Texas Groundwater Protection Committee

Groundwater Educational Outreach Plan, 2nd Edition

September 10, 2013


















Table of Contents

Introduction

The Texas Groundwater Protection Committee's (TGPC's) Public Outreach and Education (POE) Subcommittee published a *Groundwater Educational Outreach Plan*[1] ("*Plan*") in 2006 and an associated *Implementation Strategy*[2] ("*Strategy*") in 2007. The POE Subcommittee completed a number of items in the *Plan* and *Strategy*:

- Published 38 Frequently Asked Questions[3] (FAQs) related to groundwater quantity, groundwater quality, septic systems, water wells, administrative entities, and publications.
- Updated *Landowner's Guide to Plugging Abandoned Water Wells*[4], Texas Commission on Environmental Quality (TCEQ) publication RG-347.
- Reviewed and approved *Capping of Water Wells for Future Use*[5], Texas A&M AgriLife Extension Service ("AgriLife Extension") publication L-5490, and *Plugging Abandoned Water Wells*[5], AgriLife Extension publication B-6238.
- Provided links to Texas Department of Licensing and Regulation's (TDLR's) resources regarding abandoned water wells on the TGPC's Water Wells webpage[6].
- Posted a 40-second digital video clip from a down-hole camera on the TGPC Water Wells webpage[7] showing the inside of Austin Community College's Edwards Aquifer monitoring well.
- Mailed a letter of support regarding Texas Water Development Board's (TWDB's) *Major Rivers* school-based water education program to 96 Groundwater Conservation Districts (GCDs), 12 River Authorities, and 12 Geological Societies in Texas.
- Established a Google Analytics account to monitor and report TGPC website activity statistics.
- Supported AgriLife Extension's statewide water well screening events and Texas Well Owner Network[8].

[1] http://www.tgpc.state.tx.us/subcommittees/POE/TGPC_POE_EduOutreachPlan13Nov2006.pdf
[2] http://www.tgpc.state.tx.us/subcommittees/POE/TGPC_POE_EduOutreachPlan_Impl_Strat03Oct2007.pdf
[3] http://www.tgpc.state.tx.us/FAQs.php
[4] http://www.tceq.texas.gov/publications/rg/rg-347.html
[5] Search on the publication number at https://agrilifebookstore.org/
[6] http://www.tgpc.state.tx.us/WaterWells.php#Aband
[7] http://www.tgpc.state.tx.us/WaterWells.php#Basics
[8] http://twon.tamu.edu/

In 2013, *Activities and Recommendations of the Texas Groundwater Protection Committee – A Report to the 83rd Legislature*[9] ("*2013 TGPC Legislative Report*") was published. On page 8, the *2013 TGPC Legislative Report* included two specific recommendations related to education and outreach:

- "To support the abandoned well plugging program, the TGPC recommends that an outreach program be carried out by Texas A&M AgriLife Extension in coordination with the Texas Water Resources Institute. This program would provide educational publications, websites, and other resources that could be used by county extension agents and other local and regional agencies in workshops and field days to teach the public how to properly plug and manage abandoned water wells."
- "Provide tools, educational programs, and assistance for landowners, citizens, local governments, and others to facilitate efforts such as the Water Supply Enhancement Program to increase groundwater yield, the Texas Well Owner Network Program, and the Texas High Plains Evapotranspiration Network."

In order to align its efforts with the 2013 TGPC Legislative Report's recommendations related to the public outreach and education of landowners and local governments, the POE Subcommittee will focus on the following areas in this second edition of its *Plan*:

- Abandoned Water Wells
- Texas State Soil and Water Conservation Board (TSSWCB) Water Supply Enhancement Program (WSEP, formerly known as the Brush Control Program)
- Texas Well Owner Network (TWON)
- Texas Evapotranspiration Networks

[9] http://www.tceq.texas.gov/assets/public/comm_exec/pubs/sfr/047_12.pdf

Abandoned Water Wells

Topic Subject Matter Experts (SMEs): David Gunn (TDLR), David Van Dresar (Texas Alliance of Groundwater Districts, TAGD), and Drew Gholson (AgriLife Extension)

- The most important groundwater-related messages about this topic that need to be delivered are:
  - Groundwater Protection – Abandoned water wells can be a direct conduit from the earth's surface to the aquifer. In addition, abandoned water wells can co-mingle different aquifers of varying water quality.
  - Human Health and Safety – Accidents in which people or animals fall into abandoned water wells have occurred, and they continue to occur. Even when an abandoned water well is covered, the soil around it may be unstable and can cave in.
  - Liability – The landowner is responsible for the water well on their property, which includes plugging the well if it:
    - Is not in use;
    - Does not meet the minimum construction standards; or,
    - Is not in good condition.

