



3.0 Pending Regulations

3.1 General

Several rules are scheduled for promulgation and implementation within the next few years. Because these rules have not yet been formally proposed or promulgated, their relative impact on current treatment operations at the City’s water treatment facility is difficult to predict with any certainty at this time. However, Black & Veatch maintains close contact with EPA officials involved in the preparation of these new regulations, and the information presented in this section reflects the latest thinking with regard to these regulations. The information presented herein should be reviewed and revised as necessary when the rules are proposed and finalized.

3.2 Stage 2 Disinfection By-Products Rule

It is currently anticipated that Stage 2 of the Disinfection By-Products Rule will be proposed during July 2003 and finalized during July 2004. The assessment summarized below is based on information presented in (1) the “Stage 2 M-DBP Agreement in Principle”, which will serve as the basis for EPA’s development of the Stage 2 DBPR, and (2) the November 2001 pre-proposal draft regulation issued by EPA for stakeholder review. (It is emphasized that EPA may elect to modify these regulatory provisions, based on public comment received following formal proposal of the regulation and/or new information developed during the regulatory promulgation process.) “Stage 2A” of this regulation, which will become effective three years after promulgation, i.e., by July 2007, will require that systems comply with running annual TTHM and HAA5 MCLs of 0.120 mg/L and 0.100 mg/L, respectively, at each of their current DBP monitoring locations. (Systems must also continue to comply with the impending Stage 1 MCLs for TTHMs and HAA5 of 0.080 mg/L and 0.060 mg/L, respectively, based on “system running annual average” values.) “Stage 2B” of this regulation, which will become effective six years after promulgation, i.e., by July 2010, will require compliance with running annual TTHM and HAA5 MCLs of 0.080 mg/L and 0.060 mg/L, respectively, at individual “revised” system monitoring locations. (KDHE may extend this compliance deadline by up to two years if significant capital expenditures will be required to achieve compliance.) As discussed in Appendix 3, these



revised monitoring locations will be selected based on one year of system DBP monitoring at 60-day intervals at 16 locations (8 locations per plant) not currently included in the City’s DBP monitoring program. The primary purpose of this additional monitoring is to identify areas within the distribution system where DBP levels are highest. This monitoring must be completed, and a report summarizing the testing results and the City’s recommended revisions to current monitoring sites must be submitted to KDHE within two years of promulgation of the Stage 2 rule, i.e., by July 2006.

A summary of recent maximum quarterly running annual average DBP concentrations at each of the City’s eight current monitoring locations is presented in Table III-13. These data suggest that the City should easily comply with the Stage 2A TTHM and HAA5 MCLs of 0.120 mg/L and 0.100 mg/L, respectively, at individual monitoring sites using current disinfection practices. These data also suggest that compliance with the more restrictive “Stage 2B” TTHM and HAA5 MCLs of 0.080 mg/L and 0.060 mg/L, respectively, at revised system monitoring locations should also be achieved. (As chloramines are utilized for residual maintenance within the distribution system, DBP concentrations throughout the system should be relatively consistent.)

| Table III-13 | | |
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| Maximum 4-Quarter Running Average DBP Concentrations at Current System Monitoring Sites | | |
| Monitoring Location | Max. 4-Quarter Average DBP Concentration mg/L ⁽¹⁾ | |
| | TTHM | HAA5 |
| Westminster Inn | 0.0544 | 0.0395 |
| McDonalds (6 th & Wakarusa) | 0.0643 | 0.0445 |
| Kwik Shop (1401 Kasold) | 0.0659 | 0.0415 |
| Village Inn (821 Iowa) Royal Crest Lanes (933 Iowa) | 0.0569 | 0.0355 |
| City Hall | 0.0542 | 0.0385 |
| Wal-Mart | 0.0622 | 0.0408 |
| JLE Building | 0.0582 | 0.0308 |
| KDHE (804 W. 24 th Street) | 0.0624 | 0.0410 |

⁽¹⁾Based on quarterly monitoring results for 1999 through 2001.

Based on the above considerations, the only significant impact of this regulation on current treatment practices will be the increased analytical costs incurred during the initial 1-year period of expanded IDSE system monitoring.



3.3 Long-Term Enhanced Surface Water Treatment Rule

A long-term Enhanced Surface Water Treatment Rule which extends the IESWTR requirements to systems serving less than 10,000 consumers was promulgated during January 2002, and will become effective during January 2005. This regulation, referred to as the Stage 1 Long-Term Enhanced Surface Water Treatment Rule, or LT1ESWTR, will not have any impact on the City’s current monitoring and treatment requirements.

