

- ❖ Pollution Prevention
- ❖ Eliminate or reduce the number of hazardous materials and waste by substituting non-hazardous or less hazardous material.
- ❖ Use non-caustic detergents instead of caustic cleaning for parts cleaning.
- ❖ Use detergent based or water-based cleaning systems in place of organic solvent degreasers.
- ❖ Replace chlorinated organic solvents with non-chlorinated solvents. Non-chlorinated solvents like kerosene or mineral spirits are less toxic and less expensive to dispose of properly. Check list of active ingredients to see whether it contain chlorinated solvents.
- ❖ Choose cleaning agents that can be recycles.
- ❖ Miscellaneous Efforts
- ❖ Educate the public on how to identify household hazardous water.
- ❖ City may host an annual household hazardous waste collection day.
- ❖ Promote citizens to give unused product to a friend or neighbor that can use it rather than disposing of the product.
- ❖ Run articles in local newspaper informing citizens on the proper way to dispose of HHW.

Pesticide and Fertilizer Applications

The care of landscaped areas is a major contributor to the pollution of surface water. Heavily landscaped areas include residential yards, commercial lawns, golf courses, ball fields, and parks. The soils in many of these areas require frequent fertilization to maintain their turf grass. Because excess fertilizer uses and poor application methods can cause fertilizer movement into sources of drinking water, the increased application of lawn and garden fertilizers in recent year has raised concern over the pollution of surface and ground water.

The two main components of fertilizer that are of the greatest concern to source water quality are nitrogen and phosphorus. Nitrogen is used to promote green, leafy, vegetative growth in plants. Plants with nitrogen deficiency show stunted growth.

Phosphorus promotes root growth, root branching stem growth, flowering, fruiting, seed formation and maturation. If improperly managed, fertilizer elements, can run off into surface water or leach into ground water.

A recent study in New Jersey indicated that ten percent of the nitrogen and four percent of the phosphorus applied annually in a 193 square mile area of landscaped residential development ended up in surface waters because of over application.

Use of nitrogen containing fertilizers can contribute to nitrates being dissolved in drinking water. Consumption of nitrates can cause methemoglobinemia (blue baby syndrome) in infants, which reduces the ability of the blood to carry oxygen. If left untreated, methemoglobinemia can be fatal for affected infants. Due to this health risk,

EPA set a drinking water maximum contaminant level of 10 milligrams per liter or parts per million has been set for nitrate measured as nitrogen.

Under certain conditions phosphorus can be readily transported with the soil. In fact, 60 to 90 percent of phosphorus moves with the soil. Phosphorus is the major source of water quality impairments in lakes nationwide. Even though regulations that affect the taste and odor of water are not federally enforceable under the Safe Drinking Water Act, municipalities often must treat their drinking water supplies for these aesthetic reasons.

BMP's for Pesticide and Fertilizer Applications

Fertilizer applications should be based on soil tests to avoid the economic and environmental costs that can be incurred with excess fertilizer use. A soil test will show the levels of phosphorus and potassium present in the lawn; however, soil tests for nitrogen are rare. Nitrogen is highly mobile in the soil and tests generally provide little useful information relative to lawns. Most newly planted area should be tested during initial planting every one or two years following that. A minimum of three to four weeks after the last fertilization should pass before sampling. For sampling, 15 to 20 cores should be taken at about three to four inches in depth and mixed in a plastic container. Samples can be tested using readily available field kits or submitted to a private laboratory or extension office for testing and interpretation.

Selecting the appropriate fertilizer is the next crucial step after receiving soil testing results. Most homeowners use blended fertilizers that list percentage of nitrogen, phosphorus, and potassium in the fertilizer. If the soil tests show phosphorus is high, then a fertilizer with a low percentage of phosphorus should be chosen. The use of organic nutrient sources, such as manure, can supply all or part of the nitrogen, phosphorus and potassium need for turf grass and gardens. However, organic fertilizers can also cause excessive nutrient loads if improperly applied.

Nitrogen should be applied as recommended for the type of grass being grown. It is often recommended that 1,000 square feet of lawn require 0.5 pounds of nitrogen per month of active growth. A good rule is never to apply more than one pound of nitrogen fertilizer per 1,000 square feet of lawn in any one application. For vegetable and flower gardens only 0.1 to 0.2 pounds of nitrogen per 100 square feet should be applied per year, although corn, and tomatoes crops may require more.

To help maintain a healthy lawn it is best to mow frequently at a height of 2.5 to 3 inches. Grass clippings should remain on the lawn to decompose and recycle nutrients back to the lawn. By leaving grass clippings on the lawn, nitrogen applications can be reduced by 30 to 40 percent.

Wherever possible, low maintenance, native plants and grasses should be planted to minimize the use of fertilizer. Plants that are adapted to the local soils require less fertilizations and watering. In fact, these practices can reduce required lawn maintenance up to 50 percent. Local planting suggestions may be obtained from State and county extension offices and web sites.

Proper Fertilizer Application – The use of an appropriate form of nitrogen fertilizer can reduce the potential for leaching and runoff problems. Quick release fertilizers should be used on heavy clay or compacted soils, because the longer a fertilizer granule remains intact, the greater the chances it will be washed away into surface water. On sandy soils, however, nitrogen can leach through the soil quickly. On these soils, slow-release nitrogen sources provide soluble nitrogen over a period, so a large concentration of nitrogen is not made available for leaching. Fertilizer bags are generally labeled as a ratio of water-insoluble nitrogen (WIN) slow-release fraction, to water-soluble nitrogen quick release fraction (WSN). A large WIN/WSN ratio indicates a high percentage of slow-release nitrogen is contained in the product.

While the proper time of year to fertilize varies by location, applying a smaller amount of fertilizer at a higher frequency is often best. Eliminating excess nutrients in soil reduces the chances of polluting surface runoff and ground water. Ideally, fertilizer application should be timed to coincide as closely as possible to the period of maximum uptake and growth. The most active growth periods are spring and fall in cool climates and early and late summer in warm climates. Avoid fertilizer applications before heavy rains.

Core compacted soils before applying fertilizer to insure incorporation. In all types of soil, it is always best to incorporate organic fertilizer into the lawn.



SEPTIC SYSTEMS

A major cause of groundwater pollution in the United States is effluent from septic tanks, cesspools, and privies. Septic systems are used to treat and dispose of sanitary waste, that is, wastewater from kitchens, clothes washing machines and bathrooms. When properly sited, designed, constructed, and operated, septic systems pose a minimal threat to drinking water sources. On the other hand, improperly used or operated septic systems can be a significant source of groundwater contamination that can lead to waterborne disease outbreaks and other adverse health effects.

All homes within Windermere Oaks WSC's Capture Zone must rely on septic systems to handle their wastewater needs. Some soils within the Capture Zone are rated as "Very limited" which basically means that the soils are not suitable for septic systems without special planning, major soil modification, special design and/or significant management practices.

BMP's for Septic Systems

The state of Texas has adopted a code (30TAC, Subchapter G, Rule §30.240) making it mandatory that a professionally licensed and registered sanitarian or engineer designs

all new structures.

Most jurisdictions require minimum horizontal setback distances from features such as buildings and drinking water wells and minimum vertical setback distances from impermeable soil layers and the seasonal high-water table. Areas with high water tables and shallow impermeable layers should be avoided because there is insufficient unsaturated soil thickness to ensure enough treatment. Soil permeability must be adequate to ensure proper treatment of septic system effluent. If permeability is too low, the drain field may not be able to handle wastewater flows and surface ponding (thus contributing to the contamination of surface water through runoff) or plumbing backups may result. If permeability is too high, the effluent may reach groundwater before it is adequately treated. Well-drained, loamy soils are generally the most desirable for proper septic system operation.

Septic systems and drain fields should be of adequate size to handle anticipated wastewater flows. In addition, soil characteristics and topography should be considered in designing the drain field. The lower the soil permeability, the larger the drain field required for adequate treatment. Drain fields should be in relatively flat areas to ensure uniform effluent flow. Effluent containing excessive amounts of grease, fats, and oils may clog the septic tank or drain field and lead to premature failure. The installation of grease interceptors is recommended for restaurants and other facilities with similar wastewater characteristics.

Public education should be sent to these individual homes explaining the proper maintenance procedures for septic systems. This includes:

- pumping and inspection of the systems every 3-5 years. Repairs should be made in a timely manner.
- Fix leaky faucets and fixtures.
- Do not use flush activated toilet bowl tablets or treatments.
- Install lint traps on washing machines.
- Keep the use of antibacterial soaps to a minimum.
- Keep garbage disposal use to a minimum.
- Keep the use of bleach to a minimum.
- Do not flush inorganic materials such as diaper, cigarette butts, tampons etc.
- Install water conservation fixtures.

**Windermere Oaks WSC
Source Water Protection Program
Contingency Plan**

PWS ID 0270035

Prepared April 2021

A contingency plan is an important component of any SWPP. The purpose of the contingency plan is to establish response procedures that may be necessary in the event of a partial or total loss of PWS service resulting from natural disasters, chemical contamination, or civil emergencies. The plan contains instructions on how to react to spills and other incidents that may contaminate the water source. It also includes protocols for contacting emergency responders and for sharing information with the media and the public. Additionally, the plan includes contingencies for alternate water supplies (including alternative treatment if necessary) during the emergency. This section describes the framework and recommendations on preparation and response to a water supply contamination emergency; however, these guidelines should be considered general best practices and do not supersede any policies or procedures that have been established by the Windermere Oaks WSC, utility personnel or local authorities.

Contamination Event Procedures

In the event of a contamination event, the responsible party should notify the water supplier. Key steps in responding effectively to contamination events, once notified, are to have an appropriate and current list of emergency contacts, clear emergency response procedures, and in the case of an interruption of a public water supply, to be able to alert affected water users. This section describes the procedures that should be followed for water supply-related emergency situations.

Emergency Notification and Contacts

Table 3 contains various contacts that may be needed in an emergency water supply situation, including utility personnel, local community officials, 24-hour spill response hotlines, and neighboring communities.

Table 3

Contact Type	Name	Contact Number
Utility Personnel	George Burriss	830-613-8137
Local Emergency Contacts	Burnet County Sheriff	512-756-8080
	Lakeway Police	512-261-2800
	Marble Falls Police	830-693-3611
	Spicewood Fire Department	830-693-7136
24-Hour Contact Numbers	State of Texas Spill Hotline	800-832-8224
	National Response Center	800-424-8802
	Chemical Transportation	

	Emergency Center CHEMTREC)	800-262-8200
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Notifying Local Water Users

If the local public water supply becomes contaminated, communicating information and instructions to the public is critical. This may include alternative water supplies or temporary demand restrictions. The utility should immediately notify affected users by telephone, email distribution, door to door notice and by contacting the local communities, emergency response authorities, radio stations, television stations, and posting public notices at the U.S. Post Office. **Table 4** presents contact information for radio and television stations that may be used as public communication centers.

Table 4 Media Contact Information

Media Type	Name	Contact Number
KBEY	103.9 FM	830-693-5551
KBMD	88.5 FM	888-784-3476
KVET	98.1 FM	512-390-5838
KLBJ	93.7	512-832-4000
The Picayune – Marble Falls	Newspaper	830-693-7152

Water System Emergency Response Procedures

Should an emergency that has the potential to contaminate the PWS well occur, it is important to have established emergency response procedures in place. The following section outlines some general best practices for emergency response; these guidelines should not supersede any policies or procedures that have been established by the Windermere Oaks WSC, utility personnel or local authorities.

Should a spill occur that poses a threat to a water supply, any water supply well assumed to be contaminated must be taken out of service immediately. The Windermere Oaks WSC and local authorities will take immediate action to secure public water supply equipment and associated infrastructure, while the magnitude of the spill or contamination is being evaluated.

Spill Response and Report Procedures

If it is concluded that the spill or contamination poses a threat to the water supply, then the affected well should be shut down and water supply should be switched to a different source. A sampling protocol should be implemented to ensure that any nearby source is not also subject to the contamination. Utility personnel should ensure that the

potentially contaminated water supply is disconnected from the distribution system until further assessment guarantees that the water is safe.

Only trained personnel should approach a fire or a spill. If possible, identify the material involved, including the warning label information. The owner of the facility or activity from which the spill or contamination originated should be notified immediately and to supply accurate information about the substance involved. Initial spill countermeasures should be deployed by trained emergency responders. If the responsible party is unknown, not on the scene, or not taking appropriate actions, local emergency response representatives should take charge of on-scene operations.

If the person, company, or agency responsible for the occurrence of the incident (or their appointed agent), has arrived on-scene and has assumed responsibility for all containment and cleanup operations, this person should oversee on-scene operations. Local and state agencies at the scene should volunteer their services and assistance. If the responsible party does not assume responsibility, the TCEQ is responsible for monitoring all removal operations and coordinating all state activities.

It is recommended that the Windermere Oaks WSC designate a Public Information Officer (PIO) to function as a liaison with press representatives during an emergency event. Release of information to the news media should be coordinate with PIO.

The first responsible party on the scene will attempt to make an identification of the substance. If the is caused by the transportation incident, then:

- The operator of the vehicle can provide the name of the shipper, consignee, manufacturer, and shipping papers (located in the cab of vehicle on seat or in a holder on the inside of the door). The shipping company should be able to identify the contents of the vehicle using a vehicle ID number.
- United Nations (UN) or North American (NA) material identification numbers (4-digit numbers) can be located on warning placards or on individual orange panels. These numbers are hazard category codes that can be identified by contacting the Chemical Transportation Emergency Center (CHEMTREC) AT 800-262-8200.

To protect human safety, all response personnel should avoid direct contact with the spilled material by avoiding inhalation of any gases, fumes, vapors, or smoke, by remaining upwind of the spill, by keeping people away from the scene, by attempting to remove all ignition sources without endangering life, and by assess the situation with regards to injuries.

Reporting Procedures

After receiving notice of a potential contamination event due to a spill, the utility should notify the State of Texas Spill Reporting Hotline (see **Table 5**, 800-832-8224), which is

available 24 hours per day. Additionally, the Federal National Response Center should be notified. The Texas Spill Reporting Hotline has trained and experienced personnel with 24-hour access to reference materials on hazardous properties of chemicals. In addition, CHEMTREC has emergency information concerning hazardous properties of approximately 18,000 chemicals. CHEMTREC will provide immediate information via the telephone and will usually be able to notify the shipper of the material (if the incident is transportation-related) or direct the caller to other sources of technical assistance.

Table 5 contains a checklist of information that must be reported to the State of Texas Spill Reporting Hotline.

Table 5. Spill Reporting Hotline Information Checklist

	Date and time of spill and release
	Identity or chemical name of material released/spilled, including whether the chemical is an extremely hazardous substance; if direct identification is impossible, then provide the following: 1. Color of material, 2. Physical state (solid, gas, liquid), 3. Odor, 4. Noticeable sound, 5. Abnormal or extreme heat, 6. Pressure leaks, and 7. Color of flame (if present)
	Estimate of quantity of material released/spilled
	Time or duration of the event
	Exact location of the spill, including the name of well affected
	Source of release/spill
	Name, address, and telephone number of party in charge of (or responsible for) the facility/activity associated with the release/spill
	Extent of actual and potential water pollution
	Party responsible for the site (water superintendent)
	Steps being taken or proposed to contain and clean up the released or spilled material and any precautions taken to minimize impacts, including evacuation
	Extent of injuries, if any
	Any known or anticipated health risks associated with the incident and, where appropriate, advice regarding medical attention necessary for exposed individuals
	Possible hazards to the environment (air, soil, water, wildlife, etc.)
	Wind direction and approximate velocity, if this is a factor
	Identity of governmental and/or private sector representatives responding on scene

Alternative Water Supply

If the PWS source water for the public supply wells is compromised, the utility will need to obtain potable water from an alternative source. The alternative source could be chosen from several options, such as: (i) packaged bottled water, (ii) bulk water delivery using tankers, (iii) temporary demand restrictions, (iv) boil water restrictions, or (v) piped water from a neighboring community using an existing interconnect line.

Windermere Oaks WSC has one supply well and no backup wells or interconnections if the wells were to become contaminated. Therefore, one of the five previously mentioned alternate water sources will need to be utilized or a combination of different sources. These will be required until the supply wells are decontaminated and brought back online. Windermere Oaks WSC may want to consider bringing in packaged bottled

water for short term emergencies. The other alternative supply options could also be utilized, such as trucking in potable water and demand restrictions.

Financial Resources and Potential Funding Sources

Various local funding mechanisms are available if alternative water supplies must be established or if other actions must be taken because of a water emergency or contamination affecting the water utility system. Potential funding sources and the available fund for the necessary repairs or for financing continued operations for the following:

- Water Systems' Reserve Funds
- Local Banks
- State Programs
- Federal Programs

State Programs

Texas Spill-Response Fund: On a case-by-case basis, the TCEQ can approve expenditures from this fund to contain and clean up spills of oil and hazardous materials, including the necessary scientific studies and restoration of state water resources. An incident may qualify for funding if no federal action is being taken, enforcement action under the Solid Waste Disposal Act is not being taken, and the responsible party is not acting or is not responding adequately (as determined by the TCEQ). Use of the fund may be expedited when there is an imminent and significant danger to public health and safety (such as contamination of drinking water) or to the environment. For expenditures from the fund, the state can seek reimbursement from federal sources, such as Superfund, or from the responsible party.

Texas Underground and Aboveground Storage Tank Program: This is a state fund (established under 31 TAC 334) that is intended to supplement private liability insurance for owners and operators of petroleum-storage USTs and ASTs. Owners or operators of regulated USTs and ASTs (but not homeowners and others exempt from UST and AST regulations) may apply to be reimbursed by the fund for the allowable costs of corrective actions required for releases. Reimbursement is for up to \$1 million per occurrence; the first \$10,000 is paid by the owner or operator.

Allowable costs include the costs of abating hazards to human health and environmental effects, testing affected or potentially affected sources of drinking water, and temporarily providing alternative water supplies. The allowable amounts, length of time and uses of alternative water supplies will be determined by the director of the TCEQ. The TCEQ also will evaluate reimbursement claims for the cost-effectiveness and the technical merit of the corrective action before ruling on claims for reimbursement. Only the responsible owner or operator or his or her assigned agent

may apply for reimbursement. The fund applies only to petroleum storage tanks, not to tanks for storing other hazardous waste.

Federal Programs

Superfund: Superfund is a revolving trust fund established under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA) for emergency response to, and cleanup of, releases of hazardous substances, principally, but not exclusively, from abandoned sites that could threaten public health or the environment. A high priority is given to contaminated drinking water. Sites are eligible for Superfund if they have been placed on the National Priorities List (NPL) by the Hazard Ranking System (HRS) or if a "removal action" is required. EPA can initiate legal action against present or past owners (potentially responsible parties) to reimburse the fund. Removal actions are short-term actions taken to prevent or mitigate an imminent threat, which can include establishing alternative water supplies. State and local governments may be eligible for reimbursement from the fund for removal actions they undertake.

States must cover 10 percent of total cleanup costs and 100 percent of operation and maintenance. The first 10 years of a groundwater treatment system is defined as cleanup, not operation. A state or local government must cover 50 percent of cleanup costs if the contamination source is a facility, it owns or operates.

Localities also may be eligible for reimbursement (up to \$25,000) for temporary emergency actions if they have used available local funding and have depleted all other sources of reimbursement. Priority is given to areas experiencing significant financial hardship.

Leaking Underground Storage Tank (LUST) Program: The federal UST program is a trust fund for cleaning up contamination from leaking USTs, especially if the owner or operator cannot be identified and a quick response is necessary (for example, to prevent imminent contamination of drinking water supplies). Alternative water supplies can be funded by the program. The state must cover 10 percent of the cost.

Army Corps of Engineers (33 U.S.C. 701n): Funding may be available to supplement local funding for temporary alternative water supplies in an emergency contamination situation. Up to \$50,000 may be expended at the discretion of the Corps district. Other types of contamination response and recovery activities, such as treatment or long-term alternatives for water supply, cannot be funded.

IMPLEMENTATION OF SWP PLAN

Planning for the Future

There are several measures that Windermere Oaks WSC has taken to lessen the impact of disaster. Some of the more important measures included making sure the system has adequate financial reserves for general repairs and equipment replacement. Windermere Oaks WSC also conducts regular inventory of their repair parts and emergency backup equipment to make sure everything functions properly.

More specifically Windermere Oaks WSC has incorporated the following measures into their Standard Operating Procedures.

- Established a list of emergency contacts with a chain-of-command.
- Protecting office records, electronic equipment, computers
- Making sure the ground storage tanks are filled to capacity and secure.

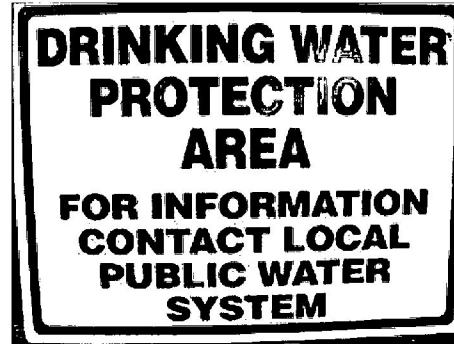
Keeping good records is of the utmost importance to Windermere Oaks WSC. Officials know that this will help the system's efforts in assessing damage and evaluating restoration costs. Windermere Oaks WSC's emergency response plan addresses problems that could develop in the event of water supply shortages, or a contamination incident that impacts the system's ability to supply an adequate quantity of safe drinking water to the public.

