hereof and this Interlocal Agreement shall be construed as if such invalid, illegal, or unenforceable provision had never been contained herein.

ARTICLE XVI
COMPLIANCE WITH LAWS AND ORDINANCES

The Parties hereby agree to comply with all federal, state and local laws and ordinances applicable to the work or services to be performed under this Interlocal Agreement. The Parties acknowledge that they are subject to the Texas Public Information Act and the exceptions stated in such Act.

ARTICLE XVII
PARTIES BOUND

This Interlocal Agreement shall be binding upon and inure only to the benefit of the Parties hereto and their respective successors and assigns where permitted by this Interlocal Agreement.

In Witness Whereof, the Parties have executed in multiple originals, each of which shall have the full force and effect of an original, this Interlocal Agreement.

Hays County

Caldwell County

By: _____

By: _____

Date: _____

Guadalupe-Blanco River Authority

By: _____

Date: _____

City of Kyle

By: _____

Date: _____

City of Lockhart

By: _____

Date: _____

Caldwell-Travis SWCD

By: _____

Date: _____

Date: _____

City of Luling

By: _____

Date: _____

City of Buda

By: _____

Date: _____

Plum Creek Conservation District

By: _____

Date: _____

Hays County SWCD

By: _____

Date: _____

ATTACHMENT A

PRIMARY RESPONSIBILITIES OF PLUM CREEK WATERSHED COORDINATOR

- Work with counties, cities, local boards and businesses to identify management measures to improve water quality and develop funding mechanisms for putting them in place.
- Work with state and federal agencies and organizations, as appropriate, to bring technical and financial resources to the watershed.
- Pursue external funding to reduce or cover costs for the project (salary and operating).
- Track and document implementation efforts to assess progress toward established goals.
- Evaluate water quality data to monitor progress and determine the need for new approaches.
- Coordinate and conduct water resources and related environmental outreach education efforts across the watershed, including organizing training programs and participating in local community clean-up events.
- Develop publications (newspaper, newsletter, factsheets), and website content to promote and communicate watershed efforts.
- Conduct regular stakeholder meetings throughout the watershed to gather and incorporate local input and encourage citizen participation.
- Provide Counties, Cities and other partners with regular updates on progress, and seek their input and recommendations on needed activities.

ATTACHMENT B**PLUM CREEK WATERSHED COORDINATOR TASKS**Agriculture

- Coordinate with Soil and Water Conservation District Technician
- Secure funding to support cost-share programs
- Organize, promote and participate in Extension education workshops and training events
- Develop and deliver educational programs on Ag NPS BMPs
- Develop and disseminate factsheets and other education materials (videos, slide sets) to promote adoption and proper management of BMPs
- Facilitate soil and water testing campaigns; conduct interpretive educational events
- Coordinate development of TSSWCB 319(h) and other grant proposals
- Monitor and report progress of conservation practice program implementation
- Identify and implement innovative strategies to facilitate practice adoption and sustained management

Feral Hogs

- Coordinate with Wildlife Extension feral hog education specialist
- Monitor and facilitate citizen use of the online reporting system
- Facilitate delivery of updates on progress to County officials and other stakeholders
- Deliver education programs at workshops and other events
- Facilitate and assist with development and distribution of educational resources (factsheets, videos, etc.)
- Coordinate with Texas Wildlife Services to facilitate hog control efforts
- Monitor and report progress of feral hog programs and identify proactive strategies

Urban Stormwater

- Work with city officials to identify programs and projects to mitigate stormwater NPS
- Assist cities with development of TCEQ 319(h) and other grant proposals
- Assist city personnel with existing 319(h) projects in Kyle, Lockhart and Luling
- Facilitate stormwater management practice demonstrations
- Secure, develop and/or assist with the preparation and distribution of educational resources including factsheets, videos, slide sets, etc.
- Coordinate Sports Athletic Field Education (SAFE) workshops
- Coordinate community cleanup events and participate in environmental fairs in Kyle, Lockhart, and Luling
- Facilitate pet waste management outreach
- Monitor and report progress of urban NPS programs and identify proactive strategies

Wastewater

- Coordinate septic system management workshops for homeowners and installer/maintenance providers
- Assist cities and counties with Texas Water Development Board State Revolving Fund applications for wastewater infrastructure projects
- Facilitate fats, oils, and grease (FOG) workshops
- Interact with wastewater treatment facilities to pursue voluntary permit upgrades
- Promote and assist with research efforts to determine and mitigate contributions from WWTF, including regrowth
- Pursue implementation of an unannounced inspection program for WWTFs
- Assist counties with expansion of inspection/enforcement programs for septic systems
- Develop and deliver educational resources and programs regarding the need for and methods of septic system management

General Partnership Duties

- Coordinate and conduct quarterly PCWP Steering Committee meetings
- Actively promote widespread awareness and involvement in project implementation by stakeholders across the watershed
- Conduct regular communication with the PCWP and respond to stakeholder questions and concerns
- Facilitate communication and coordination among team members from all agencies and organizations
- Identify funding opportunities and develop and submit grant proposals to support implementation
- Perform quarterly analysis of targeted and routine water quality monitoring data
- Track management practice implementation across the watershed, both as a result of the project and external efforts
- Manage implementation grants; generate quarterly progress reports for 319(h) and other funding sources
- Prepare the biennial review of the watershed protection plan implementation efforts
- Produce and distribute publications highlighting watershed implementation activities and specific BMPs
- Produce and distribute a quarterly newsletter
- Manage and update PCWP website content
- Manage and update Facebook site
- Produce and distribute press releases regarding key issues, programs and project efforts in the watershed
- Provide radio interviews regarding watershed developments; pursue a weekly radio program to discuss project efforts and public action
- Provide regular updates to city councils, county commissions courts, the WCSC, PCCD, Soil and Water Conservation Districts, Texas State Soil and Water Conservation Board, TCEQ, and other partner agencies, groups and organizations

- Develop material for inclusion in the TCEQ-TSSWCB Managing NPS Pollution in Texas Annual Report and CRP Basin Highlights Report
- Facilitate adoption of appropriate city and county ordinances
- Perform advisory role in Central Texas Green Printing, regional water and wastewater studies, and other regional planning efforts
- Interact with ongoing local school water quality monitoring projects
- Participate in annual community events and festivals (Luling Foundation Field Day, Lockhart Rites of Spring, Luling Watermelon Thump, etc.)
- Facilitate special household hazardous waste and agricultural waste pesticide collection events
- Facilitate ongoing illegal dumping management programs
- Coordinate periodic tours/field days in the watershed for stakeholders and agency partners to demonstrate project efforts
- Pursue opportunities for increased public awareness including roadway signs, billboards, special events, etc.

Entities	2009 Population	Area Acres	Area (sq. Miles)	Cost Portion for \$120,000		Cost	
				Population portion (50%)	Land Portion (50%)		Population Portion (50%)
				TOTAL			Population Portion (50%)
Caldwell County	36899	350080	547	\$7,798	\$15,332	\$3,119	
Caldwell County (In Watershed)	17488	189709	311		296.42	\$23,130	
Hays County	151664	434559	679			\$1,538	
Hays County (In Watershed)	8,622	38628	72	\$3,845	\$3,122	\$5,119	
Kyle	28,700	6000	9.38	\$12,798	\$485	\$2,540	
Lockhart	14238	7,210	11.26	\$6,349	\$583	\$981	
Luling	5502	2120	3.31	\$2,453	\$171	\$1,388	
Buda	7784	1451	2.27	\$3,471	\$117	\$4,657	
GBRA	26110	248637	388	\$11,643	\$20,095	\$4,657	
PCCD	26110	248637	388	\$11,643	\$20,095	\$4,657	
Watershed	82,331	248,637	388				
TOTAL	134,554	742,392		\$60,000	\$60,000	\$24,000	

TOTAL ESTIMATED BUDGET =

120000

ANTICIPATED GRANT AWARD 60% OF BUDGET =

72000

ESTIMATED BUDGET BALANCE AFTER GRANT =

48000

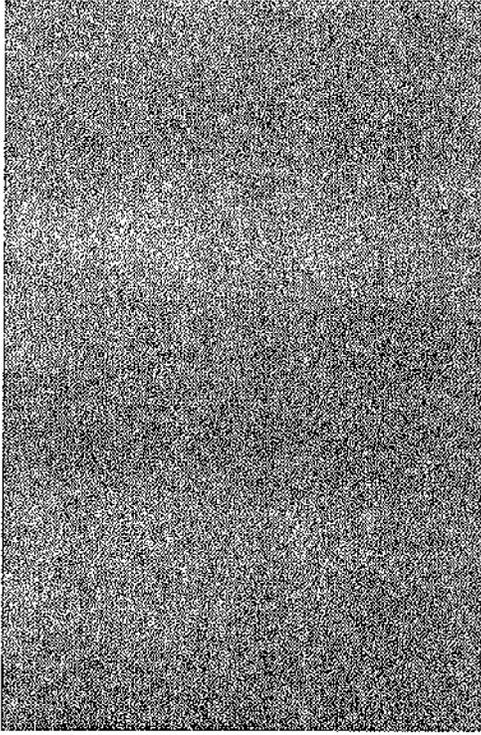
Caldwell County

15356 2008 Outside of City in the County Estimation

Caldwell County

17488 Population estimated by people per square mile for the county

Portion for \$48,000		
Land portion (50%)	TOTAL	
\$6,133	\$9,252	
\$1,249	\$2,787	
\$194	\$5,313	
\$233	\$2,773	
\$69	\$1,050	
\$47	\$1,435	
\$8,038	\$12,695	
\$8,038	\$12,695	
\$24,000	\$48,000	



Sustaining the Plum Creek Partnership

Debbie Magin, GBRA
Pam Casebolt, TSSWCB



- Current Implementation Project will end in August 31, 2011

- Partnership's desire to have local watershed coordinator

- August 31, 2010 - Held meeting to discuss options for sustaining PC implementation

- Discussion on funding options

- 1st step - develop inter-local agreement

- November 2, 2010 - Second meeting to discuss inter-local agreement and budget

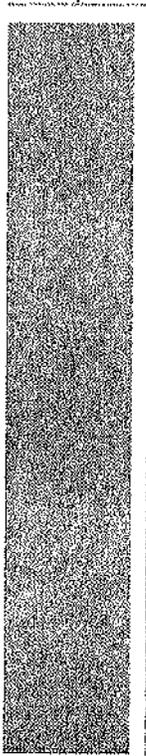


Partners invited to discuss sustaining PC implementation

- Cities of Kyle, Lockhart, Luling, Buda
- Hays and Caldwell Counties
- Plum Creek Conservation District
- San Marcos River Foundation
- Caldwell-Travis and Hays County Soil and Water Districts
- Guadalupe-Blanco River Authority
- Texas AgriLife Extension Service
- TSSWCB

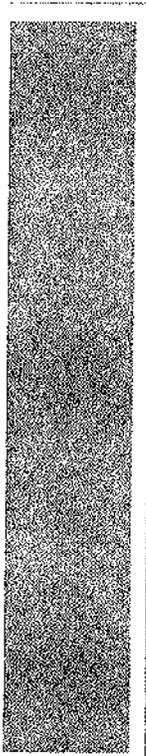
Inter-local Agreement Under Review and Consideration

- Funding to provide match for grant - a local watershed coordinator
- 3-year pilot project – evaluated after 3 years to determine if it should be continued
- Office in watershed
- Position would be managed by one designated partner
- Watershed Coordinator would answer to the Plum Creek Partnership



Watershed Coordinator's Tasks

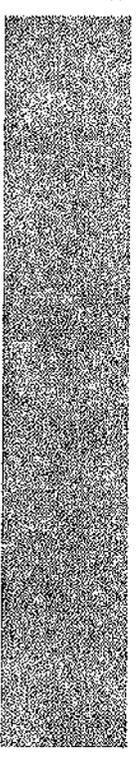
- Work with PCWP members to identify management measures and develop funding
- Work with state and federal agencies to bring technical and financial resources
- Pursue external funding to reduce or cover costs of project
- Track and document implementation



