APPENDIX A-1
Fort Collins Fluoride Technical Study Group Reference List

“TIER ONE”
Reviews by widely recognized national and international public health agencies


Other Literature Reviewed*

* In some cases only abstracts were reviewed


**Materials Submitted by Members of the Public**

These were reviewed by at least 3 members of the FTSG. Some submissions (including published and peer-reviewed journal articles) are included above. This list represents a best-possible representation of submitted materials. In some cases proper referencing information was lacking and this list does not conform to the APA Publication Manual guidelines.

A concise critical bibliography of fluoride. (February 13, 2002). Compiled by Eric Levine.


Assorted anti-fluoride information. No publication source/author.


Biologic Effects of Atmospheric Pollutants - Fluorides

Brunson, Diane. (May 10, 2001). *Commentary to the residents of Colorado.*


Cities rejecting fluoridation of water since 1990.

Citizens for Safe Drinking Water. Fluoridation on-point – congressional investigation and recent events.


Citizens for Safe Drinking Water. Three reasons why those who supported the use of fluoride say no to fluoridation today.


DAMS, Inc. Fluoride is an unapproved drug. International DAMS Newsletter.


Fluoridation negatives published in The Lancet. True Health, date, volume and number unknown.


Fluoridation: The Great Dilemma – Miscellaneous Information

Fluorides and the environment, a special 16 page report. Earth Island Journal (no date of publication, some articles within are dated 1997). San Francisco, CA: Earth Island Institute, International Society for Fluoride Research

Appendix A - Fort Collins Fluoride Technical Study Group Tiered Reference List

Fluoride of drinking water bibliography, no author, no date.


Glasser, George. Citizen writer uncovers overlooked, vital facts about fluoride toxicity. True Health.


Hip fracture rates are much higher in people residing in fluoridated communities. (Miscellaneous information).

Hirzy, William J. (April 6, 2000). Letter to San Diego City Council (Including 20 letters from other countries regarding fluoridation of drinking water.

Hirzy, William J. (June 29, 2000). Statement for National Treasury Employees Union Chapter 280 Before Subcommittee on Wildlife, Fisheries, and Drinking Water United States Senate.

Hirzy, William J. (May 1, 1999). Why EPA’s headquarters union of scientists opposes fluoridation. The National Treasury Employees Union.


Insight Magazine. (Dec 2002) Reinforcements arrive in campaign against fluoride.


Pit and Fissure Tooth Decay and Fluoridation – Miscellaneous Information

Prystupa, Jeff (editor). Fluoride: A matter of choice? No date or publication information.

Publications of interest on community water fluoridation bibliography. No author, no date.

Reeves, Thomas G. (2001). Arsenic MCL. A Report From a National Fluoridation Engineer at the National Center for Chronic Disease Prevention and Health Promotion.

Reeves, Thomas G. (March 2001). The fluoride ion. A report From a National Fluoridation Engineer at the National Center for Chronic Disease Prevention and Health Promotion.


Responding to questions about community water fluoridation and fluoride products. No author or publication information available.

Satcher, David. (September 8, 2000). Address at the National Fluoridation Summit.


SENES Oak Ridge Inc. Center for Risk Analysis Review of California Oral Health Needs Assessment


Wade, Roger, Director of Public Health, Natick Board of Health. (August 13, 2002). Natick Study Results.

Yiamouyiannis, John. *Fluoride the aging factor: How to recognize and avoid the devastating effects of fluoride*, pp. 42-43, 118-131, 204

APPENDIX A-2
Fluoride Mass Balance Calculations
City of Fort Collins Water Treatment Facility

Background
The amount (pounds/day) of fluorosilicic acid (HFS) added at the Water Treatment Facility is continuously measured and controlled by the HFS chemical feed system in order to ensure the proper dosing of fluoride to the finished water. The concentration (mg/L) of fluoride ion in the raw and finished water is measured by the Water Treatment Facility Process Control Lab in order to verify the dosing of fluoride to the finished water. The question being addressed here is:

Does the concentration of fluoride ion measured by the Process Control Lab agree with the quantity of HFS that is dosed to the finished water?

This question is answered using process data for the month of February 2003. Note that the Process Control Lab uses an ion-selective electrode to determine the concentration of fluoride ions (F\(^-\)) in water samples (Standard Method 4500-F\(^-\) C).

Fluorosilicic Acid (HFS) Properties
- Commercial Purity = 24.4% (the commercial product is 24.4% H\(_2\)SiF\(_6\) and 75.6% water)
- Fluoride Ion Purity = 79.2% (pure H\(_2\)SiF\(_6\) is 79.2% F by weight)

Water Treatment Facility Process Data for February 2003
- Total finished water produced during the month = 434.6 million gallons (MG)
- Total HFS added during the month = 15,381 pounds
- Measured fluoride ion in raw water = 0.20 mg/L (monthly avg., measured by Process Control Lab)
- Measured fluoride ion in the finished water = 1.00 mg/L (monthly avg. at Sample Station 2, measured by Process Control Lab)

Concentration (mg/L) of added fluoride ions (from Process Control Lab measurements)
\[= \text{Fluoride in Finished Water} - \text{Fluoride in Raw Water}\]
\[= 1.00 \text{ mg/L} - 0.20 \text{ mg/L}\]
\[= 0.80 \text{ mg/L}\]

Concentration of added fluoride ions determined from known quantity of added HFS
Mass of F\(^-\) added = (pounds of HFS added) x (Commercial Purity) x (Fluoride Ion Purity)
\[= (15,381 \text{ pounds}) \times (0.244) \times (0.792)\]
\[= 2,972 \text{ pounds of fluoride added during the month of Feb. 2003}\]

Concentration of added F\(^-\) in the finished water (mg/L)
\[= \frac{(\text{pounds of added F})}{(\text{Volume of Finished Water, MG})} \times \left(\frac{1 \text{ mg/L}}{8.34 \text{ lb/MG}}\right)\]
\[= \frac{(2,972 \text{ lb})}{[(434.6 \text{ MG}) \times (8.34 \text{ lb/MG mg})]}\]
\[= 0.82 \text{ mg/L}\]
Compare concentration of fluoride ion measured by the Process Control Lab to the concentration determined using the known quantity of HFS dosed to the finished water

- Concentration determined by Process Control Lab = 0.80 mg/L
- Concentration determined from known quantity of added HFS = 0.82 mg/L

The two values differ by less than 3 percent, which is a very acceptable margin of error. These values show that the fluoride ion concentration detected by the lab agrees with the quantity of HFS that is dosed to the finished water. The data further indicate that the hydrolysis of HFS to form fluoride ions is essentially 100% complete before water leaves the Water Treatment Facility.