Eagle Pass' emergency response plan also focuses on the identification of problems that may arise if protective and preventative measures fail. It also states solution to resolve potential problems by issuing well notices and contacting surround area water systems. Questions used to help in the planning of this emergency response plan are as follows:

- Based upon prioritization of the Contaminant Source Inventory List, what are the most likely and significant threats to our system's water supplies?
- What specific steps can we take to address existing and potential threats?
- Who is responsible for each step in responding to emergency situations, and how will the response actions be coordinated?
- What temporary and permanent replacement water supplies can be obtained if needed?
- What technical, logistic, and financial resources can be obtained?

SUMMARY OF ACTION TO BE TAKEN BY WINDERMERE OAKS WSC

Windermere Oaks WSC has installed SWP highway signs on the perimeter of the Area of Primary Influence on major roads of the surface water intake site. Below is a sample of the sign:



The purpose of these signs is to inform the public that an area of protection has been set aside for Windermere Oaks WSC, and the prevention of contamination to the surface waters.

Windermere Oaks WSC has also implemented the following Best Management Practices to help ensure the safety of the public drinking water.

- Windermere Oaks WSC has implemented a Customer Service Inspection Program by requiring backflow/backpressure devices on all cross connections.
- Windermere Oaks WSC has developed their Emergency Response Plan.
- The State of Texas has adopted a code (30TAC, Subchapter G, Rule 30.240) making it mandatory that a professionally licensed and registered sanitarian or engineer designs all new on-site sewage facilities.

Implemented BMP's for Water Conservation

Windermere Oaks WSC is very proactive in their water conservation measures. According to the Texas State Water Plan, Texas' existing water sources will meet only 75% of the projected water demands by 2050. We must use our precious water resources more efficiently. If not, we will have more frequent and more severe water shortages, especially during droughts and hot Texas summers when water use is 1.5 to 3 times greater than during winter months. Using water more efficiently will also save energy and money while protecting the quality of life for future generations.

- Windermere Oaks WSC has developed a Water Conservation Plan and continues to work towards their goals.

- Windermere Oaks WSC tests production meters annually.
- Windermere Oaks WSC has developed and adopted a Drought Contingency Plan.

CONTINUING EFFORTS IN WINDERMERE OAKS WSCS' SOURCE WATER PROTECTION PLAN

Windermere Oaks WSC has completed the initial survey of the system's Capture Zone and susceptible contaminants and appointed the Steering Committee. So what's next? How do you keep the effort alive and continuing for years to come? This responsibility falls largely on the water system personnel and the Steering Committee.

What are the responsibilities of the water system personnel and Steering Committee?

At a minimum, these individuals should conduct an annual survey of the Capture Zones around each well to determine if anything has changed since the previous survey. After which an annual meeting of the Steering Committee should be conducted to recommend changes that maybe required to the Source Water Protection Plan. The Steering Committee should also make recommendations as to which Best Management Practices they feel the water system should be concentrating on each year.

The most important responsibility of the Steering Committee is to stay aware of population and business changes that are taking place within the system's Capture Zone and to be proactive verses reactive to maintaining safe drinking water.

What can the Steering Committee do to insure an effective and ongoing Source Water Protection Plan?

Public education is paramount to a successful and ongoing Source Water Protection Plan. Providing education can be low cost to a completely free effort. Groundwater is a valuable component of our water supply, providing roughly one-half of the state's drinking water supply. Approximately 85 percent of the state's public drinking water systems obtain some or all their drinking water from wells and springs. Since 1965, more than 618,390 water wells have been drilled in the state. Because of the importance of groundwater to both humans and the environment, government agencies have designed and implemented efforts to educate the public about groundwater quality and the need to protect and conserve the state's valuable groundwater supply. Therefore, most Source Water Protection Plans have an education or outreach component that targets potential sources of contamination that are specific to their area. This component may be as simple as a brochure or a web site that explains the program, or as complex as detailed technical guidelines for a regulated industry. Because the universe of groundwater educational programs is so broad, this discussion will be limited to the programs that are specifically designed to educate the general public.

Public Education

Why is public education so important to a successful Source Water Protection Plan?

Groundwater is easily impacted by the actions or inactions of individuals. This is especially true in suburban or rural areas where a high percentage of homesteads rely on on-site (septic) wastewater disposal systems and shallow domestic water wells. Environmental impacts occur not just from industrial or water management facilities but also in homeowners' backyards. Domestic water well owners manage chemicals for home and business use that can pose a threat to groundwater and water well contamination. The increase in population in rural areas associated with large population centers has resulted in an increased demand for water resources and has exacerbated the effects of recurring Texas droughts. There is a great need to improve the understanding of the public on factors affecting their water supply and their own water well. Agricultural producers can affect groundwater quality and quantity by activities such as pesticide applications and the use of water-saving irrigation techniques. While there may be government programs that regulate the activities noted above, it is often more effective, both in terms of environmental protection and costs, to seek individual cooperation in groundwater protection efforts. This cooperation is encouraged through the educational efforts of the programs highlighted in this chapter. The program discussion that follows is by no means exhaustive. The chapter is intended to provide a sampling of the many groundwater education programs available to the public and to identify gaps in the current delivery of educational programs.

Education Sources for School Age Children

It is a proven fact that children take home knowledge that they have learned about water protection, and they serve as a major factor in changing the adult populations habits that affect water quality. Many Steering Committees put a large amount of their Public Education effort providing educational sources for the school age children.

The EPA Office of Water has a web page for school age children featuring a character called "Thirstin". This site contains games, activities, and narrated/animated classroom experiments. Some of the activities include an animated water cycle, word scramble, word search, water trivia and "Thirstin's Wacky Water Adventure." These education activities are broken into appropriate grade levels and includes special sections for educators.

The pages are located at www.epa.gov/safewater/kids/index.html. For more information, contact EPA at 202-564-4635.

Texas Commission on Environmental Quality (TCEQ) also has an extensive web page devoted to student education. Many of these study plans were written as a collaborative effort between state water professionals and public teachers. This web page also provides professional development for educators and students of higher learning.

Information can be found at <http://www.tceq.state.tx.us/assistance/education/k-12education/k12pubs.html>.

Yet another excellent source of school age educational materials is on the Texas Water Development Boards web page. This site contains information on rivers, aquifers, conservation, and protection efforts while utilizing some real interesting “Texas” characters. This source can be found at: <http://www.twdb.state.tx.us/kids/index.asp>.

Abandoned Water Well Closure

Abandoned water well are a serious threat to the quality of our groundwater resources and to public safety. If not properly plugged, unused wells can provide a direct conduit for surface water carrying pollutants to groundwater or these abandoned wells can allow contaminants to move from one aquifer to another. Just as these wells pose a threat to groundwater; large open wells are safety hazards for small children and animals. State law requires that abandoned wells be maintained and capped or properly plugged. The landowner where an abandoned well is located is responsible for well closure and compliance with state law. Many abandoned water wells are not properly closed because landowners may not have sufficient resources or may be unaware of the requirements for closure.

The Texas Groundwater Protection Committee (TGPC) has initiated and coordinated an interagency effort to promote the closure of abandoned water wells. TGPC’s website contains information on abandoned wells at www.tgpc.state.tx.us. The Texas A&M website, www.abandonedwell.tamu.edu, is devoted to more in-depth information concerning the risk brought about by abandoned wells and to promote the proper plugging of abandoned wells. The site includes a facilitator’s guide, fact sheets, a hands-on video and step-by-step photos or slides of the process. The Texas Cooperative Extension (TCE) leads the educational outreach activities with programs available through County Extension Offices. The Texas Department of Licensing and Regulation serves as the technical resource for well closure standards and regulations.

Farm Pollutant Inventory and Management

Farm *A*Syst is a partnership between several government agencies and private business that enables an individual to prevent pollution on farms, ranches, and in homes using confidential environmental assessments.

Farm*A*Syst can help the individual determine what risks – whether from livestock waste disposal, pesticide management or petroleum storage – could threaten the person’s health and financial security. A system of step-by-step fact sheets and worksheets helps to identify the behaviors and practices that are creating those risks.

Some of the issues that Farm*A*Syst can help address include:

- Quality of well water, new wells and abandoned wells
- Livestock waste storage

- Storage and handling of petroleum products
- Managing hazardous wastes
- Nutrient Management

Because Farm*A*Syst is a voluntary program, the individual decides whether to assess their own property or if they want additional technical advice from their local government agencies.

For information visit their website at www.uwex.edu/farmasyst. The Pollution and Prevention National Facilitation Project, which is found on their website, provides a list of Farm*A*Syst and other landowner tools tailored by region.

Home Pollutant Inventory and Management

Potential risks to an individual's health and the environment can be found in every home. Home*A*Syst helps identify these risks and how to take action to resolve the issue.

Home*A*Syst begins with checklist questions to identify problem areas:

- How safe is your drinking water?
- Do you know if the products you use are hazardous?
- Is there lead-based paint in your home?
- Do you have your lawn and garden soil tested for nutrients before applying fertilizer?

When potential concerns are identified, Home*A*Syst can help develop an action plan to reduce the risks.

By examining daily routines in and around the home, individuals can learn to better protect their health and the quality of the environment. For more information visit: www.uwex.edu/homeasyst.

On-Site Wastewater Disposal Education

An effective on-site system removes wastewater from the home, treats and distributes the wastewater and protects our water resources. The Texas Legislature passed a law in 1987 regulating on-site sewage facility (OSSF) systems statewide. The law called for regional and local governments such as counties, cities, river authorities and special districts to implement and enforce on-site sewage regulations with approval and oversight by the (TCEQ). Selecting the appropriate system for the site conditions is critical to the system's success. The internet site www.ossf.tamu.edu provides publications and videos of a variety of OSSF systems available for both private and public use. The site publishes a schedule of public short courses located throughout the state, which provide an overview of wastewater treatment systems. Each publication is devoted to a different type of system outlining the advantages and disadvantages of

each, the approximate cost of installing and maintaining the system and the proper steps required in maintaining the system.

Drinking Water “Consumer Confidence” Report

Starting in October 1999, the federal government required all community water systems in Texas and nationwide to deliver to consumers a water quality report showing exactly what constituents are present in their drinking water and the likely sources of those constituents. The Consumer Confidence report is likely the most widely distributed environmentally related public education document. The Consumer Confidence requirement applies to more than 80 regulated contaminants and naturally occurring materials that can affect the quality of drinking water. The water quality reports list minerals such as nitrates and fluorides, organic compounds such as toluene or pesticides, bacteria such as coliform organisms and metals such as lead, copper and arsenic. For the first time, the Consumer Confidence requirement gives consumers much more information about the water they drink and empowers them to make more informed choices – for example, the choice between a utility’s drinking water, in-home treatment systems and bottled water.

On-Site Wastewater Treatment Systems

An on-site wastewater system requires maintenance to ensure proper operation and environmental protection. Unlike a centralized sewer system maintained by a city or water district, maintenance of an on-site system is the responsibility of the homeowner. According to the Texas On-Site Wastewater Treatment Council, a state agency, 13 percent of the state’s on-site wastewater disposal systems are chronically malfunctioning.

In a survey of local entities implementing the state’s on-site wastewater program, 73 percent reported that they did not believe that OSSF owners received adequate education regarding their systems.

The failure rate cited above combined with the increasing number of new on-site systems presents special challenges to state’s counties experiencing rapid population growth. Much of the growth in these counties is relying on OSSF systems for wastewater disposal. In fact, most of the recent on-site wastewater disposal systems installations have occurred in the counties adjacent to the state’s largest cities. For example, over 13,000 onsite wastewater disposal systems have been installed in Montgomery County, north of Houston, since 1994. Inadequate OSSF owner education has been cited as one of the principal causes of on-site wastewater system failures.

With a statewide OSSF failure rate of 13 percent and an increase in new systems, the TGPC recommends that the state continue to support the efforts of the On-Site Wastewater Treatment Research Council, the Texas Cooperative Extension, the TCEQ’s on-site wastewater program and local governments in their efforts to develop and deliver effective educational material that addresses OSSF maintenance to prevent failures. The TGPC is uniquely suited to assist this effort by providing technical

assistance related to groundwater quality. In addition, the government agencies involved in OSSF regulation and outreach may want to consider developing programs specially designed to reach and serve the state's high growth counties.

Education for Private Domestic Water Well Owners

For the domestic water well owners there are no federal or state requirements for monitoring drinking water quality, no "right-to-know" report informing well owners of the quality of their drinking water and no requirements for treatment. The TGPC has identified two significant program gaps related to private domestic water wells. More water quality information is needed to develop an assessment of water quality and health risk for the domestic well owner segment of the population. Public educational materials and outreach programs are needed to educate well owners on drinking water quality and potential health risks.

Other Public Education Efforts

There are numerous ways that the Steering Committee can provide continuing Public Education. The education may be provided through:

- Annual Water Festival
- Make presentations for the local school's science classes
- Publish water protection and conservation articles in local newspapers. Samples of some articles are listed in Appendix C of this Plan
- Enclose information flyers with monthly water bills
- Include water protection information as a part of the annual Water Quality Report
- Make presentations to local civic clubs, church groups, scout troops etc. concerning water protection
- Have TCEQ, EPA and other informative brochures available for customers to pick up when visiting the water office.
- Visit with other Systems in your area that have participated in the Source Water Protection Program to learn of their successful efforts
- Publish educational newspaper articles pertaining to Source Water Protection. You will find several articles already written and ready for publication in Appendix C of this manual.

Your TRWA Source Water Protection Specialist can help with future educational presentations and efforts. To schedule further education assistance, call 512-472-8591 and request to speak to the Environmental Services Director or the Source Water Protection Specialist.

GLOSSARY OF TERMS AND ACRONYMS

Acre-Foot – A volume of water that covers one acre to a depth of one foot, or 43,560 cubic feet (1233.5 cubic meters).

Adsorption – The process by which chemicals are held on the surface of a mineral or soil particle.

Alluvium – Sediments deposited by flowing rivers.

Alternate Drinking Water Supplies – Drinking water supplies that are able to supply public water systems in cases where the aquifers usually supplying such systems become contaminated.

Anthropogenic Sources – Any activity performed by or caused by human actions, that is or can potentially be a source of contamination to groundwater including human actions affecting natural contaminants.

Aquifer – A rock unit that will yield water in a usable quantity to a well or spring.

Aquitard – A semi-permeable, semi-confining geologic formation adjacent to or between aquifers that partially restricts the movement of groundwater.

Area of Primary Influence – The area within 1,000 feet of a reservoir, and for all streams discharging directly to the reservoir, the area within 1,000 feet of the center of the stream channel for an estimated 2-hour time-of-travel immediately upstream of the reservoir. For intakes on streams, the area of primary influence is the area within 1,000 feet of the estimated 2-hour time-of-travel upstream from the intake. Contaminants located within the area of primary influence are those that the PWS may be most susceptible to due to their proximity to the intake.

Artesian aquifer or Confined Aquifer – Artesian (confined) water occurs where an aquifer is overlain by rock of lower permeability (such as clay) that confines the water under pressure greater than atmospheric. The water level in an artesian well will rise above the top of the aquifer even without pumping.

Available Water Content (AWC) – The available water content of a soil, a function of total pore space and pore size distribution. Available water content is an attribute in the SWSA groundwater intrinsic component and is expressed as a volume fraction in inches per inch of soil, for example, if the available water content has a value of 0.20, a 10-inch zone then contains 2 inches of available water.

Best Management Practices (BMPs) – The most effective practice or combinations of practices to control point or nonpoint source pollution. Best management practices (BMPs) may either be structural or nonstructural. Structural BMPs are designed to

capture surface runoff and remove pollutants through settling or other processes including, but not limited to, water diversions, retention devices, detention basins, or filter systems. Nonstructural BMP take advantage of land's natural features to remove pollutants, nonstructural BMPs might include wetlands, grassed waterways and buffer zones.

Capture Zone – The delineated groundwater contributing area characterized such that only the horizontal movement of water to the well is approximated assuming the contributing area to the well in an unconfined aquifer is the area directly above the flow paths for a specified time of travel (2,5,20,20 and 100 years). In a confined aquifer, the contributing area is that area within the times of travel or terminating at the outcrop of the aquifer.

Chemical Abstracts Service (CAS) Registration Number – A number assigned by the Chemical Abstracts Service to identify a chemical.

Chloramines – Compounds formed by the reaction of hypochlorous acid (or aqueous chlorine) with ammonia.

Clay – One type of soil particle with a diameter of approximately one ten-thousandth of an inch.

Coliform Organism – Microorganisms found in the intestinal tract of humans and animals, their presence in water indicates fecal pollution and potentially dangerous contamination by disease-causing microorganisms.

Community Water System – A public water system which has a potential to serve at least 15 residential service connections on a year-round basis or serves at least 25 residents on a year-round basis.

Confined Aquifer – An aquifer overlain by a confining bed and under pressure that is significantly greater than atmospheric pressure. Also known as an artesian aquifer.

Confining Bed – A rock unit having a very low hydraulic conductivity that restricts the movement of groundwater either into or out of adjacent aquifers.

Connection – A single family residential unit or each commercial or industrial establishment to which drinking water is supplied from the system. See 290.38(9) of TCEQ's Rules and Regulations for Public Water Systems 30 TAC Chapter 290

Subchapter D for a more detailed definition. The rules and regulations may be obtained by contacting the Public Drinking Water Section of TCEQ or viewed over the internet from the Texas Administrative Code

Website: [http://info.sos.state.tx.us/pub/plsql/readtac\\$ext.viewtac](http://info.sos.state.tx.us/pub/plsql/readtac$ext.viewtac) by navigating to Title 30, Part 1, Chapter 290, Subchapter D.

Contaminant – Any physical, chemical, biological, or radiological substance or matter that has an adverse effect on air, water, or soil. For TCEQ susceptibility assessment purposes a contaminant is any of the 227 substances listed in Appendix A that may pollute drinking water sources.

Contributing Watershed Area – The watershed for the reservoir on which a surface water intake is located or the watershed upstream of a surface water intake located on a stream excluding all non-PWS reservoirs with normal storage capacity greater than 1,000 acre-feet.

Drinking Water – All water distributed by any agency or individual, public, or private, for the purpose of human consumption or which may be used in the preparation of foods or beverages or for the cleaning of any utensil or article used in the course of preparation or consumption of food or beverages for human beings. The term “Drinking Water” shall also include all water supplied for human consumption or used by any institution catering to the public.

Drainage Basin – This is another term commonly used to describe a watershed.

Discharge – Refers to water withdrawn, either naturally or artificially, from the zone of saturation (see definition of groundwater).

Discharge or Spill - An act or omission by which oil, hazardous substances, or other substances in harmful quantities (see definition) are spilled, leaked, pumped, poured, emitted, entered, or dumped onto or into waters in this State or by which those substances are deposited where, unless controlled or removed, they may drain, seep, run, or otherwise enter water in this State. The term “discharge or spill” shall not include any discharge that is authorized by a permit, issued pursuant to federal law or any law of this State or that is regulated, except for transportation spills and spills in coastal waters, by the Railroad Commission of Texas (RCT).

Drawdown – The lowering of the water table or potentiometric surface caused by pumping (or artesian flow). In most instances, it is the difference, in fact, between the static level and pumping level.

Driller's log – A log kept by the driller during the construction of a new well containing: owner information, well location, type of well, proposed use, date started, date finished, borehole completion technique, diameter of hole, casing and blank pipe data, well screen type and size, cementing data, pump data, well tests data, surface completion data, water level, water quality, and the name and license number of the driller performing the work.

Effluent – Water or some other liquid –raw, partially, or completely treated – flowing from a reservoir, basin, treatment process or treatment plant.

Emergency Response Plan – A design for the location and provision of alternate drinking water supplies for each public water system in the event of well or well field contamination which, to be effective, should consider short-term and long-term alternate water supplies, coordination mechanisms, and financial considerations such as the purchase and delivery of alternate water supplies.

Entry Point (EP) – An entry point to the distribution of a public water supply, it is any point where freshly treated water enters the distribution system. Entry points to the distribution system may include points where chlorinated well water, treated surface water, rechlorinated water from storage, or water purchased from another supplier enters the distribution system.

Formation – A body of rock that is sufficiently homogeneous or distinctive to be regarded as a mappable unit, usually named from a locality where the formation is typical.

Geographic Information System (GIS) – An organized collection of computer hardware, software, geographic data, and personnel designed to efficiently capture, store, update, manipulate, analyze, and display all forms of geographically referenced information.

Groundwater – Water in that area below land surface in which all pore spaces and voids are filled with water (called the zone of saturation) and from which wells, springs, and seeps are supplied.

Harmful Quantity - Any quantity of a hazardous substance discharge or spill which is determined to be harmful to the environment, or public health or welfare or may reasonably be anticipated to present an imminent and substantial danger to the public health or welfare by quantity or concentration of a hazardous substance or other

substance that is toxic, corrosive, ignitable, reactive, or oxygen demanding (biological or chemical) or that exhibits other factor or factors which the executive director of the Texas Commission on Environmental Quality (TCEQ) or his designee determines is causing or may cause pollution or harm to the environment, or the public health or welfare.

Head, or Hydrostatic Pressure – The pressure exerted by the water at any given point in a body of water at rest reported in pounds per square inch or in feet of water.

Heavy Metals – Metallic elements with high atomic weights, e.g., mercury, chromium, cadmium, arsenic, and lead. They can damage living organisms at low concentrations and tend to accumulate in the food chain.

Herbicide – A compound, usually a man-made organic chemical, used to kill or control plant growth.

Hydraulic Conductivity – A coefficient of proportionality describing the rate at which water can move through a permeable medium. Clay usually has a hydraulic conductivity of less than .00005 cm/sec while the hydraulic conductivity of gravel may range from 1 to 100 cm/sec.