Watershed Coordinator's

Tasks

- Evaluate water quality data
- Outreach and education (training, clean ups, etc.)
- Develop publications and website content
- Conduct stakeholder meetings
- Provide regular updates to cities, counties and other partners



Grant Has Been Submitted

- GBRA was asked to submit grant
- Submitted to TSSWCB 319 Program
- Considered for funding in Fall of 2011
- Grant request for \$120,000 per year --
\$360,000 for 3 years
- 60/40 match
- Partners match = \$48,000 per year

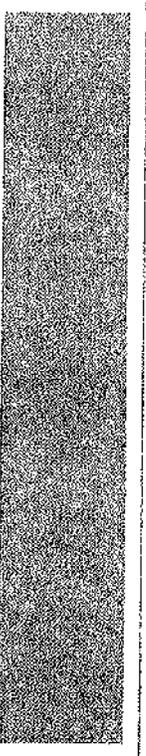
Match Calculation

Entities	2009 Population	Area Acres	Area (sq. Miles)	Cost Portion for			
				Population Portion (50%)	Land portion (50%)		
Caldwell County	36899	350080	547		\$48,000		
Caldwell County (In Watershed)	17488	189709	311	296.42			
Hays County	151664	434559	679		\$3,119		
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PCCD	26110	248637	388		\$4,657		
Watershed	82384	248637	388		\$8,038		
TOTAL	134,554	742,392			\$24,000	\$24,000	\$48,000

Population Portion (50%)

Land portion (50%)

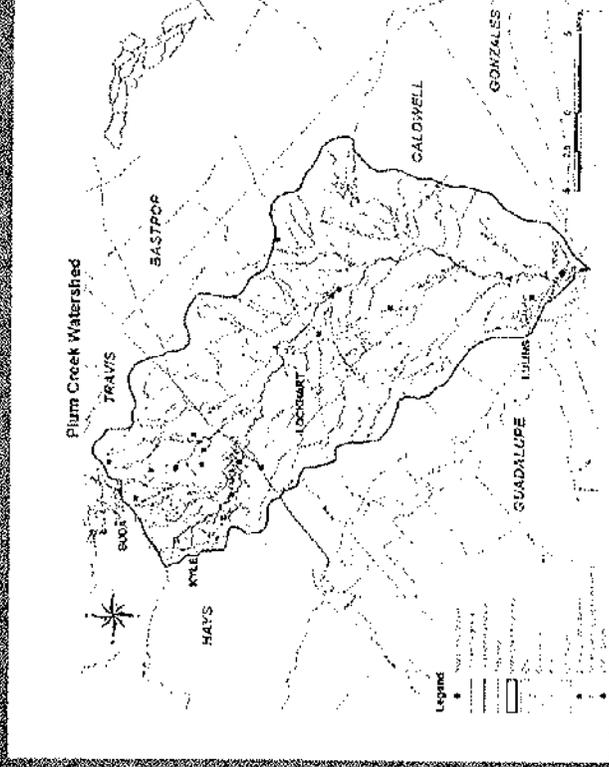
TOTAL



Meeting with Partners

- Texas AgriLife Extension giving partners project updates and information on inter-local agreement and grant application for watershed coordinator
- Buda – Dec. 7
- Uhland – Jan. 5
- Luling – Jan. 13
- Inter-local agreement being reviewed by legal staffs
- Lockhart legal had comment
- Budget discussions as entities start budget preparations

***“Surface Water Quality Monitoring and
Additional Data Collection Activities to
Support the Implementation of the
Plum Creek Watershed Protection Plan”***

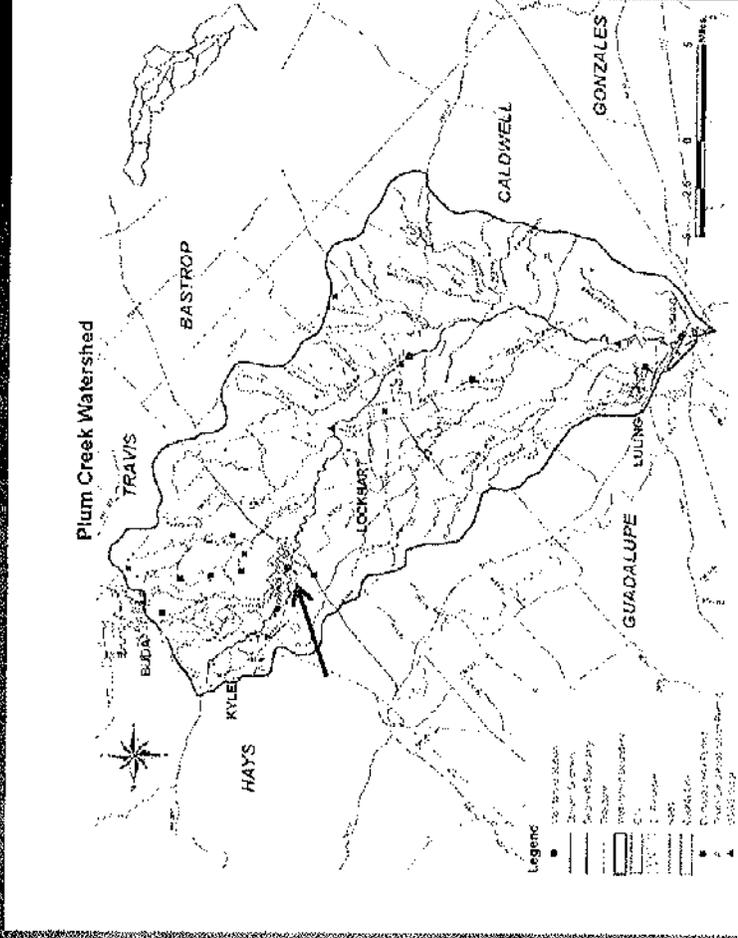


November 1, 2010 – October 31, 2013

- 8 routine monitoring station:

- 3 under Clean Rivers Program

- Plum Creek at PC Road

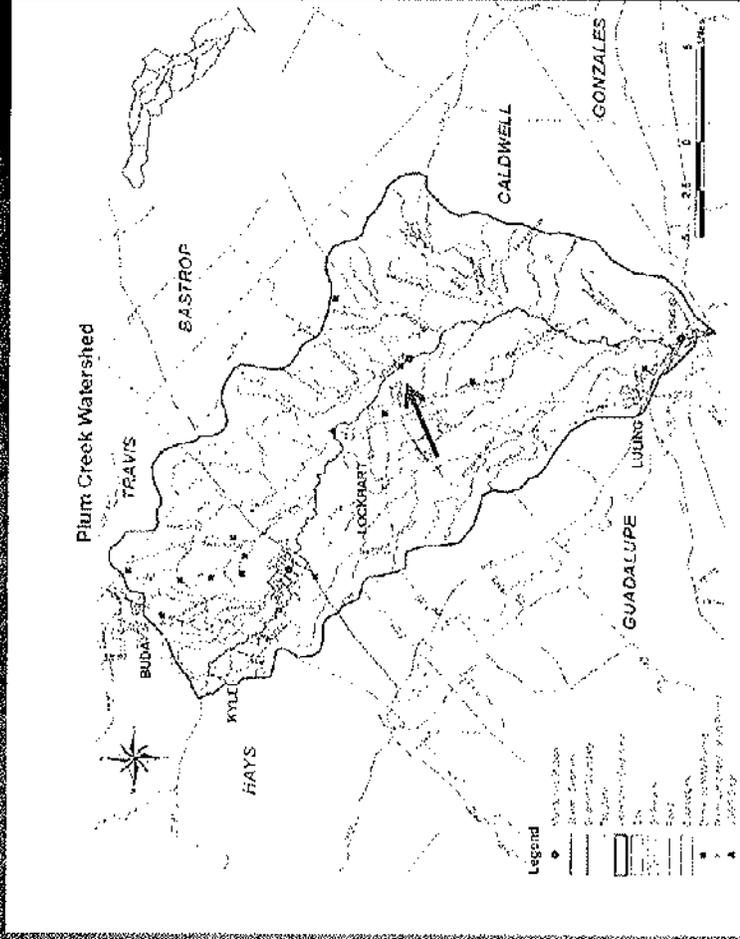


- 8 routine monitoring station:

- 3 under Clean Rivers Program

- Plum Creek at PC Road

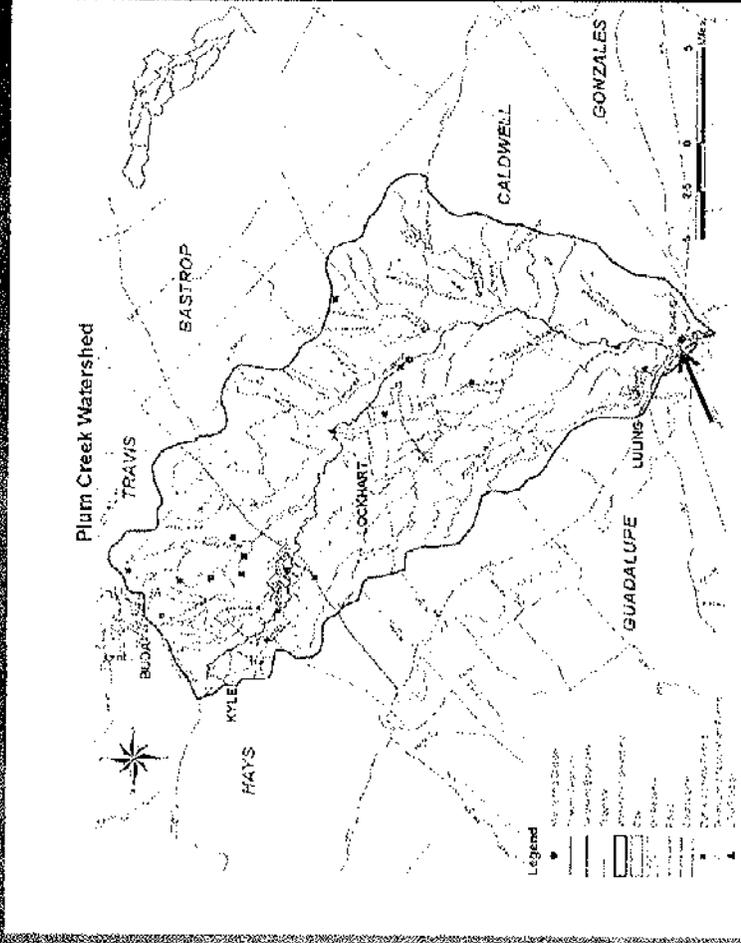
- Plum Creek at CR 202



- 8 routine monitoring station:

