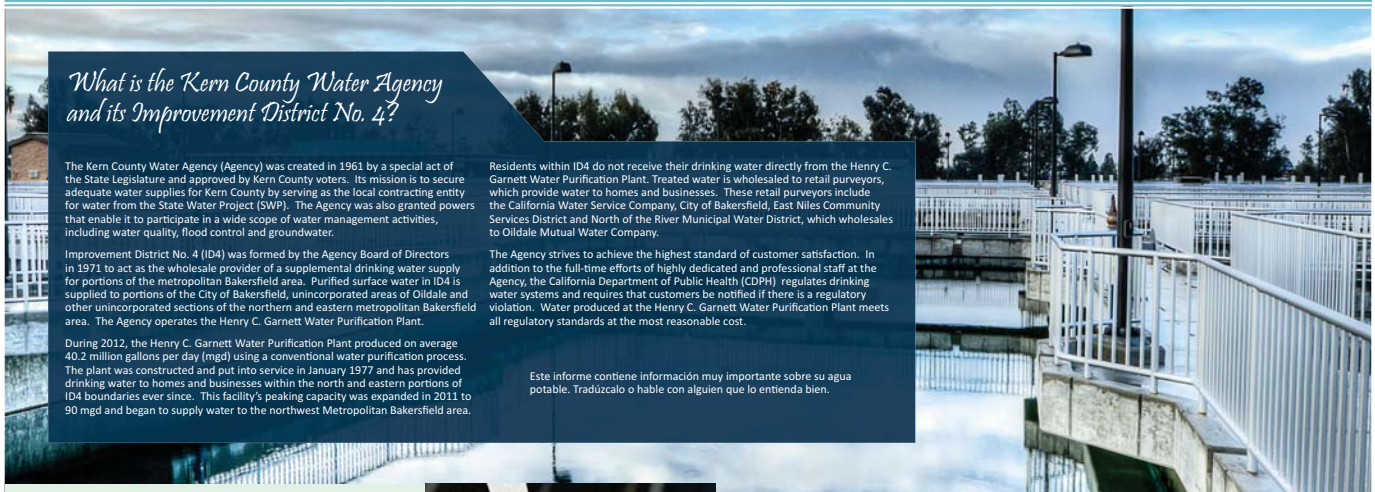
# Water Quality Report: 2012



## What is the Kern County Water Agency and its Improvement District No. 4?

The Kern County Water Agency (Agency) was created in 1961 by a special act of the State Legislature and approved by Kern County voters. Its mission is to secure adequate water supplies for Kern County by serving as the local contracting entity for water from the State Water Project (SWP). The Agency was also granted powers that enable it to participate in a wide scope of water management activities, including water quality, flood control and groundwater.

Improvement District No. 4 (ID4) was formed by the Agency Board of Directors in 1971 to act as the wholesale provider of a supplemental drinking water supply for portions of the metropolitan Bakersfield area. Purified surface water in ID4 is supplied to portions of the City of Bakersfield, unincorporated areas of Oildale and other unincorporated sections of the northern and eastern metropolitan Bakersfield area. The Agency operates the Henry C. Garnett Water Purification Plant.

During 2012, the Henry C. Garnett Water Purification Plant produced on average 40.2 million gallons per day (mgd) using a conventional water purification process. The plant was constructed and put into service in January 1977 and has provided drinking water to homes and businesses within the north and eastern portions of ID4 boundaries ever since. This facility's peaking capacity was expanded in 2011 to 90 mgd and began to supply water to the northwest Metropolitan Bakersfield area.

Residents within ID4 do not receive their drinking water directly from the Henry C. Garnett Water Purification Plant. Treated water is wholesaled to retail purveyors, which provide water to homes and businesses. These retail purveyors include the California Water Service Company, City of Bakersfield, East Niles Community Services District and North of the River Municipal Water District, which wholesales to Oildale Mutual Water Company.

The Agency strives to achieve the highest standard of customer satisfaction. In addition to the full-time efforts of highly dedicated and professional staff at the Agency, the California Department of Public Health (CDPH) regulates drinking water systems and requires that customers be notified if there is a regulatory violation. Water produced at the Henry C. Garnett Water Purification Plant meets all regulatory standards at the most reasonable cost.

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

## What is in drinking water?

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk.