    Details and diagrams related to abandoned water well can be found in the *Landowner's Guide to Plugging Abandoned Water Wells*[10].
    Alternatively, the water well may be capped for future use if it meets the minimum construction standards and it is in good condition. See the *TDLR Abandoned Well Determination Criteria Checklist*[11] for details.
  - Large-diameter abandoned water wells can become dumping areas for trash and debris which can not only pollute the well and nearby groundwater, but this material can also be almost impossible to completely remove so that the well can be properly plugged.

- The most important audiences for this topic are:
  - "county extension agents and other local and regional agencies"[9]
  - The "public"[9]
  - Cities
  - Water well drillers
  - Real estate agents and agencies
  - Groundwater Conservation Districts (GCDs)

- Actions that would deliver these messages to these audiences include:
  - Work with "Texas A&M AgriLife Extension in coordination with the Texas Water Resources Institute"[9].
  - Post information on GCDs and TGPC websites.
  - News releases to local papers and other traditional media outlets.
  - Use social media.

[10] http://www.tceq.texas.gov/publications/rg/rg-347.html
[11] http://www.license.state.tx.us/wwd/Abandoned%20Well%20Determination%20Checklist.pdf

  - Develop and post a map and contact list of Texas counties with cost-share, loan, and grant programs for plugging abandoned water wells on the TGPC website.
  - Investigate the Phase 1 Site Assessment process in order to determine whether abandoned water well training (identification, reporting, etc.) is needed for those involved.
  - Define the different terms related to plugging (e.g., sealing, decommissioning, closing, abandoning, destroying) and capping an abandoned (e.g., unused, out-of-service, deteriorated, discontinued) water well and provide this information on the TGPC, TDLR, and TWON websites.

- These messages can be regionalized by partnering with similar-minded local groups such as GCDs, the United States Geological Survey (USGS) Texas Water Science Center, and the statewide AgriLife Extension, Soil and Water Conservation District (SWCD), and United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) offices.
  - A contact person that the TGPC POE Subcommittee can work with should be identified in each of these organizations.

- Examples or success stories for these messages include:
  - Landowner Protects Aquifer and Water Quality by Sealing Wells[12]
  - AgriLife Extension partnered with Clearwater GCD to offer a water well plugging demonstration in June 2009[13].
  - Kemp Chief of Police Texts Rescuers After Falling Into Well[14]
  - Girl, 6, Rescued from Mississippi Well[15]
  - Firefighters use crane to rescue horse trapped in well[16]
  - In Taylor, Texas, a horse on private property fell into a large-diameter water well, but with the assistance of the local fire department and some winch trucks, the horse was safely removed and the well was plugged.[17]
  - Eighteen-month-old Jessica McClure fell into a backyard well in Midland, Texas, on October 14, 1987. It took rescuers 58 hours to free “Baby Jessica” from the eight-inch well casing 22 feet below the ground.[18]

[12] http://www.nrcs.usda.gov/wps/portal/nrcs/detail/tx/home/?cid=stelprdb1086080
[13] http://www.cuwcd.org/pdf/Newsletters/2009-ClearwaterSource.pdf, page 5
[14] http://www.nbcdfw.com/news/weird/Police-Chief-Texts-Rescuers-After-Falling-Into-Well-206438621.html
[15] http://www.cnn.com/2013/06/06/us/mississippi-girl-trapped/index.html?iref=allsearch
[16] http://www.ktvu.com/news/news/local/san-rafael-firefighters-attempt-rescue-horse-trapp/nX4mK/
[17] Photo at http://www.license.state.tx.us/wwd/wwdfaq.htm#a1
[18] http://en.wikipedia.org/wiki/Jessica_mcclure