Hydrology – The study of the occurrence, distribution, and chemistry of waters of the Earth.

Hydrogeology – The geology of groundwater, with particular emphasis on the chemistry and movement of water.

Hydrologic Region - The largest hydrologic unit classification, identified by a two-digit hydrologic unit code (HUC). The code identifies one of twenty-one major geographic areas, or regions that contain either the drainage of a major river or series of rivers. Texas falls within three hydrologic regions, region 11 (Arkansas-White-Red Region) includes the drainage of the Red River basin in Texas, region 12 (Texas Gulf Region) includes the drainage that discharges into the Gulf of Mexico from Sabine Pass to the Rio Grande Basin boundary, and region 13 (Rio Grande Region) which includes the Rio Grande River drainage. (Seaber, Kapino, & Knapp, 1987)

Hydrologic Unit Code (HUC) – A two-to-eight-digit unique code based on four levels of classification within the hydrologic unit system (divisions and subdivisions of the United States into successively smaller hydrologic units: regions, sub-regions, accounting units, and cataloging units). An eight-digit code uniquely identifies each of the four

levels of classification within four two-digit fields. The first two digits identify the region; the first four digits identify the sub-region; the first six digits identify the accounting unit, and the addition of two more digits for the cataloging unit completes the eight-digit code. (Seaber, Kapino, & Knapp, 1987)

Impermeable – Impervious or having a texture that does not permit water to move through it perceptibly under the head differences ordinarily found in subsurface water.

Insecticide – Any substance or chemical formulated to kill or control insects.

Inter-Aquifer Exchange – Occurs when one water-bearing unit is in hydraulic communication with another water-bearing zone. This is most common in wells, which penetrate more than one water-bearing unit to provide an increased yield. When the well is not being pumped, water will move from the formation with lesser potential. If the formation with the greater potential contains contaminated or poor-quality water, the water in the other unit can be degraded.

Inorganic – Material such as sand, salt, iron, calcium salts and other mineral materials. Inorganic substances are of mineral origin, whereas organic substances are usually of animal or plant origin. See Organic.

Karst – A region made up of porous limestone containing deep fissures and sinkholes and characterized by underground caves and streams.

Leakance – Ratio of soil permeability to soil thickness.

Maximum Contaminant Level (MCL) – the maximum permissible level of a contaminant in water which is delivered to any user of a public water system.

Non-community Water System – Any public water system which is not a community system.

Nonpoint Source – Pollution sources without a specific point of origin, usually due to storm water runoff from urban areas or agriculture/rangeland.

Non-transient Non-community Water System - A public water system that is not a community water system and regularly serves at least 25 of the same persons at least six months out of the year.

Operational Status Code – A code assigned to each PWS water source indicating its use or status by the system. Water source operational statuses codes are A (Abandoned source), C (capped water well), D (demand, source used only for peak demand periods), E (emergency, used only for emergencies), F (former PWS source not used by the system), N (well used for non-drinking water uses), O (Operational), P (plugged water well), T (test, well in development).

Outcrop – That part of a rock layer, which appears at the land surface.

Organic – Substances that come from animal or plant sources or man-made chemical compounds containing carbon. Organic substances always contain carbon.

Pathogen – Any organism able to cause a disease such as bacteria, viruses and the protozoans cryptosporidium parvum and giardia lamblia.

Permeable – Pervious or having a texture that permits water to move through it perceptibly under the head differences ordinarily found in subsurface water. A permeable rock has communicating interstices of capillary or super capillary size.

Pesticide – Any substance or chemical designed or formulated to kill or control weeds or animal pests. Also see herbicide, insecticide.

Point Source – A stationery location or fixed facility from which pollutants might be discharged or emitted.

Pollution – The alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any water in the State that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property or to public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.

Porosity – The ratio of openings (voids) to the total volume of a soil or rock. Porosity is an indication of the capacity of the material to hold water. Expressed as percentages, clays have a porosity of 50% while gravels have a porosity of 20%

Potential Sources of Contamination (PSOC) – A point source from which contaminants may leak or be discharged.

Potentiometric Surface – A surface that represents the level to which water will rise in tightly cased wells in a confined aquifer. In an unconfined aquifer, the potentiometric surface is the water table.

Precipitation – 1) The process by which atmospheric moisture falls onto a land or water surface as rain, snow, hail, or other forms of moisture. 2) The chemical transformation of a substance in solution into an insoluble form (precipitate).

Public Water System (PWS) – A system for the provision to the public of water for human consumption through pipes or other constructed conveyances which include all uses described under the definition for drinking water. Such a system must have at least 15 service connections or serve at least 25 individuals at least 60 days out of the year. This term includes: any collection, treatment, storage, and distribution facilities under the control of the operator of such system and used primarily in connection with such system, and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. Two or more systems with each having a potential to serves less than 15 connections or less than 25 individuals but owned by the same person, firm, or corporation and located on adjacent land will be considered a public water system when the total potential service connections in the combined systems are 15 or greater or if the total number of individuals served by the combined systems total 25 or greater at least 60 days out of the year. Without excluding other means of the terms “individual” or “served,” an individual shall be deemed to be served by a water system if he lives in, uses as his place of employment, or works in a place to which drinking water is supplied from the system.

Public Water System Identification Number (PWS ID) – A unique seven-digit identification number assigned to each public water supply system in Texas.

Radionuclide – Any man-made or natural element that emits radiation in the form of alpha or beta particles, or as gamma rays.

Recharge of Groundwater – The process by which water is absorbed and is added to the zone of saturation and is also used to designate the quantity of water that is added to the zone of saturation, usually given in acre-feet per year or in million gallons per day.

Reservoir – Any natural or artificial holding area used to store, regulate, or control water.

Reservoir Depth: Mean Annual Runoff Ratio – An attribute used in calculating

surface water intrinsic susceptibility to contamination. Contaminant movement in an aqueous environment will be higher when reservoir depth: annual runoff ratios are low since the potential for re-suspension of contaminants is higher in shallow reservoirs and time of travel of a contaminant through the reservoir would be shorter.

River Basin – The entire land area drained by a river, also known as a watershed.

Runoff – That part of precipitation, snow melt, or irrigation water that runs off the land into streams or other surface water. It can carry pollutants from the air and land into surface waters.

Runoff: Precipitation Ratio – An attribute used in calculating surface water intrinsic susceptibility to contamination. Contaminant movement in an aqueous environment will be higher when runoff: precipitation ratios are high. For example, when runoff is high in relation to the amount of precipitation falling on the watershed, contaminants will be more likely to be carried to the receiving water body than when runoff is low in relation to precipitation.

Safe Drinking Water Act (SDWA) – A statute enacted by the U.S. Congress in 1974. the Act establishes a cooperative program among local, State and Federal agencies to insure safe drinking water for consumers.

Saturated Zone - The zone in a soil profile or geologic formation in which all pore spaces are filled with water.

Saturated Thickness – The height or thickness of the saturated zone.

Screened Interval – That part of a completed water well with openings which allow water to enter the well bore. The screened interval includes the zone completed as an open hole in a competent geologic unit such as limestone or dolomite.

Slope – The inclination of the land surface from the horizontal. The percentage of slope is the vertical distance divided by the horizontal distance, for example, a slope of 20% is a drop of 20 feet in 100 feet of horizontal distance. Percent land surface slope is an attribute used to determine susceptibility under the groundwater intrinsic component. A low percent slope indicates water is more likely to recharge into groundwater rather than becoming runoff.

Soil Bulk Density – A ratio of the mass of soil to its total volume (solids and pores

together). Mean soil bulk density is an attribute used in determining the susceptibility in the groundwater intrinsic component.

Soil Clay Content – Percent of clays in soil. Mean soil clay content is an attribute used to determine susceptibility in the groundwater intrinsic component. Water does not move easily through clay deposits therefore, the higher the percentage of clay, the less likely contaminants will be able move through the aquifer matrix.

Soil Erodibility – A measure of the soil's susceptibility to raindrop impact, runoff and other erosional processes. Soil erodibility is an attribute used in calculating surface water intrinsic susceptibility to contamination. Contaminants may adsorb to soils, where soil erodibility is high, contaminants-adsorbed soils may be transported into receiving waters during rainfall events.

Soil Hydrologic Group (HSG) – A classification of soils based on similarities in runoff potential under similar storm and cover conditions. Soils within the United States are placed into four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). Class A soils have a high infiltration rate (rate at which water enters the soil) and high rate of transmission (rate at which water moves in the soil) and therefore a low runoff potential; Class B soils have a moderate infiltration rate and rate of water transmission; Class C soils have a slow infiltration rate and rate of water transmission; Class D soils have a very slow infiltration rate and water transmission and therefore a high runoff potential. Dual hydrologic groups are given for certain soils that can be adequately drained, the first letter applies to the drained condition, the second to the undrained. The mean soil hydrologic group is an attribute in the groundwater intrinsic component, soil hydrologic groups were classified using the Natural Resource Conservation Service's Curve Number Method where class placement is based on the minimum annual steady ponded infiltration rate for a bare ground surface.

Soil Zone – Extends from the land surface to a maximum depth of a meter or two and is the zone that supports plant growth. The porosity and permeability of the soils zone tends to be higher than those of the underlying materials.

Source Water – The raw water supply, surface or subsurface, from which the public water system acquires its raw drinking water.

Source Water Assessment and Protection (SWAP) - Established in 1997 after the TCEQ's Wellhead Protection and Vulnerability Assessment Programs were merged. SWAP assists local communities in developing drinking water protection programs and assesses susceptibility of the state's public drinking water supply sources.

Source Water Protection Area (SWPA) – The area delineated by the state for a PWS, or including numerous PWSs, whether the source is groundwater or surface water or both, as part of the state Source Water Assessment Program approved by EPA under section 1453 of the Safe Drinking Water Act.

Spring – A surface water body created by the natural emergence of groundwater to the Earth's surface.

Surface Water – Water which remains on the land surface and contributes to lakes, streams, and reservoirs.

Susceptibility – The quality or state of being easily affected or influenced. For assessment purposes, susceptibility is defined as the potential for a PWS to withdraw water which has been exposed to a listed contaminant(s) at a concentration that would pose a health concern.

Time of Travel – The distance a molecule of water (and therefore any associated contaminant) could travel within a specified time or the time a molecule of water would travel within a particular distance. For surface water sources, a 2-hour time of travel is the distance a molecule of water would travel within 2 hours under the average flow conditions of the stream. Groundwater capture zones include time of travel zones, each specifying a distance a molecule of water may travel in 2, 5, 10, 20 and 100 years.

Total Reservoir Storage: Mean Annual Runoff Ratio – An attribute used in calculating surface water intrinsic susceptibility to contamination. Contaminant movement in an aqueous environment will be higher when total reservoir storage: mean annual runoff ratios are low since the travel time of the contaminant to the surface water intake would be shorter and natural attenuation rated (biological, chemical, or sedimentary) would be lower as well.

Toxic – A substance that is poisonous to an organism.

Transmissivity – A measure of the rate at which water will move through an aquifer. Transmissivity incorporates the hydraulic conductivity of the aquifer, aquifer thickness, water temperature and fluid properties to describe water movement.

Transient Non-community Water System – A public water system that is not a community water system and serves at least 25 persons at least 60 days out of the year, yet by its characteristics, does not meet the definition of a non-transient non-community water system.

Trihalomethane (THM) – One of family organic compounds named as derivatives of methane. THMs are generally the by-product from chlorination of drinking water that contains organic material. The resulting compounds (THMs) are suspected of causing cancer.

Unconfined Aquifer – Where water only partly fills an aquifer, the upper surface of the saturated zone is free to rise and decline. Unconfined aquifers are also referred to as water-table aquifers.

Vadose Zone – The unsaturated zone between the ground surface and the fully saturated zone.

Volatile – Readily vaporizable at a relatively low temperature.

Water Source Code – A unique code that TCEQ uses to distinguish between sources of drinking water. The first letter of TCEQ source identification number specifies the type of source, the letter “G” indicates a groundwater well while the letter “S” is used to indicate a surface water intake, the following 7 digits are the PWS system identification number, while the last one or two letters of the water source code specifies the order the well or intake came online or was entered into the TCEQ database. Example: G0150018AC

Water Level – Depth to water, in feet below the land surface, where the water occurs under water table conditions (or depth to the top of the zone of saturation). Under artesian conditions, the water level is a measure of the pressure of the aquifer, and the water level may be at, below, or above the land surface.

Water Level, Pumping – The water level during pumping, measured in feet below the land surface.

Water Level, Static – The water level in an unpumped or nonflowing well, measured in feet above or below the land surface.

Water Table – Level of groundwater; the upper surface of the zone of saturation of groundwater above an impermeable layer of soil or rock (through which water cannot move) as in an unconfined aquifer. The level can be very near the surface of the ground or far below it. Mean seasonal high water table depth is an attribute within the groundwater intrinsic component of the SWSA.

Water Table Aquifer, or Unconfined Aquifer – An aquifer in which the water is unconfined; the upper surface of the zone of saturation is under atmospheric pressure only and the water is free to rise or fall in response to the changes in the volume of water in storage. A well penetrating an aquifer under water table conditions becomes filled with water to the level of the water table.

Watershed – The land area that drains into a stream. An area of land that contributes runoff to one specific delivery point.

Watershed Slope: Watershed Area Ratio – An attribute used in calculating surface water intrinsic susceptibility to contamination. Contaminant movement will be higher when watershed slope: watershed area ratios are low since the time of travel of a contaminant through a larger watershed with a low slope is longer than a similarly sized watershed with a higher slope. The longer time of travel allows for natural attenuation of the contaminant before reaching the surface water intake.

Well – Any bored, drilled, or driven shaft, or dug hole, whose depth is greater than the largest surface dimension.

Wellfield – An area containing two or more wells supplying a public water supply system.

Wellhead – The physical structure, facility, or device at the land surface from or through which groundwater flows or is pumped from subsurface, water-bearing formations.

Wellhead Protection Area (WHPA) – The surface and subsurface area surrounding a water well or wellfield, supplying a public water supply system, through which contaminants are reasonably likely to move toward and reach such water well or wellfield.

Yield of a Well – The rate of discharge, commonly expressed as gallons per minute (GPM), gallons per day (GPD), or gallons per hour (GPH) Potential Contaminant Inventory and Susceptibility Analysis

APPENDIX A

WATER QUALITY AGENCIES AND ORGANIZATIONS

These agencies and associations have web pages with source water protection information, Best Management Practices, and materials suitable for distribution to promote water protection efforts. The Steering Committee and employees of the water system are encouraged to use these sources when developing specific educational efforts.

State Agencies and Associations

1. Texas Rural Water Association

Founded in 1969, TRWA is a statewide nonprofit education and trade association dedicated to the improvement of water and wastewater services to all Texans by providing: representation of member systems in legislative and regulatory processes, technical assistance; educational and informational programs and publications.

Address: TRWA
1616 Rio Grande
Austin, TX 78701

Telephone: 512-472-8591

Web site: www.trwa.org

2. Texas Commission on Environmental Quality (TCEQ)

The Texas Commission on Environmental Quality (TCEQ) is the state environmental agency. They are responsible for implementing state and federal environmental regulatory laws by issuing permits and authorizations for: the control of air pollution; the safe operation of water and wastewater facilities; and the treatment, storage, and disposal of hazardous waste.

Address: TCEQ State Headquarters
12100 Park 35 Circle
Austin, TX 78711

Telephone: 512-239-1000

Web site: <http://www.tceq.state.tx.us/>

Other links: Water related topics: –
http://www.tceq.texas.gov/agency/water_main.html
TCEQ data: <http://www.tceq.state.tx.us/agency/data>
Local hazardous waste contacts:
<http://www.tceq.texas.gov/p2/hhw/contacts.html>

Take Care of Texas: <http://takecareoftexas.org/>

3. Texas State Soil and Water Conservation Board (TSSWCB)

The Texas State Soil and Water Conservation Board (TSSWCB) administers Texas' Soil and water conservation law and coordinates conservation and pollution Abatement programs throughout Texas.

Address: TSSWCB State Headquarters
311 N. 5th St
Temple, TX 76501

Telephone: 254-773-2250; or 800-792-3485

Web site: www.tsswcb.state.tx.us

Other links: Water Quality Management Plan Program
www.tsswcb.state.tx.us/wqmp
Nonpoint Source Management Program
<http://www.tsswcb.texas.gov/managementprogram>
Watershed protection planning
<http://www.tsswcb.state.tx.us/wpp>
Information and education
<http://www.tsswcb.state.tx.us/infoedu>

4. Texas Water Development Board (TWDB)

The Texas Water Development Board (TWDB) provides water planning, data Collection and dissemination, financial assistance, and technical assistance Services to the citizens of Texas.

Address: TWDB State Headquarters
1700 North Congress Avenue
P.O. Box 13231
Austin, TX 78711

Telephone: 512-46307847

Web site: www.twdb.state.tx.us

Other links: Water Conservation Brochures
<http://www.twdb.state.tx.us/publications/brochures>
Drought Information
http://www.twdb.state.tx.us/data/drought/drought_toc.asp

5. The Texas AgriLife Extension Service

The Texas AgriLife Extension Service is an educational organization provided by the U.S. government, the state government through Texas A&M University, and your county government. AgriLife provides science-based information and education in agriculture and natural resources, community development, and family and youth programs.

Address: Jack K. Williams Administration Bldg
Room 112
7101 TAMU
College Station, TX 77843

Telephone: 979-845-7800

Web site: <http://texasextension.tamu.edu>

Other links: County office contacts: <http://counties.agrilife.org/>
Texas Watershed Steward Program: <http://tw.s.tamu.edu/>

6. River Systems Institute at Texas State University

Supports collaborative research, public advocacy and education about Texas' River systems.

Address: River Systems Institute
601 University Drive
San Marcos, TX 78666

Telephone: 512-245-9200

Web site: www.rivers.txstate.edu

Other links: Texas Stream Team <http://txstreamteam.rivers.txstate.edu/>

7. Texas Water

Promotes water conservation, rational drought management, promotion of groundwater management and protection of groundwater quality.

Address: Sierra Club of Texas
1202 San Antonio
Austin, TX 78701

Telephone: 512-477-1729

Web site: <http://texas.sierraclub.org/water.asp>

Other links: Groundwater and gas wells: <http://texas.sierraclub.org/water.asp>

Federal Agencies

1. United States Department of Agriculture (USDA)

United States Department of Agriculture provides leadership on food, agriculture, natural resources, and related issues based on sound public policy, the best available science, and efficient management.

Address: 2405 Texas Ave South
College Station, TX 77840

Telephone: 979-680-5151

Web site: www.usda.gov

Other links: National Water Management Center
<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/nwmc>
Water Quality Information Center
http://wqic.nal.usda.gov/nal_display/index.php?info_center=7&tax_level=1

2. Environmental Protection Agency (EPA)

The mission of the Environmental Protection Agency is to protect human health and the environment. Since 1970, EPA has been working for a cleaner, healthier environment for the American people.

Address: U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Phone: 800-887-6063 – Region 6 (Texas)

Web site: www.epa.gov

Other links: Water information: www.epa.gov/ebtpages/water.html
Surf Your Watershed: <http://cfpub.epa.gov/surf/locate/index.cfm>
Watershed Information Network:
<http://www.epa.gov/owow/watershed>
Natural Resources Conservation Service:
www.nrcs.usda.gov
Environment Quality Incentive Program:
www.nrcs.usda.gov/programs/eqip/

APPENDIX B**ACTIVITIES FOR YOUR SOURCE WATER PROTECTION PLAN****1. Form a Steering Committee**

Ultimately it is the Steering Committee's responsibility to keep the SWP Plan active through public education efforts. Through the committee's efforts, your community's awareness will be raised in the area of water issues and help foster action to improve and protect your water sources.

Once your Steering Committee is formed consider hosting an annual meeting to discuss the upcoming year's educational efforts. This is also an excellent time to obtain additional education for your committee. To schedule training contact TRWA at 512-472-8591 and ask to speak with the Source Water Protection Specialist.

2. Learn about your aquifer and/or watershed

For those systems on groundwater, your conservation district can be a great source of information on your particular aquifer. Many districts host education videos on their web sites that may be viewed during a Steering Committee training session. Most districts employ EPA's Watershed Information Network at (WIN) <http://www.epa.gov/owow/watershed/> to find your watershed address and learn about its water quality issues. From here, you can surf your watershed and even adopt your watershed.

You can also visit the United States Geological Survey (USGS) web site to find out about water activities going on in Texas. Go to: <http://tx.usgs.gov/> to see real-time water data, river basin maps, flood and drought data, and much more.

3. Create a Source Water Protection Display

Displays can be developed for local fairs, festivals, public libraries, and community Events to raise awareness and spread the word about protection of your source water. These displays may also be placed in the water system offices for customers to view. Your display could be a colorful poster depicting threats to your specific source water and Best Management Practices for these threats.

4. Spread the Word through an Advertising Campaign

An effective way to get the word about water quality issues pertaining to your source water is to advertise. Options include mass mailings, fliers, public service announcements, and newspaper articles. It is a great way to raise awareness in the community, get more individuals to join your Steering Committee, and to encourage people to take personal action to protect your source water.

Take advantage of available resources including:

- Local professionals and community officials (mayors, judges) who might be willing to contribute their time
- Local newspapers and magazines – request coverage and/or special sections for your group to post information and report activities

- Real estate and homeowner's association newsletters
- Inserts in utility bills
- Public service announcements and community radio hours

5. Give a Presentation to a School Class

By teach children early about their source water, we can produce the source water protectors of tomorrow. As most of us know, the best way to reach adults is through the education of their children.

