



## ASARCO LLC Hayden Concentrator

### 2015 Annual Drinking Water Quality Report for PWS# 04-012

ASARCO has prepared the following report to provide information to you, the consumer, on the quality of our drinking water. Included within this report are the general health information, water quality test results and water system contact.

The sources of drinking water; both tap and bottled water include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the earth 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 human activity.

Contaminants that may be present in source water include: microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife; inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming; pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses; organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems; radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

ASARCO's Hayden Concentrator Water System's water source comes from ground water by way of nineteen wells located in the Hayden well field aquifer, and two wells located in the PZ Ranch aquifer.

#### Health Information:

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. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's safe drinking water hotline (1-800-426-4791) or visit their website at [www.epa.gov/safewater](http://www.epa.gov/safewater).

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 systems disorders, some elderly, and infants can be particularly at risk for infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the Environmental Protection Agency's safe drinking water hotline (1-800-426-4791) or visit their website at [www.epa.gov/safewater](http://www.epa.gov/safewater).

Nitrate in drinking water at levels greater than 10 mg/L (10 ppm) is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause methemoglobinemia (also known as blue baby syndrome). Nitrate levels may rise quickly for short periods of time due to rainfall or agricultural activity. If you are caring for an infant, and detected nitrate levels are above 5 mg/L, you should consult your health care provider for advice.

If arsenic is less than or equal to 10 ppb (0.01 mg/L or 0.01 ppm), your drinking water meets EPA's drinking water standards. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a naturally occurring mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that levels at your home may be higher than at other homes in the community as a result of material used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested. Flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the EPA's Safe Drinking Water Hotline at 1-800-426-4791.

ASARCO's Hayden Concentrator Water System routinely monitors for contaminants in your drinking water according to Federal and State laws. The following table shows results for microbiological and disinfection by-products for the period of January 1, 2015 to December 31, 2015. Included in the table are the most recent results for inorganic compounds (IOCs), sodium, nitrates, and radio-chemicals. Testing was conducted on the water fountains as well as other cold water faucets found throughout the Hayden Concentrator site. Most recent results for volatile organic compounds and synthetic organic compounds fell below laboratory detection limit; therefore, results are not included in this report.

For more information regarding this report or concerns about the quality of your water system, please contact Lacretia Baum, Environmental Engineer at (520) 356-3275. ASARCO wants you, the consumer, to be informed about our water system.

#### Definitions and Terms:

*90th Percentile* -- the ninth highest reading (of ten samples), which is used to determine compliance with the Lead and Copper Rule

*Action Level (AL)* -- the concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.

*Colony Forming Units (CFU)/100 mL* – a unit of measure for total coliforms and E. coli in drinking water.

*Haloacetic Acids (HAA5)* - formed as a byproduct when chlorine or bromine is used to disinfect water for drinking.

*Maximum Contaminant Level (MCL)* -- The "Maximum Allowed" is the highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.

*Maximum Contaminant Level Goal (MCLG)* – 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.

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

*Maximum Residual Disinfection Level Goal (MRDLG)* – The level of a disinfectant in drinking water below which there is no known or expected risk to health.

*Milligrams per Liter (mg/L)* – equivalent to parts per million (ppm).

*Micrograms per Liter (µg/L)* – equivalent to parts per billion (ppb).

*Million Fibers per Liter (MFL)* – a unit of measure for asbestos in drinking water.

*Millirems per year (mrem/yr)* -- measure of radiation absorbed by the body.

*Nanograms per Liter* – equivalent to parts per trillion (mg/L)

*Picograms per Liter* – equivalent to parts per quadrillion (ppq)

*N/A* -- Not Applicable, sampling was not completed by regulation or was not required.

*Picocuries per liter (pCi/L)* -- Picocuries per liter is a measure of radioactivity in water.

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

*Total Trihalomethanes (TTHM)* -- formed as a byproduct when chlorine or bromine is used to disinfect water for drinking.

### 2015 Detected Contaminants Report for the ASARCO Hayden Concentrator (PWS 04-012)

Water Quality Parameter	Violation? Yes or No	Highest Detected Levels	MCL	MCLG	Sample Year	Potential sources of Contamination
<b>Microbiological Contaminant</b>						
Total Coliform* (CFU/100 mL)	No	A (Absent)	0	0	Monthly 2015	Coliforms are naturally present in the environment; as well as in feces.
Fecal coliform and E. Coli (CFU/100 mL)	N/A	N/A	0	0	N/A	Fecal coliforms and <i>E. coli</i> only come from human and animal fecal waste.
<b>Nitrate</b>						
Nitrate (ppm)	No	5.1	10	10	2015	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
<b>Inorganic Chemicals (IOCs)</b>						
Antimony, Total (ppb)	No	<1.00	6	6	2013	Discharge from smelters and refineries; solder; fire retardants; ceramics; electronics.
Arsenic (ppb)	No	5	10	0	2013	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes.
Barium (ppm)	No	0.049	2	2	2013	Discharge of drilling wastes, discharge from metal refineries; erosion of natural deposits.
Chromium (total) (ppb)	No	6.4	100	100	2013	Discharge from steel and pulp mills, erosion of natural deposits.
Fluoride (ppm)	No	1.8	4	4	2013	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories.
Sodium (ppm)	No MCL	200	No MCL	No MCLG	2013	Occurs naturally in soil, ground water and surface water.

\*A system collecting fewer than 40 samples per month triggers an MCL violation if water system has greater than 1 routine-repeat sample per month which is total coliform-positive.