- 3 under Clean Rivers Program

- Plum Creek at PC Road
- Plum Creek at CR 202
- Plum Creek at CR 135



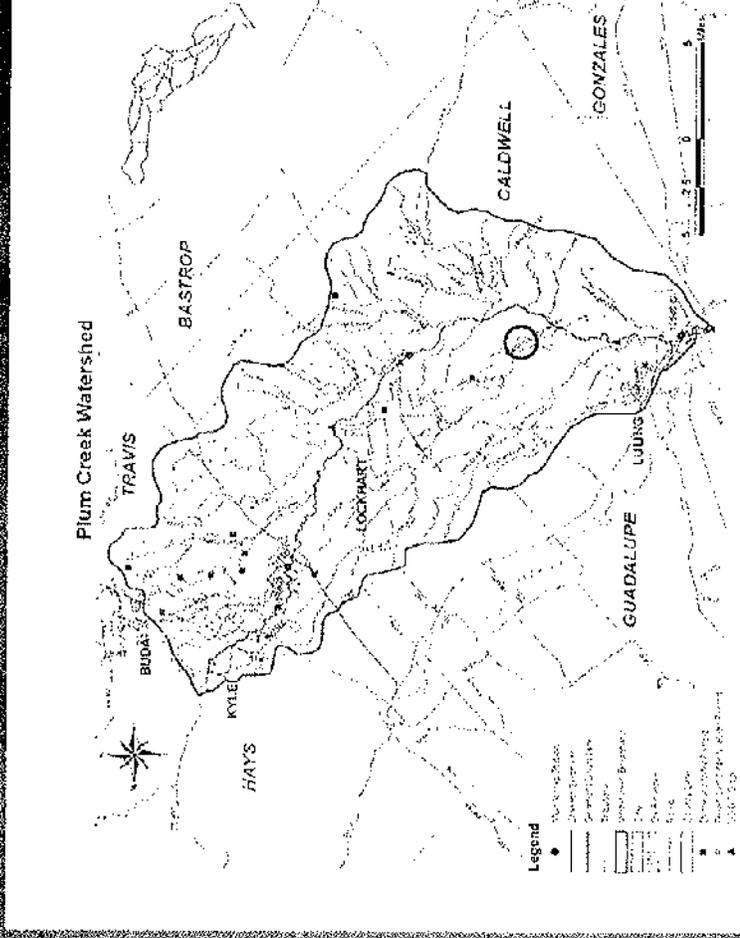
- 8 routine monitoring station:

- 3 under Clean Rivers Program

- Plum Creek at PC Road
- Plum Creek at CR 202
- Plum Creek at CR 135

- 5 under SWQM for PC WPP

- Clear Fork Plum Creek at Salt Flat Road



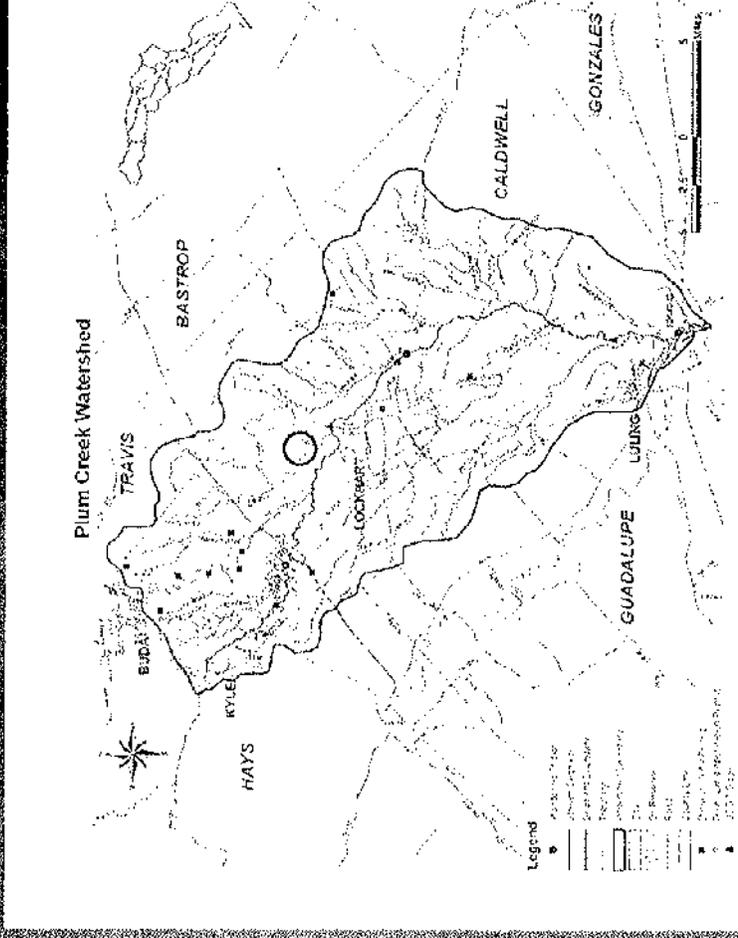
- **8 routine monitoring station:**

- 3 under Clean Rivers Program

- Plum Creek at PC Road
- Plum Creek at CR 202
- Plum Creek at CR 135

- 5 under SWQM for PC WPP

- Clear Fork Plum Creek at Salt Flat Road
- Elm Creek at CR 233



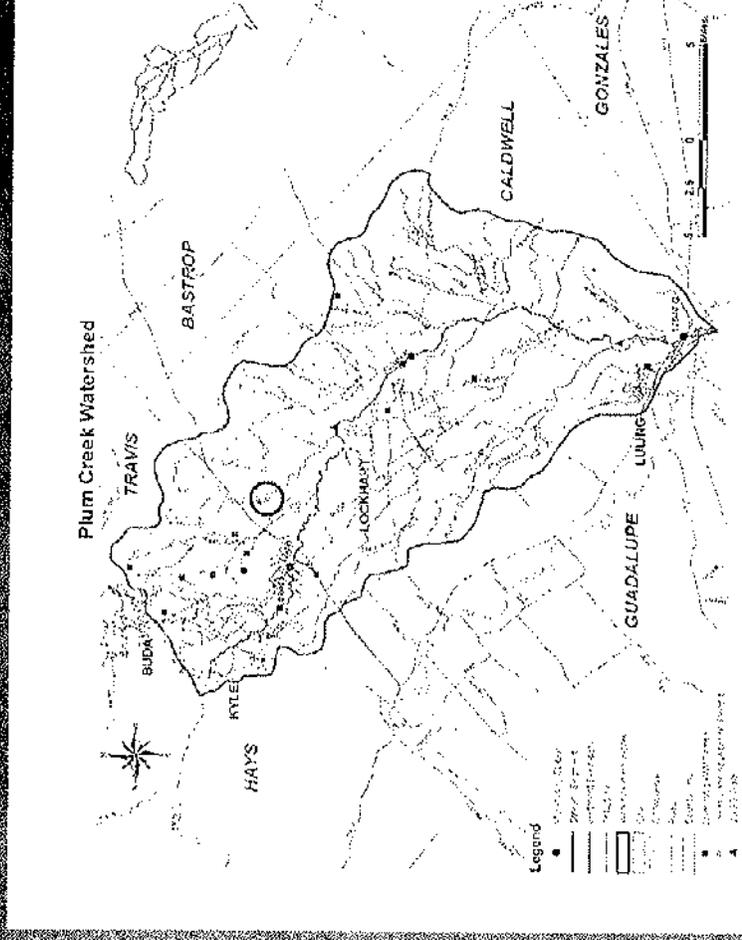
- **8 routine monitoring station:**

- 3 under Clean Rivers Program

- Plum Creek at PC Road
- Plum Creek at CR 202
- Plum Creek at CR 135

- 5 under SWQM for PC WPP

- Clear Fork Plum Creek at Salt Flat Road
- Elm Creek at CR 233
- Brushy Creek at Rocky Road



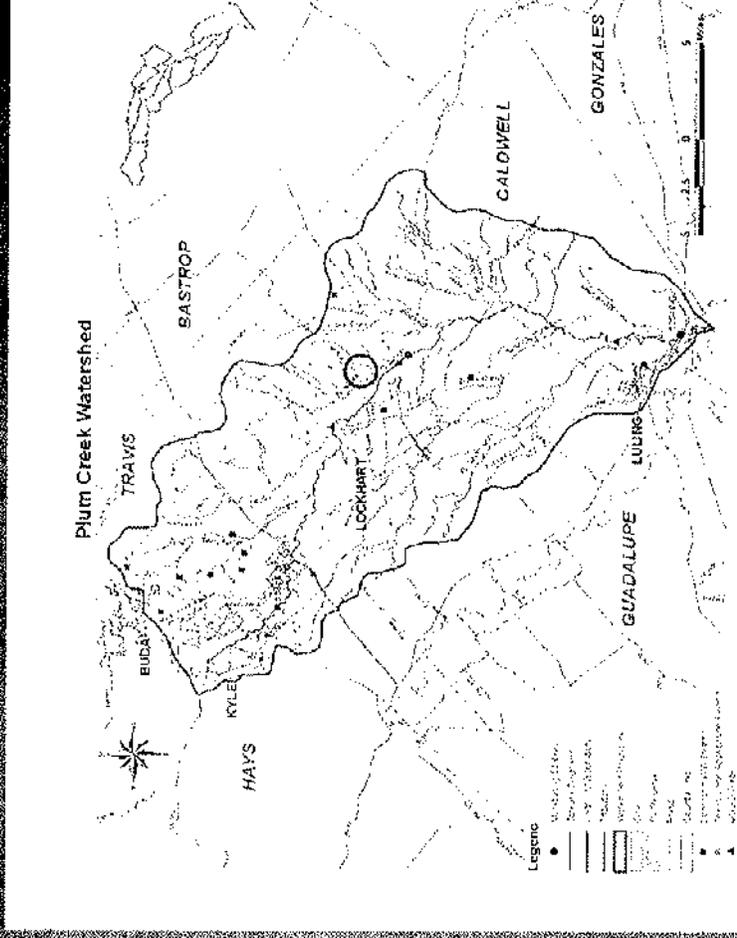
- **8 routine monitoring station:**

- **3 under Clean Rivers Program**

- Plum Creek at PC Road
- Plum Creek at CR 202
- Plum Creek at CR 135

- **5 under SWQJM for PC WPP**

- Clear Fork Plum Creek at Salt Flat Road
- Elm Creek at CR 233
- Brushy Creek at Rocky Road
- Dry Creek at FM 672



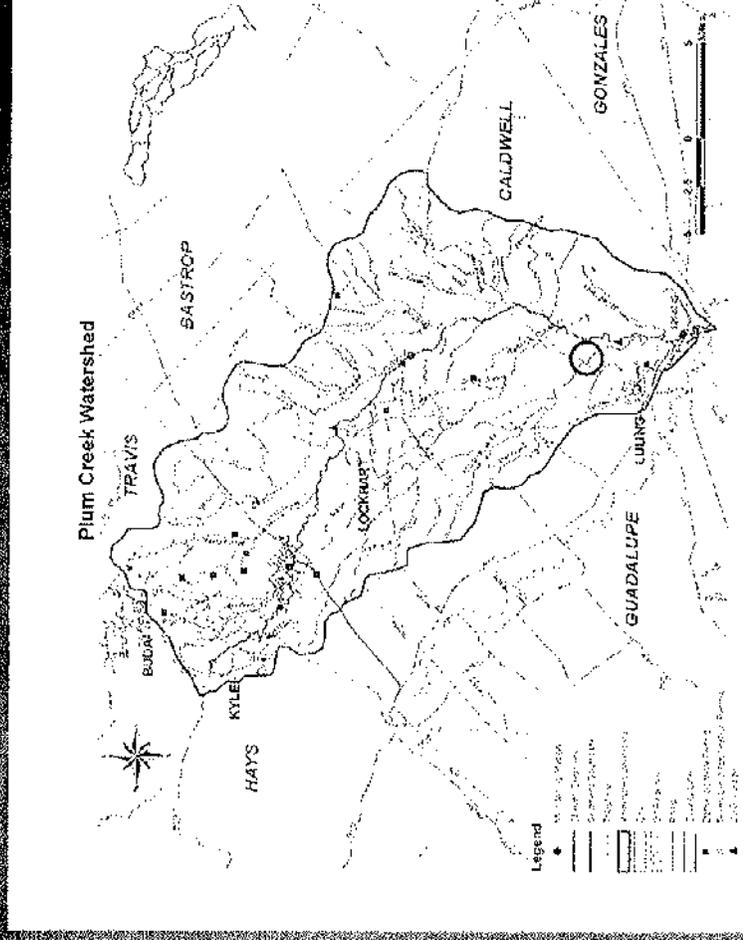
- **8 routine monitoring station:**

- **3 under Clean Rivers Program**

- Plum Creek at PC Road
- Plum Creek at CR 202
- Plum Creek at CR 135

- **5 under SWQM for PC WPP**

- Clear Fork Plum Creek at Salt Flat Road
- Elm Creek at CR 233
- Brushy Creek at Rocky Road
- Dry Creek at FM 672
- **West Fork Plum Creek at Biggs Road**