## Where do residents of ID4 get their drinking water?

ID4 has entitlement to 82,946 acre-feet (af) of SWP water through the Agency's contract with the California Department of Water Resources (DWR). This SWP water comes from northern California and is exchanged whenever possible with local water districts for Kern River water. These exchanges are beneficial to ID4 due to the Kern River's usually superior water quality compared to the SWP water. The Henry C. Garnett Water Purification Plant has also processed water from the Central Valley Project (Friant-Kern Canal) acquired through exchange and local groundwater sources in the past. During 2012, the Henry C. Garnett Water Purification Plant treated 22,958 af of Kern River water acquired by exchange and 22,272 af of SWP water.

## Sanitary Surveys of the ID4 Water Sources

ID4 has participated with DWR in the development of the SWP sanitary survey. First completed in 1996, this study is conducted not only to ensure watershed management compliance, but also to provide continuous monitoring and surveillance necessary to reduce or eliminate real or potential water quality risks. An update of this survey was completed in 2011.

Similarly, ID4 participated in the sanitary survey of the Friant-Kern Canal and upper San Joaquin River watersheds. This survey was completed in 1998. An update of this survey was completed in 2009.

ID4 began its own survey of the Kern River watershed in 1992 and submitted the final draft to CDPH in 1997. An updated survey for the Kern River watershed was completed in 2000, 2005 and 2010. This continually evolving study monitors the Kern River for activities that can affect water quality and quantity. Of particular interest for ID4 are those items or practices that can degrade water quality. ID4 has been successful in coordinating its efforts with those of the California Water Service Company, City of Bakersfield, Kern County Department of Parks and Recreation, U.S. Bureau of Land Management, U.S. Forest Service and numerous other entities regarding the Kern River.

ID4 completed the first sanitary survey of the Cross Valley Canal (CVC) in 2000. An updated survey was completed in 2005. The CVC is a vital link for ID4 to the SWP, Friant-Kern Canal and groundwater banking projects.

## Source Water Assessment

In April 2003, CDPH completed a Source Water Assessment of the Kern River supply. The Kern River supply is considered to be most vulnerable to accidental spills of oilfield wastes, urban/stormwater runoff, agricultural drainage and recreational use. A copy of the Source Water Assessment can be obtained by contacting the Agency at (661) 634-1400.

## Why chlorinate drinking water?

Disinfection is an absolutely essential component in water purification. Not only does chlorine disinfection greatly reduce the occurrence of water-borne diseases by killing microorganisms (bacteria and viruses), it is also mandated by CDPH that treated water be chlorinated before delivery to customers. Byproducts formed when surface waters are chlorinated, such as trihalomethanes and haloacetic acids, are a health concern when higher concentrations are present. Water professionals at the Henry C. Garnett Water Purification Plant work to optimize treatment and balance the need to inactivate microorganisms with the need to minimize risk from disinfection byproducts.

