# Stars over Sisters

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Correspondents

There is a variety of astronomical objects to observe during the month of May. One of the constellations visible is Virgo, which can be seen between April and July. Virgo is depicted as a woman carrying wheat and a staff lying down with her head toward the east.

The constellation takes up 1,294 square degrees of the celestial sphere, making it the second largest constellation in the night sky (Hydra is the largest). The brightest star in Virgo is Spica, Latin for "ear of corn." Spica is also known as Alpha Virginis. It is the sixteenth brightest star in the night sky and is classified as a blue giant. East of the left arm of Virgo is a cluster of over three thousand galaxies, none of which are visible with the naked eye.

Located some 60 million light-years from the earth, spiral galaxy NGC 4388 lies within this massive galaxy cluster and as a result strong gravitational effects are transforming it in a non-standard manner. While the galaxy's outskirts appear smooth and featureless, typical of an elliptical galaxy, its center displays remarkable dust lanes where new stars are being formed. This condition is just the opposite of that found in normal spiral galaxies.

In Greek and Roman mythology, Virgo is a powerful female figure. Virgo is the only zodiacal constellation represented by a female. She is the goddess of wheat and agriculture. Virgo is sometimes depicted as goddess Lusatia or Astrea holding the scales of justice.

Adjacent to Virgo is the relatively small and faint constellation of Crater. Crater means "the cup" in Latin. It is only the 53rd largest constellation in size. Additional neighboring constellations include Corvus, Hydra and Leo. In Greek mythology, Crater represents the cup of powerful deity Apollo. It belongs to the Hercules family of constellations.

According to the story, Apollo needed water to make a sacrifice. He sends a raven (Corvus) to go fetch water for him in a cup (Crater). While the raven is getting the water, he becomes distracted by a fig tree and spends a few days there eating figs. When the raven finally brings Apollo the water, he also brings a water snake (Hydra) as an excuse for being late. Apollo was quick to realize that the raven was lying and out of anger sends the raven, the water snake, and the cup into the sky.

By May, Jupiter has already passed its maximum brightness but still shines prominently at nightfall. The giant planet is visible nearly the entire night, setting only an hour and 25 minutes before the sun rises at mid-month. On May 17 Mercury will be at its greatest western elongation. This is the best time to view Mercury low in the eastern sky just before sunrise.

On the night of May 6 and the morning of May 7 the Eta Aquariids Meteor shower will occur. This shower is capable of producing 30 meteors per hour. Unfortunately, the light from a waxing gibbous moon this time around will mask many of them.

The new moon will occur on May 25, providing the best time of the month to observe faint objects like galaxies and star clusters.

Something to keep in mind while stargazing is light pollution. Light pollution is a growing issue all over the world. It is excessive and unneeded use of light that affects our ability to see astronomical events. Central Oregon is far from the worst offenders compared to big cities, but we should always strive to minimize our light usage. To cut down on light pollution, only use light where and when you need it, using fully shielded lamps that direct light only to the needed areas. Do all you can to protect our dark skies here in Central Oregon.

On the evening of Saturday, May 20, the Sisters Astronomy Club will host a public starwatch at the Sisters Park & Recreation District building, adjacent to Sisters High School. After a brief astronomy-related presentation, local amateur astronomers will invite the general public to view prominent celestial objects through their telescopes.

Proceedings begin at 9 p.m. and the event is free. Contact Ron Thorkildson at 541-549-8846 for more information.

PHOTO COURTESY NASA

**NGC 4388 is a spiral galaxy located at a distance of 60 million light-years in the constellation of Virgo.**

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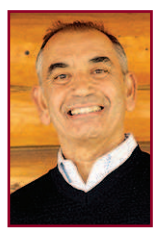

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## Black Butte Ranch Water Distribution Company

**Annual Water Quality Report 2016**

January 1, 2016 - December 31, 2016

This is the 2016 Black Butte Ranch Water Distribution Company (BBRWDC) Consumer Confidence Report (CCR).