Targeted Monitoring

2 per Seasons
Wet and Dry Conditions
35 Sites

Storm Event Monitoring

4 per year
3 Urban Sites
Heidenreich
Salt Branch at FM 1322
CR 202

24-hour Monitoring

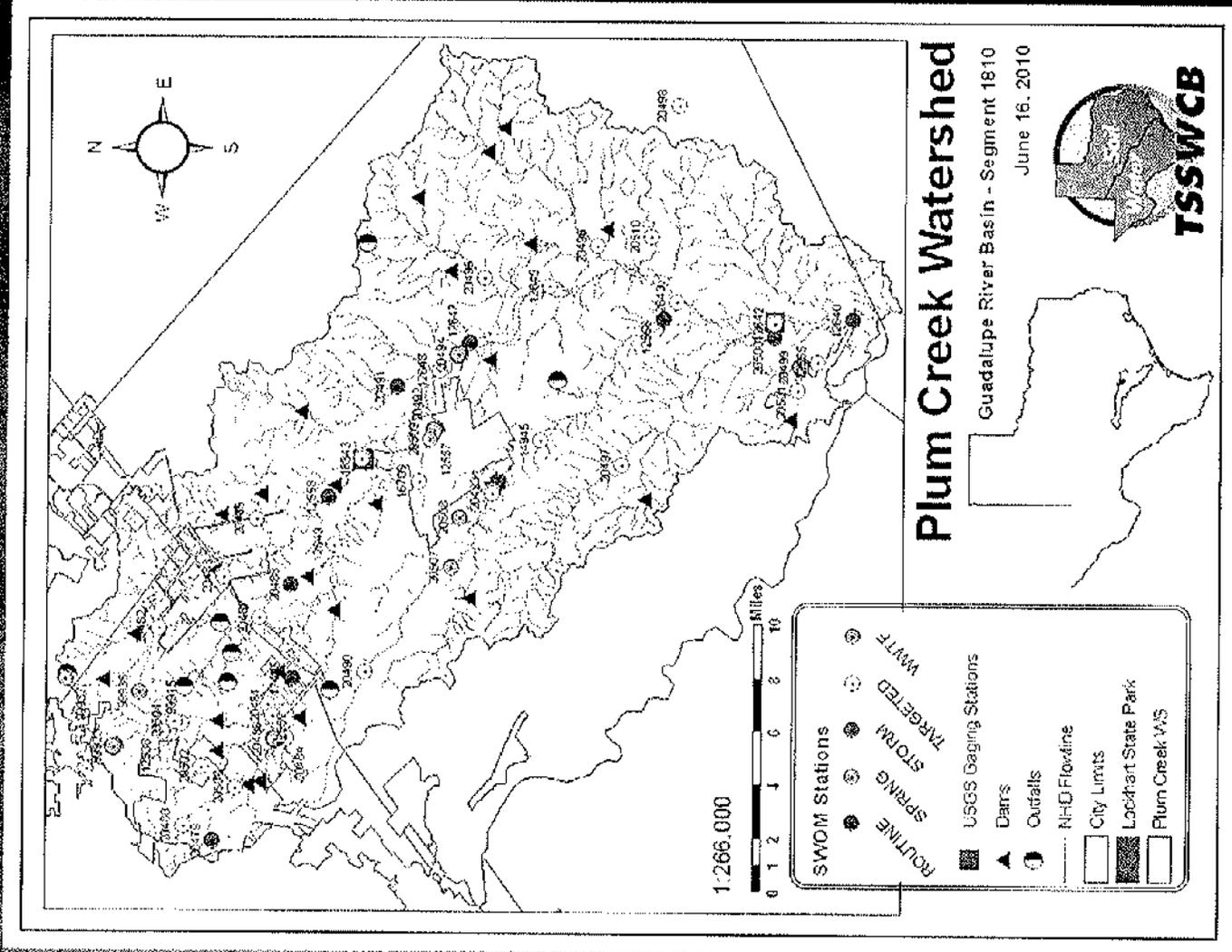
7 Routine Sites

7 Wastewater Plants

Monthly

Springs

3 springs
4 per year



Additional Data Collection

- Groundwater investigations
 - Source of Nitrates?

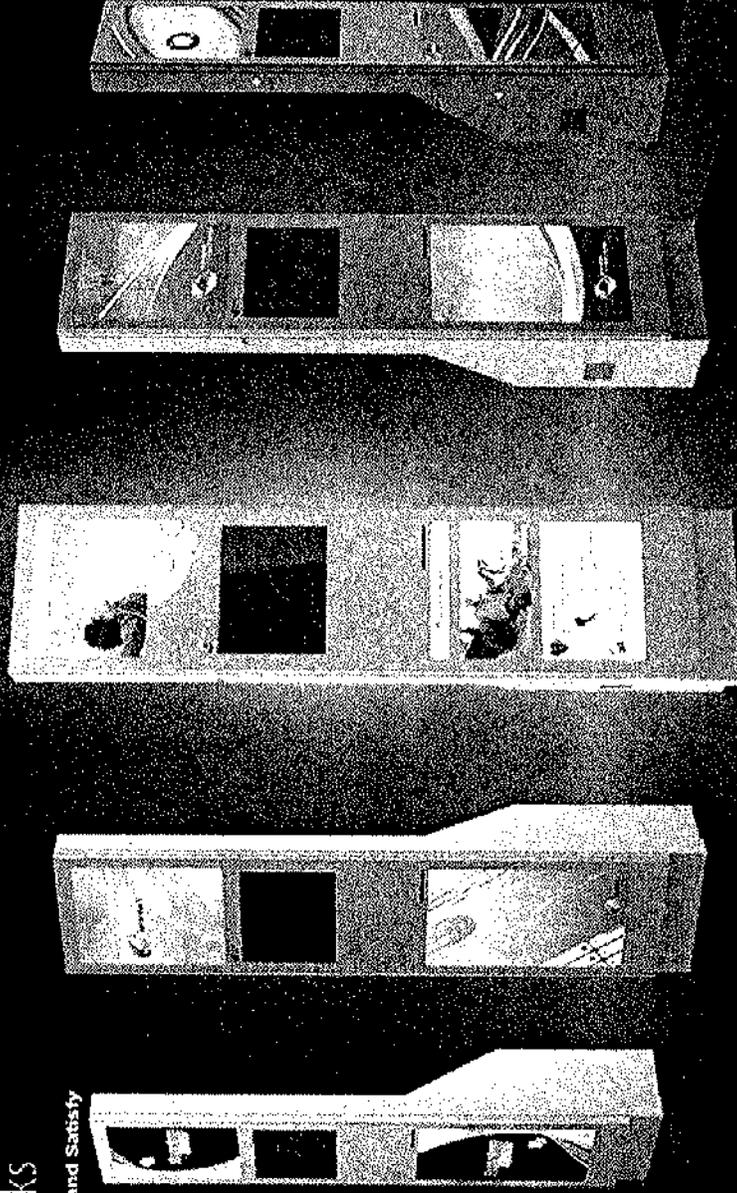
Additional Data Collection

- Groundwater investigations
 - Source of Nitrates?
- Gain/Loss Study
 - 5 Locations:
 - 3 Plum Creek CRP sites
 - West Fork
 - Clear Fork

Outreach

 Advanced
Kiosks

Engage, Interact and Satisfy



Attachments - Task 2

**Clean Water Act Section 319(h) Nonpoint Source Pollution
Control Program**

*Surface Water Quality Monitoring and Additional Data Collection
Activities to Support the Implementation of the Plum Creek Watershed
Protection Plan TSSWCB Project*

Number 10-07

Revision #0

Quality Assurance Project Plan

Texas State Soil and Water Conservation Board

Prepared by

Guadalupe-Blanco River Authority

Effective Period: January 1, 2010 – October 31, 2013

Questions concerning this quality assurance project plan should be directed to:

Debbie Magin
Director of Water Quality Services
933 E. Court St.
Seguin, Texas 78155
(830) 379-5822
dmagin@gbra.org

Attachments – Task 10

**Gain-Loss Survey of Plum Creek
Proposal for the Guadalupe-Blanco River Authority**

In order to better understand the sources of flow in the Plum Creek watershed, two sets of synoptic gain/loss measurements at five selected surface water locations within the Plum Creek watershed will be collected. Through these measurements, locations and quantities of inflow (or losses) along the stream reaches can be determined. The locations of these 5 proposed streamflow measurement sites are listed in Table 1.

TCEQ / GBRA Station ID	Site Description
12556	Clear Fork Plum Creek at Salt Flat Road
12640	Plum Creek at CR 135
12647	Plum Creek at Old McMahan Road (CR 202)
17406	Plum Creek at Plum Creek Road
20500	West Fork Plum Creek at Biggs Road (CR 131)

Table 1. Selected surface water sites for the Gain Loss measurements

Task 1 - Synoptic measurements will be collected during sustained base flow conditions, (contingent upon hydrologic conditions) beginning during the 2nd quarter of fiscal year 2011 (Jan – Mar) and concluding prior to Oct. 31, 2013. Surface water discharge measurements collected for each gain-loss location will include at a minimum, two independent flow measurements at each site, for a total of 20 discharge measurements for both synoptic events. Subsequent ‘additional’ flow measurements may be collected during each synopsis, contingent upon measurement criteria of $\pm 3\%$ deviation from the preceding measurement. All measurements will be quality assured and results entered in the USGS NWIS database. Each of the measurement sites will be assigned a USGS station number. Results of the synoptic measurements will published in the USGS annual report of water-resources data.

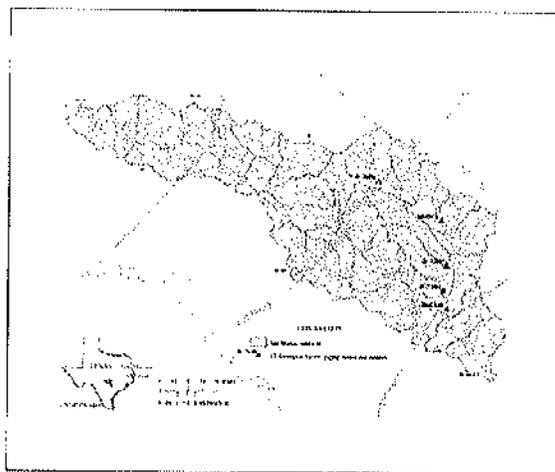


Figure 1. Plum Creek Watershed

Task 2 - A draft summary of all flow data will be compiled and presented to GBRA upon completion of the gain-loss data collection. The draft summary will include a 'pdf' version and a spreadsheet table of collected data.

	FY 11	FY 12	USGS	GBRA	Total
Task 1: Gain Loss Synoptic 1 and 2	\$ 8,850.	\$ 8,850.	\$ 0.0	\$ 17,700.	\$ 17,700.
Task 2: Data disseminations	\$ 3,500.	\$ 8,800.	\$ 0.0	\$ 12,300.	\$ 12,300.
Grand Total					\$ 30,000.

Table 2: Proposed costs and delivery schedule.

Attachments – Related Issues/Current Problems

Debbie Magin

From: Stephen Twidwell <Stephen.Twidwell@tpwd.state.tx.us>
Sent: Tuesday, November 02, 2010 8:41 PM
To: Nikki Dictson; Debbie Magin; Lee Gudgeall; Ron Riggins; mdaniels@tceq.state.tx.us; hwilder@cityofkyle.com; brooke.leftwich@co.hays.tx.us
Cc: Don Pitts
Subject: Plum Creek Fish Kill
Attachments: PKWQtable1110.doc; Smallfishes.JPG; ChannelCat.JPG

I've spent most of Monday and Tuesday investigating a fish kill on the upper portion of Plum Creek near Kyle, Texas. Mike Daniels (TCEQ-Austin) and Lee Gudgeall (GBRA-Seguin) were on the scene Monday afternoon helping with the investigation. Mike evaluated performance of the Kyle wastewater treatment plant. Lee made field measurements and collected water samples for analyses; he has made these data available in a separate email report. I also collected field measurements and have counted dead fishes over the reach from the Kyle WWTP outfall to south of Plum Creek Road. My purpose in writing this email is to make available some of the preliminary data.