TSSWCB Water Supply Enhancement Program

Topic SME: Aaron Wendt (TSSWCB)

- The most important groundwater-related messages about this topic that need to be delivered are:
  - Water supply enhancement through brush control is an established program authorized by the Legislature for the purpose of achieving goals in the State Water Plan.
  - The targeted control of brush species that are detrimental to water conservation (e.g., juniper, mesquite, and salt cedar) has the potential to enhance surface water and groundwater yield, improve soil conservation, protect water quality, and manage invasive species.
  - Brush control for water supply enhancement potentially provides more long-term economic benefits than other higher cost and advanced technology programs outlined in the State Water Plan (e.g., reservoir development and desalination).
  - To landowners: There is a cost-share program available to assist you with brush control on your property.

- The most important audiences for this topic are:
  - "landowners, citizens, local governments, and others"[9]
  - Cities
  - Public Water Supply (PWS) Systems
  - Municipal water user groups
  - River Authorities
  - Regional Water Planning Groups
  - State Legislators and their staff
  - AgriLife Extension County Agents and USDA NRCS District Conservationists
  - GCDs

- Actions that would deliver these messages to these audiences include:
  - Add a link to an existing Frequently Asked Question (FAQ) on this subject on the TGPC website.
  - Collaborate with the Water Conservation Advisory Council[19] on FAQs and webpage links.
  - Work with AgriLife Extension in coordination with the Texas Water Resources Institute to deliver these messages to the various audiences.
  - Provide TSSWCB WSEP information on the TGPC and TAGD websites.
  - Provide news releases to local newspapers and other traditional media outlets.
  - Reference the TSSWCB WSEP webpage[20] in all forms of outreach.
  - Disseminate TSSWCB WSEP publications, brochures, and fact sheets.

[19] http://www.savetexaswater.org/
[20] http://www.tsswcb.texas.gov/en/brushcontrol

- These messages can be regionalized by partnering with similar-minded local groups such as GCDs, the USGS Texas Water Science Center, and the statewide AgriLife Extension, SWCD, and USDA NRCS offices.
  - A contact person that the TGPC POE Subcommittee can work with should be identified in each of these organizations.

- Examples or success stories for these messages (e.g., collaboration is a great human interest story) include:
  - Identify landowners who have used the TSSWCB WSEP cost-share and demonstrated groundwater recharge and spring flow restoration from brush control; develop success stories highlighting those landowners.
  - *Effects of Brush Management on the Hydrologic Budget and Water Quality In and Adjacent to Honey Creek State Natural Area, Comal County, Texas, 2001–10*[21]
  - Collaborate with River Authorities and USDA NRCS to develop stories for distribution.

[21] Banta, J.R., and Slattery, R.N., 2012, *Effects of Brush Management on the Hydrologic Budget and Water Quality In and Adjacent to Honey Creek State Natural Area, Comal County, Texas, 2001–10*: USGS Fact Sheet 2012–3097, 4 p., http://pubs.usgs.gov/fs/2012/3097/

Texas Well Owner Network

Topic SMEs: Diane Boellstorff (AgriLife Extension) and Drew Gholson (AgriLife Extension)

- The most important groundwater-related messages about this topic that need to be delivered are:
  - Water well owners are responsible for having the quality of their water well tested. Testing for fecal coliform bacteria and/or *E. coli* and nitrates should be done annually.
  - Importance of maintaining good records and well logs.
  - Monitor land use around the wellhead and protect the wellhead.
  - Plug abandoned water wells and properly cap functional water wells (if they are not being used).
  - Inspect and maintain existing septic systems.

- The most important audiences for this topic are:
  - "landowners, citizens, local governments, and others"[9]
  - Private water well owners
  - River Authorities
  - AgriLife Extension County Agents and USDA NRCS District Conservationists
  - Regional Water Planning Groups
  - State Legislators and their staff
  - GCDs

- Actions that would deliver these messages to these audiences include:
  - Develop TWON publications and Fact Sheets.
  - Offer TWON Well Informed sessions to the public: water well screening plus one-hour educational program.
  - Offer TWON Well Educated sessions to the public: water well screening plus six-hour educational program.
  - Maintain TWON website.
  - Use social media.
  - Develop YouTube videos (part 1 of 5, etc.).

