SWEETWATER SPRINGS WATER DISTRICT

TO: Board of Directors **AGENDA NO. V-F**

FROM: Steve Mack, General Manager

Meeting Date: June 5, 2014

SUBJECT: CHANGE IN MONTE RIO TREATMENT PLANT CHLORINATION SYSTEM

RECOMMENDED ACTION: Receive a report on staff's investigations into changing the chlorination system at the Monte Rio Treatment Plant and provide direction to staff.

FISCAL IMPACT: none

DISCUSSION:

The present chlorination system at the Monte Rio Treatment Plant (and at the Highland Plant as well) is chlorine generation from sodium chloride (salt) brine using Miox technology. The unit passes electricity through the salt brine and produces sodium hypochlorite which is then mixed with water to produce the chlorine residual required by State regulations. Prior to that chlorine was added to District water supply from canisters of chlorine gas which is a very hazardous material and is becoming less and less used. The Miox chlorine generation unit is a maintenance and cost of parts headache – frequent maintenance is required and replacement parts which frequently fail are expensive. District staff have been investigating alternatives to the present system for years and have had in the budget replacement of the Miox unit at the Monte Rio Treatment Plant for the past two years.

Staff have found a relatively new technology that appears to meet the District's requirements and had been holding off on purchasing this technology until we could see the product in operation and could get some testimonials from water treatment staff using the product. This has finally happened – the City of Rohnert Park is switching to this technology which is called Trichlor Feeders by Arden Industries. Rohnert Park has one unit in operation, has six more undergoing installation now, and plans to purchase 23 more next fiscal year. We understand the City of Healdsburg is considering purchasing these units.

The Trichlor Feeder is a simple apparatus that simply dissolve trichloroisocyanuric acid ($C_3Cl_3N_3O_3$) (tablets (which have been used for chlorinating swimming pools for over 50 years). In the process of dissolving the trichloroisocyanuric acid disassociates into hypochlorous acid (HOCl) which provides available chlorine to the water supply and cyanuric acid ($C_3N_3O_3H_3$). The feeder apparatus appears to operate simply and should be much easier to maintain and repair (when necessary) than the current chlorination system. If the Monte Rio Treatment Plant unit works well, we would intend to replace the Highland Treatment Plant with a similar unit.

The expense of the switchover has been approved in the FY2014 Budget. We want to bring this to your attention because the change in technology will result in cyanuric acid being added to

the District Water supply. This process has been approved by the USEPA and by the California Department of Health. These units have been in operation for public water supply since 2001. The health effects of cyanuric acid has been well studied and cyanuric acid has been determined to have no adverse health impacts. The dosage of cyanuric acid is 0.62 of the chlorine concentration added to the water – for example, if the chlorine added to District water was 1 mg/l, the cyanuric acid amount would be 0.62 mg/l.

Staff add chemicals to District water in the course of treating it. Potassium Permanganate (a hazardous chemical) is added to the green sand filters at the Monte Rio Treatment Plant to reduce iron and manganese; some residual gets into the water supply. Zinc Orthophosphate is added to the water supply at both treatment plants to extend pipe life and the current chlorination system adds sodium to the water supply in the breakup of salt which produces free chlorine. Staff intends to pursue the changeover to the Trichlor feeder system unless directed otherwise by the Board.