## Detected Contaminants

| Analyte | Storet No. | Units | MCL | PHG (MCLG) | Range | Sample Date | Average | Violation | Major Sources of Contamination |
|---|---|---|---|---|---|---|---|---|---|
| **Primary Standards** | | | | | | | | | |
| **Microbiological Contaminants** | | | | | | | | | |
| Total Coliform Bacteria | N/A | present/absent | > 5.0% present | (0) | 0% | 2012 | 0.0% | no | Naturally present in the environment |
| **Inorganic Chemicals** | | | | | | | | | |
| Aluminum | 01105 | ug/L | 1000 | 600 | 65 - 183 | 2012 | 105 | no | Erosion of natural deposits |
| Arsenic | 01002 | ug/L | 10 | 0.004 | ND | 2012 | ND | no | Erosion of natural deposits |
| Chlorate | A-037 | mg/L | 0.8 NL | N/A | 0.070 - 0.181 | 2012 | 0.125 | no | By-product of drinking water disinfection |
| Fluoride | 00951 | mg/L | 2 | 1 | ND - 0.21 | 2012 | 0.14 | no | Erosion of natural deposits |
| Nitrate (as $NO_3$) | 71850 | mg/L | 45 | 45 | ND - 8.16 | 2012 | 2.04 | no | Runoff/leaching from fertilizer use; leaching from septic tanks and sewage;erosion of natural depo |
| Nitrite + Nitrate (Sum as Nitrogen N) | A-029 | mg/L | 10 | 10 | ND - 1.85 | 2012 | 0.46 | no | Runoff/leaching from fertilizer use; leaching from septic tanks and sewage;erosion of natural depo |
| **Volatile Organic Chemicals** | | | | | | | | | |
| Total Trihalomethanes (TTHMs) | 82080 | ug/L | 80 | N/A | 17.2 - 81.2* | 2012 | 31.4 | no | By-product of drinking water disinfection |
| Haloacetic Acids (HAAs) | A-049 | ug/L | 60 | N/A | 10.4 - 37.0 | 2012 | 31.6 | no | By-product of drinking water disinfection |
| **Radioactive** | | | | | | | | | |
| Gross Beta Particle Activity | 03501 | pCi/L | 50 | (0) | 3.10 - 4.17 | 2005 | 3.21 | no | Decay of natural and man-made deposits |
| Strontium-90 | 13501 | pCi/L | 8 | 0.35 | ND - 0.10 | 2005 | 0.09 | no | Decay of natural and man-made deposits |
| Gross Alpha Particle Activity | 01501 | pCi/L | 15 | (0) | ND - 3.98 | 2010 | 0.27 | no | Erosion of natural deposits |
| Combined Radium | 11503 | pCi/L | 5 | (0) | ND - 1.03 | 2010 | 0.07 | no | Erosion of natural deposits |
| Uranium | 28012 | pCi/L | 20 | 0.43 | 1.4 - 1.5 | 2010 | 1.5 | no | Erosion of natural deposits |
| **Filter Performance** | | | | | | | | | |
| Turbidity (Highest Single Measurement) | | NTU | TT = 1.0 | N/A | N/A | 2012 | 0.11 | no | Soil Runoff |
| (TT = 95% of samples ≤ 0.3 NTU) | N/A | % | TT 95% ≤ 0.3 | N/A | N/A | 2012 | 97.5% | no | |
| **Disinfectant Residuals** | | | | | | | | | |
| Chlorine | N/A | mg/L | MRDL 4.0 | MRDLG 4.0 | 0.75 - 2.18 | 2012 | 1.49 | no | Drinking water disinfectant added for treatment |
| **Disinfection Byproduct Precursors** | | | | | | | | | |
| Total Organic Carbon (TOC) | 00680 | mg/L | N/A | N/A | 0.52 - 1.5 | 2012 | 1.2 | no | Various natural and manmade sources |
| **Secondary Standards** | | | | | | | | | |
| Aluminum | 01105 | ug/L | 200 | N/A | 65 - 183 | 2012 | 105 | no | Erosion of natural deposits |
| Color | 00081 | Units | 15 | N/A | < 2.5 - < 2.5 | 2012 | < 2.5 | no | Naturally-occurring organic materials |
| Odor | 00086 | Units | 3 | N/A | 2 | 2012 | 2 | no | Naturally-occurring organic materials |
| Turbidity | 82079 | NTU | 5 | N/A | 0.04 - 0.06 | 2012 | 0.05 | no | Soil Runoff |
| Zinc | 01092 | ug/L | 5000 | N/A | ND - 50 | 2012 | 25 | no | Runoff/leaching from natural deposits |
| Total Dissolved Solids | 70300 | mg/L | 1000 | N/A | 90 - 317 | 2012 | 179 | no | Runoff/leaching from natural deposits |
| Specific Conductance | 00095 | µS/cm | 1600 | N/A | 158 - 588 | 2012 | 318 | no | Substances that form ions when in water |
| Chloride | 00940 | mg/L | 500 | N/A | 8.08 - 134 | 2012 | 44.9 | no | Substances that form ions when in water |
| Sulfate | 00945 | mg/L | 500 | N/A | 16.2 - 46.6 | 2012 | 29.9 | no | Runoff/leaching from natural deposits |
| **General Minerals** | | | | | | | | | |
| Alkalinity | 00410 | mg/L | N/A | N/A | 48 - 83 | 2012 | 61 | | Naturally-occurring |
| Bicarbonate | 00440 | mg/L | N/A | N/A | 58.6 - 101 | 2012 | 73.8 | | Naturally-occurring |
| Calcium | 00916 | mg/L | N/A | N/A | 12.3 - 35.9 | 2012 | 20.6 | | Naturally-occurring |
| Magnesium | 00927 | mg/L | N/A | N/A | 2.15 - 13.5 | 2012 | 5.96 | | Naturally-occurring |
| Potassium | 00937 | mg/L | N/A | N/A | 1.25 - 3.27 | 2012 | 1.98 | | Naturally-occurring |
| Sodium | 00929 | mg/L | N/A | N/A | 14.4 - 71.7 | 2012 | 32.2 | | Naturally-occurring |
| Total Hardness | 00900 | mg/L | N/A | N/A | 39.7 - 101 | 2012 | 72.1 | | Naturally-occurring |
| pH | 00403 | Units | N/A | N/A | 7.10 - 7.75 | 2012 | 7.33 | | Naturally-occurring |
| **Additional Analysis** | | | | | | | | | |
| Boron | 01020 | ug/L | 1000 NL | N/A | | 2012 | 140 | | Naturally-occurring |
| Phosphate | 00650 | mg/L | N/A | N/A | ND - 0.45 | 2012 | 0.22 | | Naturally-occurring |
| Silica | 00955 | mg/L | N/A | N/A | 5.76 - 17.3 | 2012 | 9.38 | | Naturally-occurring |