Plan with your local teachers to make water education an annual part of their classroom curriculum. A short and simple presentation works best. You can teach the students about threats to your local watershed and groundwater. Highlight steps that the students and their parents can take to protect the water quality. Hands-on activities work especially well with elementary age children. This information will undoubtedly be passed onto their parents.

There are a number of water education programs for youth that can give you ideas:

- USGS Water Resources Information for Students and Teachers (<http://water.usgs.gov/education.html>)
- USGS Water Science for Schools (<http://ga.water.usgs.gov/edu/helptopics.html>) provides links to numerous water science topics.
- Give Water a Hand (<http://www.uwex.edu/erc/youth.html>): A national watershed education program designed to involve young people in local environmental service projects.
- Project WET (<http://www.projectwet.org/>): Water Education for Teachers (WET) is an award-winning, nonprofit water education program and publisher. The program facilitates and promotes awareness, appreciation, knowledge and stewardship of water resources through the dissemination of classroom-ready teaching aids.
- EPA Nonpoint Source Kids Page (<http://www.epa.gov/owow/nps/kids/>): Games and links to education materials to teach children about pollution and the environment. This site features Darby Duck and the Aquatic Crusaders and Masterbug Theater.

6. Organize a Stream or River Walk

If your System has a stream or river nearby, this is a great way to bring a group of citizens together to be outside and to make visual observations and assessments on the condition of a water body. If problems or concerns like trash, debris or other sorts of pollution are discovered, work with the city, and/or county to organize a cleanup for that water body. You can also evaluate the health of a stream by finding and identifying macroinvertebrates during your walk. Go to http://www.ct.gov/dep/lib/dep/water/volunteer_monitoring/rbvcards.pdf to print out an identification card for macroinvertebrates found in rivers and check out http://www2.nhmc.uoc.gr/confresh/CARDS_ENG.pdf for a listing of those found in ponds and lakes.

7. Organize a Storm Drain Stenciling Project in Your Community

For those of you with storm drains in your community, stenciling is a great way to remind community members that storm drains dump directly into your local water bodies. Visit the EPA's storm water web site at <http://cfpub.epa.gov/npdes/stormwatermonth.cfm> and the W.A.T.E.R. web site at <http://www.watershedactivities.com/resource.html> for access to door hangers, press releases, videos and publications that can be downloaded or ordered for **FREE!**

For more information on storm drain stenciling in Texas, contact TCEQ at educate@tceq.state.tx.us and ask for storm drain stenciling materials. Remember to request permission from proper local authorities. You may even be able to obtain donated paint from a local hardware store.

8. Organize or Join in a Community Cleanup or Recycling Day

The Texas Commission on Environmental Quality (TCEQ), along with Keep Texas Beautiful, have partnered to create the Texas Waterway Cleanup Program. This program provides free cleanup supplies and helps communities and organizations coordinate waterway cleanups and litter prevention activities. Keep Texas Beautiful is an organization whose mission is to educate and engage Texas to take responsibility for improving their community environment. For more information, visit <http://www.ktb.org/programs/twc/index.htm>.

Keep Texas Beautiful also sponsors additional cleanup events including the Great American Cleanup, Don't Mess with Texas Trash-Off, Texas Recycles Day, Illegal Dumping Education and Enforcement, and the Annual Keep Texas Beautiful Conference. For more information on these programs, visit <http://www.ktb.org/>.

9. Host a Water Festival

You can sponsor a community water festival to raise awareness of water quality issues in your area. You may also include water conservation ideas to your program as well. The most successful festivals have included educational booths for all ages, short 5 – 10-minute presentations, food/drink booths along with some fun and games. Think about the following questions when putting together your festival:

- Are there members of the community with experience in public teaching or education?
- Are local water professionals available to speak?
- What vendors do we have that would host a booth? This could be a water meter salesman that would host a booth to teach the adults how to read their meter and how to use it to check for household leaks.
- Could the festival be hosted near the water facilities? If so, have an operator give tours of the plant and explain how the water is treated before it is sent out to the customers.
- Could Texas Rural Water Association host a booth or give a presentation?
- Could a girl scout troop host a "free" face painting booth?
- Could the local fire department and/or EMS be onsite to give children a close up look at the fire truck and ambulance?

10. Create a Community Rain Garden

A rain garden is a neat little garden that is built to reduce runoff and filter sediment and other pollutants before they can enter your local waterways. It is built as a place to direct storm water from roofs, driveways and parking lots so it can soak into the soil and be used by plants

For more information, visit the Rain Garden Network at <http://raingardennetwork.com/overview.htm> and the W.A.T.E.R. web site at <http://www.watershedactivities.com/projects/fall/raingrdrn.html>.

11. Install Rain Barrels in Your Community

A rain barrel is a system that collects and stores rainwater from roofs and other buildings that otherwise would runoff into storm drains and streams. A rain barrel collects water and stores it for when you need to water your plants, wash your car, and do other activities that require water. The EPA estimates that rain barrels can save homeowners 1,300 gallons of water during peak summer months!

For more information, go to <http://rainwaterharvesting.tamu.edu/>. Also, check out the Texas Manual on Rainwater Harvesting at <http://www.twdb.state.tx.us/publications/reports/RainwaterHarvestingManual3rdedition.pdf> and the Texas AgriLife Extension Service publication titled, "Rainwater Harvesting" at <http://agrilifebookstore.org>.

12. Conduct a Community Soil or Water Well Testing Campaign

This is a great way to bring your community together to test soil and the water quality of your local water wells. The Texas A&M University Soil, Water, and Forage Testing Laboratory will provide guidance on taking soil and water samples and will also analyze and provide results of your samples (fee based).

Water quality testing campaigns for private well owners also can be great tools for encouraging proper management of the land so that both surface and groundwater resources are protected.

Visit the lab's web site at <http://soiltesting.tamu.edu/> for more information.

13. Include in Your Annual Customer Confidence Report

It is permissible to state within your annual Customer Confidence Report (CCR) that your system has an active Source Water Protection Plan. You should include a phone number or web site for more information or how to become active in the efforts.

APPENDIX C

IDENTIFYING PSOC'S IN YOUR COMMUNITY

The following sources represent many of the businesses, industries, operations, land uses and environmental conditions that handle, generate, store, apply, dispose of, or provide a pathway for the contaminants of concern. The sources are separated into seven categories;

- ♠ Naturally Occurring Sources
- ♠ Agricultural/Rural Sources
- ♠ Residential Sources
- ♠ Municipal Sources
- ♠ Commercial Sources
- ♠ Industrial Sources
- ♠ Industrial Processes

These sources can apply to either groundwater or surface water. In general, surface or groundwater contamination stems from the misuse and improper disposal of liquid and solid wastes; the illegal dumping or abandonment of household, commercial or industrial chemicals; the accidental spilling of chemicals from trucks, railways, aircraft, handling facilities and storage tanks; or the improper setting, design, construction, operation, or maintenance of agricultural, residential, municipal, commercial, industrial drinking water wells and liquid from solid waste disposal facilities. Contaminants also can stem from atmospheric pollutants, such as airborne sulfur and nitrogen compounds, which are created by smoke, flue dust, aerosols, and automobile emissions. These atmospheric pollutants fall as acid rain and percolate through the soil.

Contaminants can reach groundwater from activities occurring on the land surface, such as industrial waste storage; from sources below the land surface but above the water table, such as septic systems; from structures beneath the water table, such as wells; or from contaminated recharge water.

Coliform bacteria can indicate the presence of pathogenic (disease-causing) microorganisms that may be transmitted in human feces. Diseases such as typhoid fever, hepatitis, diarrhea, and dysentery can result from sewage contamination of water supplies.

When the sources listed in these tables are used and managed properly, water contamination is not likely to occur.

Naturally Occurring Sources	
Rocks and soils	Aesthetic Contaminants: Iron and iron bacteria; manganese; calcium and magnesium (hardness); Health and environmental Contaminants; arsenic; asbestos; metals; chlorides; fluorides; sulfates; sulfate-reducing bacteria and other microorganisms
Contaminated Water	Excessive sodium; bacteria; viruses; low pH (acid) water
Decaying Organic Matter	Bacteria
Geological radioactive gas	Radionuclide (radon, etc.)
Natural hydro geological events and formations	Salt-water/brackish water intrusion (or intrusion of other poor-quality water); contamination by a variety of substances through sink-hole infiltration in limestone terrains.

Agricultural/Rural Sources	
Meat Packing and burial areas	Livestock sewage wastes; nitrates; phosphates; chloride; chemical sprays and dips for controlling insect, bacterial, viral, and fungal pests on livestock; coliform and non-coliform bacteria; viruses.
Manure spreading areas and storage pits	Livestock sewage wastes; nitrates
Livestock waste disposal areas	Livestock sewage wastes; nitrates
Crop areas and irrigation sites	Pesticides; fertilizers; gasoline and motor oils from chemical applicators
Chemical storage areas and containers	Pesticides; fertilizers residues
Farm Machinery areas	Automotive wastes; welding wastes
Agricultural drainage wells and canals	Pesticides; fertilizers; bacteria; salt water (in areas where the fresh-saltwater interface lies at shallow depths and where the water table is lowered by channelization, pumping, or other causes.

Residential Sources	
Common Household maintenance and hobbies	Common Household Products: Household cleaners; oven cleaners; drain cleaners; toilet cleaners; disinfectants; metal polishes; jewelry cleaners; shoe polishes; synthetic detergents; bleach; laundry soil and stain removers; spot removers and dry-cleaning fluid; solvents; lye or caustic soda; household pesticides, photochemical; printing ink other common products.
	Wall and Furniture Treatments: Paints; varnishes; stains; dyes; Newton preservatives (creosote); paint and lacquer thinners; paint and varnish removers and de-glossers; paint brush cleaners; floor and furniture strippers
	Mechanical Repair and Other Maintenance Products: Automotive wastes; waste oils; diesel fuel; kerosene; #2 heating oil; grease; degreasers for driveways and garages; metal degreasers; asphalt and roofing tar; tar removers; lubricants; rust proofers; car wash detergents; car waxes and polishes; rock salt; refrigerants
Lawn and gardens	Fertilizers: herbicides and other pesticides used for lawn and garden maintenance.
Swimming Pools	Swimming pool and maintenance chemicals
Septic systems, cesspools, and sewer lines	Septage; coliform and non-coliform bacteria; viruses; nitrates; heavy metals; synthetic detergents; cooking and motor oils; bleach; pesticides; paints; paint thinner; photographic chemicals; swimming pool chemicals; septic tank/cesspool cleaner chemicals; elevated levels of chloride, sulfate, calcium, magnesium, potassium, and phosphate
Underground storage tanks	Home heating oil
Apartments and condominiums	Swimming pool maintenance chemical; pesticides for lawn and garden maintenance and cockroach, termite, ant, rodent, and other pest control; wastes from onsite sewage treatment plants; household hazardous wastes

Municipal Sources	
Schools and government offices and grounds	Solvents; pesticides; acids; alkalis; waste oils; machinery/vehicle servicing wastes; gasoline and heating oil from storage tanks; general building wastes
Park lands	Fertilizers; herbicides, insecticides
Public and residential areas infested with mosquitoes, gypsy moths, ticks, ants, or other pests	Pesticides
Highways, road maintenance depots, and deicing operations	Herbicides in highway rights-of-way; road salt (sodium and calcium chloride); road salt anticaking additives (ferric ferrocyanide, sodium ferrocyanide); automotive wastes
Municipal sewage treatment plants and sewer lines	Municipal wastewater; sludge; 14 treatment chemicals
Storage, treatment, and disposal ponds, lagoons and other surface impoundments	Sewage wastewater; nitrates; other liquid wastes; microbiological contaminants
Land areas applied with wastewater or wastewater by products	Organic matter; nitrate; inorganic salts; heavy metals; coliform and non-coliform bacteria; viruses; nitrates; sludge; non-hazardous wastes
Storm water drains and basins	Urban runoff; gasoline; oil; other petroleum products; road salt; microbiological contaminants
Combined sewer overflows (municipal sewers and storm water drains)	Municipal wastewater; sludge treatment chemicals; urban runoff; gasoline; oil; other petroleum products; road salt; microbial contaminants
Recycling/ reduction facilities	Residential and commercial solid waste residues
Municipal waste landfills	Leachate; organic and inorganic chemical contaminants; wastes from households and businesses; nitrates; oils; metals
Open dumping and burning sites, closed dumps	Organic and inorganic chemicals; metals; oils; wastes from households and businesses
Municipal incinerators	Heavy metals; hydrocarbons; formaldehyde; methane; ethane; ethylene; acetylene; sulfur and nitrogen compounds

Water Supply wells, monitoring wells, older wells, domestic and livestock wells, unsealed and abandoned wells, and test hole wells	Surface runoff; effluents from barnyards, feedlots, septic tanks, or cesspools; gasoline; used motor oil; road salt
Sumps and dry wells	Storm water runoff; spilled liquids; used oil; antifreeze; gasoline; other petroleum products; road salt; pesticides; and a wide variety of other substances
Drainage wells	Pesticides; bacteria
Well pumping that causes inter-aquifer leakage, induced filtration, landward migration of sea water in coastal areas; etc.	Saltwater; excessively mineralized water
Artificial groundwater recharge	Storm water runoff; excess irrigation water; stream flow; cooling water; treated sewage effluent; other substances that may contain contaminants, such as nitrates, metals detergents, synthetic organic compounds, bacteria, and viruses

Commercial Sources	
Airports, abandoned airfields	Jet fuels; deicers; diesel fuel; chlorinated solvents; automotive wastes; heating oil; building wastes
Auto Repair shops	Waste oils; solvents; acids; paints; automotive wastes; miscellaneous cutting oils
Barber and Beauty shops	Perm solutions; dyes miscellaneous chemicals contained in hair rinses
Boat Yards and Marinas	Diesel fuels; oil; seepage from boat waste disposal areas; Newton preservative and treatment chemicals; paints; waxes; varnishes; automotive wastes
Bowling Alleys	Epoxy; urethane-based floor finish
Car Dealerships (especially those with service departments)	Automotive wastes; waste oils; solvents; miscellaneous wastes
Car Washes	Soaps; detergents; waxes; miscellaneous chemicals

Campgrounds	Septage; gasoline; diesel fuel from boats; pesticides for controlling mosquitoes, ants, ticks, gypsy moths, and other pests; household hazardous wastes from recreational vehicles (RVs)
Carpet stores	Glues and other adhesives; fuel from storage tanks if forklifts are used
Cemeteries	Leachate; lawn and garden maintenance chemicals
Construction trade areas and materials (plumbing, heating and air conditioning, painting, paper hanging, decorating, drywall and plastering, acoustical insulation, carpentry, flooring, roofing and sheet metal, wrecking and demolition, etc.)	Solvents; asbestos; paints; glues and other adhesives; waste insulation; lacquers; tars; sealants; epoxy waste; miscellaneous chemical wastes
Country clubs	Fertilizers; herbicides; pesticides for controlling mosquitoes, ticks, ants, gypsy moths, and other pests, swimming pool chemicals; automotive wastes
Dry cleaners	Solvents (perchloroethylene, petroleum solvents, Freon); spotting chemicals (trichloroethane, methyl chloroform, ammonia, peroxides, hydrochloric acid, rust removers, amyl acetate)
Funeral services and crematories	Formaldehyde; wetting agents; fumigants; solvents
Furniture repair and finishing shops	Paints; solvents; degreasing and solvent recovery sludges
Gasoline services stations	Oils; solvents; miscellaneous wastes
Golf courses	Fertilizers; herbicides; pesticides for controlling mosquitoes, ticks, ants, gypsy moths, and other pests
Hardware/lumber/parts stores	Hazardous chemical products in inventories; heating oil and forklift fuel from storage tanks; Newton-staining and treating products such as creosote
Heating oil companies, underground storage tanks	Heating oil; wastes from truck maintenance areas

Horticultural practices, garden nurseries, florists	Herbicides, insecticides, fungicides, and other pesticides
Jewelry/ metal plating shops	Sodium and hydrogen cyanide; metallic salts; hydrochloric acid; sulfuric acid; chromic acid
Laundromats	Detergents; bleaches; fabric dyes
Medical institutions	x-ray developers and fixers; infectious wastes; radiological wastes; biological wastes; disinfectants; asbestos; beryllium; dental acids; miscellaneous chemicals
Office buildings and office complexes	Building wastes; lawn and garden maintenance chemicals; gasoline; motor oil
Paint stores	Paints; paint thinners; lacquers; varnishes; other Newton treatments
Pharmacies	Spilled and returned products
Photography shops, photo processing laboratories	Bio sludges; silver sludges; cyanides; miscellaneous sludges
Print shops	Solvents; inks; dyes; oils ; photographic chemicals
Railroad tracks and yards	Diesel fuel; herbicides for rights-of-way; creosote for preserving Newton ties
Research laboratories	X-ray developers and fixers; infectious wastes; radiological wastes; biological wastes; disinfectants; asbestos; beryllium; solvents; infectious materials; drugs; disinfectants (quaternary ammonia, hexachlorophene, peroxides, chlornexade, bleach); miscellaneous chemicals
Scrap and junk yards	Any wastes from businesses and households; oils
Sports and hobby shops	Gunpowder and ammunition; rocket engine fuel; model airplane glue
Above-ground and underground storage tanks	Heating oil; diesel fuel; gasoline; other petroleum products; other commercially used chemicals
Transportation services for passenger transit (local and interurban)	Waste oil; solvents; gasoline and diesel fuel from vehicles and storage tanks; fuel oil; other automotive wastes
Veterinary services	Solvents; infectious materials; vaccines; drugs; disinfectants (quaternary ammonia, hexachlorophene, peroxides, chlornecade, bleach); x-ray developers and fixers

Industrial Sources	
Material stockpiles (coal, metallic ores, phosphates, gypsum)	Acid rain; other hazardous and non-hazardous wastes
Waste tailing ponds (commonly for the disposal of mining wastes)	Acids; metals; dissolved solids; radioactive ores; other hazardous and non-hazardous wastes
Transport and transfer stations (trucking terminals and rail yards)	Fuel tanks; repair shop wastes; other hazardous and non-hazardous wastes
Above ground and underground storage tanks and containers	Heating oil; diesel fuel; gasoline; other petroleum products; hazardous and non-hazardous wastes
Storage, treatment, and disposal ponds, lagoons, and other surface impoundments	Hazardous and non-hazardous liquid wastes; septage; sludge
Chemical landfills	Leachate; hazardous and non-hazardous wastes; nitrates
Radioactive waste disposal sites	Radioactive wastes from medical facilities, power plants, and defense operations; radionuclides (uranium, plutonium)
Unattended wet and dry excavation sites (unregulated dumps)	A wide range of substances; solid and liquid wastes; oil-field brines; spent acids from steel mill operations; snow removal piles containing large amounts of salt
Operating and abandoned production and exploratory wells (for gas, oil, coal, geothermal, and heat recovery)	Metals; acids; minerals; sulfides; other hazardous and non-hazardous chemicals
Dry wells	Saline water from wells pumped to keep them dry
Injection wells	Highly toxic wastes; hazardous and non-hazardous industrial wastes; oil-field brines
Well drilling operations	Brines associated with oil and gas operations

Industrial Processes (Presently operated or torn-down facilities)	
Asphalt plants	Petroleum derivatives
Communications equipment manufacturers	Nitric, hydrochloric, and sulfuric acid wastes; heavy metal sludges; copper-contaminated etchant (e.g., ammonium persulfate); cutting oil and degreasing solvent (trichloroethane, Freon, or trichloroethylene); waste oils; corrosive soldering flux; paint sludge; waste plating solution

Electric and electronic equipment manufacturers and storage facilities	Cyanides; metal sludge; caustics (chromic acid); solvents; oils; alkalis; acids; paints and paint sludges; calcium fluoride sludge; methylene chloride; perchloroethylene; trichloroethane; acetone; methanol; toluene; PCBS
Electroplaters	Boric, hydrochloric, hydrofluoric, and sulfuric acids; sodium and potassium hydroxide; chromic acid; sodium and hydrogen cyanide; metallic salts
Foundries and metal fabricators	Paint wastes; acids; heavy metals; metal sludges; plating wastes; oils; solvents; explosive wastes
Furniture and fixtures manufacturers	Paints; solvents; degreasing
Machine and metalworking shops	Solvents; metals; miscellaneous organics; sludges; oily metal shavings; lubricant and cutting oils; degreasers (tetrachlorethylene); metal marking fluids; mold-release agents
Mining operations (surface and underground), underground storage mines	Mine spoils or tailings that often contain metals; acids; highly corrosive mineralized waters; metal sulfides
Unsealed abandoned mines used as waste pits	Metals; acids; minerals; sulfides; other hazardous; and nonhazardous chemicals
Paper mills	Metals; acids; minerals; sulfides; other hazardous and non-hazardous chemicals; organic sludges; sodium hydroxide; chlorine; hypochlorite; chlorine dioxide; hydrogen peroxide
Petroleum production and storage companies, secondary recovery of petroleum	Hydrocarbons; oil-field brines (highly mineralized salt solutions)
Industrial pipelines	Corrosive fluids; hydrocarbons; other hazardous and non-hazardous materials and wastes
Photo processing laboratories	Cyanides; bio sludges; silver sludges; miscellaneous sludges
Plastics materials and synthetics producers	Solvents; oils; miscellaneous organics and inorganics (phenols, resins); paint wastes; cyanides; acids; alkalis; wastewater treatment sludges; cellulose esters; surfactant; glycols; phenols formaldehyde; peroxides; etc.