As discussed in Appendix C, a long-term Stage 2 ESWTR (currently being referred to as the LT2ESWTR) is expected to be proposed during June 2003 and finalized during July 2004. As this rule has not been formally proposed, it is not prudent to make any firm recommendations regarding what the City should do to prepare to comply with specific requirements of this regulation. However, the “Stage 2 M-DBP Agreement in Principle”, which will serve as the basis for EPA’s development of the LT2ESWTR, and the November 2001 pre-proposal draft rule provide some indications as to how the Agency will proceed in developing the regulation. The discussion that follows assumes that the LT2ESWTR will be proposed and promulgated as recommended by the regulatory negotiating committee that drafted the “Agreement in Principle”, and as summarized in the pre-proposal draft. (It is emphasized, however, that EPA may elect to modify these regulatory provisions, based on public comment received following formal proposal of the regulation and/or new information developed during the regulatory promulgation process.)

Specific treatment requirements under this regulation would be determined based on results from two years of monthly monitoring to assess average source water *Cryptosporidium* concentrations. Source water monitoring would need to be completed, and a report summarizing the resulting data would need to be submitted to KDHE within 2 and one-half years of promulgation of the LT2ESWTR, i.e., by January 2007. If this monitoring reveals that 12-month running average source water *Cryptosporidium* concentrations equal or exceed 0.075 oocysts per Liter, the City would be required to provide increasingly-stringent levels of oocyst physical removal, in addition to a minimum 1-log inactivation by disinfection if average oocyst concentrations exceed 1.0 per Liter. Compliance with these more stringent treatment requirements would be required by July 2010 at the earliest, and KDHE could grant compliance extensions of up to two years if significant capital improvements are required to achieve compliance.



The City has conducted quarterly source water and treated water monitoring to assess removals of *Cryptosporidium*-sized particles across the treatment process at the Kaw River and Clinton treatment facilities since mid-1996. These analyses indicate that historical average removal of particles in the 5 – 10 micron size range is approximately 4.7-log for the Clinton plant and 3.6-log for the Kaw River Plant. (The overall range of particle removals during this period was 2.4-log to 8.8-log for the Clinton Plant, and 0.67-log to 5.3-log for the Kaw River plant.) However, source water *Cryptosporidium* monitoring data using EPA Method 1623 (the analytical method that will be required for source water monitoring under the LT2ESWTR) are not currently available. Therefore, firm conclusions regarding potential compliance requirements cannot be developed until the required *Cryptosporidium* monitoring has been completed. Comments on potential compliance requirements presented in this report should be regarded as preliminary, and a reassessment of compliance requirements should therefore be conducted following completion of source water *Cryptosporidium* monitoring in January 2007. However, as discussed in Section VI.D below, the City may be able to comply with the “Bin 2” additional treatment requirements (1-log additional treatment required, based on a maximum 12-month running average source water *Cryptosporidium* concentration between 0.075/L and 1.0/L) by obtaining credit for *Cryptosporidium* removal achieved by (1) presedimentation, (2) two-stage lime softening, and/or (3) maintaining filtered water turbidities at 0.15 NTU or lower for a minimum of 95 percent of the monthly samples collected.

Should future monitoring of source water *Cryptosporidium* concentrations indicate that the City may be classified in “Bin 3” (2-log additional treatment required, based on a maximum 12-month running average source water *Cryptosporidium* concentration between 1.0/L and 3.0/L), provisions for primary disinfection using an alternative disinfection process such as ultraviolet (UV) irradiation could be required. (As discussed in Appendix C, utilities will be able to choose from a wide range of treatment methodologies in order to achieve the required level of *Cryptosporidium* removal/inactivation.) Another treatment option would be use of membrane processes such as microfiltration and ultrafiltration, which provide positive physical removal of both *Giardia* cysts and *Cryptosporidium* oocysts. The “Agreement in Principle” states that membrane filtration processes would be an acceptable substitute for oocyst inactivation processes, and that “EPA believes that ultraviolet (UV) disinfection is available and feasible”, based on currently available information. Treatment facilities



that could be required to comply with this regulation are discussed in Section X. D below.

All systems which are required to monitor source water *Cryptosporidium* oocyst concentrations would also be required to prepare *Giardia* and virus inactivation profiles under the LT2ESWTR, if promulgated as currently recommended. The City would be required to document the total level of *Giardia* and virus inactivation achieved at least once per week over a period of at least one year, beginning two years after promulgation of the LT2ESWTR (i.e., by July 2006, if this regulation is promulgated as currently scheduled). The disinfection profiling requirement could be waived by KDHE if the system's request for approval of existing disinfection data (referred to as "grandfathered" data) is approved in writing by the Department prior to the date that the City would be required to begin disinfection profiling. The City could therefore create the profile by either conducting new weekly monitoring, or by using historical, grandfathered data, if approved by KDHE. It is emphasized that the City would be required to document and incorporate disinfection achieved throughout the entire treatment facility (free chlorine across the secondary basins, and chloramine across the filters and the treated water storage facilities) in preparing the disinfection profile.

3.4 Radon

As discussed in Appendix C, EPA has proposed a new MCL for radon of 300 pCi/L, and an alternative MCL of 4,000 pCi/L when a multimedia radon mitigation program is put in place by state regulatory agencies. Radon normally presents problems for utilities that treat groundwater from deep wells; as the City does not utilize deep well supplies, it is anticipated that this regulation will not have any impact on current water treatment practices.