

CITY OF BISHOP - 1997 ANNUAL WATER QUALITY REPORT

INTRODUCTION

This is the ninth Annual Water Quality report to customers of the City of Bishop water system. The report describes features of the water system and the quality of the water.

The California Domestic Water Quality and Monitoring Regulations that were adopted in January 1989 include a requirement on public information, Title 22, Section 64463.1. This section requires that each community water system distribute to each customer an annual report on the quality of water serviced. We encourage you to read this report and become familiar with the quality of water in the City of Bishop water system.

WATER SOURCES

The source of water for the City of Bishop is the underground aquifer of the Bishop cone. Water is pumped from the aquifer by three wells described below.

- A. Well #4 is the primary source of water for Bishop. The well is located approximately 3 miles west of Bishop and is 260 feet south of Highway 158 (West Line Street) near Bishop Creek. This well produced about 510 million gallons which was 92% of the City's water production.
- B. Well #2 is the backup source of water for Bishop. The well is located 400 feet north of Sierra Street and 550 feet west of Main Street. The well normally operates during April through September and produced about 42 million gallons which was 8% of the water production.
- C. Well #1 is located at the southwest corner of Warren St. and Church St. behind the Police Department. This well is not used as a normal production source because it has higher concentrations of fluoride than Wells #2 and #4. Well #1 is also available for emergencies. The State maximum contaminant level (MCL) for fluoride is 1.2 to 2.4 mg/l with an estimated standard for Bishop of 1.85 mg/l. The Federal E.P.A. standard MCL is 5.0 mg/l. Tests have shown a range of 2.4 to 3.2 mg/l for Well #1. Samples taken while Well #1 is operating have shown that the fluoride level drops to 0.3 mg/l or less within 1 block of Well #1 because the water mixes with other water in the system, and the fluoride is diluted. During 1997 Well #1 did not produce water for consumption.

WATER PERMIT AND STANDARDS

The City of Bishop operates under permit by the State of Calif. Dept. of Health Services (DHS). Our drinking water standards are established both by DHS and by the U.S. Environmental Protection Agency (EPA) in compliance with the Safe Drinking Water Act.

The drinking water standards fall into the following 2 categories:

- A. Primary Standards are mandatory health-related standards and relate to the effect of drinking water on the health of the community. These standards are set to protect public health from substances in water that may be immediately harmful to humans or affect their health if consumed for long periods of time.
- B. Secondary Standards relate to the aesthetic qualities of the water such as taste, mineral content, odor and clarity.

WATER QUALITY TESTING AND REPORTING

The water system is tested in accordance with a schedule established by DHS. Water samples are taken by Public Works personnel. Bacteria samples are tested at Inyo County's laboratory. All other water samples are tested at other laboratories certified by DHS such as Clinical Laboratories of San Bernardino, Inc. Bacteriological samples are taken at a rate of at least once a week at various locations throughout Bishop. Samples are also taken at Wells #4 & #2 monthly and at Well #1 quarterly. Samples for the physical quality of the water are taken monthly at various locations throughout the City. All test results are reported to DHS. During 1997 all wells were tested for inorganic chemicals, general mineral, physical and bacteriological analysis. In 1992, wells were tested for organic chemicals and are scheduled to be tested again in 1998.

Radioactivity monitoring was done in 1985, 1987, 1990, 1992 and 1994. Additional monitoring will be done every 4 years. The test results and standards are shown on the attached sheets.

In 1992, we initiated a special testing program to comply with requirements of the Federal lead and copper rule. The rule requires water purveyors to verify that lead and copper levels do not exceed action level limits at the point of consumption. The City's water system is free of lead and copper. The special testing is to verify that lead and copper has not leached into the water from private water service laterals or interior plumbing. This year samples were taken inside 20 single family residences and tested at a certified laboratory. Lead and copper at the tap, measured as the 90th percentile of the test results, showed non-detect for lead and a fraction of the action level limit for copper.

Instruments used to test water samples are very sensitive and sophisticated. They employ analytical techniques to measure concentrations in milligrams per liter (mg/l) which is equivalent to parts per million (ppm) and in micro grams per liter, which is equivalent to parts per billion. These instruments are able to measure water characteristics in precise and minute quantities that previously were undetected. To put these measurements into some perspective, consider that one part per million in distance would be one inch in nearly 16 miles (Bishop to Big Pine). One part per billion translates to one inch in 1,837 miles (4.5 round trips between Bishop and Reno).

WATER TREATMENT

The groundwater supply for the City of Bishop is excellent quality. Water from Wells #1 & #2 is not treated. Water from Well #4 is chlorinated between the well and the storage tank. Chlorine is used as a disinfectant to prevent water-borne diseases and stop growths from forming inside the pipe network.