Primary metal industries (blast furnaces, steel works, and rolling mills)	Heavy metal wastewater treatment sludge; pickling liquor; waste oil; ammonia; scrubber liquor; acid tar sludge; alkaline cleaners; degreasing solvents; slag; metal dust
Publishers, printers, and allied industries	Solvents; inks; dyes; oils; miscellaneous organics; photographic chemicals
Public utilities (phone, electric power, gas)	PCBs from transformers and capacitors; oils; solvents; sludges; acid solution; metal plating solutions (chromium, nickel, cadmium); herbicides from utility rights-of-way
Sawmills and planers	Treated Newton residue (copper quinolate, mercury, sodium bazide); tanner gas; paint sludges; solvents; creosote; coating and gluing wastes
Stone, clay and glass manufacturers	Solvents; oils and grease; alkalis; acetic wastes; asbestos; heavy metal sludges; phenolic solids or sludges; metal-finishing sludge
Welders	Oxygen, acetylene
Newton preserving facilities	Newton preservatives, creosote

Lawn Care

The EPA National Pesticides Survey found that the use of fertilizers correlates to nitrate contamination of groundwater supplies.

Pesticides include herbicides, insecticides, rodenticides, fungicides, and avicides. EPA has registered approximately 50,000 different pesticide products for use in the United States. Many are highly toxic and quite mobile in the subsurface. An EPA survey found that the most common pesticides found in drinking water wells were DCPA (dacthal) and atrazine, which EPA classifies as moderately toxic (class 3) and slightly toxic (class 4) materials, respectively.

Common pesticides used for lawn and garden maintenance (i.e., weed killers, and mite, grub, and aphid controls) include such chemicals as 2,4-D, chlorpyrifos, diazinon, benomyl, captan, dicofol, and methoxychlor.

Hazardous Waste

The Resource Conservation and Recovery Act (RCRA) defines a hazardous waste as a solid waste that may cause an increase in mortality or serious illness or pose a substantial threat to human health and the environment when improperly treated, stored, transported, disposed of, or otherwise managed. A waste is hazardous if it exhibits characteristics of ignitability, corrosivity, reactivity, and/or toxicity. Not covered by RCRA regulations are domestic sewage, irrigation waters or industrial discharges

allowed by the Clean Water Act, certain nuclear and mining wastes, household wastes, agricultural wastes (excluding some pesticides) and small quantity hazardous wastes (i.e., less than 220 pounds per month) generated by businesses.

Household Hazardous Waste

Common household pesticides for controlling pests such as ants, termites, bees, wasps, flies, cockroaches, silverfish, mites, ticks, fleas, worms, rats, and mice can contain active ingredients including naphthalene, phosphorus, xylene, chloroform, heavy metals, chlorinated hydrocarbons, arsenic, strychnine, kerosene, nitrosamines, and dioxin.

Automotive wastes can include gasoline, antifreeze, automatic transmission fluid, battery acid, engine and radiator flushes, engine and metal degreasers, hydraulic (brake) fluid and motor oils.

Swimming pool chemicals can contain free and combined chlorine, bromine, iodine, mercury-based, copper-based, and quaternary algicides, cyanuric acid, calcium or sodium hypochlorite, muriatic acid and sodium carbonate.

Septic tank/cesspool cleaners include synthetic organic chemicals such as 1,1,1 trichloroethane, tetrachloroethylene, carbon tetrachloride, and methylene chloride.

Commercial and Municipal Wastes

Common wastes from public and commercial buildings include automotive wastes; rock salt; and residues from cleaning products that may contain chemicals such as xylenols, glycol esters, isopropanol, 1,1,1-trichloroethane, sulfonates, chlorinated phenols, and cresols.

Municipal wastewater treatment sludge can contain organic matter, nitrates, inorganic salts, heavy metals, coliform and non-coliform bacteria, and viruses.

Municipal wastewater treatment chemicals include calcium oxide, alum, activated alum, carbon, and silica, polymers, ion exchange resins, sodium hydroxide, chlorine, ozone, and corrosion inhibitors. X-ray developers and fixers may contain reclaimable silver, glutaraldehyde, hydroquinone, phenetole, potassium bromide, sodium sulfite, sodium carbonate, thiosulfates, and potassium alum.

APPENDIX D

NEWS PAPER ARTICLES

The following news paper articles may be published in your local newspaper, your system's newsletters or enclosed as bill fliers. **Put in your water system's name where appropriate.**

IS OUR DRINKING WATER SAFE?

The Texas Public Water Supply Regulatory Program has a proud legacy of public health protection that dates back to 1913. The dominant characteristic that has sustained the program through the decades has been the cooperative partnership with public water suppliers. Texas is a nationally recognized leader in surface water treatment design, operational criteria, water system operator training and certification, and source water protection, just to name a few.

In 1974, the United States Congress enacted a far-reaching program to ensure that our drinking water is as good as we think it is. The program is known as the Safe Drinking Water Act (SDWA). In 1986, Congress updated this program to set mandatory guidelines for regulating key contaminants, require the monitoring of unregulated contaminants, establish benchmarks for water treatment technologies, bolster enforcement, and promote protection of drinking water sources.

Most of the sampling involves monitoring for lead, copper, pesticides, herbicides, and industrial chemicals, as well as some naturally occurring inorganic chemicals. The SDWA's initial monitoring for the organic chemicals requires that one sample be collected each quarter (3months) for four consecutive quarters. If there are no detections, then sampling may be reduced to once per year. Sampling may be required from as many as eleven different groups of chemicals, each group requiring a separate sample.

The Public Drinking Water Section of the Texas Commission on Environmental Quality (TCEQ) administers the public drinking water system supervision program in Texas and has primary responsibility for the public water system aspects of the SDWA. The section executes program activities with a central office staff located in Austin, and with the cooperation of the sixteen regional offices throughout the state.

Sampling costs can be quite expensive. However, the United States Environmental Protection Agency now allows states to reduce monitoring costs for asbestos and organic chemicals by assessing the vulnerability of each public water supply source to contamination. The TCEQ conducts vulnerability assessments of all public water systems in the State of Texas. Based on the information obtained in the vulnerability assessment, TCEQ has the authority to grant waivers for a portion of chemical sampling. The program saves public water systems and TCEQ resources by reducing or eliminating unnecessary testing of your drinking water. Through the assessment

process, TCEQ staff identify systems which need additional protection. In these areas, water utilities are encouraged to develop programs to protect the sources of their drinking water.

Your System Name obtains its drinking water supply from groundwater. The groundwater is a reliable source of drinking water, and the Utility has a capable staff to assure a continued supply of water is available for all citizens. However, it is our responsibility as citizens to assure the continued supply is a **SAFE** supply.

You, the citizen, can directly affect the success or failure of the Your System Name. In another article coming soon, a protection program will be described which every citizen in the area can participate in to assure our drinking water remains safe for future generations.

PROTECTING OUR DRINKING WATER SOURCES

Last week, we published an article which provided background information on our drinking water. This is the second in a series of articles on Your Systems Name.

The Your System Name has a safe water supply. If our water is good, why do we need a special program to protect it? The reason is that the situation has been changing dramatically during recent decades. Our sources of water supply, both surface and ground water, are being endangered by new chemicals or microbiological contaminants.

Concurrently, our ability to detect contaminants has been improving. Modern science can now identify specific chemicals in terms of one part contaminant in one billion parts of water. One part per billion is equivalent to one kernel of corn in 12,500 bags of seed corn or one second in 32 years. In case you think such small amounts can't be very significant, keep in mind that you can get sick from a single microscopic virus.

Although we currently know a great deal about the health impacts of drinking water contamination, many questions remain. Ongoing research will no doubt provide new information which will answer some old questions and generate some new ones. Meanwhile, we as Your System Name citizens can take steps to reduce the risks to our health.

Most of us would agree that a vaccination to prevent illness is well worth the time, expense, and inconvenience. Similarly, many communities are using protection methods to prevent drinking water supply contamination. Communities have found that the less polluted their water is before it reaches the treatment plant, the less extensive—and expensive—the efforts needed to safeguard the public's health.

A Wellhead Protection Program is a program which prevents the pollution of the groundwater that serve as sources of drinking water. The management of land around a well site, such as Your System Name water wells, is an example of wellhead protection. A wellhead protection program typically includes delineation of the protection area, identifying potential sources of contamination that may impact the delineated area, implementation measures to manage these sources, and planning for the future.

Wellhead Protection helps safeguard community water supplies. It is a program which belongs to and is managed by the local community. Unquestionably, communities are the key stakeholders in wellhead protection. It is people living and working communities who have the most to gain or lose from the quality of their drinking water.

The benefits to communities protecting their groundwater might be best understood by describing the costs of failing to protect the source of groundwater. Easily quantifiable costs of groundwater contamination include treatment, remediation, finding and establishing new supplies or providing bottled water, consulting services and staff time, legal costs of litigating against responsible parties, and conducting public information campaigns as a result of public and media interest in groundwater pollution incidents.

Although seldom done, it is relatively easy to estimate the value of a drinking water supply abandoned due to contamination. Such costs can be high when the quantity of water rendered undrinkable is large or the supply of potential drinking water is small. Examples of costs can be found across the United States. As an example: Mililani, Hawaii spent \$2.5 million on initial cleanup from pesticides in their groundwater. The remediation has continued to costs the system approximately \$154,000 per year.

Communities with effective groundwater protection programs may also enjoy substantial savings in the costs of complying with Safe Drinking Water Act regulations. This is because cleaner source of groundwater require less disinfection, which means reduced requirements for removing disinfection by-products. Water suppliers with wellhead protection programs may be eligible for waivers from monitoring requirements that reduce their monitoring costs. Texas water systems which have received these waivers have already saved \$49 million in two and a half years.

Other benefits of wellhead protection that can be expressed in economic terms are helping to maintain real estate values in areas served by protected water supplies and avoiding loss of potential tax revenues and jobs because businesses refuse to locate or remain near places with known or suspected problems. A survey of 21 Minnesota cities found that five cities collectively lost more than \$8 million in tax revenues because of real estate devaluation as a result of groundwater pollution. Ask yourself the question, "Who wants to move a business or industry to a town where they can look to pay tax toward a multimillion-dollar bond issue to clean up the drinking water?"

Wellhead protection can have important secondary benefits. The protection of groundwater sources is obviously beneficial to fish, wildlife, and recreation. We also must include the reductions in risk to human health which result from cleaner groundwater.

Wellhead protection can be effective only if every citizen and business in the area joins in. A partnership must be formed between the Your System Name citizens, farmers and ranchers of the area, and local businesses to assure that the supply of water remains safe. In the next article, we'll discuss what potential sources of contamination may exist in the Your System Name's area that could affect our drinking water and what we can do as individual citizens to protect our valuable drinking water.

POTENTIAL THREATS TO THE SAFETY OF OUR DRINKING WATER

This is the third in a series of articles written on drinking water in the Your System Name.

We, as individual citizens, have an important role to play in the protection of our drinking water. Protecting our drinking water begins at home. How do your personal habits affect Your System Name's drinking water?

You may be surprised to learn that the way we dispose of products we use in our home or farm can contribute to the contamination of our community's drinking water. You may be even more surprised to learn that a number of the products we use at home contain hazardous or toxic substances. The truth is, products like motor oil, pesticides, left-over paints or paint cans, mothballs, flea collars, weed killers, household cleaners, and even a number of medicines contain materials that can be harmful to our drinking water.

The average American disposes of approximately one pound of this type of waste each year. So, although the amount of any of these substances that you pour down your drain, put in your trash, or dump on the ground or into a lake may seem insignificant to you, try multiplying it by the number of people in the surrounding Your System Name.

Don't Pour It Down the Drain! Anything you pour down your drain or flush down your toilet will enter your septic system or your community's sewer system. Using this method to dispose of products that contain harmful substances can affect your septic system's ability to treat human wastes. Once out of sight, these harmful substances can eventually contaminate both ground and surface water. In addition, most community wastewater treatment plants are not designed to treat many of these substances. Thus, they can eventually be discharged into surface water and cause contamination.

Don't Put It in the Trash! In general, community landfills are also not equipped to handle hazardous materials. As rain passes through the landfill, the water can become contaminated by these products and eventually carry them into the groundwater and surface water.

Don't Dump It on the Ground! Hazardous wastes that are dumped on or buried in the ground can contaminate the soil and either leach down into the groundwater or be carried into a nearby body of surface water by runoff during rainstorms.

What Can I Do? Get informed and get involved! Around the state, citizens are getting involved in their communities, volunteering their time and energy, and making a difference. If you think one person can't change the system, help form a group. You, alone or as a part of a group, can help educate your family, friends and neighbors about the importance of safe drinking water in your community.

PESTICIDE MANAGEMENT AND DRINKING WATER PROTECTION

This is the fourth in a series of articles on drinking water protection in the Your System Name's area.

Rural residents have a major role to play in protecting not only their drinking water, but the Your System Name drinking water as well. By becoming familiar with the ways ground and surface water can become polluted and the management practices that can prevent pollution, we can all be assured of a continued safe supply of drinking water.

Pesticides play an important role in agriculture. They have increased farm production and enabled farmers to manage more acres with less labor. Voluntary action to prevent pesticide contamination of drinking water will help ensure that pesticides remain available for responsible use.

Pesticides work by interfering with the life processes of plants and insects. Some pesticides are also toxic to humans. If a pesticide enters a water supply in large quantities, which could happen with spills, dumping, or back-siphoning accidents, acute health effects could occur, depending on the toxicity of the pesticide. Contaminated water used for drinking water supplies may cause chronic exposure (prolonged or repeated exposure to low doses of a toxic substance). Chronic exposure may be hazardous to humans and livestock.

Properly managing pesticides on your property is an important step toward preventing drinking water contamination. If stored in a secure, properly constructed location, pesticides pose little danger to drinking water. Common sense suggests keeping pesticides out of the way of activities that might knock over a jug or rip open a bag. Short-term storage poses a lower risk than year-round storage, but storage for any length of time can be a risk to drinking water.

Drinking water contamination can result even from small spills in the mixing and loading area. Small quantities spilled regularly in the same place can go unnoticed, but the chemicals can build up in the soil and eventually reach drinking water. By mixing and loading on an impermeable concrete surface most spilled pesticides can be recovered and reused.

Unwashed and improperly stored containers can lead to drinking water contamination if chemical residues leak onto the ground. Use returnable containers and minibulks, and take them back to the dealer as often as possible. Pressure-rinse or triple-rinse containers immediately after use, since residue can be difficult to remove after it dries. Pour the rinse water into the spray tank. Puncture containers and store them in a covered area until you take them to a regional collection event or permitted landfill. Do not bury or burn pesticide containers or bags.

Reducing pesticide waste makes financial as well as environmental sense, but it means more than just reducing spills. It also means not buying more than you need to apply, keeping records of what is on hand, and using older products first.

ABANDONED WATER WELLS – A THREAT TO DRINKING WATER

This is the fifth in a series of articles on drinking water protection in Your System Name here.

Have you ever dropped stones into the casing of an old well and listened to the sound it makes? Maybe you have leaned over the opening to hear the echo of your own voice bounce back from the mysterious darkness below? These are just two examples of the phenomena that arouse a child's curiosity and make abandoned wells as intriguing and as dangerous as a discarded ice box with the door still attached.

It is only natural for a person to assume no one would never fall into his deserted well, as the odds are high against this happening. But it can and has happened numerous times in Texas. Abandoned wells are also a direct conduit to our groundwater – a threat to our drinking water.

An abandoned well's potential for adversely affecting drinking water quality will depend on its original use, the local geology, land use, and the type of well construction. An improperly sealed well is often simply covered by a board or a sheet of metal in an unsuccessful attempt to ensure that the well does not become a hazard.

The natural quality of drinking water tends to be degraded by human activity. Wastes that are not discharged into lakes and streams are deposited on or below the land and from there may migrate downward to contaminate groundwater. The problem is compounded because groundwater contamination and the effects of contamination are not usually recognized until groundwater quality is seriously impaired.

Groundwater normally moves very slowly, from a few feet to tens of feet per year, and is filtered in the process. But an abandoned well will circumvent the natural filtration process and can transfer large amounts of contaminated water directly into the aquifer.

Abandoned wells are found everywhere – on farms, industrial sites, and in urban areas. Well plugging restores the groundwater protection originally provided by soil and rock that were present before the well was drilled. Filling a well also eliminates the possibility of injury, death, or property damage due to falls or collapse of an old well. To achieve these important benefits, however, the right plugging material and procedures must be used.

It will not be easy to convince everyone to plug or cap their abandoned wells. Proper well plugging takes time and money. The exact costs vary with well depth, diameter, and the geology of the area. Some will say well plugging is like pouring money down a hole. But spending a couple of thousand dollars to plug an abandoned well may prevent contamination of your drinking water. And it might prevent a serious accident involving your family or friends.

To report an abandoned well or obtain information on plugging abandoned wells, contact the Texas Department of Licensing and Regulation's Water Well Driller and Pump Installer Program at 1-800-803-9202.

PROPERLY CAPPING ABANDONED WELLS

- (A) For the abandoned wells that are flush with the ground or concrete slab, you may take a smaller piece of pipe that will fit inside the casing, weld a cap over the smaller pipe placing it down inside the well casing leaving enough room to get a good solid weld around the smaller pipe and the top of the well casing.
- (B) if the casing is above the ground, cut a piece of sheet metal the same size as the casing, placing this over the casing and finish with a good solid weld all the way around.
- (C) If the casing is threaded, then place a cap over and weld solid.

Well covers shall be capable of supporting a minimum of 400 pounds and constructed in such a way that they cannot be easily removed by hand. This became effective December 18, 1996. This is according to **REGULATIONS FOR WATER WELL DRILLERS AND WELL PUMP INSTALLERS #238.48(S)**.

HOUSEHOLD HAZARDOUS WASTE WHAT DO I DO WITH IT?

How to Dispose of Old Paint

How many times have you cleaned out the garage or storage unit only to find that you have numerous cans of old paint? You are not alone. According to the Environmental Protection Agency, every year US citizens throw out 64 million gallons of unused interior and exterior paint. That is enough paint to fill 128 Olympic size swimming pools. (Information obtained from U.S. Department of the Interior).

Are paints a true threat to our water sources? The answer is a definite YES. Oil-based paints are considered Hazardous Household Waste (HHW) and unfortunately are not suitable for reuse after long storage periods. These paints are flammable, toxic and contain harmful solvents, resins, and pigments; very old oil-based (1978 and before) may also contain lead. For these reasons, oil-based paints must be taken to a disposal facility that accepts HHW.

On the other hand, latex or water-based paint is not considered to be a hazardous waste and can be kept for long periods of time as long as stored properly. However, before 1990, about 30 percent of latex paints contained mercury and many of the exterior latex paints still do. For this and other reasons, latex paints must not be disposed of in liquid form. Specifically, DO NOT:

- * pour paint (latex or oil-based) into storm drains, onto the ground or into waterways, such as creeks, streams, rivers and bayous
- * put cans of liquid paint out for the regular trash pick-up
- * try to burn paint

Disposing of paint in this manner introduces contaminants into the soil and ground water.

So, what do you do with all the excess paint? Hopefully, the remainder of this article will give you some ideas.

Reusing Old Paint

Of course, the first thing that comes to mind, is to reuse your old paint. Latex and water-based paints will last for years if properly stored. For extended storage, you should:

1. Cover the opening of the paint can with plastic wrap.
2. Put the lid on securely and make sure it does not leak.
Turn the can upside down to allow the paint to create its own seal.
3. Store the can in the upside-down position in a place that's safe from freezing and out of reach of children and pets.

With a little imagination you can probably come up with projects around the house that you can use this paint for. It can be used to make touch-ups to finished paint jobs. Or maybe you can create a flow in your home by carrying the color from one room to another by painting accessories. This could be picture frames, outlet covers, clay pots, lamps or even an old piece of furniture. You can even use the old paint as a primer for new painted projects.

If you cannot think of any other uses for your left-over paint, then see if someone else can. Contact your local chapter of Habitat for Humanity, local churches, boy/girl scouts, 4-H, art and theater teachers. These groups are always in the need for paint for projects. You can also check with your local government departments such as parks, buildings and maintenance, fire departments or prisons to see if they are interested in free paint.

Recycling Paint

Recycling your old paint is always another option. With the help of your local paint dealer, you may be able to repurpose your excess paint. What does this mean? It simply means to take your various cans of excess paint and combine them to create new colors. Start by filtering out solids like thickened paint and brush bristles. Then separate the cans into light and dark colors. With the help of your paint professional, light colored paints can be combined and re-tinted to a fresh, new color. Dark paints blend well into a brown color. Do not forget, now that some of the paint cans are empty, you can recycle those just like food or drink cans. Just remember to allow the paint to dry first.

If you must dispose of your old latex and water-based paints, it must first be turned into solid waste. If there's less than one-fourth of the paint in the can, simply take it outside and place it where kids and pets cannot get to it, remove the lid and let the paint air dry. When the paint is hard, you can put the cans out with the rest of your trash. You may wish to leave the lids off to show the trash collector that the can is safe for disposal.

For larger amounts of paint, you can brush or roll the paint onto layers of newspaper or cardboard. This can be disposed of in the trash after the paint is dried. Another option is to pour the paint into a cardboard box and mix it with shredded newspaper, cat litter or a commercial paint hardener to speed solidification. Again, this may go into the trash once the paint is dried. Do not forget to recycle the cans after the paint is dried.

A little knowledge and effort can go along way in the protection of our precious source water.

