ABSTRACT

ANALYSIS OF BOTTLED DRINKING WATER AND GREAT SALT LAKE BRINES USING INDUCTIVELY COUPLED PLASMA - MASS SPECTROMETRY

by

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Fifteen brands of bottled drinking water, along with samples from California State University, Northridge drinking fountains and domestic taps, were analyzed for trace elements associated with EPA drinking water standards. Inductively coupled plasma -mass spectrometry (ICP-MS) was used to obtain semi-quantitative results for 16 elements. A comparison of water purity versus cost was also made. All water samples were found to have concentration levels of the measured elements well below EPA guidelines. Bottled waters were generally purer than drinking fountain water and tap water samples. A slight correlation between purity and cost was noted.

In a second part of this work, samples collected from the Great Salt Lake during the period 1994-1996 were analyzed quantitatively for boron, cadmium, cobalt, magnesium, manganese and strontium. These results were used to assess the effect of effluent flow from the C-7 drainage ditch that potentially could carry pollutants into the
lake. Trends in the cadmium and manganese levels suggest that these elements were entering the lake during the time of collection. Information about the mixing time of the lake water between sampling locations and the residence time of these trace elements was obtained.