The fish kill resulted from a major upset at the Kyle WWTP when approximately 383,000 gallons of very poorly treated sewage was released from their outfall early Monday morning. This slug of organically enriched wastewater has been moving slowly downstream from the outfall. Bacterial assimilation of this organic material has reduced the ambient dissolved oxygen concentrations in Plum Creek to acutely low levels (< 0.5 mg/L). I have attached a table showing the results of field measurements taken over the past two days. While the center of the dissolved oxygen sag zone was centered on Gristmill Road on Monday, the data indicate it had moved downstream to Plum Creek Road by Monday morning. The data show that water quality conditions have improved today behind the slug at Heidenreich and Gristmill roads. Without major sources of inflow, the low number of riffle zones to provide reaeration, and the relatively slow instream velocity in Plum Creek, the slug of poorly oxygenated water will likely stay intact and influence aquatic life farther downstream until it eventually plays itself out.

Based on preliminary data to this point, I have estimated that 1,311 fishes have been killed. Small channel catfish, bluegill and longear sunfishes, and western mosquitofish have dominated the kill, but some large flathead and channel catfishes and common carp have also been observed. I have attached a couple of dead fish pictures.

Stephen Twidwell
Texas Parks and Wildlife Department
Kills and Spills Team
505 Staples Road
San Marcos, Texas 78666
512.353.3474 (Office); 512.353.7329 (FAX);
512.757.3340 (Cell)
Email: stephen.twidwell@tpwd.state.tx.us

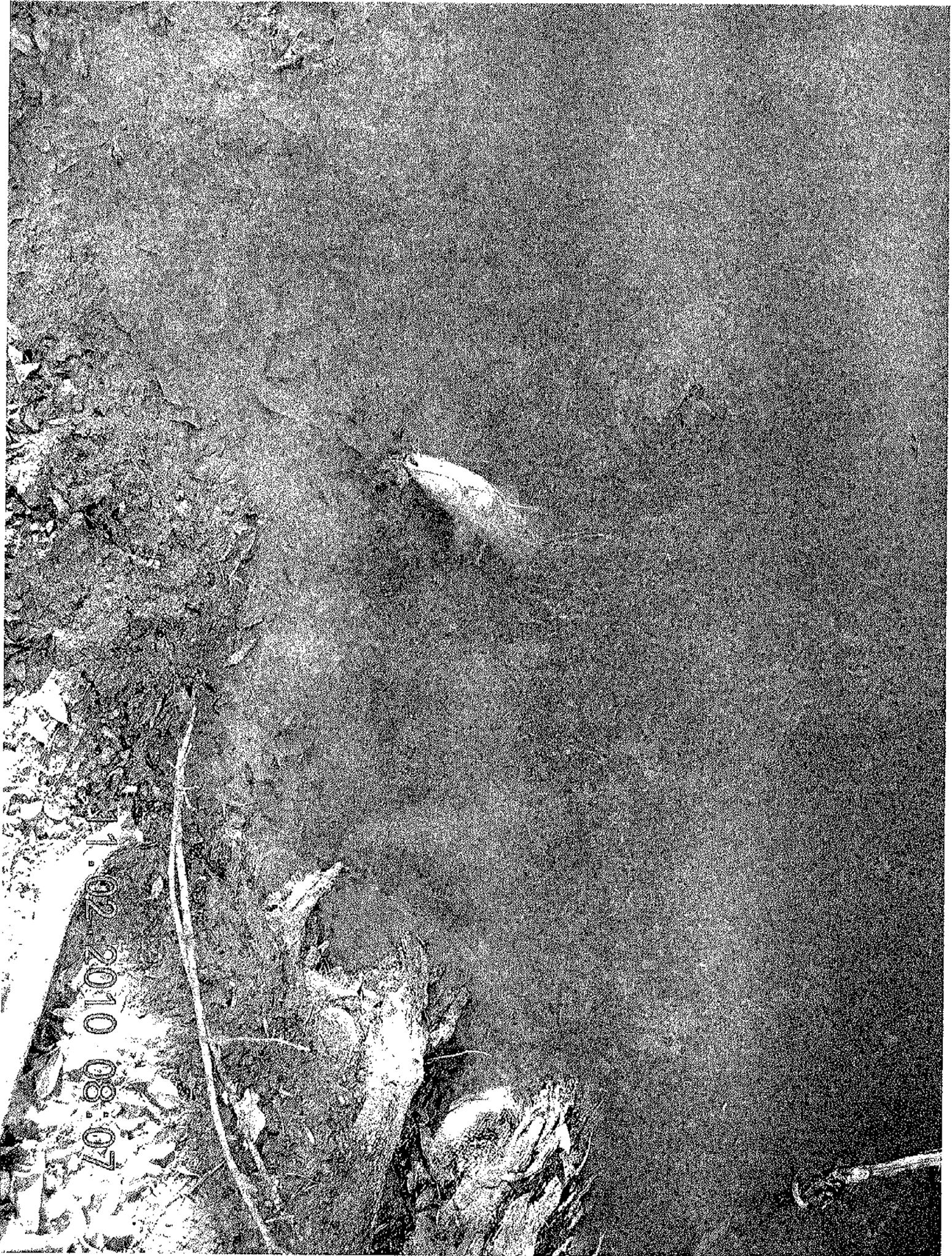
Plum Creek Water Quality Data
November 1-2, 2010

Site Location	Date	Time (hrs)	Temp (C)	pH (std. units)	Dissolved Oxygen		Specific Conductance (uS/cm)
					mg/L	% Sat	
Heidenreich Road	11/1	1335	25.4	7.4	0.4	5.3	1190
	11/1	1635	23.3	7.4	0.4	5.6	1127
	11/2	1215	23.8	7.7	5.7	67.5	1183
Gristmill Road	11/1	1350	22.8	7.5	0.4	4.3	1113
	11/2	1205	20.9	7.6	4.5	50.7	1249
Plum Creek Road	11/1	1305	19.1	7.7	7.3	79.3	1242
	11/1	1650	19.0	7.6	7.5	82.1	1245
	11/2	0850	19.9	7.7	0.2	2.0	1202
SH 21	11/2	0925	17.6	7.7	6.9	7.3	1225



11-01-2010 15:04

11.02.2010 08:07



Event ID: 20101A10281		View Event Form		Status: Permanent							
Description:											
Type: Fish Kill	Start Date: 11/1/2010			End Date: 11/4/2010							
Description:	Failure of lift station pumps to automatically turn on at the head of the City of Kyle Wastewater Treatment Plant resulted in approximately one million gallons of raw sewage overflowing from a manhole into Plum Creek adjacent to the plant site. Bacterial decomposition of this organically enriched water reduced the ambient dissolved oxygen concentrations in Plum Creek to acutely low levels (<0.5 mg/L). Due to the low dissolved oxygen concentrations, fishes were killed in the stream from the near the plant outfall to SH 21, a distance of approximately 5.6 miles.										
Habitat(s):	<table border="1"> <thead> <tr> <th>Type</th> <th>Size</th> <th>Units</th> </tr> </thead> <tbody> <tr> <td>Stream</td> <td>5.6</td> <td>Mile(s)</td> </tr> </tbody> </table>					Type	Size	Units	Stream	5.6	Mile(s)
Type	Size	Units									
Stream	5.6	Mile(s)									
Notification - Investigator:											
Notification Date: 11/1/2010		Notification Source: County Personnel									
Investigated By: KAST											
Notes:	Betty Lambright with the Hays County Development Services Office phoned in notice of the fish kill (phone: 512.393.2150). A Hays County road crew that was working near Heidenreich Road noticed a bad smell and observed dead fishes.										
Location: First county determines Event Region											
County(ies):	<table border="1"> <thead> <tr> <th>County</th> <th>Region</th> </tr> </thead> <tbody> <tr> <td>Hays</td> <td>01</td> </tr> </tbody> </table>					County	Region	Hays	01		
County	Region										
Hays	01										
Water Segments:	<table border="1"> <thead> <tr> <th>Water Segment</th> </tr> </thead> <tbody> <tr> <td>Plum Creek</td> </tr> </tbody> </table>					Water Segment	Plum Creek				
Water Segment											
Plum Creek											
Start Point:	Latitude: 29 deg 58 min 13.20 sec	Longitude: -97 deg 50 min 10.80 sec									
End Point:	Latitude: 29 deg 57 min 25.90 sec	Longitude: -97 deg 47 min 12.60 sec									
Location:	Plum Creek between Heidenreich Road and SH 21										
Notes:											
Source and Cause:											
General Source		Specific Source	Source Action	General Cause	Specific Cause						
Municipal - (C)		Sewer lines - (C)	Spill - (C)	Low Dissolved Oxygen - (C)	Bacterial respiration/decay - (C)						
Active Compound		Volume	Units								
Raw Sewage		1000000	Gallon(s)								
Cause Note:	Approximately 1 million gallons of raw sewage over flowed a manhole adjacent to the City of Kyle Wastewater Treatment Plant when pumps at the lift station at the head of the plant failed to turn on automatically.										
Alleged Responsible Party:											
City of Kyle											
Contact: Harper Wilder, Director of Public Works											
520 East RR 150											
Kyle Tx 78640											
Phone: (512) 262-3024 4002, Fax: (512) 262-3403											
Cell Phone: , Email: hwilder@cityofkyle.com											
Note:											
Count Data:		Counts last calculated: 11/17/2010 9:31:00 AM			View Count Detail						
Type of Count: AFS Guidelines		Estimated Total Killed: 2,982									
Counts Value: \$2,844.38 + Additional Value: \$0.00 = Grand Total Value: \$2,844.38											
Audit Trail:											
Original Entry By: stwidwel		11/17/2010 7:56:00 AM									
Reviewed By:											
Last Update: stwidwel		11/17/2010 11:18:00 AM									

Debbie Magin

From: Lee Gudgeall
Sent: Friday, November 05, 2010 2:00 PM
To: Shea Cockrell; Ron Riggins (RRiggins@tceq.state.tx.us)
Cc: hwilder@cityofkyle.com; Debbie Magin; Nikki Dictson (n-dictson@tamu.edu)
Subject: Plum Creek Data from 11/01/2010 through 11/02-2010
Attachments: Plum Creek WWTP Spill 11-04-2010.xlsx; pc wqtable-pc at cr202 - Routine.xls; pc wqtable-pc at cr233 - Targeted.xls; pc wqtable-pc at heidenreich In - Targeted.xls; pc wqtable-pc at lehman - Targeted.xls; pc wqtable-pc at pc rd - Routine.xls

Shea,

Here is the latest data that the GBRA has taken on Plum Creek. It appears that the WW slug moved through SH21 on Wednesday 11/03/2010. I have also attached some background tables for monthly data (Plum at Plum Creek Road & Plum Creek at Old McMahan Road [CR202 DS of Lockhart]) collected under the TCEQ Clean Rivers Program QAPP and some biased for flow targeted data (Plum @ Lehman, Plum @ Heidenreich, Plum at Polonia Road [CR233]) collected under the TSSWCB Plum Creek WPP QAPP.