APPENDIX F

FUNDING SOURCES

Grants

Texas Water Development Board (TWDB)

Colonia Self-Help Program

- 💧 Eligible entities: Political subdivisions and nonprofit water supply corporations (WSCs) within 50 miles of the international border.
- 💧 Type of Assistance: Grant
- 💧 Website: www.twdb.state.tx.us/financial/programs/self_help.asp
- 💧 Phone: 512-475-0590

Regional Facility Planning Grant Program

- 💧 Eligible entities: Political subdivisions with the legal authority to plan, develop and operate regional facilities, and nonprofit WSCs
- 💧 Type of Assistance: Grant
- 💧 Website: www.twdb.state.tx.us/financial/programs/RFP_Grant.asp
- 💧 Phone: 512-936-0852

Texas Department of Agriculture (TDA)

Community Development Block Grant (CDBG)

- 💧 Eligible entities: Cities and counties
- 💧 Type of Assistance: Grant
- 💧 Website: www.TexasAgriculture.gov
- 💧 Phone: 512-463-7476 or 1-800-835-5832

The Texas Capital Fund Infrastructure Development Program

- 💧 Eligible entities: Non-entitlement city or county governments
- 💧 Type of Assistance: Grant

- 💧 Website:
www.agr.state.tx.us/agr/program_render/0,1987,1848_6054_0_0,00.html?channel=6054
- 💧 Phone: 512-936-0273

Federal Emergency Management Agency (FEMA)

- 💧 Eligible entities: Individuals, organizations and political subdivisions
- 💧 Type of Assistance: Grants for prevention of and-recovery natural and man made disasters.
- 💧 Website: www.fema.gov/government/grant/index.shtm
- 💧 Phone: 800-621-FEMA (3362)

Loans

Texas Water Development Board

Clean Water State Revolving Fund Program (CWSFR)

- 💧 Eligible entities: Public wastewater systems
- 💧 Type of Assistance: Loan. Additional subsidies available for disadvantaged communities
- 💧 Website: www.twdb.state.tx.us/financial/programs/cwsrf.asp
- 💧 Phone: 512-463-8510

Drinking Water State Revolving Fund Loan Program (DWSRF)

- 💧 Eligible entities: Community water system owners and nonprofit noncommunity water systems and political subdivisions
- 💧 Type of Assistance: Loan. Additional subsidies available for disadvantaged communities.
- 💧 Website: www.twdb.state.tx.us/financial/programs/dwsrf.asp
- 💧 Phone: 512-475-4816

Rural Water Assistance Fund Program (RWAF)

- 💧 Eligible entities: Nonprofit WSCs and political subdivisions

- 💡 Type of Assistance: Loan
- 💡 Website: www.twdb.state.tx.us/financial/programs/rwaf.asp
- 💡 Phone: 512-463-8491

State Loan Program Texas Water Development Fund II (DFund)

- 💡 Eligible entities: Political subdivisions of the State and nonprofit WSCs
- 💡 Type of Assistance: Loan
- 💡 Website: www.twdb.state.tx.us/financial/programs/twdf.asp
- 💡 Phone: 512-463-8491

Water Infrastructure Fund

- 💡 Eligible entities: Political subdivisions of the State and nonprofit WSCs
- 💡 Type of Assistance: Loans – subsidized and deferred
- 💡 Website: www.twdb.state.tx.us/financial/programs/wif.asp
- 💡 Phone: 512-463-8491

Groundwater Conservation District Loan Program

- 💡 Eligible entities: Groundwater conservation districts
- 💡 Type of Assistance: Loan
- 💡 Website: www.twdb.state.tx.us/financial/programs/gdlp.asp
- 💡 Phone: 512-463-8491

Co-Bank

- 💡 Eligible entities: Investor-owned utilities (IOUs) and WSCs serving predominantly unincorporated areas
- 💡 Type of Assistance: Loan
- 💡 Website: www.cobank.com
- 💡 Phone: 800-542-8072

Government Capital Corp.

- 💡 Eligible entities: IOUs, political subdivisions, and WSCs
- 💡 Type of Assistance: Loan

- ♠ Website: www.governmentcapital.com
- ♠ Phone: 800-883-1199

Rural Utilities Service (RUS), U.S. Department of Agriculture (USDA), Rural Development

- ♠ Eligible entities: Rural political Subdivisions, WSCs, and Native American tribes
- ♠ Type of Assistance: Loan
- ♠ Website: www.rurdev.usda.gov/Utilities_Assistance.html
- ♠ Phone: 800-670-6553

United Financial of Illinois, Inc.

- ♠ Eligible entities: IOUs, WSCs and local governments
- ♠ Type of Assistance: Loans, sale leasebacks and master lease
- ♠ Website: www.unitedfinancial.com
- ♠ Phone: 630-955-0188

Combined Grants and Loans

Texas Water Development Board

Economically Distressed Areas Program (EDAP)

- ♠ Eligible entities: Political subdivisions and nonprofit WSCs provided they meet certain program requirements.
- ♠ Type of Assistance: Grant, loan or a combination grant/loan
- ♠ Website: www.twdb.state.tx.us/financial/programs/edap.asp
- ♠ Phone: 512-475-0590

U.S. Small Business Administration (SBA)

- ♠ Eligible entities: Businesses.
- ♠ Type of Assistance: Loans and grants
- ♠ Website: www.sba.gov/category/navigation-structure/loans-grants
- ♠ Phone: 800-827-5722

North American Development Bank

- 💡 Eligible entities: Communities located along the U.S./Mexico border
- 💡 Type of Assistance: Loans and grants
- 💡 Website: www.nadbank.org
- 💡 Phone: 210-231-8000

Technical Assistance

Texas Commission on Environmental Quality (TCEQ)

Financial, Managerial, and Technical (FMT) Assistance

Free financial, managerial and technical assistance

- 💡 Eligible entities: Public drinking water, wastewater systems and utilities
- 💡 Type of Assistance: On-site financial, managerial and technical assistance
- 💡 Website: www.tceq.texas.gov/utilities/fmt
- 💡 Phone: 512-239-4691 and ask for the FMT assistance contract coordinator.

Other Funding Source Clearinghouses

U.S. Environmental Protection Agency (EPA)

Federal Funding Sources for Small Community Wastewater Systems

- 💡 Eligible entities: Wastewater Systems
- 💡 Type of Assistance: Publication (EPA 832-F-97-004) contains ten fact sheets for possible funding sources
- 💡 Website: www.water.epa.gov/type/watersheds/wastewater/eparev.cfm
- 💡 Phone: 800-490-9198 to request document

Grants.gov

Electronic clearing-house of competitive grant opportunities from federal agencies

- 💡 Eligible entities: All water and wastewater systems
- 💡 Type of Assistance: Grants

- 💡 Website: www.grants.gov
- 💡 Phone: 800-518-4726

The Rural Assistance Center

- 💡 Eligible entities: Rural communities and facilities
- 💡 Type of Assistance: Summaries of available grants and loans
- 💡 Website: www.raonline.org/funding
- 💡 Phone: 800-270-1898

The Foundation Center (membership required)

- 💡 Eligible entities: Members only
- 💡 Type of Assistance: Summaries of available grants
- 💡 Website: www.foundationcenter.org

GrantStation.com (membership required)

- 💡 Eligible entities: Members only
- 💡 Type of Assistance: Summaries of available grants
- 💡 Website: www.grantstation.com

Grants.com

- 💡 Eligible entities: All entities
- 💡 Type of Assistance: Lists of available matching grants
- 💡 Website: www.grants.com

Catalog of Domestic Federal Assistance

- 💡 Eligible entities: Political subdivisions, private and nonprofit organizations
- 💡 Type of Assistance: Full listing of all federal programs available
- 💡 Website: www.cfda.gov

Texas Department of State Health Services (DSHS)

Funding Information Center

DSHS provides weekly lists of public and private funding opportunities, grant writer training, and other items of interest to those seeking grants.

- ♣ Eligible entities: Individuals and various organizations
- ♣ Type of Assistance: Lists funding opportunities
- ♣ Website: www.dshs.state.tx.us?fic/
- ♣ Phone: 888-963-7111, ext. 7684

INVENTORY FORM

ANNUAL WELLHEAD SURVEY

SURVOYER NAME: _____

DATE OF SURVEY: _____

WELL ID NUMBER: _____

PSOC INFORMATION

TYPE OF PSOC: _____

NAME OF BUSINESS OR LANDOWNER: _____

ADDRESS OF PSOC: _____

PHONE NUMBER: _____

PERMIT NUMBER (GAS STATIONS, DRY CLEANERS ETC.) _____

DRAW A MAP SHOWING LOCATION OF NEW OR REMOVED PSOC

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joe.gimenez <1129jgg@gmail.com>

Fees for Epayment Systems

6 messages

Joe Gimenez <1129jgg@gmail.com>

Wed, Aug 18, 2021 at 12:04 PM

To: Trent Hightower <Trent.Hightower@trwa.org>

Cc: Rich Schaefer <richard.t.schaefer@gmail.com>

Trent,

It was good to put a name with a face in Galveston. I really appreciate all that you and the other TRWA team members provide to our WSC. Thank you. I enjoyed attending the conference.

Last night our Board discussed implementation of an ebilling/epayments system and we were discussing allocation of costs for customer transactions. In other words, the ACH/credit card transaction fees. Are there any rate structure issues we should be aware of? I can see where the WSC's paying for transaction fees would be an unfair cost to the system for those members who continue to write checks and don't use the epayments system. We're just trying to find out what may or may not be allowed. I assume this is an issue for all WSCs and something you've dealt with already, but let me know if this is something we should ask our attorneys about.

Thanks,
Joe

Trent Hightower <Trent.Hightower@trwa.org>

Wed, Aug 18, 2021 at 1:00 PM

To: Joe Gimenez <1129jgg@gmail.com>

Cc: Rich Schaefer <richard.t.schaefer@gmail.com>

Hi Joe,

It was a pleasure meeting you in person as well! You're right, this is a question we have received a lot in the past. It's also one where our answer has continued to evolve as the legislature and state courts have wrestled with what a seller can and can't charge when it comes to processing credit card fees. The short answer to your question (at least currently) is that all sellers including WSCs may collect a surcharge for credit card payments, but only for an amount equal to the swipe fees charged to them by the credit card company.

By way of background, Section 604A.0021 of the Texas Business & Commerce Code prohibits private sellers, including water supply corporations (WSCs) from imposing a surcharge on a buyer who uses a credit card for payment. For years, TRWA advised our WSC members that while they may not collect such surcharges under this statute, third-party vendors could do so as a fee for processing credit card payments as long as the seller did not share in any portion of that fee .

However, a couple years ago a federal judge in Texas found Section 604.0021 unconstitutional on grounds that it violates sellers' ability to communicate their prices in violation of the First Amendment of the U.S. Constitution, and enjoined the state from enforcing its statute. *Rowell v. Paxton*, 336 F. Supp. 3d 724 (W.D. Tex. 2018). The Texas Attorney General's Office published a letter ruling discussing the *Rowell* ruling and its impact on sellers in 2019. I've included that opinion above.

The legislature took no action in either 2019 or 2021 to modify its statute to attempt to make it constitutional, and there haven't been any appeals of the *Rowell* case or other cases on the subject that would change my answer. Until something like that happens, we've got an unenforceable statute on the books and sellers are free to pass along those swipe fees.

Trent Hightower

Assistant General Counsel

Texas Rural Water Association

1616 Rio Grande | Austin, Texas 78701

Phone: (512) 472-8591, x106

Cell: (512) 923-5850

Fax: (512) 472-5186

www.trwa.org

[Quoted text hidden]



AG Opinion on Credit Card Surcharges.pdf
151K

Joe Gimenez <1129jig@gmail.com>
To: Trent Hightower <Trent.Hightower@trwa.org>
Cc: Rich Schaefer <richard.t.schaefer@gmail.com>

Wed, Aug 18, 2021 at 1:52 PM

Okay, good info, thank you. We can pass the fees on directly to customers. But what if the water company decides to pay the transaction fees for those customers who use the service? Are there any prohibitions against the water company doing that? The water company is essentially 'favoring' one group of customers (those who pay by epayment) over those who pay by check. The checkpayers could be viewed as subsidizing the epayers' costs. Is that a concern?
jg

[Quoted text hidden]

Trent Hightower <Trent.Hightower@trwa.org>
To: Joe Gimenez <1129jig@gmail.com>
Cc: Rich Schaefer <richard.t.schaefer@gmail.com>

Wed, Aug 18, 2021 at 2:01 PM

Hi Joe,

I'm not aware of anything addressing it from that direction but I think the fairest way to do it would be to pass the fee along to the person causing you to incur it, which is the credit card customer. Doing it the other way around could certainly be seen as the check-payers subsidizing other peoples' fees, which could be a cause for an appeal over at the PUC. Given Windermere Oaks' history, I don't think it's a risk I'd be willing to take if I were y'all!

[Quoted text hidden]

Joe Gimenez <1129jig@gmail.com>
To: Trent Hightower <Trent.Hightower@trwa.org>
Cc: Rich Schaefer <richard.t.schaefer@gmail.com>

Wed, Aug 18, 2021 at 2:08 PM

Thanks Trent. I agree. Patti Flunker raised the issue in a chat note last night during our zoom Board meeting. Since she is the ratepayer rep in the current case we have to take note.
[Quoted text hidden]

Joe Gimenez <1129jig@gmail.com>
To: Dorothy Taylor <dtaylor27@me.com>

Wed, Sep 29, 2021 at 3:32 PM

fyi, conversation with Trent re fees.
[Quoted text hidden]



KEN PAXTON
ATTORNEY GENERAL OF TEXAS

June 14, 2019

Ms. Shelly Atteberry
Cooke County Auditor
Cooke County Courthouse
101 South Dixon Street
Gainesville, Texas 76240

Opinion No. KP-0257

Re: Whether a private attorney or collection agency that contracts with a county to collect delinquent amounts owed to county courts may charge defendants a fee for the use of credit cards (RQ-0261-KP)

Dear Ms. Atteberry:

A commissioners court of a county “may enter into a contract with a private attorney or a public or private vendor for the provision of collection services for . . . debts and accounts receivable such as unpaid fines, fees, court costs, forfeited bonds, and restitution ordered paid,” among other items. TEX. CODE CRIM. PROC. art. 103.0031(a)(1). You ask whether a private attorney or a collection agency entering into such a contract may charge a fee for the use of credit cards to pay those debts.¹ You raise section 604A.0021 of the Business and Commerce Code in particular and ask whether that statute prohibits charging such a fee. Request Letter at 1.

Section 604A.0021, with limited exceptions, prohibits imposing a surcharge for the use of a credit card in certain circumstances: “In a sale of goods or services, a seller may not impose a surcharge on a buyer who uses a credit card for an extension of credit instead of cash, a check, or a similar means of payment.” TEX. BUS. & COM. CODE § 604A.0021(a). Before addressing your specific question, it is first necessary to address the validity of section 604A.0021 generally.

A federal district court addressing section 604A.0021 recently held that, as applied to certain merchants, the statute violates commercial free-speech rights under the First Amendment. *See Rowell v. Paxton*, 336 F. Supp. 3d 724, 732 (W.D. Tex. 2018). The district court relied on the U.S. Supreme Court decision in *Expressions Hair Design v. Schneiderman* to reach its decision.² *Id.* In *Expressions Hair Design*, the Court addressed a statute similar to section 604A.0021 that prohibited a seller from imposing “a surcharge on a holder who elects to use a credit card in lieu of payment by cash, check, or similar means.” 137 S. Ct. 1144, 1147 (2017). Concluding that the

¹See Letter from Ms. Shelly Atteberry, Cooke Cty. Auditor, to Honorable Ken Paxton, Tex. Att’y Gen. at 1 (Dec. 18, 2018), <https://www2.texasattorneygeneral.gov/opinion/requests-for-opinion-rqs> (“Request Letter”).

²The district court initially found the state statute constitutional; however, the U.S. Supreme Court granted certiorari, vacated the district court’s judgment, and remanded the action for further proceedings in light of its decision in *Expressions Hair Design v. Schneiderman*. *See Rowell v. Pettijohn*, No. A-14-CA-190-LY, 2015 WL 10818660 (W.D. Tex. Feb. 4, 2015); *Rowell v. Pettijohn*, 137 S. Ct. 1431 (2017).

Ms. Shelly Atteberry - Page 2

(KP-0257)

statute regulated “how sellers may communicate their prices,” the Court held that it regulated speech and required evaluation under a First Amendment analysis. *Id.* at 1151. Performing that analysis with regard to the Texas statute, the district court in *Rowell v. Paxton* concluded that section 604A.0021 did not withstand constitutional scrutiny as applied to the facts in that case. *Rowell*, 336 F. Supp. 3d at 732.

When a court determines that a statute is unconstitutional as applied, it normally invalidates the statute only as applied to the litigant in question and does not render the statute unenforceable with regard to other litigants or different factual circumstances. *See Fed. Elec. Comm’n v. Colo. Republican Fed. Campaign Comm.*, 533 U.S. 431, 437 (2001). In holding section 604A.0021 unconstitutional as applied, the district court noted that the merchants in question did not seek “to extract additional profits by imposing surcharges in excess of the cost of accepting each credit card.” *Rowell*, 336 F. Supp. 3d at 730. Thus, the court concluded that the speech at issue was not deceptive or misleading. *Id.* However, the court acknowledged that the State is “free to prevent the dissemination of commercial speech that is false, deceptive, or misleading,” and suggested that the First Amendment analysis would be different if the merchants sought to impose higher surcharges than the swipe fees charged to the merchants by credit card companies. *Id.* Thus, circumstances may still exist where, as applied, section 604A.0021 operates to prohibit a credit card surcharge fee.

Even where section 604A.0021 remains valid, however, it is unlikely a court would find it applicable to the specific circumstances you describe. Section 604A.0021 does not apply to a “county . . . that accepts a credit card for the payment of fees, taxes, or other charges.” TEX. BUS. & COM. CODE § 604A.0021(b)(1). Thus, section 604A.0021 does not prohibit a county from imposing a surcharge on a payee using a credit card for the payment of fees, taxes, or other charges owed to the county. *Id.* You question whether that exception would also allow a private entity contracting with the county to charge a credit card fee. Request Letter at 2. The exemption in subsection (b)(1) expressly applies only to governmental entities and would not generally exempt a private attorney or collections agency. TEX. BUS. & COM. CODE § 604A.0021(b)(1). However, section 103.0031 authorizes a county to contract with “a private attorney or a public or private vendor for the provision of collection services for . . . fees.” TEX. CODE CRIM. PROC. art. 103.0031(a)(1). Reading these provisions together, if a county is entitled to impose a surcharge fee for credit card use, a court would likely conclude that a private attorney or collections agency acting as an agent for the county could collect that surcharge on behalf of the county when collecting other fees, taxes, or other charges. *See McKaughan v. Baldwin*, 153 S.W. 660, 661 (Tex. Civ. App.—Austin 1913, no writ) (explaining that an agent, acting “within the scope of the business for which such agency is created, stands in the shoes of the principal and may do anything in reference to such business that the principal could have done”).³

³Whether a county’s contract with a private attorney or debt collection agency creates an agency relationship will require evaluating the specific contract at issue and is not a determination appropriate for the opinion process.

Ms. Shelly Atteberry - Page 3

(KP-0257)

S U M M A R Y

Section 604A.0021 of the Business and Commerce Code prohibits imposing a surcharge for the use of a credit card in certain instances. Although a recent judicial decision held section 604A.0021 unconstitutional as applied to specific facts, it remains enforceable in some contexts. But it does not apply to a county imposing a surcharge on a payee using a credit card for the payment of money owed to the county.

Section 103.0031 of the Code of Criminal Procedure authorizes a county to contract with a private attorney or a public or private vendor for the provision of collection services for fees. If a county is entitled to impose a surcharge fee for credit card use, a court would likely conclude that a private attorney or collections agency acting as agent for the county could collect that surcharge on behalf of the county when collecting other fees, taxes, or other charges.

Very truly yours,



KEN PAXTON
Attorney General of Texas

JEFFREY C. MATEER
First Assistant Attorney General

RYAN L. BANGERT
Deputy Attorney General for Legal Counsel

VIRGINIA K. HOELSCHER
Chair, Opinion Committee



joe gimenez <1129jjg@gmail.com>

Surcharge Model Language

6 messages

Joe Gimenez <1129jjg@gmail.com>
To: Trent Hightower <Trent.Hightower@trwa.org>
Cc: Dorothy Taylor <dtaylor27@me.com>

Wed, Oct 6, 2021 at 9:18 AM

Trent,

I know you are short timer there at TRWA but I was wondering if you could help with one last request.

WOWSC is going to have to add surcharge language to our tariff, for the purpose of paying the legal fees which ratepayer reps Patti Flunker and Josie Fuller have required us to undertake. Does TRWA have any model language for surcharges?