**** WATER SYSTEM ****

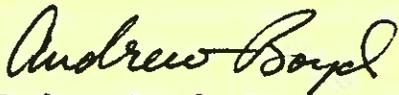
One of the great things about the City of Bishop is its water system and its excellent water quality. The City's water ordinances encourage efficient use of this valuable resource and prohibit wasting it. One of the best ways to make efficient use of water is to improve landscape irrigation. To create the most desirable landscaping, landscape contractors, landscape architects and garden nurseries recommended (a) multizone, automatic sprinkler systems, (b) the correct grasses, plants and trees for the conditions, (c) early morning irrigation and (d) avoidance of excessive irrigation that waterlogs the soil and runs into the streets. If irrigation water reaches the street, it is not only an indication of poor landscape maintenance; it wastes water and accelerates deterioration of the streets. We encourage you to make efficient use of Bishop's excellent water. Thanks.

SUMMARY

What does this all mean to the consumer in the City of Bishop? We feel that the following are important facts our customer should keep in mind:

- A. The quality of water is monitored regularly and thoroughly in accordance with standards set forth by the State Department of Health Services.

- B. The water is safe to drink. Repeated testing shows no contamination in the City's water.
- C. The water is aesthetically pleasing. This means that the water is soft, clear, clean and has very low concentrations of constituents in both adopted and unadopted secondary standards.
- D. Water hardness (as Ca CO₃) based on a weighted average of production is approximately 46 mg/l and classified as soft. Water hardness is classified as follows: soft (less than 75 mg/l); moderately soft to moderately hard (75 to 150 mg/l); hard (150 to 200 mg/l); and very hard (greater than 200 mg/l).
- E. The primary source of water for the City, Well #4, has low levels of fluoride of about 0.2 mg/l. Fluoride is not added to the water supply. Please consult your dentist regarding recommended fluoride intake.
- F. The sodium levels in the water supply are very low. This is especially good news if you are concerned about your salt intake.
- G. If you would like to know more about water quality or if you have specific questions regarding Bishop's water supply, please call us at 873-5863 or stop by Public Works at City Hall, 377 West Line Street, Bishop.



Andrew Boyd, PE
Director of Public Works
April 1998

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4/98

PERCENT USAGE BY SOURCE	MAXIMUM	WELL #1	WELL #2	WELL #4
	CONTAMINANT LEVEL (STATE)			
		0%	8%	92%
<u>PRIMARY STANDARDS - MANDATORY HEALTH-RELATED STANDARDS</u>				
<u>CLARITY</u>				
Turbidity (FTU)	5.0	3.3	0.1	0.1
<u>MICROBIOLOGICAL</u>				
Coliform Bacteria (2) (Presence/Absence)	0. (2)	0	0	0
<u>ORGANIC CHEMICALS (mg/l)</u>				
Atrazine	0.003	N/D	N/D	N/D
Bentazon	0.018	N/D	N/D	N/D
Benzene	0.001	N/D	N/D	N/D
Carbofuran	0.018	N/D	N/D	N/D
Carbon Tetrachloride	0.0005	N/D	N/D	N/D
Chlordane	0.0001	N/D	N/D	N/D
2,4-D	0.1	N/D	N/D	N/D
Dibromochloropropane	0.0002	N/D	N/D	N/D
para-Dichlorobenzene	0.005	N/D	N/D	N/D
1,1-Dichloroethane	0.0005	N/D	N/D	N/D
1,2-Dichloroethane	0.0005	N/D	N/D	N/D
1,1-Dichloroethylene	0.006	N/D	N/D	N/D
cis-1,2-Dichloroethylene	0.006	N/D	N/D	N/D
Trans-1,2-Dichloropropane	0.01	N/D	N/D	N/D
1,2-Dichloropropane	0.005	N/D	N/D	N/D
1,3-Dichloropropane	0.0005	N/D	N/D	N/D
Di (2-ethylhexyl) Phthalate	0.004	N/D	N/D	N/D
Endrin	0.0002	N/D	N/D	N/D
Ethylbenzene	0.680	N/D	N/D	N/D
Ethylene Dibromide	0.00002	N/D	N/D	N/D
Glyphosate	0.7	N/D	N/D	N/D
Heptachlor	0.00001	N/D	N/D	N/D
Heptachlor Epoxide	0.00001	N/D	N/D	N/D
Lindane	0.004	N/D	N/D	N/D
Methoxychlor	0.1	N/D	N/D	N/D
Molinate	0.02	N/D	N/D	N/D
Monochlorobenzene	0.030	N/D	N/D	N/D
Simazine	0.01	N/D	N/D	N/D
1,1,2,2-Tetrachloroethane	0.032	N/D	N/D	N/D
Tetrachloroethylene	0.005	N/D	N/D	N/D
Thiobencarb	0.07	N/D	N/D	N/D

