Health Consultation

Bayside Community Concerns

Bayside, Refugio County, Texas

February 15, 2013

TEXAS Department of State Health Services

Table of Contents

Purpose and Health Issues

In response to community concerns, the Texas Department of State Health Services (DSHS), Environmental and Injury Epidemiology and Toxicology Unit (EIET), gathered residential and health information in Bayside, Texas. A summary of the concerns and our responses to those concerns are included in this report. A full list of the acronyms and abbreviations used in this report are included in Appendix A.

Background

In October 2012, DSHS Environmental and Injury, Epidemiology and Toxicology Unit (EIET) was contacted by residents of Bayside, Texas regarding health problems they felt were directly related to the city drinking water supply. Bayside is located west of Rockport in Refugio County. According to City-Data.com, the population of Bayside in 2011 was 324 [1].

In response to these concerns, DSHS staff conducted a site visit of Bayside from November 26 through 28, 2012. Staff went door-to-door, distributed flyers, and conducted a survey to collect residential demographics, individual health information, and environmental concerns.

Community Concerns and Responses

Of the 50 people surveyed 20 reported they had environmental and/or health concerns. The concerns and our responses are discussed below.

Is there an excess number of people being diagnosed with chronic kidney problems in Bayside?

During the survey, residents were asked if they had kidney problems. Of those surveyed less than 10[1] residents (approximately 14% of the total population), indicated they and/or a family member had been diagnosed with some form of chronic kidney disease. Data from the general U.S. population shows more than 30% of the population reported they had kidney problems. The percent of people from this area with self-reported kidney disease was lower than what was found in the U.S. population [2].

We have heard there may be high levels of boron in our water.

To our knowledge the drinking water for the Town of Bayside Water System has not been tested for boron. The Safe Drinking Water Act does not require public water systems to test for boron. Drinking water is likely to contain some boron since it is a common, naturally occurring substance, especially near coastal areas.

Why does our water smell like sulfur?

The sulfur or "rotten egg" odor in water may be caused by the presence of sulfate reducing bacteria in water distribution lines or water heaters or by the presence of naturally occurring dissolved hydrogen sulfide gas. Although unpleasant smelling, these bacteria pose no known health risks.

[1] Counts of 1 to 9 are expressed as <10 to protect confidentiality.

Why does our water have a metallic/salty taste?

Metallic tastes in drinking water can be due to iron or other metals dissolved in the water. Chloride ion concentrations can produce a salty taste in tap water and may result in the corrosion of piping. Although the taste may not be appealing to some, according to data obtained from the Texas Commission on Environmental Quality (TCEQ) the levels of dissolved metals found in the Bayside water pose no health risk.

Why is our water occasionally discolored?

The groundwater source for the Town of Bayside Water System is naturally high in iron, which can cause water to look reddish-orange or brown in color. It can form reddish-brown particles that can stain plumbing fixtures and laundry. The Town of Bayside Water System is currently treating the water to reduce the amount of iron. Although the amount of iron in the water may make the water look discolored, TCEQ data indicates that the levels of iron in the Bayside water poses no health risk.

Why is there sediment in the water?

Large concentrations of iron can produce iron sediment or deposits in the water. Over time sediment can accumulate in pipes. A systematic and routine hydrant flushing schedule can help keep sediment accumulation low.

Why do we have "boil water" notices so often?

Boil water notices are a safety precaution to keep public water system users informed of potential problems. The U.S. Environmental Protection Agency (EPA) requires that water suppliers notify their customers within 24 hours of violations of EPA standards. If your water has become contaminated or has the potential to become contaminated by something that may cause immediate illness, the water system must issue a boil water notice. A notice may be issued due to a water line break or when routine bacterial testing of the water shows a positive coliform test. If such a violation occurs, the water system will announce it through the media, and must provide information about the potential adverse effects on human health, steps the system is taking to correct the violation, and the need to use alternative water supplies (such as boiled or bottled water) until the problem is corrected.

Does our drinking water contain too much chlorine?

