Thursday 12 April - The trouble some trio, iron, manganes and hydrogen sulfide

What's important to check with these contaminants?

§ *Both physical and water chemistry factors determine success or failure in removing these substances to improve the aesthetic quality of water.

§ Important physical factors include : the pump and plumbing system, available flow rate, and water temperature.

§ Water chemistry factors include : pH values, concentration of the species, and oxygen level.

The PH value will make a difference in how completely aeration gets rid of certain volatiles. The most favorable pH for the release of hydrogen sulfide is about 5.5 by aeration. It is not feasible in domestic applications to lower the pH value in order to remove hydrogen sulfide by aeration and then have to follow with another treatment step to raise the pH to eliminate the corrosion potential of the water. At a pH of approximately 7.0, 50 percent of the hydrogen sulfide is removable, for this reason with water PH around 6.5 to 7.2, aeration usually removes only the bulk of the hydrogen sulfide. A second treatment step using a catalyst/oxidizing filter of manganese greensand is often employed for water quality improvement. You can see the complexity of the field, this is only a few specifications. For different concentration of the species, the equipment has to be chosen accordingly, because of different specifications and restrictions.

Quite a few options are useful as single-step treatment or in combination of two or more techniques to reduce and remove iron, hydrogen sulfide, and manganese to acceptable levels. Depending upon conditions, the overall treatment methods can be grouped as follows :

§ Ion exchange

§ Aeration plus filtration

§ Chemical oxidation plus filtration

§ Catalytic oxidation filtration

§ Are the products approved ANSI/NSF?

Products approved ANSI/NSF have been tested and proven to do what they are designed to do.

§ Products certified ANSI/NSF 44-53-55-58 or 62 (components in contact with drinking water certified NSF61 or NQ3660-950), in compliance with the requirements of the "Environmental Technology Verification" (ETV) program in NSF International's Drinking Water Systems, or the WQA's "Gold Seal" program.

Because of the many variations in the nature of these substances, determining corrective treatment calls for a complete and reliable water analysis; thorough equipment know-how; and proper application of the « art » of water conditioning. An experienced technician can recommend the proper solution for any of your water treatment needs. Beware of magicians, don't be rushed into installing anything, sometime some experimentation is needed for difficult applications, before making a decision on equipment to install. No quick fix or cutting corners in water treatment, the choice of equipment, the proper installation, and the maintenance, will determine the durability and performance of your water treatment system.

If you have an existing system, and your appliances and plumbing fixtures are still staining, have a consistent odour problem, other possible problems that may occur, you may not have the proper installed equipment, (or leaching, needs adjustment, undersized equipment or additional equipment needed).

A company with ethics, will do the proper research and experimentation for difficult applications (odours and coloured water), to find the best solution for the customers water problems, and inform the client of long term maintenance. The functioning and maintenance of equipment should be explained to the client.

It may be confusing for the consumer if they are shopping around because they might get different opinions from different companies, because of the complexity of the field. The prices the consumers are comparing are not necessarily the same quality equipment or technologies.

The choice of the equipment should be based upon warranties, performance, duration, and the cost of long term maintenance. Any water problems can be solved with the proper

technology and equipment.

**Reference : WATER PROCESSING residential, commercial, light-industrial, third edition, Wess McGowan, Joseph F » Harrison, P.E., CWS-VI, technical Editor*