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Water Quality Parameter	Violation? Yes or No	Highest Detected Levels	MCL	MCLG	Sample Year	Potential sources of Contamination
<b>Lead &amp; Copper</b>						
Copper (ppm)	No	<b>90<sup>th</sup> percentile = 0.300</b> Highest detected = 1.02	A.L. = 1.3	A.L.G. = 1.3	2013	Corrosion of household plumbing systems; Erosion of natural deposits.
Lead (ppb)	No	<b>90<sup>th</sup> percentile = &lt; 4</b> Highest detected = < 4	A.L. = 15	0	2013	Corrosion of household plumbing systems; erosion of natural deposits.
<b>Radionuclides**</b>						
Gross Alpha Emitters (pCi/L)	No	6.6 ± 1.2	15	0	2013	Erosion of natural deposits.
Combined Radium 226 & 228 (pCi/L)	No	<0.5	5	0	2013	Erosion of natural deposits.
Combined Uranium 234/235/238 (pCi/L)	No	0.00045 ± 0.00007	30	00	2006	Erosion of natural deposits.
<b>Disinfection and By-Products (DBPs)</b>						
Total Trihalo-methanes (TTHM) (ppb)	No	70	80	N/A	2015	By product of drinking water disinfection.
Haloacetic Acids (HAA5) (ppb)	No	7.8	60	N/A	2015	By product of drinking water disinfection.
Chlorine / Chloramines (ppm)	No	0.80	MRDL = 4.0	MRDLG = 4.0	2015	Water additive used to control microbes.
Bromate (ppb)	N/A	N/A	10	0	N/A	Chemical that is formed when ozone is used to disinfect drinking water that contains naturally occurring bromide found in source water.
Chlorite (ppm)	N/A	N/A	1	0.8	N/A	By product formed when chlorine dioxide is used to disinfect drinking water.

\*\*The new drinking water regulation being proposed by the Environmental Protection Agency (EPA) does not include a listing for <sup>40</sup>K but specifies that the Maximum Contamination Limit (MCL) for beta and photon emitters should correspond to a committed effective dose equivalent to 4-millirems/year from an annual **intake at the rate of two liters of drinking water per day**. (A committed effective dose equivalent of 4-mrem/year means that the effective dose equivalent expected over the next 50 years following one year's intake should not exceed 4 mrem).

The ingestion dose conversion factor for <sup>40</sup>K is 2.29×10<sup>5</sup> mrem/pCi. Thus, the concentration corresponding to the dose limit would then be: Concentration = 4 mrem/yr / (2 L/d×365.25 d/yr×2.29×10<sup>5</sup> mrem/pCi) = 239 pCi/L (i.e. 240 pCi/L).

**Unregulated Contaminant Monitoring Rule (UCMR3):**

The third cycle of the Unregulated Contaminant Monitoring Rule (UCMR3) was published on May 2, 2012 (77 FR 26072). In 2015, the ASARCO Hayden Concentrator water system (PWS 04-012) was one of the 800 nationally selected small public water systems, which serves less than 10,000 persons, to monitor for 21 unregulated contaminants (chromium, cobalt molybdenum, strontium, vanadium, chromium-6, chlorate, 1,4-dioxane, 1,1-dichloroethane, 1,2,3-trichloropropane, 1,3-butadiene, bromomethane, chloromethane, bromochloromethane (Halon 1011), chlorodifluoromethane (HCFC-22), perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), perfluorononanoic acid (PFNA), perfluorhexanesulfonic acid (PFHxS), perfluoroheptanoic acid (PFHpA), perfluorobutanesulfonic acid (PFBS)). EPA supplied the sampling kits and ASARCO conducted the sampling. Collected samples were returned to the EPA laboratory for analysis. UCMR3 results were sent back to ASARCO and a copy of the results was sent to the Arizona Department of Environmental Quality (ADEQ). Under the Public Notification and Consumer Confidence Report rules, the public must be notified of the monitoring and any positive results. "The Third Unregulated Contaminant Monitoring Rule (UCMR3)" results equal to or greater than the minimum reporting level (MRL) are listed in the table below.

**2015 UCMR3 Report for the ASARCO Hayden Concentrator (PWS 04-012)**

<b>Contaminant</b>	<b>January Reported Value (µg/L)</b>	<b>July Reported Value (µg/L)</b>	<b>Minimum Reporting Level (µg/L) ***</b>	<b>Sample Year</b>	<b>Use or Environmental Source</b>
Chromium	0.548	0.321	0.02	2015	Discharge from steel and pulp mills, erosion of natural deposits.
Molybdenum	17.2	15.6	1	2015	Naturally occurring element found in ores and present in plants, animals and bacteria; commonly used form, molybdenum trioxide, as a chemical reagent.
Strontium	1470	1080	0.3	2015	Naturally occurring element; historically commercial use has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions.
Vanadium	7.69	7.26	0.2	2015	Naturally occurring elemental metal; used as vanadium pentoxide, which is a chemical intermediate and a catalyst.
Chromium-6	0.533	0.377	0.03	2015	Naturally occurring element; used in making steel and other alloys. Cr (III) or Cr (VI) forms are used for chrome plating, dyes and pigments, leather tanning and wood preservation.

\*\*\* A detection of a UCMR3 analyte above the minimum reporting level (MRL) does not represent cause for concern, in itself. The implications of the detection should be judged considering health effects information, which is often still under development or being refined for unregulated contaminants. For more information on occurrence data consult "UCMR 3 Data Considerations, Definitions, Reference Concentrations and Summary PDF" at <http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/data.cfm#ucmr2013>.