MCL: Maximum Contaminant Level
MCLG: Maximum Contaminant Level Goal
mg/L: milligrams per liter; or parts per million
µS/cm: microSiemens per centimeter
TT = Treatment Technique
ND: None Detected
NTU: Nephelometric Turbidity Units
pCi/L: picocuries per liter
MRDL: Maximum Residual Disinfectant Level
NL: Notification Level
N/A: Not Applicable
PHG: Public Health Goal
MRDLG: Maximum Residual Disinfectant Level Goal
ug/L: micrograms per liter; or parts per billion

* Value shown in the range is above the MCL. Compliance is based on the running annual average.

**Contaminants that may be present in source water include:**

- Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, livestock operations and wildlife.
- Inorganic contaminants, such as salts and metals, that can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.
- Pesticides and herbicides, that may come from a variety of sources such as agriculture, urban stormwater runoff and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application and septic systems.
- Radioactive contaminants that can be naturally occurring or be the result of oil and gas production and mining activities.

## Definitions

**Primary Drinking Water Standard (PDWS):**
Legally enforceable standards that protect public health by limiting the levels of contaminates in drinking water.

**Public Health Goal (PHG):**
The level of a contaminant in drinking water below which there is no known or expected risk to health.

**Maximum Contaminant Level (MCL):**
The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to PHGs (or MCLGs) as is economically and technically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

**Maximum Contaminant Level Goal (MCLG):**
The level of a contaminant in drinking water which there is a known or expected risk to health. MCLGs are set by USEPA.

**Maximum Residual Disinfectant Level (MRDL):**
The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

**Maximum Residual Disinfectant Level Goal (MRDLG):**
The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

**Treatment Technique (TT):**
A required process intended to reduce the level of a contaminant in drinking water.

## How can the public get involved?

Meetings of the Agency Board of Directors are open to the public and are generally held on the fourth Thursday of each month, at 12 p.m., except in November and December when meetings are held on the third Wednesday of each month. Meetings are held at the Stuart T. Pyle Water Resources Center at 3200 Rio Mirada Drive, Bakersfield, California.

If you have any questions or need more information, please contact:

James M. Beck, General Manager

(661) 634-1400 or by mail at

Kern County Water Agency

P.O. Box 58

Bakersfield, California 93302-0058

www.kcwa.com

## Are there precautions the public should consider?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, those with HIV/AIDS or other immune system disorders, some elderly and infants can be particularly at risk from infections. These persons should seek advice about drinking water from their health care providers. The U.S Environmental Protection Agency (USEPA)/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791) or by visiting its website at http://www.epa.gov/ogwdw.

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. The Agency is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When water has been sitting for several hours, flushing the tap for 30 seconds to 2 minutes before using the water for drinking or cooking can minimize potential lead exposure. Concerns about lead in tap water can be addressed through a water testing. Information on lead in drinking water, testing methods, and steps that can be taken to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.

In order to ensure that tap water is safe, USEPA and CDPH prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. USEPA regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

Last year, as in past years, water from the Henry C. Garnett Water Purification Plant met all USEPA and CDPH drinking water standards. ID4 vigilantly safeguards its water supplies and has not violated a maximum contaminant level or any other water quality standard.

More information about contaminants and potential health effects can be obtained by calling USEPA's Safe Drinking Water Hotline (1-800-426-4791) or by visiting its website at http://www.epa.gov/ogwdw.