BBRWDC routinely monitors your drinking water, which is derived solely from ground water sources, for certain constituents. We have no quality violations and our water quality meets, or is better than, state and federal standards. The United States Environmental Protection Agency (EPA) prescribes regulations, which limit the amount of certain constituents in water. All drinking water, including bottled drinking water, may reasonably be expected to contain at least small amounts of some constituents. It is important to remember that the presence of these constituents does not necessarily pose a health risk. More information about water constituents and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers.

*Table one* shows monitoring results from January 1, 2016, to December 31, 2016, or the date of the last test for a particular constituent. Your water is tested for 80 organic, 16 inorganic, microbial, and radiological constituents. Only those, which were detected in your water within the last five years, are included in *table one.*

In *table one* you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:

*Parts per million (PPM) or Milligrams per liter (mg/l)* - one part per million corresponds to one minute in two years or a single penny in $10,000.
*Parts per billion (PPB) or Micrograms per liter* - one part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.
*Picocuries per liter* – (pCi/L) is a measure of radioactivity.
*Action Level* (*AL*) - the concentration of a contaminant, which if exceeded, triggers treatment or other requirements, which a water system must follow.
*Maximum Contaminant Level* - the "Maximum Allowed" (MCL) is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
*Maximum Contaminant Level Goal* - the "Goal" (MCLG) is the level of a contaminant in drinking water, below which, there is no known or expected risk to health. MCLGs allow for a margin of safety.
*Non Detected* – (ND) NO trace of contaminant present.

**TEST RESULTS**

| Contaminant | Violation Y/N | Level Detected | Unit Measurement | MCLG | MCL | Likely Source of Contamination |
|---|---|---|---|---|---|---|
| **Inorganic Contaminants** | | | | | | |
| **Nitrate (as Nitrogen)** | | | ppm or mg/L | 10 | 10 | Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits |
| Well #1 tested: 3/2/16 | N | 0.08 | | | | |
| Well #2/5 tested: 3/2/16 | N | 0.07 | | | | |
| Well #3 tested: 3/2/16 | N | 0.08 | | | | |
| Well #4 tested: 3/2/16 | N | 0.06 | | | | |

The 2016 Nitrate analysis results (level detected) in the water as shown in the table above are well below the 10 ppm allowable limit. The results are essentially non -detect.

MCLs are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Black Butte Ranch Water Company is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to two minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at *www.epa.gov.safewater/lead.*

The 1996 Amendments to the Safe Drinking Water Act require that all states conduct source Water Assessments for public water systems within their boundaries. The assessments consist of (1) identification of the Drinking Water Protection Area, i.e., the area at the surface that is directly above that part of the aquifer that supplies groundwater to our wells, (2) identification of potential sources of pollution within the Drinking Water Protection Area, and (3) determining the susceptibility or relative risk to the well water from those sources.
The purpose of the assessment is to provide water systems with the information they need to develop a strategy to protect their drinking water resource if they choose.
The respective Drinking Water Programs of the Departments of Human Services and Environmental Quality have completed the assessment for our system. A copy of the report is on file at the water system's office.

Source water protection tips

Protection of drinking water is everyone's responsibility. You can help protect your community's drinking water source in several ways:

- Eliminate excessive use of lawn and garden fertilizers and pesticides. They contain hazardous chemicals that can reach your drinking water source.
- Dispose of chemicals properly.
- Pick up after your pets.
- Have all backflow devices on your property checked annually as required by law.

Semiannual Water Board meetings are held in June at the section five maintenance/housekeeping building and in November after the meeting of the BBRA Board of Directors. Jeff Curtis is the Water Board Chairperson. If you have any questions concerning this report or the water system feel free to contact the Utilities Manager, Swen Petterson at 541-595-1280.

Jeff Curtis
BBRWDC Chairperson

Swen Petterson
Utilities Manager