- These messages can be regionalized by partnering with similar-minded local groups such as GCDs, the USGS Texas Water Science Center, and the statewide AgriLife Extension, SWCD, and USDA NRCS offices.
  - A contact person that the TGPC POE Subcommittee can work with should be identified in each of these organizations.
  - TWON Well Educated speakers include the TWON project team, GCD General Managers, watershed coordinators for Watershed Protection Plans (WPPs), River Authority laboratory directors, and may also include a water well driller in the future.

  - TWON has been developed as a statewide program[22].
  - Work with water well drillers.

- Sub-points that reinforce these messages include:
  - *Specifically*, have your well water quality tested annually for fecal indicator bacteria and nitrates;
  - Inspect your septic system every 6-12 months and pump it out every 3-5 years;
  - Have a water well driller or pump installer inspect your water well every five years unless you are qualified to evaluate the water well and all of its components; and,
  - Plug or cap water wells on your property, as appropriate.
  - *OR*, generally, by taking the appropriate actions, the water quality of an aquifer, and thus the landowners' water supply, are protected.

- Examples or success stories for these messages include:
  - TWON is working with the TCEQ Supplemental Environmental Project (SEP) program, TDLR, TAGD, USDA NRCS, SWCDs, and GCDs to identify water well owner opportunities for well plugging cost-share.
  - For January – August 2013, 683 samples were analyzed for fecal coliform bacteria, nitrate-nitrogen, and total dissolved solids (TDS) at 18 water well screening events (both Well Informed and Well Educated sessions) with the following results:
    - Fecal coliform bacteria were found in 125 wells (18% – the Maximum Contaminant Level (MCL) is zero);
    - Nitrate-nitrogen levels exceeded the 10 parts per million (ppm) MCL for 57 water well samples (8%); and,
    - The 500 ppm secondary water quality standard for TDS (for taste and health risk for individuals in salt-restricted diets) was exceeded in 376 (55%) sampled wells.
    - In addition, arsenic levels exceeded the 10 parts per billion (ppb) MCL for 8 (6%) of 131 water well samples screened at eight Well Educated sessions during this timeframe.
  - When asked about their follow-up intentions, 100 % of TWON program attendees with positive water well screening results report that they plan to adopt Best Management Practices (BMPs) to address the issues with their well.

[22] http://www.tceq.texas.gov/assets/public/comm_exec/pubs/sfr/068_12.pdf, p. 126

Texas Evapotranspiration Networks

Topic SME: Guy Fipps (AgriLife Extension)

- The most important groundwater-related messages about this topic that need to be delivered are:
  - To the public: Irrigation is the biggest single user of groundwater in Texas, and monitoring evapotranspiration is a proven tool to conserve that resource.
  - To the Legislature and state agencies: Texas, unlike most other states in the western United States, does not have a state-supported evapotranspiration network.
  - To Irrigators: Evapotranspiration tools are available and effective. Here is how you use these tools.....
  - To public agencies: Evapotranspiration tools should be incorporated into your water conservation planning. This is what evapotranspiration is, and this is how it can be a part of your water conservation programs.....

- The most important audiences for this topic are:
  - "landowners, citizens, local governments, and others"[9]
  - Irrigators (agricultural and urban)
  - Public agencies interested in water conservation (e.g., GCDs, state agencies, Municipal Utility Districts (MUDs), city water conservation departments)
  - School districts

- Actions that would deliver these messages to these audiences include:
  - Develop one or more FAQs on this subject and post them on the TGPC website.

- These messages can be regionalized by partnering with similar-minded local groups such as GCDs, the USGS Texas Water Science Center, and the statewide AgriLife Extension, SWCD, and USDA NRCS offices.
  - A contact person that the TGPC POE Subcommittee can work with should be identified in each of these organizations.
  - Include regions outside of the High Plains.
  - Partner with River Authorities (irrigators often also have surface water permits/contracts in addition to using groundwater).
  - Work with Regional Water Planning Groups.

- Examples or success stories for these messages include:
  - There are a number of appropriate success stories that could be chosen based on the audience.