Lee Gudgeall
Water Quality Technician
Guadalupe-Blanco River Authority
933 East Court Street
Seguin, Texas 78155
(830) 379-5822 (work)
(830) 379-7478 (fax)
(830) 515-8507 (mobile)
lgudgeall@gbra.org

Site Location	Date	Time (Hrs)	Temperature (°C)	pH (S.U.)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	IDEXX E. Coli (MPN)
Plum Creek at Heidenreich Lane (600m Downstream of Kyle WWTP)	11/1/2010	14:20	25.4	7.4	2.1	1240	>24,200
	11/2/2010	15:43	24.2	7.6	4.5	1210	64,900
	11/3/2010	14:22	22	7.7	5.2	1150	6,800
Plum Creek at Grismill Road (2600m Downstream of Kyle WWTP)	11/1/2010	14:24	22.8	7.5	0.2	1140	>24,200
	11/2/2010	15:19	20.8	7.6	5.2	1250	>242,000
Plum Creek 200m Upstream of Kyle WWTP	11/3/2010	14:39	19.2	7.7	5.8	1230	4,900
	11/1/2010	14:44	20.2	7.7	8.2	729	11,000
Plum Creek at Plum Creek Road (4500m Downstream of Kyle WWTP)	11/2/2010	15:11	19.6	7.6	0.2	1130	>2,420,000
	11/3/2010	14:53	17.6	7.5	4.1	1270	57,900
Plum Creek at Lehman Lane (4900m Upstream of Kyle WWTP)	11/2/2010	15:57	18.9	7.6	6.6	652	>24,200
	11/3/2010	14:06	16.7	7.7	8.5	692	1300
Plum Creek at SH21 (5900m Downstream of Kyle WWTP)	11/2/2010	15:31	18	7.7	7.5	1240	500
	11/3/2010	15:02	17.2	7.7	0.2	1190	5,790,000
Plum Creek at IH35 (6600m Upstream of Kyle WWTP)	11/3/2010	13:51	19	7.4	8.2	708	<100
	11/3/2010	15:21	16.2	7.7	6.7	1200	<100

Average Daily Flows From Plum Creek USGS

Gage at HWY 183

11/1/2010	0.80 cfs
11/2/2010	1.0 cfs
11/3/2010	4.9 cfs
11/4/2010	4.2 cfs

Site Location	Ammonia Nitrogen (mg/L)	Field Notes
Plum Creek at Heidenreich Lane (800m Downstream of Kyle WWTP)	8.87 Not Sampled 0.4	Lightly Colored Turbid Water; Strong NH3-N Odor Present, 3 dead channel catfish; Clear Water; No Odor Present Clear Water; No Odor Present; Light Rain
Plum Creek at Grismill Road (2600m Downstream of Kyle WWTP)	21.8 Not Sampled 0.86 0.29	Dark Colored Turbid Water; Lots of Foam on Downstream Side of Bridge; Strong; Clear Water; No Odor Present Clear Water; No Odor Present Clear Water; No Odor Present Clear Water; Some Foam on Water Surface; No Odor Present
Plum Creek 200m Upstream of Kyle WWTP Plum Creek at Plum Creek Road (4500m Downstream of Kyle WWTP)	Not Sampled 2.3	Dark Colored Turbid Water; Strong NH3-N Odor Present, Several Dead Channel Catfish; Several dead channel catfish, central stone rollers, & multiple minnows; Clear Water; No Odor Present
Plum Creek at Lehman Lane (4900m Upstream of Kyle WWTP)	Not Sampled 0.14	Clear Water; No Odor Present Clear Water; Light Rain, No Odor Present
Plum Creek at SH21 (5900m Downstream of Kyle WWTP)	Not Sampled 15.7	Clear Water; No Odor Present Dark Colored Turbid Water; Strong NH3-N Odor Present; Foam on water surface
Plum Creek at IH35 (6600m Upstream of Kyle WWTP) Plum Creek at Polonia Road (CR233 - 13,400m Downstream of Kyle WWTP)	Not Sampled 0.11	Clear Water; Light Rain; Lots of Bird Droppings under bridge; No Odor Present Slightly Turbid Water; No Odor Present

Average Daily Flows From Plum Creek USGS
Gage at HWY 183
11/1/2010
11/2/2010
11/3/2010
11/4/2010

sh and 7 assorted sunfish visible unpigmented bodies

g NH3-N Odor

4 Catfish Visible
ows; Live frog observed in water column

xe; Several Dead Fish of Indeterminate species

Debbie Magin

From: Lee Gudgell
Sent: Tuesday, December 21, 2010 10:54 AM
To: Stephen Twidwell (Stephen.Twidwell@tpwd.state.tx.us)
Cc: Debbie Magin
Subject: Excel Spreadsheets of Monitoring Tables on Plum Creek
Attachments: pc wqtable-lockhart springs - Springs.xls; pc wqtable-pc at cr202 - Routine.xls; pc wqtable-pc at pc rd - Routine.xls; pc wqtable-town branch at market st - Targeted.xls; pc wqtable-lockhart #1 - WWTF.xls; pc wqtable-lockhart #2 - WWTF.xls

Stephen,

I have attached the monitoring tables for all of the relevant monitoring that the GBRA performs in the area around Town Branch. The Plum Creek at Plum Road CRP site is the closest location upstream of Town Branch with routine sampling data. The Plum Creek at Old McMahan Road (CR202) CRP site is the closest location that is downstream of both Lockhart WWTPs. I have also attached some data that was targeted for wet and dry weather conditions at the Town Branch at E. Market Street, which is located just upstream of the first Lockhart WWTP. You will also find tables for our most recent sampling of the two Lockhart WWTPs and the Lockhart Springs that feed Town Creek. The amount of nitrate nitrogen that we are seeing appears to be consistent with Debbie's theory that the test kit used to measure nitrate at 100 mg/L was actually measuring Nitrate as Nitrate (NO_3^- – atomic weight of 14) instead of Nitrate as Nitrate Nitrogen ($\text{NO}_3\text{-N}$ – atomic weight of 62), which is the method we utilize in the laboratory and would give a result that was 1/4.4286 of what they were getting with the test kit (about 22.6 mg/L). This number would be close to what we would expect to see in the stream from the combined WWTP discharge and the natural nitrate levels in the springs. The maximum contaminant level (MCL) in drinking water as nitrate (NO_3^-) is 45 mg/l, whereas the MCL as $\text{NO}_3\text{-N}$ is 10 mg/l.

Please let me know if you have any questions about the data,

Lee Gudgell
Water Quality Technician
Guadalupe-Blanco River Authority
933 East Court Street
Seguin, Texas 78155
(830) 379-5822 (work)
(830) 379-7478 (fax)
(830) 515-8507 (mobile)
lgudgell@gbra.org

Debbie Magin

From: Stephen Twidwell <Stephen.Twidwell@tpwd.state.tx.us>
Sent: Friday, January 07, 2011 2:41 PM
To: Ron Riggins; Debbie Magin; Lee Gudgell
Subject: Town Creek Nitrate Data
Attachments: TPWD Nitrate Data.doc

Hey Gang—

I have attached a table that contains the results of nitrate sampling from Town Creek and the City of Lockhart Larrenmore wastewater treatment plant final effluent that was done on Thursday and two previous efforts. While there is some variability among the sampling runs that I have made, all nitrate concentrations remain considerably less than the 440 mg/L value considered lethal to healthy cattle. I intend to make one more sampling run in a couple of weeks to continue checking for variability. If you have questions, please get in touch.

Stephen Twidwell
Texas Parks and Wildlife Department
Kills and Spills Team
505 Staples Road
San Marcos, Texas 78666
512.353.3474 (Office); 512.353.7329 (FAX);
512.757.3340 (Cell)
Email: stephen.twidwell@tpwd.state.tx.us

Debbie Magin

From: Ron Riggins <RRiggins@tceq.state.tx.us>
Sent: Monday, January 10, 2011 2:56 PM
To: Debbie Magin; Lee Guggell; Stephen Twidwell
Subject: Re: Town Creek Nitrate Data
Attachments: TownCreek010611.xlsx

Hello,

Here are the results of the nitrate sampling from Town Creek that I collected on 01/06/2011. The LCRA ELS lab used method E300. The results are very similar to TPWD's results. See attached excel spreadsheet.

Ron Riggins
TCEQ Austin Region
512-339-2929
rriggins@tceq.state.tx.us

>>> "Stephen Twidwell" <Stephen.Twidwell@tpwd.state.tx.us> 1/7/2011 2:40 PM >>>
Hey Gang-

I have attached a table that contains the results of nitrate sampling from Town Creek and the City of Lockhart Larrenmore wastewater treatment plant final effluent that was done on Thursday and two previous efforts. While there is some variability among the sampling runs that I have made, all nitrate concentrations remain considerably less than the 440 mg/L value considered lethal to healthy cattle. I intend to make one more sampling run in a couple of weeks to continue checking for variability. If you have questions, please get in touch.

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512.757.3340 (Cell)
Email: stephen.twidwell@tpwd.state.tx.us

Site Location	Date	Nitrate (As N) mg/L	Nitrate
Town Creek at Market Street	1/6/2011	11.6	51.4
Lockhart WWTP	1/6/2011	14	62
Clark Ranch Upper	1/6/2011	12.4	54.9
Clark Ranch Mid	1/6/2011	12.2	54
Clark Ranch Lower	1/6/2011	12	53.2

Texas Parks and Wildlife Department
 Nitrate Nitrogen Concentrations from Town Creek, City of Lockhart Larrenmore WWTP,
 and three locations on the Clark Ranch
 Values as NO3 (as N) in mg/L

Site Location	Lat/Long	Date		
		12/22/10	12/27/10	1/06/11
Town Creek at Market Street	29,53,07.0/ 97,39,53.0	48.0 (11.0)	46.9 (10.7)	45.1 (10.4)
Lockhart WWTP	29,53,03.6/ 97,39,48.3	33.5 (7.7)	70.5 (16.2)	56.6 (13.0)
Clark Ranch (upper)	29,53,04.6/ 97,39,42.9	43.8 (10.1)	57.1 (13.1)	48.6 (11.2)
Clark Ranch (mid)	29,53,16.9/ 97,39,22.3	45.4 (10.4)	53.7 (12.4)	48.3 (11.1)
Clark Ranch (lower)	29,53,25.7/ 97,39,01.9	44.5 (10.2)	51.5 (11.8)	47.6 (11.0)



Glisholm Trail Veterinary Clinic, P.C.

Small animal medicine, large expectations. Large animal medicine, small hassles.

Clark Farms

On Dec. 6 I was called out to a pasture owned by Clark farms on the east side of Lockhart on the north side of Town Branch tributary. Bill Clark runs Hereford cows on this property and every year he has 2-3 adult cows lose weight over a few months time, they deteriorate, become thin and unthrifty and eventually die. He has a Hereford cow now exhibiting the same symptoms and is requesting we euthanize it and investigate the disease process. This pasture is in the plum creek bottom and the only source of water is Town Branch. The pasture is mainly coastal Bermuda grass with other species of weeds and sets of brush and trees. The cows grazing the pasture are found to be in excellent body condition with a score of 6/9 with some starting to call new born calves. Overall, the herd appears healthy.

The cow of concern is a sickly appearing cow that is thin and emaciated. Her body condition score is 2/9. She is weak, skittish and in poor body condition. Mr. Clark euthanized the cow with a bullet to the skull. I performed a necropsy on the cow to investigate the cow's illness. This cow was an old cow evidenced by the lack of lower incisors on the gum line, she had lost all her teeth. Her liver was filled with a large basketball size abscess, her heart was bathed in fluid and her lungs were infected with diffuse abscesses of all lung lobes. I discovered one lone mature liver fluke in the bile ducts of the liver, but it too was necrotic. The entire liver was abscessed.

I submitted samples to the Texas Veterinary Medical Diagnostic Lab and the abscesses were comprised of two bacteria, *Arcanobacterium pyogenes* and *Pasturella*. Both of these bacteria are normal inhabitants of the cow and will prosper and colonize when an opportunity arises from another injury, toxin or disease process. I submitted the eye and toxic levels nitrate were discovered.

Summary of findings:

- 1) Severe abscessed liver and lung (pneumonia)
- 2) Liver flukes
- 3) Nitrate poisoning

With these findings it is deduced that liver flukes played a role in the liver disease and caused damage that could have led to the infection in the liver. The stress would have then precipitated the infection to develop in the lung. The odd finding here is the toxic levels of nitrates in the eye.

