UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII
1860 LINCOLN STREET
DENVER, COLORADO 80203

February 25, 1974

RE: 8FTW

Mr. George Prince, Chief
Engineering Section
State of Colorado Department of Health
4210 East 11th Avenue
Denver, Colorado 80220

Dear George:

Last week, February 11-14, Jack Hoffbuhr and I visited several Colorado water systems. Our activities are summarized in the following report:

Vail - We spoke with Tony Rossi and reviewed their procedures and equipment for feeding fluoride.

Fluoride concentrations of 1.1 ppm at the treatment plant and 0.4 ppm in the distribution system indicated some problems. Briefly, they consisted of the following:

1. They were attempting to feed sodium silicofluoride (which has very low solubility) with a saturator which is designed specifically for use of sodium fluoride.

2. Spring water is being fed directly into the distribution system. A fluoride "batch feed" apparatus is used but apparently ineffective because very little of the sodium silicofluoride goes into solution. The spring water therefore dilutes the fluoride in the distribution system which was added at the Gore Creek Treatment Plant.

3. No fluoride is presently being added at the Booth Creek Treatment Plant. A saturator has been purchased and will soon be installed.

These problems were discussed with Tony and later with the District Engineer. It appears that switching to sodium fluoride will solve most of their problems. Purchase of an additional saturator for the spring supply would eliminate many of the present feeding difficulties.

Ute Water Conservancy District - We met with Riney Wilbert, Harold Vicstrom and Dave Foster.

1. A carbon column mini sampler was installed and run for two days on the finished water line leaving the treatment plant. The carbon column was then sent to the Cincinnati lab for CCE and CAE analysis.

2. Jack demonstrated the use of the Millipore filter kit and left our kit with them for use during the next month. They are considering buying a Millipore setup and were interested in trying the kit before deciding what specific equipment they should purchase.

3. We looked over their fluoride feeding and testing equipment and ran some split samples, comparing their Hach Kit results with those obtained using the specific-ion electrode. Results were quite comparable but more interference will probably exist when a higher concentration of alum is used in the treatment process next spring. Fluoride concentration in the water system was about 1.1 ppm.

Past problems of low fluoride concentrations in the distribution system were caused by the lack of capacity of the gravimetric feeder. A gear ratio change has increased the capacity and the optimum fluoride concentration can now be obtained.

Grand Junction

1. We reviewed the fluoride feeding equipment at the treatment plant and found it to be in excellent shape. Several samples taken from the distribution system showed the fluoride concentration to be near 1.1 ppm.

2. We also spent some time working with Jim Vancil in the treatment plant lab explaining how to use their specific-ion electrode. The electrodes were in rather poor condition because of the lack of routine maintenance. They were cleaned up and tested. The meter seemed to be slow in reacting and Jim is going to have it tested. The proper fluoride test procedure was demonstrated a number of times so Jim could become familiar with it.

If you or the district engineers have any further questions, please call.

Sincerely yours,

Dean R. Chaussee
Fluoridation Engineer