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IMPLICATIONS OF THE INVESTIGATION

[illegible]

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CHEMICAL QUALITY OF WATER

The concentration of dissolved solids was the principal criterion used in the investigation to determine the suitability of ground water for urban development. The following table lists the chemical composition of the water samples and their uses associated with urban development. However, excessive concentrations of individual dissolved constituents, values of selected physical properties, amounts of radioactivity, and numbers of fecal-*coliform* bacteria in the water samples were also considered. In addition to the dissolved solids, the dissolved solids, concentrations of dissolved anions, chloride, fluoride, iron, magnesium, manganese, nitrite plus nitrate, selenium, sulfate, and hardness were also considered. Ground water containing more than 500 mg/l. of dissolved solids is not recommended for any limited uses associated with urban development as illustrated by the examples given in the section RELEVANCE TO URBAN PLANNING. A summary of the chemical composition, concentrations in excess of the maximum recommended concentration, the possible uses of the water, and the maximum recommended concentration is given in the following table.

The dissolved solids concentrations of water from water-table aquifers and the concentrations of dissolved solids in the water from the water-table aquifers that exceeded State standards for public-water supplies (Colorado Department of Health, 1971 and 1977). Water containing less than 500 mg/l. of dissolved solids is known to occur in only four large areas underlain by the water-table aquifer. These areas are the following: (1) the area around the analyzed constituents that exceeded the State standards for public-water supplies in water from two of these areas. The concentrations of dissolved iron and manganese in the water from these areas are not representative of the water in the aquifer. The concentrations of dissolved iron and manganese in the water from these areas are not representative of the water in the aquifer.

[mg/L=milligrams per liter;µg/L=micromograms per liter; milligram per liter=1,000 micromograms per liter]										
Constituent	Units	Unconsolidated alluvial deposits			Consolidated sedimentary rocks and windblown deposits			Fractured crystalline rocks		
		Standard	Range	Number of samples of which number was exceeded	Standard	Range	Number of samples of which number was exceeded	Standard	Number of samples of which number was exceeded	
Dissolved solids	mg/L	1,800	53-6,570	178	101	223-3,903	19	229-1,926	4	
Dissolved arsenic	µg/L	86	<1.6	89	0	<1.1	15	0	<1.32	3
Dissolved chloride	mg/L	250	4.1-1,100	295	2	12-3,700	12	2	5-200	20
Dissolved fluoride	mg/L	1.18	0.25	145	3	0.10-0.35	3	2	0.3	2
Dissolved iron	µg/L	1,000	10-118,000	164	15	11-2,200	17	2	60-500	3
Dissolved manganese	mg/L	10	<1-820	140	1	<1-410	16	3	<1-140	2
Dissolved magnesium	mg/L	1,125	1.9-5,10	170	30	14-200	19	5	11-82	4
Dissolved nitrite as nitrate as nitrogen	mg/L	11	<0-1,100	43	43	0.2-40	68	12	<0-114	39
Dissolved selenium	µg/L	15	<1-100	15	15	<1-30	15	1	<1-31	1
Dissolved sulfate	mg/L	250	5.9-5,640	180	136	21-2,600	19	11	45-1,200	4
Hardness, as calcium carbonate	mg/L	None	31-3,540	177		120-2,700	19		170-860	4

³ Recommended State standards for public-water supplies (Colorado Department of Health, 1971); with exception of magnesium, standards are the same as the recommended Federal standards established for public-water supplies (U.S. Environmental Protection Agency, 1977); no recommended Federal standard for magnesium.

Map showing chemical quality of water

WELL YIELDS AND CHEMICAL QUALITY OF WATER FROM WATER-TABLE AQUIFERS IN THE BOULDER—FORT COLLINS—GREELEY AREA,
FRONT RANGE URBAN CORRIDOR, COLORADO

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