Any help would be appreciated.

thanks,
Joe

Trent Hightower <Trent.Hightower@trwa.org>
To: Joe Gimenez <1129jjg@gmail.com>
Cc: Dorothy Taylor <dtaylor27@me.com>

Wed, Oct 6, 2021 at 11:55 AM

Hey guys,

The closest we have is this provision of our Sample Tariff:

Assessments. If at the end of the fiscal year, or in the event of emergency repairs, the Board of Directors determines the total amount derived from the collection of water or wastewater charges to be insufficient for the payment of all costs incident to the operation of the Corporation's system during the year in which such charges are collected, the Board shall make and levy an assessment against each Member of the Corporation as the Board may determine or as may be required by Rural Development, so that the sum of such assessments and the amount collected from water and other charges is sufficient to fully pay all costs of the operation, maintenance, replacement and repayment on indebtedness for the year's operations. (See Article XVIII of USDA Model Bylaws, Section 1 Rev. 12-2011 or your Corporations bylaws or other governing documents)

Trent Hightower

Assistant General Counsel

Texas Rural Water Association

1616 Rio Grande | Austin, Texas 78701

Phone: (512) 472-8591, x106

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Fax: (512) 472-5186

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[Quoted text hidden]

Dorothy Taylor <dtaylor27@me.com>
To: Trent Hightower <Trent.Hightower@trwa.org>
Cc: Joe Gimenez <1129jjg@gmail.com>

Wed, Oct 6, 2021 at 12:00 PM

Thank Trent,
That language is in our Tariff
[Quoted text hidden]

Joe Gimenez <1129jjg@gmail.com>
To: Trent Hightower <Trent.Hightower@trwa.org>
Cc: Dorothy Taylor <dtaylor27@me.com>

Wed, Oct 6, 2021 at 12:49 PM

Trent,
Thank you. Can ratepayers protest assessments to the PUC?
jg
[Quoted text hidden]

Joe Gimenez <1129jjg@gmail.com>
To: Stefanie Albright <salbright@lglawfirm.com>
Cc: Dorothy Taylor <dtaylor27@me.com>

Wed, Oct 6, 2021 at 12:50 PM

Here's what TRWA offers.
[Quoted text hidden]

Trent Hightower <Trent.Hightower@trwa.org>
To: Joe Gimenez <1129jjg@gmail.com>

Wed, Oct 6, 2021 at 1:12 PM

Yes, they can generally protest any rate or fee charged by a WSC.

Sent from my iPhone

On Oct 6, 2021, at 12:49 PM, Joe Gimenez <1129jjg@gmail.com> wrote:

[Quoted text hidden]



joe.gimenez <1129jjg@gmail.com>

WOWSC Rate Case Hearing

2 messages

Joe Gimenez <1129jjg@gmail.com>
 To: "Lara N. Zent" <Lara.zent@trwa.org>

Mon, Dec 6, 2021 at 12:03 PM

Hi Lara,

I spoke with Brian MacManus about this briefly on Friday and promised to send this email to you. Since everything done at the PUC affects other WSCs, I thought you all should know the latest developments.

The Windermere Oaks Water Supply Corporation rate case hearing went for 3 days last week (Dec. 1-3). Three issues came out that may be of interest to other water companies.

1. The PUC staff lawyer Merritt Lander seemed concerned that the WOWSC seemed to have a "blank check" to defend the corporation and directors from lawsuits. This is the characterization we've heard from ratepayers. The truth of the matter is that the Board worked throughout the legal proceedings to spend as little as possible. There were many legal options available to the WOWSC, including countersuits for the plaintiffs' (and their allies') brand disparagement, mail fraud, defamation, and tortious interference. We did not. We also did not utilize the broad range of legal matter experts for trial testimony. And there were other legal strategies the corporation could have used for specific case matters involving votes of the membership. All of those options and more seemed to us to be potentially more expensive and less certain than the course we chose. In other words, while staff and the ratepayers seem to think the WOWSC Board was indiscriminate in its use of legal strategies and financial resources, the opposite was true. But we had to discuss all that in executive session along the way as the cases wore on.
2. PUC staff lawyer Lander tried to portray the lawsuit matter as non-recurring expense, and analogized the lawsuit as being hit by a car where it is a one-time event. It was a false analogy in that yes, you may be hit by a car in a moment in time, but the bills for your medical reconditioning continue on and on into the future. Furthermore, we were hit by the car and we could not hold the party hitting us responsible for the bills. The fact of the matter is that the legal bills resulting from plaintiffs lawsuits have stretched from 2018 and will stretch into 2022. The handling of ongoing legal matters -- particularly when the WSC is defendant -- should not be viewed in the way that Ms. Lander seemed to indicate.
3. **This is probably the most significant development to other WSCs:** The ratepayers representatives Patti Flunker and Josie Fuller hired lawyer Katherine Allen to represent them on November 18. (Allen is the same attorney representing the plaintiffs in the underlying land case and is probably being paid by those plaintiffs for the rate case.) Ms. Allen's questions seemed to be foreshadowing to her briefing argument that the WOWSC Board has set themselves up to be a different class of members than ratepayers. Their argument seems to be that by raising the rates in March 2020 in order to pay legal bills for the corporation and for the directors' legal defenses, the Board established themselves as the beneficiary of the rates (and not the ratepayers). The question was directed like this: "You, [WOWSC Secretary-Treasurer] Mike Nelson received legal defense for those rate increases. Did [ratepayer representative] Josie Fuller receive similar legal defense? Could she?" And as a result of staff testimony of Maxine Guilford who seemed to indicate that individual volunteer directors should pay for legal defenses, it appears as though the ratepayer reps will propose in their briefing that the individual volunteer directors should pay legal defenses which the WOWSC incurred on their behalf. I spoke briefly with the directors lawyer Shelby O'Brien about this Friday afternoon and she said that Business Code Chapter 8 actually **requires** a corporation to pay the legal defenses of Board directors found innocent of any charges by a court, which is what happened in May 2021 in the underlying case. She also said that any attempt by PUC to levy assessments against individuals would violate our rights to be charged and defend such assessments under Texas law. So, not likely that this would fly legally, but nonetheless the attempt is going to be made.

I've attached several documents as background:

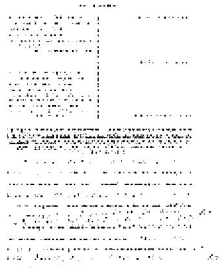
- The prevailing motion for summary judgment in the underlying land case. This describes all the plaintiffs previous attempts to seek damages from the volunteer board directors as well as all the state and federal legal defenses supporting volunteer directors. The WOWSC attorneys did a great job in that briefing dispelling all the plaintiffs' false assertions that state laws would support their claims for damages. They also did a great job dismantling all the plaintiff's false allegations that violations of law had occurred.
- Order dismissing charges against the 7 volunteer directors in the underlying rate case. The eighth 'interested director' who purchased the land is still facing the possibility of trial if settlement can't be reached.

- Preliminary order in the rate case, describing the issues which the PUC case was about. Of course, the ratepayers and Allen have been using the rate case to adjudicate the underlying land transaction as well as the rates. That was clear from the questions Ms. Allen was asking last week.
- Staff testimony by Ms. Gilford regarding disallowing legal expenses and suggesting board members should pay.

I hope this provides enough background and I'm available to discuss if you have questions.

best regards,
Joe Gimenez
President, WOWSC Board

4 attachments



Final Order - Take Nothing -- 5-3-21 -- Mirabal_Page_1.png
194K



2021-03-24 Reply in Support of Director Defendants' Motion for Summary Judgment (1).pdf
410K



PUC Preliminary Order July 2020.PDF
443K



Maxine Gilford Testimony.pdf
4416K

Lara Zent <lara.zent@trwa.org>
To: Joe Gimenez <1129jjg@gmail.com>

Mon, Dec 6, 2021 at 4:17 PM

Joe,

Thanks for sending this. I'm sorry to hear that the community continues to be so fractured over these issues. I'll be prepared to discuss with the board this week.

Best regards,

Lara

Lara Zent
Executive Director & General Counsel
Texas Rural Water Association

1616 Rio Grande
Austin, TX 78701
Phone: (512) 472-8591, x101
Fax: (512) 472-5186
Lara.Zent@trwa.org

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CAUSE NO. 48292

RENE FFRENCH, JOHN RICHARD	§	IN THE DISTRICT COURT
DIAL, AND STUART BRUCE SORGEN,	§	
INDIVIDUALLY AND AS	§	
REPRESENTATIVES FOR	§	
WINDERMERE OAKS WATER SUPPLY	§	
CORPORATION	§	
INTERVENOR PLAINTIFFS	§	
	§	
v.	§	33RD JUDICIAL DISTRICT
	§	
FRIENDSHIP HOMES & HANGARS,	§	
LLC, WINDERMERE OAKS WATER	§	
SUPPLY CORPORATION, AND ITS	§	
DIRECTORS WILLIAM EARNEST,	§	
THOMAS MICHAEL MADDEN, DANA	§	
MARTIN, ROBERT MEBANE, PATRICK	§	
MULLIGAN, JOE GIMENEZ, MIKE	§	
NELSON, AND DOROTHY TAYLOR,	§	
DEFENDANTS	§	BURNET COUNTY, TEXAS

**ORDER ON DEFENDANTS WINDERMERE OAKS WATER SUPPLY CORPORATION
DIRECTORS WILLIAM EARNEST, THOMAS MICHAEL MADDEN, DANA MARTIN,
ROBERT MEBANE, PATRICK MULLIGAN, JOE GIMENEZ, MIKE NELSON, AND
DOROTHY TAYLOR’S TRADITIONAL AND NO-EVIDENCE MOTION FOR
SUMMARY JUDGMENT**

After considering Defendants Windermere Oaks Water Supply Corporation Directors William Earnest, Thomas Michael Madden, Dana Martin, Robert Mebane, Patrick Mulligan, Joe Gimenez, Mike Nelson, and Dorothy Taylor’s (“Directors”) Traditional and No-Evidence Motion for Summary Judgment (“Motion”), the pleadings and other filings, the response, the reply, the declarations, the arguments of counsel, and other evidence on file, the Court hereby **GRANTS** the

Directors’ Motion *as to all Directors EXCEPT Dana Martin.*
The Motion as to Defendant Dana Martin is DENIED.
Accordingly, the Court **ORDERS** that Intervenor Plaintiffs Rene Ffrench, John Richard

Dial, and Stuart Bruce Sorgen, individually and as representatives of Windermere Oaks Water Supply Corporation, take nothing on each of their causes of action against the Directors: *Earnest, Madden, Mebane, Mulligan, Gimenez, Nelson, and Taylor.*

MGM

MGM

CAUSE NO. 48292

RENE FFRENCH, JOHN RICHARD	§	IN THE DISTRICT COURT
DIAL, AND STUART BRUCE SORGEN,	§	
INTERVENOR PLAINTIFFS	§	
	§	
v.	§	
	§	
FRIENDSHIP HOMES & HANGARS,	§	
LLC, WINDERMERE OAKS WATER	§	
SUPPLY CORPORATION, AND ITS	§	33RD JUDICIAL DISTRICT
DIRECTORS WILLIAM EARNEST,	§	
THOMAS MICHAEL MADDEN, DANA	§	
MARTIN, ROBERT MEBANE, PATRICK	§	
MULLIGAN, JOE GIMENEZ, MIKE	§	
NELSON, AND DOROTHY TAYLOR,	§	
DEFENDANTS	§	BURNET COUNTY, TEXAS

**DEFENDANTS WINDERMERE OAKS WATER SUPPLY CORPORATION
DIRECTORS WILLIAM EARNEST, THOMAS MICHAEL MADDEN, DANA MARTIN,
ROBERT MEBANE, PATRICK MULLIGAN, JOE GIMENEZ, MIKE NELSON, AND
DOROTHY TAYLOR’S REPLY IN SUPPORT OF TRADITIONAL AND NO-
EVIDENCE MOTION FOR SUMMARY JUDGMENT**

Under Texas Rule of Civil Procedure 166a(c) and (i), Defendants Windermere Oaks Water Supply Corporation (“WOWSC”) Directors William Earnest, Thomas Michael Madden, Dana Martin, Robert Mebane, Patrick Mulligan, Joe Gimenez, Mike Nelson, and Dorothy Taylor (“Directors”) file this Reply in Support of their Traditional and No-Evidence Motion for Summary Judgment (“Motion”), asking this Court to render a take-nothing judgment in the Directors’ favor.

**I.
INTRODUCTION**

This case concerns a land sale by WOWSC to a company owned by a former sitting director that the Plaintiffs believe was for an unfair price. The Plaintiffs attempt to spin conspiracy theories by stacking inference upon inference and fanning the flames of suspicion. None of this intrigue constitutes evidence of the bad faith and illegality they must show to survive summary judgment.

Numerous statutes and common law rules impose a high burden on a plaintiff trying to hold a non-profit director *personally liable* for acts taken as a director. These include the business judgment rule and safe harbor statutory provisions immunizing directors from personal liability, including in the context of “interested director” transactions. The business judgment rule and the Texas Business Organizations Code, with their heightened protections for non-profit directors, provide the roadmap to this Court’s decision. The Plaintiffs must put forth evidence of subjective bad faith, illegality, and other factors to create a fact dispute regarding the Directors’ personal liability. Critically, the burden is on the Plaintiffs, not the Directors. The Plaintiffs have not met their burden.

Numerous Texas and federal courts have rendered judgment as a matter of law in favor of non-profit directors when plaintiffs seek to hold them personally liable—even if a fact dispute otherwise exists regarding the *validity* of a corporate transaction. The policy reason is obvious. No one would volunteer to serve on a non-profit board if these volunteers were not protected from personal liability except for the most egregious acts. It borders on frivolous for the Plaintiffs to suggest that *this* case is the unusual, egregious case where a fact dispute exists regarding director personal liability.

The Plaintiffs have thrown the kitchen sink at this Court with their 54-page “Facts” section and hundreds of pages of exhibits. They have done everything in their power to try confusing what should be a straightforward case. In truth, material facts relevant to the Directors’ liability are not in dispute. The contemporaneous recordings and minutes of board meetings and other documents say what they say and tell the entire story—as much as the Plaintiffs try spinning a tale that the Directors *must* have subjectively felt some ill intent. At bottom, the undisputed evidence demonstrates that the 2015 Board believed, based on the information before them at that time, that

WOWSC was selling land to Friendship Homes & Hangars, LLC (“Friendship”) for a good price.¹ The 2019 Board believed that it was best for the corporation to settle with Friendship and improve the Original Transaction for WOWSC. The exhibits the Plaintiffs attach to their Response do not refute this—they back up why the Board members voted as they did. Even if the Plaintiffs are correct that it would have been more prudent for the Directors to have voted differently (which the Directors dispute), that does not mean the Directors can be found personally liable. There is no evidence demonstrating anything other than that the Directors acted in good faith and believed they were acting in the best interest of WOWSC.

If this Court believes a fact dispute exists regarding the validity of either transaction or any part of either transaction (such as the Plaintiffs’ heightened focus on the conveyance of Piper Lane), a trial could perhaps be had on the issue of validity. But this Court should render a take-nothing judgment in the Directors’ favor on *personal liability* or, at a minimum, render a take-nothing judgment in the disinterested Directors’ favor on personal liability. The Directors (except perhaps Dana Martin) need not be parties to any trial regarding contract validity because they are not parties to these transactions.²

¹ “2015 Board” refers to Dana Martin, Bill Earnest, Mike Madden, Pat Mulligan, and Bob Mebane. “2019 Board” refers to Bill Earnest, Joe Gimenez, Dorothy Taylor, and Mike Nelson. (Collectively, the “Boards”.) “Original Transaction” refers to the 2015/2016 land sale by WOWSC to Friendship. “2019 Transaction” refers to the October 2019 Amended, Restated, and Superseding Agreement entered into between Friendship, WOWSC, and Martin under which the 2019 Board essentially settled with Friendship and Martin and improved the terms of the Original Transaction for WOWSC.

² As explained in their Motion, the Directors have no individual power to take any action on either transaction. They cannot “undo” the transactions as individuals, and many of the Directors do not even sit on the WOWSC board any longer. The Original Transaction was between WOWSC and Friendship. The 2019 Transaction was between WOWSC, Friendship, and Dana Martin, the sole “interested” Director in the Original Transaction. The other seven Directors are not parties to either transaction, and the uncontroverted evidence establishes they have no personal interest in either transaction. A take-nothing judgment on personal liability in the Directors’ favor (or, at a minimum, in the disinterested Directors’ favor) would resolve all claims against the Directors. If the Court believes a fact issue exists on the validity of the 2019 Transaction, however, presumably Dana Martin would remain in the case on the issue of validity since she is a party to that transaction.

II.

REPLY ARGUMENT

A. Response to Plaintiffs' 54-Page "Facts" Section

The Directors are not aware of many factual disputes in this case beyond the so-called "true" value of the property (if a "true value" exists). Any fact dispute that might exist is not material to this Motion. The Directors do briefly address the following parts of the Plaintiffs' 54-page "Facts" section:

- The Plaintiffs make many factual assertions without any citation to the record. Some of their unsupported statements are untrue. Because those unsupported statements are not material to this Motion, the Directors do not go toe to toe here on the Plaintiffs' misrepresentations. The summary judgment record speaks for itself.
- The Plaintiffs often assign their own opinions regarding the Directors' motives (for instance, claiming, without evidence, that the Directors "knew" certain things "weren't true" or "weren't reliable" or somehow did not act in "good faith")—but these are not facts, and they are not backed up by the record.
- The Plaintiffs claim the Directors "nitpick over value." Response³ at 57. In reality, there are wildly varying opinions regarding the value of the land, with the Plaintiffs' preferred valuation (assigned retrospectively by David and Chance Bolton three years after the Original Transaction) at the extreme top end. There is no principle of Texas law under which a non-profit director can be held personally liable each time he or she votes for the company to sell property for \$5 that a person later claims was arguably worth \$10. The "true" value of the property (if it can even be ascertained) is not material to the Directors' Motion.
- The Plaintiffs' swipes regarding what the Directors purportedly "knew" about the land's "true" value spotlight the absurdity of this lawsuit. They claim the Directors somehow "knew" the value was higher than what they sold it for because they must have:
 - "known" the previous Frank Greenberg offer was too low or was somehow "concocted,"

³ "Response" refers to the Plaintiffs' March 17, 2021 Response filed in opposition to the Directors' Motion. In this Reply, the Directors at times cite to evidence attached to the Plaintiffs' Response. The Directors also cite to evidence attached to their Motion and to their supplemental evidence timely filed with the Court on February 19, 2021.

- “known” the previous Spicewood Pilots Association offer was too low,
- “known” the Curt Friedland bank appraisal was somehow too low and “unreliable,”
- “known” the William Keller offer was too low,
- “known” the Windermere Oaks Property Owners’ Association (“POA”) offer was too low, and
- “known” the Jim Hinton appraisal was too low and unreliable.

The Plaintiffs seek to have this Court impose on the Directors an unbelievably heightened, micromanaging standard regarding Director responsibilities and liability, contrary to Texas law. There is no valid reason the Directors could not rely on certified appraisals and previous offers; on opinions of the WOWSC general manager, George Burriss; on opinions of realtors and other professionals; and even on each other in believing they had received a good offer.

- The Plaintiffs complain about WOWSC defending itself and its Directors against the Plaintiffs’ serial litigation. The Plaintiffs and their friends have now filed or intervened in four proceedings against WOWSC—this suit, the previous Texas Open Meetings Act (“TOMA”) suit, a rate proceeding at the PUC, and a Public Information Act proceeding (to require WOWSC to produce unredacted versions of the WOWSC’s and Directors’ counsel’s legal invoices in this litigation). The Plaintiffs’ website boasts about their many lawsuits against WOWSC and its Directors, which are causing WOWSC’s legal fees. <https://integritynow1.net/>.⁴
- The Plaintiffs incredibly suggest that, even though the Directors have sat for more than 40 hours of depositions and produced (along with Friendship and WOWSC) thousands of pages of written discovery, “the Plaintiffs have not yet had an opportunity to explore” purported inconsistencies between the board meeting recordings and deposition testimony. Response at 37. The Plaintiffs surely know that any inconsistencies are minor and are due to the Original Transaction happening

⁴ The Public Information Act suit was originally brought by WOWSC to protect the attorney-client privilege in response to Danny Flunker’s repeated public information requests for unredacted attorney invoices. This suit had been settled with the Attorney General until Danny Flunker, represented by the same counsel as the Plaintiffs, intervened in the public information suit and kept it going. The Directors mention this for the Court’s information, but it is not material to the Directors’ Motion.

more than five years ago.⁵ The Plaintiffs surely know that many of the Directors who served on the 2015 Board are older individuals who did their best during deposition to remember details that occurred years ago (the Plaintiffs have attached several of the Directors' full deposition transcripts to their Response). The Plaintiffs also surely know that even if some Directors might not now remember every detail, their overall account of what happened and why they did what they did has never changed. Memories regarding details fade, but the recordings and documents produced to the Plaintiffs provide contemporaneous evidence of precisely what happened and why the Boards did what they did. And the Directors' declarations and deposition testimony are consistent with those recordings and minutes.

- The Plaintiffs baldly misrepresent that WOWSC never appraised the property, nor surveyed it before it was sold. This is demonstrably false under this record. Stewart Watson surveyed the land in September 2014, and Jim Hinton appraised the property in September 2015 (and previously Curt Friedland appraised the property). These occurred before it was sold. Directors' Supplemental Evidence in Support of Motion filed Feb. 19, 2021 ("Supplemental Evidence") at Exhibit 16, pp. 12-13; *id.* at Exhibit 20, pp. 3-4; Response at Exhibit 3, pp. 155-57; Motion at Exhibits 8-N, 8-Q.⁶ That the Plaintiffs do not agree with the Hinton or Friedland appraisals does not equate to not appraising the property. In any event, the Plaintiffs do not cite any law mandating a property owner must appraise and survey land before selling it, and the Directors are aware of none.
- The Plaintiffs concede that WOWSC took the \$200,000 it netted from the Original Transaction to pay down its debt incurred for building the new wastewater treatment plant. Response at 52; *see, e.g.*, Supplemental Evidence at Exhibit 15-D.