No. The addition of a disinfectant is necessary for control of microbial contaminants. Chlorine is one of the most common and effective disinfectants used in the prevention of disease transmission. According to data obtained from TCEQ, the chlorine in the Town of Bayside Water System is kept within the required levels.

Is the city water safe to drink and use?

EPA has established pollutant-specific minimum testing schedules that are required for all public water systems. If a problem with the water system is detected, immediate testing requirements go into effect along with strict instructions about how the system informs the public. Until the system can reliably demonstrate that it is free of problems, the retesting is continued. The Town of Bayside Water System must comply with these requirements. According to information obtained from TCEQ and reviewed by DSHS, the Town of Bayside drinking water is in compliance with state and federal drinking water standards.

Why do we have to replace our water heaters so frequently?

The amount of minerals in water can affect the life of your water heater. There is a valve near the base of the water heater that can periodically be opened to flush out accumulated sediment; this may prolong the life of the water heater. Easy to follow instructions on how to properly maintain your hot water heater can be found at http://www.hvac-for-beginners.com/water-heater-maintenance.html.

Are the water system operators qualified?

Yes. Water system operators in Texas must have specialized training and a license to work in a water treatment plant. The operator for the Town of Bayside Water System has a current operator license from TCEQ that is in good standing to treat groundwater. According to TCEQ licensing requirements a newly hired operator can work without a license for up to 1 year under a licensed water treatment plant operator, but they must get their operator's license within that year (http://www.tceq.texas.gov/licensing/licenses/waterlic).

What are disinfection by-products?

The establishment of disinfection of drinking water is one of many major public health advances. EPA and TCEQ require all public water systems to use disinfection agents, such as chlorine, to destroy or inactivate microbes (e.g. bacteria, viruses, parasites, or fungi) which could cause disease. However, when organic and inorganic matter in water reacts with these disinfection agents disinfection by-products are formed, which may pose health risks. It is the responsibility of the water treatment operator to maintain the amount of disinfectant used that will maximize the reduction of pathogens while minimizing the development of disinfection by-products. Because removing microbial contaminants while simultaneously protecting the public from disinfection byproducts is so important, EPA has developed regulations to limit the presence of these byproducts. For more information, see www.epa.gov/safewater/mdbp.html.

Conclusions

Based on information we received from TCEQ, all required testing has been conducted and the Town of Bayside Water System meets all federal and state standards set for a public drinking water system.

Although we only surveyed approximately 15% of the residents of Bayside, we did not see any indication of a higher than normal incidence of chronic kidney disease when compared to the U.S. population.

Recommendations

1. Water system operators should continue to monitor and maintain filtration systems to ensure proper operation.
2. Water system operators should flush all of the city water supply dead end lines on a routine basis.
3. Residents should flush accumulated sediment out of their hot water heater on a routine basis to prevent sediment build-up.
4. Residents wanting to reduce the amount of minerals in their water should consult with a private residential water treatment company.
5. For more information regarding state and federal regulations for public drinking water systems, go to: http://www.tceq.texas.gov/drinkingwater/pdw_rules.html.
6. If you have special health care needs and have concerns about your water, consider taking additional precautions with your drinking water, and seek advice from your health care provider. For more information, see www.epa.gov/safewater/healthcare/special.html.
7. For more information regarding the requirements of public notification of water systems violations and annual reports (Consumer Confidence Reports), go to: www.epa.gov/safewater/ccr.

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References

1. City-Data.com. Bayside, Texas. http://www.city-data.com/city/Bayside-Texas.html.
2. Coresh J, Astor BC, Greene T, Eknoyan G, Levey AS. Prevalence of chronic kidney disease and decreased kidney function in the adult US population: Third National Health and Nutrition Examination Survey. Am J Kidney Dis 2003;41:1--12.

Appendix A: Acronyms and Abbreviations

DSHS	Texas Department of State Health Services
EIET	Environmental and Injury, Epidemiology and Toxicology Unit
TCEQ	Texas Commission on Environmental Quality
EPA	U.S. Environmental Protection Agency