I investigated this further and submitted rumen contents with no toxic plants discovered that might have been ingested. I tested the gin trash that is supplemented to the cows in the pasture and it was negative. I submitted three water sample and discovered nitrates to be present at 100 ppm at the West Location on Town Branch as the water enters the place, which is in close proximity to the water treatment plant and



Chisholm Trail Veterinary Clinic, P.C.

Small animal medicine, large expectations. Large animal medicine, small hassles.

the local feed mill. Nitrates can be recycled by cows and do not become toxic until levels are as high as 440 ppm, by healthy cows. Sick cows may not be able to tolerate nitrate levels below 440. This particular cow possessed toxic levels of nitrate in the eye and the water is a likely source.

In summary, the nitrate levels tested in town creek can be toxic to cows that are immune suppressed or sick. Healthy cows should be able to tolerate 100 ppm, but I cannot say that at some time or another the levels of nitrate do not fluctuate due to source, water level and concentration parameters. The cow did have liver flukes and was an older cow. How this all relates to the history of cattle losing weight over a few months time and then dying is still a mystery, but I have identified some risk factors here:

- 1) Water source with nitrates
- 2) Liver flukes
- 3) Unvaccinated for the 4 cattle viruses and Leptospirosis

Recommendation:

I recommend that nitrate levels in the creek be consistently monitored to see if levels reach the 440 ppm threshold for toxicity. The cows that drink from this water source need to be healthy, therefore it is imperative for cows to be free of liver flukes, worms and up to date on all 3 cattle vaccines in imperative. Nutrition and supplementation needs to continue as Mr. Clark is currently doing. I feel the animals that are dying are animals that are debilitated by liver flukes, toxic weed ingestion (such as Texas Squaw weed *Senecio ampullaceus*), intestinal worms, bacterial and viral infections and then drink from the water source with nitrates (though at traditionally non toxic levels) due to toxicity since their immune system is compromised and they cannot handle the low level nitrates as could a non disease cow. In summary:

- 1) Start a consistent vaccination de-worming program for liver flukes and intestinal worms (in the fall after the first freeze and again in the spring 30 days after green up)
- 2) Vaccinate the herd annually for not only Blackleg but the four cattle viruses and six strains of Leptospirosis (This can be achieved in the spring when the bulls are breeding and or at spring deworming)
- 3) Monitor water nitrate levels
- 4) Keep younger healthier cows in this pasture
- 5) Maintain healthy body condition scores with continued good nutrition
- 6) Maintain clean pastures with annual herbicides to kill toxic plants



Texas Veterinary Medical Diagnostic
Laboratory System



Final Report

P.O. Drawer 3040, College Station, TX 77841-3040
Phone: (888)646-5623 Fax: (979)845-1794 <http://tvmdl.tamu.edu/>

Owner's Name:
Clark, Bill

(512)620-0111
Veterinarian/Submitter: Account ID#: 24208
Chisholm Trail Veterinary Clinic, P.C.
1720 S. Colorado
Lockhart, TX 78644

Date specimens received: 12/9/2010

Preliminary reports:

Phone reports:

Final report: Email 12/9/2010

Species: Bovine, multiple animals/specimens, see lab results for animal/specimen ID's

Tests Requested: See Dr. Tam Garland - toxicology

Specimens Submitted: rumen & abomasal contents, 3 water samples from creek source, gin trash being offered free choice

Clinical History: 12/07/2010. From Dr. Golla. Rumen contents, water samples, abomasal contents, gin trash sample. Samples taken from cow and pasture after previous samples tested positive for nitrates. Looking for source of nitrate poisoning. /bw

Clinical Diagnosis:

Previous Cases:

Treatment:

Conclusion/Interpretation of Lab Findings:

Laboratory results as listed.

LABORATORY TEST STATUS:

Ordered Current Status

Nitrates, quantitative (T)	12/9/2010	Completed 12/9/2010
Nitrates/Nitrites, qualitative(3) (T)	12/9/2010	Completed 12/9/2010
Microscopic analysis (T)	12/9/2010	Completed 12/9/2010

Toxicology

Completed: 12/9/2010

Test: Microscopic analysis

Specimen/Animal ID	Specimen	Plant/Entity Identified
Bovine	Rumen content	No toxic plants or seeds identified.

Comments:

The rumen contents contain grass and/or hay along with concentrate feed residue. -- Dr. Garland

Analysis: Nitrates/Nitrites, qualitative
Method: Colorimetric analysis
Basis: As received basis
Completed: 12/9/2010

Specimen/Animal ID	Specimen	Result
Creek Water #1	Water	Negative <20 ppm
Creek Water #2	Water	Negative <20 ppm
Creek Water #3	Water	Positive >20 ppm

Comments:

Water sample #3 contained approximately 100 ppm nitrate. Concentrations less than 440 ppm nitrate in water are considered safe for livestock consumption. -- Dr. Garland

Analysis: Nitrates, quantitative
Method: Ion selective electrode
Basis: As received basis
Completed: 12/9/2010

Specimen/Animal ID	Specimen	Result
Gin Trash	Feed-Gin Trash	0.11 %

Comments:

Nitrate levels less than 1% are safe. -- Dr. Garland

Veterinary Bulletin:

PIROPLASMOSIS TESTING AT TVMDL:

TVMDL can now test for Equine Piroplasmosis, a foreign animal disease caused by Babesia (Theileria) equi and Babesia caballi. For an update on the status of this reportable disease in Texas, see the TAHC web site at: <http://www.tahc.state.tx.us/>.

The tests "run days" will be Monday, Wednesday, and Friday with results normally in 2 days. Specimens must be in the Serology Section by 11:00 AM on Monday, Wednesday, or Friday. The required specimen is 1cc of clear serum for each test. The blood sample must be drawn by and submitted to TVMDL by a licensed veterinarian. Due to the complexity of regulatory import requirements for states in the US, by default TVMDL will run both tests when a "Piro" test request is received. Should you require only B. equi or B. caballi, you must clearly define that on your submission form.

PIROPLASMOSIS TESTING LIMITATIONS - You MUST SPECIFY the reason for testing on your submission form.

TVMDL can test specimens for piroplasmosis ONLY for intra-state and inter-state purposes. Testing for international export or for diagnostic cases with possible clinical symptoms, MUST be sent to NVSL.

Follow TVMDL on FACEBOOK and TWITTER:

Stay up to date on the latest information and developments about TVMDL through Facebook and Twitter. Add TVMDL to your favorites on Facebook at <http://facebook.com/tvmdl> and follow us on Twitter @tvmdl.

IMPORTANT NOTICE:

11/12/2010. It has come to our attention that BioMed Diagnostics, manufacturer of InPouches sold by TVMDL's Amarillo Laboratory, has issued a voluntary recall of InPouchTF product lot #0WA115. Please visit our website at <http://tvmdl.tamu.edu> to learn more or contact BioMed Diagnostics directly 800-964-6466.

If you have pouches from this lot that are unused, please remove them immediately from your supply inventory and box them for return. If you purchased recalled pouches from TVMDL, we are in the process of shipping replacement pouches to you. This shipment will also contain a business reply label to be used to return your unused, recalled pouches. If you purchased pouches directly from BioMed Diagnostics, please see the attached information for details on obtaining replacement pouches.

The Texas Animal Health Commission has reviewed the recall information and made a decision to not require re-testing for bulls tested using pouches from this recalled lot. Re-test of bulls tested with lot #0WA115 will not be required for regulatory purposes in Texas. Please contact TAHC directly at 512-719-0700 for additional information on regulatory issues relating to this product recall.

For information on testing services, please contact TVMDL's Amarillo Laboratory at 1-888-646-5624 or our College Station Location at 1-888-646-5623.

Trichomonas Testing During the Christmas Holidays:

To allow adequate time for testing and release of results for Trichomonas testing prior to the Christmas Holidays, please ensure all Trich pouches arrive at TVMDL no later than Saturday, December 18th. All samples received on or before Saturday, December 18th should be fully processed and tested with results out no later than close of business on Thursday, December 23rd. Samples received on December 24th and later will be processed and results released within the normal turnaround time of 5 days.

Discontinued Sale of Trich Pouches:

12/6/10. After a careful review, TVMDL has concluded we will no longer offer Trich pouches for sale to clients. This decision was made to ensure TVMDL can continue to fully stand behind its services and results. As a third party seller of this product, our agency has no control over the quality, price or manufacture of these products.

To allow our clients time to accommodate this change, TVMDL will continue selling pouches until March 1, 2011. Before that time, clients should make arrangements to secure this product directly from the manufacturer, BioMed Diagnostics (800-964-6466) or from veterinary supply vendors.



Texas Veterinary Medical Diagnostic Laboratory System



Preliminary Report

P.O. Drawer 3040, College Station, TX 77841-3040
Phone: (888)646-5623 Fax: (979)845-1794 <http://tvmdl.tamu.edu/>

(512)620-0111

Owner's Name:
Clark, Bill

Veterinarian/Submitter: Account ID#: 24208
Chisholm Trail Veterinary Clinic, P.C.
1720 S. Colorado
Lockhart, TX 78644

Date specimens received: 12/11/2010

Preliminary reports:

Email 12/7/2010, Email 12/7/2010, Email 12/8/2010, Email 12/9/2010, Email 12/10/2010, Email 12/13/2010

Phone reports:

Final report:

Species: Bovine **Age:** 10.00 Years **Animal ID:** Not Available
Breed: Hereford **Weight:** **Sex:** Female

Tests Requested: Histopath, eye - toxic screen, liver - copper, serum chemistry panel, lung culture

Specimens Submitted: Liver, lung, spleen, kidney, heart (fresh & fixed), eyeball, serum, lung culture (1 rt, fresh, fixed, swab)

Clinical History: 12-6-10. Owner loses 2-3 cows per year due to unexplained weight loss. Cows graze in coastal pasture in plum creek bottom area (Tour Branch Creek). Euthanized cow this afternoon. Cow body condition score 2/9. Necropsy revealed lung and liver abscesses (large). Liver fluke discovered in the liver. *** TVMDL Case Specimen Receipt Log received per Dr. Hoffman: Liver, lung, kidney, spleen, heart - sent fixed. ***

Clinical Diagnosis: Abscessation, tuberculosis infection secondary to liver flukes.

Previous Cases:

Treatment:

Conclusion/Interpretation of Lab Findings:

LABORATORY TEST STATUS:**Ordered Current Status**

MIC susceptibility, food animal (B)	12/10/2010	Completed	12/13/2010
Culture, extended (B)	12/7/2010	Partial	
Chem panel, Ruminant (incl. Lytes) (C)	12/7/2010	Completed	12/7/2010
Histopath: Necropsy tissues (H)	12/8/2010	Completed	12/9/2010
Copper, feed/tissue (T)	12/7/2010	Completed	12/7/2010
Nitrates/Nitrites, qualitative (T)	12/7/2010	Completed	12/7/2010
Special stains - Histopath (H)	12/8/2010	Completed	12/9/2010

FIELD NECROPSY REPORT**External Exam:** BCS 2/9.**Respiratory System:** Pulmonary abscess diffuse.**Circulatory System:** Pericardial fluid.**Digestive System:** Liver enlarged and severely abscessed, discovered one fasciola hepatica adult.**Lymphatic System:** Infected, cottage cheese appearing lymph nodes around liver.**Necropsy Diagnosis:** Liver flukes, lung abscesses, severe liver abscesses.**Histopathology****Histopath:** Necropsy tissues**Pathologist:** Abbitt, Bruce**Date completed:** 12/08/10**Sections/Slides:** 6/2**Date report entered:** 12/08/10**# Tissues:** 5

Not Available, Bovine

DESCRIPTION:**HEART (1), LIVER (1), KIDNEY (1):** No significant lesions recognized.**SPLEEN (1):** Red pulp sinuses (particularly within the mantle zone of lymphoid follicles) contain prominent numbers of sequestered neutrophils.**LUNG (2):** There is diffuse lobular collapse with the slit-like persisting alveolar spaces often filled by fibrin/neutrophils/macrophages with accompanying interstitial fibrosis and marked interstitial accumulation of mononuclear leukocytes. Sectioned bronchi are characterized by a combination of partial collapse with luminal filling by masses of degenerating neutrophils (pus), hyperplasia of lining epithelium containing numerous intraepithelial leukocytes, necrosis/abscessation, or partial collapse in association with peribronchiolar fibrosis and organization of intraluminal exudate to form inflammatory polyps.**HISTOPATHOLOGIC DIAGNOSIS:****LUNG:** Bronchopneumonia, suppurative, chronic with accompanying lobular atelectasis associated with abscessation of bronchi and fibrosing bronchiolitis obliterans.**SPLEEN:** Sinusoidal sequestration of neutrophils.**COMMENT:**

Sequestration of neutrophils within the spleen is a nonspecific reaction essentially compatible with a septicemia/toxemia of any cause and thus likely secondary to the severe pneumonia and grossly described hepatic abscessation/liver fluke infection. The pulmonary lesions present are typical sequelae of a severe bacterial bronchopneumonia, and specifically the cascating granulomas typical of mycobacterial infection (tuberculosis) are not present. However, screening (acid-fast staining) for lesional acid-fast bacteria (mycobacteria) has been initiated and will be reported as an addendum at no additional charge.