B. The business judgment rule and statutory safe harbor provisions shield the Directors from personal liability.

The Plaintiffs do not dispute that it is *their* burden to overcome the business judgment rule and "safe harbor" provisions in the Business Organizations Code, which immunize the Directors from personal liability. *See, e.g., Burns v. Seascope Owners Ass'n, Inc.*, No. 01-11-00752-CV,

⁵ For instance, they pick that Bill Earnest testified that he had attended Danny Flunker's birthday party the day of the December 19, 2015 meeting, when the meeting was in the morning and the party at night. That he might have not remembered that the meeting he missed was in the morning rather than the evening five years ago is immaterial. They point to Bob Mebane not remembering the name of the realtor he spoke to before the 2015 land sale (Doris Van Trease) during his deposition. The board meeting recordings indicate he spoke to Doris Van Trease one time five years ago. Not remembering her name five years later is hardly evidence of a lie.

⁶ The Plaintiffs also do not inform the Court that the September 2014 Watson survey of the land was produced by the Directors and WOWSC in discovery. MULLIGAN000197; WOWSC000811.

2012 WL 3776513, at *9 (Tex. App.—Houston [1st Dist.] Aug. 30, 2012, no pet.); *Priddy v. Rawson*, 282 S.W.3d 588, 594-95 (Tex. App.—Houston [14th Dist.] 2009, pet. denied); *In re Estate of Poe*, 591 S.W.3d 607, 641 (Tex. App.—El Paso 2019, pet. filed). The Plaintiffs have produced no evidence meeting their high burden. In fact, the evidence establishes the opposite.

The Business Organizations Code safe harbor provisions provide that a director (or officer) of a nonprofit:

is not liable to the corporation, a member, or another person for an action taken or not taken as a director if the director acted in compliance with this section. A person seeking to establish liability of a director must prove that the director did not act:

- (1) in good faith;
- (2) with ordinary care; and
- (3) in a manner the director reasonably believed to be in the best interest of the corporation.

TEX. BUS. ORGS. CODE § 22.221; *see also id.* § 22.235; *Burns*, 2012 WL 3776513, at *9. A **plaintiff** must prove **all three** of these elements to overcome these safe harbors—not just one of them.

Similarly, the business judgment rule immunizes a director from liability for acts that are within the honest exercise of his or her business judgment and discretion. *Sneed v. Webre*, 465 S.W.3d 169, 178 (Tex. 2015). “In Texas, the business judgment rule protects corporate officers and directors from being held liable to the corporation for acts that are negligent, unwise, inexpedient, or imprudent if the acts were within the exercise of their discretion and judgment in the development or prosecution of the enterprise in which their interests are involved.” *Id.* at 178 (internal quotations and citations omitted). Contrary to what the Plaintiffs claim, Texas courts (including binding Austin Court of Appeals’ precedent) have concluded that the business judgment rule protects even acts of **gross negligence**. *See, e.g., Roels v. Valkenaar*, No. 03-19-00502-CV, 2020 WL 4930041, at *9 (Tex. App.—Austin Aug. 20, 2020, no pet.); *Chapman v. Arfeen*, No.

09-16-00272-CV, 2018 WL 4139001, at *15 (Tex. App.—Beaumont Aug. 30, 2018, pet. denied).⁷

“Texas courts to this day will not impose liability upon a non-interested corporate director unless the challenged action is ultra vires or tainted by fraud....” *Gearhart Indus., Inc. v. Smith Int’l, Inc.*, 741 F.2d 707, 721 (5th Cir. 1984).

The Plaintiffs lodge various complaints about the Original Transaction—that it was not for enough money, that the 2015 Board did not sufficiently market the property, that Martin was an interested director, that the 2015 Board violated TOMA, and that WOWSC’s corporate resolution approving the transaction was improper. Each purported act of mismanagement the Plaintiffs allege, if true, at most constitutes negligence. The 2019 Board then attempted to “clean up” some of the mistakes in the Original Transaction with the 2019 Transaction, which superseded the Original Transaction. The Plaintiffs’ complaint about the 2019 Transaction, which undisputedly was not tainted by TOMA violations, is less clear. For both Boards and transactions, there is no evidence the Directors engaged in “ultra vires” or “fraudulent” activities that might overcome the business judgment rule. And there is no evidence the Directors did not act in good faith, with ordinary care, or in a manner they reasonably believed to be in the best interest of the corporation.

1. The Original Transaction (2015 Board)

Bill Earnest

At the outset, the Plaintiffs concede that Bill Earnest did not vote on the Original Transaction. The Plaintiffs suggest—without evidence—that Earnest somehow deliberately missed the December 19, 2015 meeting because he did not want to participate in the vote. Regardless of why Earnest was not there or where he was at the time, he was not there. Motion at

⁷ The Plaintiffs rely on a 1993 federal district court case attempting to apply Texas law that stated the business judgment rule does not protect against gross negligence. Response at 66 n.290. More recent Texas cases—including binding precedent from the Austin Court of Appeals—state the opposite.

Exhibit 5, ¶ 9; *id.* at Exhibit 8-F; Supplemental Evidence at Exhibit 20. He cannot be held personally liable for the Original Transaction when he did not even participate in the vote. *See* TEX. BUS. ORGS. CODE § 20.002(c) (referring to “acts” or “transfers”).

Dana Martin

Dana Martin did not participate in the vote on the Original Transaction either. Motion at Exhibit 1, ¶ 4; *id.* at Exhibit 8-F; Supplemental Evidence at Exhibit 20, p. 70. As explained below, the Original Transaction was an interested director transaction that complied with Business Organizations Code section 22.230 (a separate safe harbor provision for interested director transactions). Section 22.230 would not exist if a director is precluded from even making an offer to do business with the corporation on whose board the director sits. The three disinterested Directors (Mike Madden, Bob Mebane, and Pat Mulligan) did not have to accept Friendship’s offer, but they chose to do so because they believed it was a good one. Supplemental Evidence at Exhibits 15-E (WOWSC002223), 20; Motion at Exhibits 2-4. It is unclear why the Plaintiffs believe that an interested director who recuses herself from a transaction vote that is then approved by disinterested directors can be personally liable for the transaction.⁸ *See* TEX. BUS. ORGS. CODE § 22.230(b)(1).

Bob Mebane, Mike Madden, and Pat Mulligan

Bob Mebane’s, Mike Madden’s, and Pat Mulligan’s reasoning behind their decision to approve the Original Transaction on behalf of WOWSC has never wavered since the time of the

⁸ Additionally, to the extent the Plaintiffs seek on behalf of WOWSC to hold Martin liable, the WOWSC, then, would be in breach of its agreement releasing Martin from any claims related to the Original Transaction or anything regarding the land sale. Motion at Exhibit 8-X, art. III, § 2. As explained in the Motion and below, the Plaintiffs do not have standing or capacity to bring claims on behalf of WOWSC, and WOWSC has not brought claims against Martin. And regardless, the Plaintiffs’ claims fail on the merits as a matter of law. But if the Plaintiffs truly may bring claims on behalf of WOWSC against Martin, WOWSC would be in breach of the 2019 Transaction.

Original Transaction. Mebane's declaration and deposition testimony explain that he talked with various developers and realtors about the airport property and its worth. Motion at Exhibits 2, 10. He believed, based on those conversations, that Friendship made a good offer that was in the best interest of the corporation to accept. *Id.* The recording of the December 19, 2015 meeting—and meetings before that—back up his account of the events. Supplemental Evidence at Exhibits 17-20. Mebane reported his conversations with real estate professionals to the 2015 Board at the October 31, 2015 meeting. *Id.* at Exhibit 18. It was at the October 31, 2015 meeting that the Board, based on Mebane's conversations with developers and realtors (including Doris Van Trease), decided it financially made the most sense to sell only the portion of the property on Piper Lane rather than the entire tract. *Id.* at Exhibit 18. If someone developed the front part of the property and WOWSC retained an easement to the back part, then the front development could improve the value of the back lot. *Id.* at Exhibit 18; *see also id.* at Exhibit 17, pp 8-9; *id.* at Exhibit 15-E (WOWSC002231).

WOWSC had received previous, lower offers for the property, including from Frank Greenburg, William Keller, the Windermere Oaks POA, and the Spicewood Pilots Association. Motion at Exhibits 2-4, 8-D, 8-E, 8-FF; Supplemental Evidence at Exhibits 14-B, 14-C. Mike Madden relied on Mebane's recitation of his conversations, appraisals of the property, and some of these previous offers. Motion at Exhibit 4; Response at Exhibit 5, pp. 17-19, 23-25, 35-37, 45-48. Pat Mulligan likewise considered these previous offers, and Mebane, Madden, and Mulligan discussed some of these offers at the December 19, 2015 meeting. Motion at Exhibit 3; Supplemental Evidence at Exhibit 15-E (WOWSC002223); *id.* at Exhibit 20, pp. 42, 50. WOWSC

possessed appraisals for the property performed by Jim Hinton⁹ and Curt Friedland before the December 19, 2015 meeting. Motion at Exhibits 8-N, 8-Q.

Mebane, Madden, and Mulligan did have concerns the Hinton appraisal came out lower than they believed the land was worth based on their understanding of previous offers and sales at the Spicewood Airport. Supplemental Evidence at Exhibit 17. But they did not sell the land for the amount appraised by Hinton. Motion at Exhibits 8-G, 8-N. Mebane, Madden, and Mulligan knew some people might be upset if WOWSC sold the land to Martin's company (Friendship) because "[t]here's people in the community that don't like Dana," and they were concerned it would be perceived as a "sweetheart deal." Supplemental Evidence at Exhibit 20, pp. 37, 57. They considered rejecting the offer and putting the land up for sale for 90 days instead and then, if it did not sell, going back to Friendship. *Id.*, pp. 37-40, 44, 53-55, 59-60. But ultimately, they believed it was in the best interest of WOWSC *and* the community to sell the land to Friendship rather than an outside developer who might not care about the impact of the development on the neighborhood. *Id.*, pp. 48-49, 57-58, 64-65. And because WOWSC had never received such a good offer for the land, they were concerned that if they rejected Friendship's offer and put the land up for sale for 90 days unsuccessfully, they would not receive such a good offer from Friendship again. Supplemental Evidence at Exhibit 14-B; *id.* at Exhibit 20, pp. 39-63. In short, they believed a \$200,000 net profit for the 4.3 acres was a good price based on all the information they had before them. Motion at Exhibits 2-4; Supplemental Evidence at Exhibit 15-E, WOWSC002230 (at December 7, 2015 board meeting, board discussed selling four of the eleven acres for \$200,000)

⁹ In their Response, the Plaintiffs complain that one of the Directors, Bill Earnest, filed a complaint against the Plaintiffs' preferred appraiser, David Bolton, with the Texas Appraisal Licensing & Certification Board. They neglect to mention the regulatory complaints that they or their allies on their behalf have made against Jim Hinton (with the Texas Appraisal Licensing & Certification Board), Martin (with the Texas Real Estate Commission), and even WOWSC's former counsel Les Romo (with the State Bar of Texas) in connection with this dispute.

and WOWSC002233 (at April 6, 2015 meeting, board discussed selling entire 11-acre tract for at least \$350,000); *id.* at Exhibit 18, p. 19; *id.* at Exhibit 20; Response at Exhibit 3, pp. 50-51, 55 (Mulligan testifying Board believed the entire 11-acre tract was worth \$250,000-\$350,000); *id.* at Exhibit 5, pp. 16-17; *id.* at Exhibit 11, pp. 23-34, 54. The 2015 Board was then able to take the \$200,000 in proceeds from the sale and pay down the wastewater treatment plant loan. Motion at Exhibits 2-4; Response at Exhibit 11, pp. 57-58; Supplemental Evidence at Exhibit 15-D.

The Plaintiffs appear to argue that the 2015 Board could not reasonably rely on *any* of the information they had before them in December 2015. The Plaintiffs claim that the Hinton and Friedland appraisals were too low and unreliable and that the previous offers WOWSC had received for the land were somehow invalid. They seem to believe the Directors were precluded from doing anything short of marketing the property with a realtor, even though no law or provision of the WOWSC governing documents requires this. The heightened standard the Plaintiffs would have this Court impose on the 2015 Board is absurd and completely contrary to Texas law. The 2015 Board was statutorily entitled to rely on the advice of persons with professional expertise as an element of the safe harbor statutes and business judgment rule. TEX. BUS. ORGS. CODE § 3.102. The WOWSC bylaws similarly provide that its Directors may rely on professional advice and opinion. Motion at Exhibit 8-B, ¶ 19. Therefore:

- The 2015 Board could rely on WOWSC's attorney, Mark Zeppa, who had advised that WOWSC could sell its land without obtaining bids and could contract with a board member so long as that board member did not vote on the contract.¹⁰ Motion at Exhibits 2-4; Supplemental Evidence at Exhibit 4-A. Notably, sometime after the Original Transaction, Zeppa directly advised Mebane that the 2015 Board had done

¹⁰ The Plaintiffs claim Mark Zeppa was actually just advising a third party, Malcolm Bailey. In fact, Zeppa's email advice was also directed to Mulligan, who was then president of WOWSC. Supplemental Evidence at Exhibit 14-A. There is no dispute that Mark Zeppa was WOWSC's lawyer for many years. His name shows up throughout the summary judgment record.

nothing wrong in approving the Original Transaction. Supplemental Evidence at Exhibit 13-A.¹¹

- The 2015 Board could rely on the appraisals they had received and former offers for the property, outlined above.
- The 2015 Board could rely on each other in making their decisions.
- The 2015 Board could rely on the advice of WOWSC's long-time general manager, George Burriss, who attended all of the Board meetings and urged the Board that Friendship's offer was a good one they should accept. Supplemental Evidence at Exhibit 20, pp. 41-43, 55; *see also* Motion at Exhibit 8-B, art. 9, ¶ 7 (authorizing WOWSC to hire general manager); Response at Exhibit 23 (attaching "Manager's Report" by George Burriss); *id.* at Exhibit 9, p. 8.

See Young v. Heins, No. 01-15-00500-CV, 2017 WL 2376828, at *10 (Tex. App.—Houston [1st Dist.] June 1, 2017, pet. denied) (safe harbor statute protected directors who relied on advice of counsel and expertise of property management company in carrying out their duties); *In re Life Partners Holdings, Inc.*, No. DR-11-CV-43-AM, 2015 WL 8523103, at *15-16 (W.D. Tex. Nov. 9, 2015) (directors were entitled to rely on professional analyses, and not consulting legal counsel does not show bad faith); *Priddy*, 282 S.W.3d at 597 (board could rely on information provided by previous boards to enjoy safe harbor immunity).

None of this evidence is in dispute. Instead, the Plaintiffs try to distract with suspicion and intrigue and ask this Court to stack inference upon inference to somehow conclude there is evidence of bad faith. But as the Texas Supreme Court has explained: "[S]ome suspicion linked to other suspicion produces only more suspicion, which is not the same as some evidence. We have also said that an inference stacked only on other inferences is not legally sufficient evidence." *Marathon Corp. v. Pitzner*, 106 S.W.3d 724, 727-28 (Tex. 2003). And to show bad faith, the

¹¹ The Plaintiffs attach as evidence a memo from Mark Zeppa to Mebane dated December 29, 2016, discussing the Original Transaction. Response at Exhibit 85. As the Plaintiffs are aware, after Zeppa was provided minutes of the December 19, 2015 board meeting and executive session, he revised his opinion in the January 3, 2017 opinion letter. Supplemental Evidence at Exhibit 13-A.

Plaintiffs are required to show “*scienter* on the part of the defendant director.” *Life Partners Holdings*, 2015 WL 8523103, at *14 (emphasis added).

A review of the board meeting transcripts¹² (or actual recordings if the Court prefers) and meeting minutes tells the entire story of why the 2015 Board chose to sell the 4.3 acres to Friendship. And nothing in this evidence demonstrates bad faith or that the 2015 Board did not reasonably believe they were acting in the best interest of the corporation. *See* Supplemental Evidence at Exhibit 14-B (email exchange among Mebane, Madden, and Mulligan in February 2017—long before they were sued—describing the December 19, 2015 meeting and confirming among themselves that they had made a “strong ethical business decision” in the Original Transaction). At most, any flaws with the Original Transaction and how it was entered would constitute negligence. As a matter of law, the Directors cannot be found liable for negligence or even gross negligence under the business judgment rule or safe harbor provisions.¹³

2. The 2019 Board

The Plaintiffs claim for damages against the 2019 Board (Joe Gimenez, Dorothy Taylor, Mike Nelson, and Bill Earnest) is puzzling. Their complaint against the 2019 Board seems to center

¹² The Plaintiffs do not seem to like the certified transcripts of the board meetings that the Directors’ counsel had prepared. Every transcription by a court reporter might contain some typographical mistakes, but any mistakes here are minor. The Directors’ counsel had a neutral court reporter at Veritext transcribe the board meetings for the convenience of the Court and parties, to ensure the board meetings remain part of the record and are not lost (including if the case is appealed), and so the Court knows who said what. Certainly, if the Court or Plaintiffs prefer, they can listen to the actual recordings instead. The Directors have provided this Court with links to the actual recordings produced by WOWSC in this suit, and they are part of the evidence in this case. Supplemental Evidence at Exhibit 15, ¶ 4; *id.* at Exhibit 15-E.

¹³ The Plaintiffs suggest, without briefing, that the 2015 Board “exposed the WSC to a claim by Friendship that the WSC must dedicate land for drainage facilities in the future.” Response at 47-48. This is pure speculation, and there is no evidence anyone, including Friendship, is contemplating a claim against WOWSC related to drainage. They cite to an Exhibit 13 (the Friendship corporate representative deposition), but there is no Exhibit 13 attached to their Response. At the Friendship deposition, however, Martin did not state what the Plaintiffs suggest. *See* Friendship Deposition, pp. 42-49. Martin testified Friendship did *not* acquire some sort of easement or rights to WOWSC’s remainder tract for drainage. *Id.*, pp. 49-50.

on (1) the 2019 Board settling with Friendship and Martin rather than filing suit, (2) the 2019 Transaction correcting the deed mistake in the Original Transaction to include Piper Lane, and (3) the 2019 Board approving the advancement of legal expenses to sued Directors (and, it seems, even having WOWSC defend itself against the Plaintiffs' claims). The Plaintiffs do not attempt to explain how the 2019 Board somehow did not act in good faith or in a manner they reasonably believed was in the best interest of the corporation, and they certainly do not explain how the 2019 Board acted ultra vires or fraudulently.

a. Settling Rather than Suing

The Plaintiffs do not cite even one case in which a director was held personally liable for a litigation strategy or decision made on behalf of the corporation. None exists. The business judgment rule and safe harbor provisions soundly protect directors from liability for litigation decisions made on behalf of the company. *See, e.g., Sneed*, 465 S.W.3d at 178 (“The business judgment rule ... applies to protect the board of directors’ decision to pursue or forgo corporate causes of action.”). For reasons outlined in their declarations (and confirmed in their deposition testimony), the 2019 Board chose to settle with Friendship rather than pursue claims because they believed that was in the corporation’s best interest. Motion at Exhibits 5-8; Response at Exhibit 9, pp. 78-79; *id.* at Exhibit 10, pp. 10-14, 47-48; *id.* at Exhibit 12, pp. 130-33.

Mike Nelson believed pursuing litigation to recover the land would cost WOWSC significant amounts and open it up to countersuits by Friendship and the title company. Motion at Exhibit 8; Response at Exhibit 10, pp. 15-18, 44-46, 48-49, 70-71. He was concerned that it would tarnish WOWSC’s reputation and the value of WOWSC’s other real estate if the corporation attempted to walk back on its real estate transactions. Response at Exhibit 10, pp. 44-45. Nelson was also disappointed by the Bolton appraisal for several reasons, including that it did not consider

the land sold was raw land that needed to be fully developed. Motion at Exhibit 8, ¶ 6.¹⁴ Bill Earnest believed it unlikely a suit against Friendship and Martin would be successful, and he had concerns about the Bolton appraisal, including that it was an outlier compared to other valuations of the land. *Id.* at Exhibit 5, ¶ 10. Joe Gimenez understood that a lawsuit path would be very costly, with no guarantee of success. *Id.* at Exhibit 6, ¶¶ 6, 9-10. He also questioned the Bolton appraisal because Bolton had been supplied information by the Plaintiffs. *Id.*, ¶ 7. Gimenez believed the 2015 Board had done their due diligence, and he spoke with them to confirm what they had done before selling the property. *Id.*, ¶ 8. Dorothy Taylor had concerns about the Bolton appraisal because it was an outlier compared to all the previous offers WOWSC had received for the land. Motion at Exhibit 7, ¶ 9. Taylor hoped that the 2019 Transaction, which cleaned up some of the issues with the Original Transaction, would stop the Plaintiffs' litigation and the expense it was causing WOWSC. *Id.*, ¶ 10. She also understood that a lawsuit against Friendship would cost WOWSC significant amounts of money with no guarantee of success. *Id.*

The Plaintiffs do not explain why the 2019 Board could not rely on statements by the 2015 Board regarding their due diligence or the various valuations and appraisals WOWSC had in its records. Motion at Exhibit 5, ¶ 10; *id.* at Exhibit 6, ¶ 8; *id.* at Exhibit 7, ¶ 10; *id.* at Exhibit 8, ¶ 6; Response at Exhibit 9, pp. 64-66; *id.* at Exhibit 10, pp. 10-11, 33-35; *see Young*, 2017 WL 2376828, at *10; *Life Partners Holdings*, 2015 WL 8523103, at *15-16; *Priddy*, 282 S.W.3d at 597. The Plaintiffs do not explain why the 2019 Board could not, in its business judgment based on the information before it, believe other valuations besides Bolton's were more reliable. Motion at Exhibits 5-8; Response at Exhibit 10, pp. 50-53, 56-58, 60, 65-68, 75. They do not explain why they could not rely on advice of counsel and other professionals. TEX. BUS. ORGS. CODE § 3.102;

¹⁴ Nelson's declaration contains a paragraph numbering error. This refers to the second paragraph 6.