



**REPORT TO:** Honorable Mayor and City Commission

**FROM:** Joseph A Bippus, City Manager  
James M Rozeboom, DPS Director

**SUBJECT:** Proposed Chlorine Addition to Drinking Water

**MEETING DATE:** January 20, 2009

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Three Rivers, Michigan 49093

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**BACKGROUND:** The City Commission requested at its last meeting a report on what would be involved to chlorinate the City's Drinking water supply. Let me say first that chlorination of the City's drinking water would not have precluded the issuance of a Boil Water Notice by MDEQ for the City. Chlorination may have shortened the duration of the Boil Water Notice being in effect but there is no guarantee of that.

**Equipment –** The City has chlorination equipment in 4 of its 5 production wells. Some of the equipment would need updating and new equipment for well 4 would have to be purchased. Cost of the equipment will be available at the Commission meeting. Testing equipment costing about \$360 would be needed and reagents would cost about \$100 per year.

**Chemicals –** Our equipment is set up to feed liquid chlorine and although gas chlorine is less expensive, liquid chlorine is recommended for safety and cost of feeding equipment. Annual cost for liquid chlorine is estimated at between \$11,000 and 20,000.

**License –** At present the City is only required to have an operator with an S-2 distribution license. This license is for distribution only in systems serving up to 50,000 people. This licensing of operators required by Michigan Public Act 399 requires that systems that add chemicals to the drinking water must also have operators with a D – Limited Chemical Addition License. Currently no City employee possesses a D license. In order to add chemicals to the drinking water at least two City employees would need to qualify, take and pass the MDEQ exam for a D-2 license. Currently no employees have the experience points to write a D-2 so the City would need to hire an individual with the license or contract with an outside firm to meet the State requirement. If the commission is considering chlorination I believe that they should also reconsider the benefits of fluoridation of the water.

**Pro's –** Chlorinating the water decreases the chances that a positive bacteriological sampling event will occur. If the water is chlorinated then iron sequesterants can be added to reduce red water events.

Con's – There will be taste complaints. The goal will be to maintain a 0.2 mg/l residual free chlorine in the system which should actually change the taste of the water only slightly. We currently occasionally receive complaints of chlorine taste in the water when we don't add any chlorine. Chlorine is an oxidizer and will change the valance state of iron in the system causing red water. How much red water it will cause cannot be determined the addition of a sequesterants such as hex-a-meta- phosphate will tie up the iron in the water and reduce the red water complaints initially but could loosen rust lining pipes and cause additional red water complaints. These complaints would have to be mitigated by flushing hydrants. There is always a chance that equipment will fail and not feed any chlorine or feed too much. The expense of another employee or a contract firm to supply the Limited Treatment License D-2 required for chemical addition.

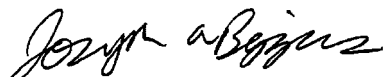
Process – If the Commission decided to chlorinate the drinking water a permit must be applied for and approved by the MDEQ, then equipment and chemicals would be placed on order. Chlorination could begin as soon as April; we would want to start it in conjunction with a hydrant flushing. Monitoring would take place on a daily basis and feed rates fine tuned.

**FISCAL EFFECTS:** An expenditure of \$16,000 for chlorine, and if desired \$20,000 for phosphates, and \$6,000 for fluoride would be spent annually from the Water Fund. An estimated 600 manhours will be needed to operate the chemical feed system(s) or 29% of one full time employee's time.

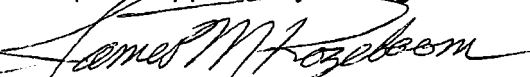


Cathy Lawson, Finance Director

**RECOMMENDATION:** It is recommended that the City Commission consider the pro's and con's of chemical addition to the drinking water, and consider public comment and give staff direction.



Joseph A Bippus, City Manager



James M Rozeboom, DPS Director