PERCENT USAGE BY SOURCE	MAXIMUM CONTAMINANT LEVEL (STATE)	Page 2		
		WELL #1	WELL #2	WELL #3
		0%	8%	92%

Total Trihalomethanes	0.10	N/D	N/D	N/D
Toxaphene	0.005	N/D	N/D	N/D
2,4,5-TP (Silvex)	0.01	N/D	N/D	N/D
1,1-1-Trichloroethane	0.200	N/D	N/D	N/D
1,1,2-Trichloroethane	0.032	N/D	N/D	N/D
Trichloroethylene	0.005	N/D	N/D	N/D
Trichlorofluoromethane (Feron 11)	0.15	N/D	N/D	N/D
1,1,2-Trichloro-1,2,2- trifluoroethane (Feon 113)	1.2	N/D	N/D	N/D
Vinyl chloride	0.0005	N/D	N/D	N/D
Xylene (s)				

INORGANIC CHEMICALS (mg/l)

Aluminum	1.	N/D	N/D	N/D
Arsenic	0.05	N/D	N/D	N/D
Barium	1.	N/D	N/D	N/D
Cadmium	0.010	N/D	N/D	N/D
Chromium	0.05	N/D	N/D	N/D
Fluoride	1.4-2.4	3.0	0.2	0.2
Lead	0.05	N/D	N/D	N/D
Mercury	0.002	N/D	N/D	N/D
Nitrate (as NO3)	45.0	8.1	N/D	N/D
Selenium	0.01	N/D	N/D	N/D
Silver	0.05	N/D	N/D	N/D

RADIONUCLIDES (pCi/l)

Gross Alpha	15	5.9±1.6	5.5±1.9	1.9±1.2
Gross Beta	50	N/A	N/A	N/A
Radium 226 & 228	5	N/A	N/A	N/A
Strontium-90	8	N/A	N/A	N/A
Tritium	20,000	N/A	N/A	N/A
Uranium	20	N/A	N/A	N/A

SECONDARY STANDARDS - AESTHETIC STANDARDS

CHEMICAL PARAMETERS (mg/l)

Chloride	500	7.5	1.1	1.3
Copper	1.0	N/D	N/D	N/D
Foaming Agents (MBAS)	0.5	N/D	N/D	N/D

PERCENT USAGE BY SOURCE	MAXIMUM CONTAMINANT LEVEL (STATE)	WELL #1	WELL #2	WELL #4
		0%	8%	92%
Iron	0.3	N/D	N/D	N/D
Manganese	0.05	N/D	N/D	N/D
Color (units)	15.0	<3.0	10.0	<3.0
Specific Conductance (1600 umho/cm)		320	230	120
Odor-Threshold (units)	3.0	1.0	1.0	1.0
Sulfate	500.	28.7	9.1	1.1
Total Dissolved Solids	1000.0	179.0	125.0	68.0
Zinc	5.0	N/D	N/D	N/D

ADDITIONAL PARAMETERS

Bicarbonate (HCO3)	NS	121.0	119.0	61.0
Calcium (mg/l)	NS	9.5	27.1	12.2
Carbonate (CO3)	NS	N/D	N/D	N/D
Hardness (CaCO3) (mg/l)	NS	37.6	88.0	42.0
Hydroxide	NS	N/D	N/D	N/D
Magnesium (mg/l)	NS	3.4	5.0	2.8
PH (units)	NS	8.1	7.3	7.3
Potassium (mg/l)	NS	3.0	1.8	1.1
Sodium (mg/l)	NS	50.0(1)	9.5	8.0
Total Alkalinity (as CaCO3)	NS	99.2	98.0	50.0

KEY TO ABBREVIATIONS

MCL	=	Maximum Contaminant Level
N/D	=	Monitored for but Not Detected - Detection limits are available upon request
NS	=	No Standard
N/A	=	Not Analyzed - Standards were either not applicable to the City of Bishop or are only proposed standards.
NTU	=	Nephelometric Turbidity Units. This is a measure of the suspended material in water.
mg/l	=	Milligrams per liter (parts per million)
pCi/l	=	Picocuries per liter
cfu/100ml	=	Colony-forming units per 100 milliliters
<	=	Less than

(1) Test results are relatively high, however, because Well #1 produced no water during 1997 and based on a weighted average of blended water from Wells #2 and #4, the average sodium content is 8.1 mg/l.

(2) Section 64421 of the California Domestic Water Quality and Monitoring regulations bases microbiological compliance on the presence/absence test. all samples showed an absence of coliform bacteria.

City of Bishop
Public Works Dept.
P.O. Box 1236
Bishop, CA 93515

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**CITY OF BISHOP
SUMMARY OF SIGNIFICANT INFORMATION**

- * The water is safe to drink.
- * The water quality is excellent.
- * Substances tested for are either not detected or found in concentrations well below State and Federal Standards.
- * The fluoride content is low - consult your dentist.
- * More good news - the sodium content is very low.
- * Water is good for you; it transports nutrients, rids us of wastes, keeps our joints fluid, is great for our skin and is necessary for kidney function.
- * Water is a valuable resource - please use it wisely.