Bruce Abbitt, DVM, MS, DACVP
/pjt

12/09/10 **ADDENDUM**

Screening (Acid-fast staining of the lung) for the presence of mycobacteria is negative.
/pjt

Bacteriology

Date completed:

Test: Culture, extended

Animal ID: Not Available

Specimen	Isolate	Comment
Lung	Arcanobacterium pyogenes	
Lung	Pasteurella sp.	

Comment:

12/10/10

Additional culturing is in progress.

We do not perform susceptibility testing on Arcanobacterium pyogenes. Due to the slow growth rate of the organism, disk diffusion testing cannot be used (CLSI guidelines). It is usually susceptible in vitro to penicillin.
---A. K. Swinford, DVM, MS, DACVM /lak

12/13/10

Additional culturing is in progress for Mycoplasma.

We are unable to definitively identify this Pasteurella-like organism using conventional biochemicals. Please let us know if you would like to have molecular-level identification performed (\$25 fee).
---A. K. Swinford, DVM, MS, DACVM /lak

Date completed: 12/13/2010

Test: MIC susceptibility, food animal

Animal ID: Not Available

Specimen	Isolate
----------	---------

Bacterial isolate-past sp

Pasteurella species

Antimicrobial	MIC (ug/ml)	Interpretation
Ampicillin	<=0.25	Susceptible
Ceftiofur	<=0.25	Susceptible
Chlortetracycline	<=0.50	Susceptible
Danofloxacin	<=0.12	Susceptible
Clindamycin	4.00	Resistant
Enrofloxacin	<=0.12	Susceptible
Florfenicol	<=0.25	Susceptible
Gentamicin		
Neomycin	<=4.00	Susceptible
Oxytetracycline	<=0.50	Susceptible
Penicillin	0.25	Resistant
Spectinomycin	16.00	Susceptible
Sulfadimethoxine	<=256.00	Susceptible
Tiamulin	16.00	Susceptible
Tilmicosin	<=4.00	Susceptible
Trimethoprim/sulfamethoxazole	<=2.00	Susceptible
Tulathromycin	2.00	Susceptible
Tylosin (Tartrate/Base)	32.00	No Interpretation Possible

Comment:

This report contains in vitro antimicrobial susceptibility test results and does not represent a therapeutic recommendation. Some antimicrobial use is limited or prohibited in food animals by FDA-CVM regulations. Inappropriate extra-label drug use in food producing animals may lead to violative residues and/or enforcement actions. Because the fluoroquinolones are prohibited for extra-label use in the United States, ENROFLOXACIN and DANOFLOXACIN will be reported for RESPIRATORY specimens ONLY.

The AVC, the NCBA, the AABP and the AVMA have all recommended that aminoglycosides not be used in cattle, except as specifically approved by the FDA.

Current information on food animal residue avoidance can be found on the web at <http://www.farad.org>. When available, veterinary-specific interpretive criteria have been used for susceptibility testing. When veterinary data is not available, human interpretive criteria have been applied.

CLSI (Clinical and Laboratory Standards Institute (formerly NCCLS - The National Committee for Clinical Laboratory Standards)) interpretive criteria for Neomycin is not currently available.

For antimicrobial data that has not yet been reviewed by CLSI, interpretive criteria have been provided by the drug's manufacturer. If a drug is listed on your report as "No Interpretation Possible", then there are no interpretive criteria available for that "drug/bug" combination.

---A. K. Swinford, DVM, MS, DACVM /lak

Clinical Pathology

Completed: 12/7/2010

Test: Chem panel, Ruminant (incl. Lytes)

Animal ID: Not Available

Test	Results	Reference Range	Relative Result Indication		
			Low	Normal	High
Total Serum Protein	6.0	6.2-9.3 g/dl	----- ----- -----	----- ----- -----	----- ----- -----
Albumin	1.5	3.1-4.3 g/dl	----- ----- -----	----- ----- -----	----- ----- -----
Calcium, serum	9.5	8.3-10.4 mg/dl	----- ----- -----	----- ----- -----	----- ----- -----
Phosphorus, serum	10.54	4.9-9.1 mg/dl	----- ----- -----	----- ----- -----	----- ----- -----
Glucose	164	31-77 mg/dl	----- ----- -----	----- ----- -----	----- ----- -----
BUN	15.3	10-25 mg/dl	----- ----- -----	----- ----- -----	----- ----- -----
Creatinine	0.57	0.5-1.7 mg/dl	----- ----- -----	----- ----- -----	----- ----- -----
Total bilirubin	0.40	0.1-0.5 mg/dl	----- ----- -----	----- ----- -----	----- ----- -----
CK	19928	77-265 U/l	----- ----- -----	----- ----- -----	----- ----- -----
AST (SGOT)	411	47-138 U/l	----- ----- -----	----- ----- -----	----- ----- -----
Globulins	4.5	2.5-6.1 g/dl	----- ----- -----	----- ----- -----	----- ----- -----
A/G Ratio	0.33	0.8-0.9	----- ----- -----	----- ----- -----	----- ----- -----
GGT	163.8	11-39 U/l	----- ----- -----	----- ----- -----	----- ----- -----
Magnesium, serum	2.04	1.5-2.5 meq/l	----- ----- -----	----- ----- -----	----- ----- -----
Sodium, serum	137	135-153 meq/l	----- ----- -----	----- ----- -----	----- ----- -----
Potassium, serum	15.1	3.9-6 meq/l	----- ----- -----	----- ----- -----	----- ----- -----
Na/K Ratio	9.1		----- ----- -----	----- ----- -----	----- ----- -----
Chloride, serum	105	92-117 meq/l	----- ----- -----	----- ----- -----	----- ----- -----

Comment

---Submitted on a clot, therefore some results could be falsely high (albumin, total protein, phosphorus, bilirubin, SGOT, CK, Mg) and others could be falsely low (glucose).

---Sample is 1+ hemolyzed.

/bw

*****Clinical Pathology Interpretation*****

Hypoalbuminemia. The elevated CPK indicates muscle damage (downer cow?). The elevated GGT is likely due to the presence of the liver flukes in bile ducts (mentioned in the history).

--- J. Akins, DVM,MS

/ja/bw

Toxicology

Analysis: Copper, feed/tissue
Method: Flame AAS
Basis: Wet weight basis
Completed: 12/7/2010

Specimen/Animal ID	Specimen	Result
Not Available	Liver	29.9 ppm

Comments:

Normal hepatic copper concentration in the adult bovine ranges from 25 to 100 ppm on a wet weight basis.

Hepatic copper concentration below 10 ppm may be consistent with a deficiency status. Hepatic copper concentration of 250 ppm or greater may be consistent with a diagnosis of copper poisoning. -- Dr. Garland

Analysis: Nitrates/Nitrites, qualitative
Method: Colorimetric analysis
Basis: As received basis
Completed: 12/7/2010

Specimen/Animal ID	Specimen	Result
Not Available	Ocular fluid	Positive >20 ppm

Comments:
 Dr. Garland

Veterinary Bulletin:

PIROPLASMOSIS TESTING AT TVMDL:

TVMDL can now test for Equine Piroplasmosis, a foreign animal disease caused by Babesia (Theileria) equi and Babesia caballi. For an update on the status of this reportable disease in Texas, see the TAHC web site at: <http://www.tahc.state.tx.us/>. The tests "run days" will be Monday, Wednesday, and Friday with results normally in 2 days. Specimens must be in the Serology Section by 11:00 AM on Monday, Wednesday, or Friday. The required specimen is 1cc of clear serum for each test. The blood sample must be drawn by and submitted to TVMDL by a licensed veterinarian. Due to the complexity of regulatory import requirements for states in the US, by default TVMDL will run both tests when a "Piro" test request is received. Should you require only B. equi or B. caballi, you must clearly define that on your submission form.

PIROPLASMOSIS TESTING LIMITATIONS - You MUST SPECIFY the reason for testing on your submission form. TVMDL can test specimens for piroplasmosis ONLY for intra-state and inter-state purposes. Testing for international export or for diagnostic cases with possible clinical symptoms, MUST be sent to NVSL.

Follow TVMDL on FACEBOOK and TWITTER:

Stay up to date on the latest information and developments about TVMDL through Facebook and Twitter. Add TVMDL to your favorites on Facebook at <http://facebook.com/tvmdl> and follow us on Twitter @tvmdl.

IMPORTANT NOTICE:

11/12/2010. It has come to our attention that BioMed Diagnostics, manufacturer of InPouches sold by TVMDL's Amarillo Laboratory, has issued a voluntary recall of InPouchTF product lot #0WA115. Please visit our website at <http://tvmdl.tamu.edu> to learn more or contact BioMed Diagnostics directly 800-964-6466. If you have pouches from this lot that are unused, please remove them immediately from your supply inventory and box them for return. If you purchased recalled pouches from TVMDL, we are in the process of shipping replacement pouches to you. This shipment will also contain a business reply label to be used to return your unused, recalled pouches. If you purchased pouches directly from BioMed Diagnostics, please see the attached information for details on obtaining replacement pouches.

The Texas Animal Health Commission has reviewed the recall information and made a decision to not require re-testing for bulls tested using pouches from this recalled lot. Re-test of bulls tested with lot #0WA115 will not be required for regulatory purposes in Texas. Please contact TAHC directly at 512-719-0700 for additional information on regulatory issues relating to this product recall.

For information on testing services, please contact TVMDL's Amarillo Laboratory at 1-888-646-5624 or our College Station Location at 1-888-646-5623.

Trichomonas Testing During the Christmas Holidays:

To allow adequate time for testing and release of results for Trichomonas testing prior to the Christmas Holidays, please ensure all Trich pouches arrive at TVMDL no later than Saturday, December 18th. All samples received on or before Saturday, December 18th should be fully processed and tested with results out no later than close of business on Thursday, December 23rd. Samples received on

December 24th and later will be processed and results released within the normal turnaround time of 5 days.

Discontinued Sale of Trich Pouches:

12/6/10. After a careful review, TVMDL has concluded we will no longer offer Trich pouches for sale to clients. This decision was made to ensure TVMDL can continue to fully stand behind its services and results. As a third party seller of this product, our agency has no control over the quality, price or manufacture of these products.

To allow our clients time to accommodate this change, TVMDL will continue selling pouches until March 1, 2011. Before that time, clients should make arrangements to secure this product directly from the manufacturer, BioMed Diagnostics (800-964-6466) or from veterinary supply vendors.