



PLAINVIEW WATER DISTRICT

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Perchlorate Fact Sheet

Introduction

The Plainview Water District has always considered protecting our water quality and quantity our top priority. Often, we explore new technology and research new issues as a proactive measure to maintaining the quality of our water supply. In the past, as a result of participating in the federal Unregulated Contaminant Monitoring Rule program, it was brought to the Water District's attention that an inorganic chemical, perchlorate, has appeared in several of our wells. The levels found in our wells have been substantially below the New York State Action Level of 18 parts per billion (ppb), established in 1998.

What is Perchlorate?

Perchlorate (ClO_4^-) is a naturally occurring and man-made anion (negatively charged ion). It is commonly found in groundwater due to the improper disposal of certain manufactured solid salts from which perchlorate disassociates. The most common of these salts are ammonium perchlorate, potassium perchlorate, and sodium perchlorate. Perchlorate is known to be extremely soluble in water, with solubility similar to common table salt. The ion is very mobile in groundwater environments and can persist for long periods of time in groundwater and surface waters as the ion does not readily volatilize.

Compounds containing perchlorate are commonly used as oxidizers, especially in the defense and aerospace industries. As an oxidizer, it is used as an explosive in missiles, fireworks, flares, certain munitions and other similar applications. Perchlorate compounds are also used in the nuclear reactor industry (perchloric acid), lubricating oil additives, tanning and finishing leather, dyes, rubber manufacturing, paints and enamels. Perchlorate is also an impurity in chemical fertilizers and agricultural chemical compounds, and is a possible impurity in other salts. Studies have shown perchlorate accumulation on some food crop leaves, tobacco plants, and in broad-leaf plants. Perchloric acid and its salts are also reported as being used in oxygen generating systems and certain medical applications.

Where is Perchlorate Found?

According to the EPA, perchlorate occurs naturally in arid states in the Southwest United States, in nitrate fertilizer deposits in Chile, and in potash ore in the United States and Canada. It also forms naturally in the atmosphere. As discussed above, perchlorate can be manufactured and used as an industrial chemical. It has also been found in some public drinking water systems and in food. Perchlorate has been detected in many drinking water supply wells across Long Island.

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Why is Perchlorate a Concern?

Data on the health effects of perchlorate, particularly those due to ingestion of low concentrations over a lifetime, are very limited. According to recent health studies, perchlorate has the potential to impact the thyroid gland as it has shown to partially inhibit the thyroid's uptake of iodine. The precise levels linked to these effects have not been determined now.

What are the water quality standards for Perchlorate and at what levels has it been found?

The New York State Department of Health (NYSDOH) Action Level for perchlorate requires Public Notification when perchlorate is found greater than 18 ppb, and requires large water suppliers to report findings in their Annual Water Supply Statements. The Action Level reflects the known effects of perchlorate on the thyroid relating to its medical use. Long-term human health effects studies on the consumption of small quantities of perchlorate are being evaluated by the scientific community as part of EPA's development of regulation, discussed above.

It should be noted that perchlorate levels found in Plainview Water District supply wells during most recent sampling range from below detection limits to a maximum of 5.49 ppb. The maximum detected concentration of 5.49 ppb is 70 percent below the NYSDOH 18 ppb action level.

What action is the Plainview Water District taking?

When initially detected, the District brought this issue to the attention of the EPA, the New York State Department of Health and the Nassau County Department of Health. In addition, we are working closely with these agencies in evaluating whether guidelines should be established to monitor perchlorate in the water supply and examine any potential health risk.

We are committed to working with state and federal agencies to place very strict standards on the books and to ensure that they conduct the proper research necessary to better determine if there is a health risk in consuming water containing perchlorate. We will continue to monitor our wells and study various treatment alternatives available to us to reduce the current levels of perchlorate in our water supply.

For further information on perchlorate and our drinking water supply, feel free to contact the Plainview Water District at (516) 931-6469 or visit our website at www.plainviewwater.org

Below is a link to the Technical Fact Sheet on the EPA's Website with regard to Perchlorate:

https://www.epa.gov/sites/production/files/2017-10/documents/perchlorate_factsheet_9-15-17_508.pdf