

Update from the Municipal Attorney on direction given at the March 22, 2018 Assembly meeting regarding a secondary potable water supply (the need, source, permitting, risks).

1974 EPA Safe Drinking Water Act- The federal law that protects public drinking water supplies throughout the nation. Under the SDWA, EPA sets standards for drinking water quality.

1986 Blue Lake put online as primary drinking water source- Indian River used as backup source during penstock outages. Prior to 1986 Indian River (water plant built in the 60s) and Cascade Creek (water plant built during WWII) supplied drinking water to the community. Prior to the 1960s Indian River Plant there was a treatment plant located further upstream.

June 29, 1989- Surface Water Treatment Rule- Requires most water systems to filter and disinfect water from surface water sources, establishes maximum contaminant levels goals for viruses, bacteria, and giardia and includes treatment technique requirements for filtered and unfiltered systems to protect against health effects and exposure to pathogens.

- EPA has developed the Surface Water Treatment Rules (SWTRs) to improve your drinking water quality. The regulations provide protection from disease-causing pathogens, such as *Giardia lamblia*, *Legionella*, and *Cryptosporidium*. The regulations also protect against contaminants that can form during drinking water treatment. Achieving chlorine contact time prior to the first customer is required. Contact time refers to the concentration of chlorine in water x the time of contact that the chlorine has with water, or more simply- chlorine concentration x time of contact. Water systems must demonstrate that the chlorine has had enough contact time with the water to inactivate giardia before the first customer is served.
- Pathogens, such as *Giardia*, *Cryptosporidium* and *Legionella*, are often found in water. If consumed, these pathogens can cause gastrointestinal illness (e.g., diarrhea, vomiting, cramps) and other health risks. These illnesses may be severe and sometimes fatal for people with weakened immune systems. *Cryptosporidium* is a significant concern in drinking water because it is resistant to chlorine and other disinfectants.
- The Surface Water Treatment Rules were established to protect against these pathogens. To protect public health, drinking water from lakes, rivers streams and some other sources needs to be treated. This treatment includes disinfection and, in most cases, filtration.

December 16, 1998- Interim Enhanced Surface Water Treatment Rule- Sets a maximum contaminant level goal of zero for cryptosporidium, requires that watershed protection programs address cryptosporidium for systems that do not filter, requires systems to calculate levels of microbial inactivation to address risk trade-offs with disinfection byproducts.

December 16, 1998 -Stage 1 Disinfectants/Disinfection By-Products Rule-Reduces drinking water exposure to disinfection byproducts. Disinfection byproducts are a result of chlorine reacting with the organics in drinking water. There's a fine balance between adding enough chlorine to achieve contact time and also risking elevated levels of byproducts.

January 14, 2002- Long Term 1 Enhanced Surface Water Treatment Rule- same as Interim Rule

January 4, 2006- Stage 2 Disinfectants/Disinfection By-Products Rule-Tightens compliance monitoring requirements for disinfection byproducts (Total Trihalomethanes and Haloacetic acids).

January 6, 2006- Long Term 2 Enhanced Surface Water Treatment Rule- Targets additional cryptosporidium treatment requirements to higher risk systems, provides provisions to ensure systems maintain microbial protection as they take steps to reduce the formation of disinfection byproducts, with a 2014 compliance deadline.

May 2009- CBS Water Master Plan- Chapter 3: In-depth review of the Surface Water Treatment Rules and impacts to the CBS. States need to comply with the cryptosporidium requirements no later than Oct 1, 2014. UV as preferred method (Blue Lake source) to comply with the regulations. The Master Plan also included a recommendation for a dedicated water line separate from the penstock.

May 3, 2009-Indian River put online for the last time. Boil water notice issued to residences in the Indian River subdivision and some portions of Sawmill creek due to inadequate chlorine contact time. This was the last time Indian River was put online until the dam project when a temp filtration plant was installed in order to meet current drinking water regulations.

April 21, 2010- Memo to Assembly for Drinking Water UV Disinfection Project Design Funding- Memo recommending the transfer of working capital funds for the design of the UV facility in order to comply with the Long Term Enhanced Surface Water Treatment Rule (the same rule that requires filtration and chlorine contact time at Indian River)

September 7, 2011-Letter from DEC-Stating that Indian River does not meet requirements of the Surface Water Treatment Rules due to lack of filtration and contact time and if Indian River is to be used in an emergency a system-wide Boil Water Notice must be issued.

November 22, 2011- Letter from DEC-Recap of a meeting between DEC and CBS. Letter discusses the need for planning for an alternate supply of water for the dam project as well as for future needs, the treatment requirements for Indian River and the necessity of issuing a boil water notice if treatment is not installed and the potential for water quality issues in BL after the raising of the dam.

May 2012-Treatment Alternatives-Temporary Filtration Evaluation- Evaluation of alternatives for temporary filtration at Indian River and Sawmill Creek- Discusses the various filtration options for Sawmill Creek and Indian River. Indian River ended up being the selected site due to having existing infrastructure in place such as power, pipeline and intake. Sawmill Creek would have been challenging during the dam construction due to the various construction activities happening at the GPIIP.

October 8, 2012-Indian River and Starrigavan Test Well Drilling Program- drilling performed to evaluate opportunities to develop groundwater supply sources in the lower valleys of Indian River to be used during the dam project and as the long-term back-up source. Conclusion was the aquifer system in Indian River is limited to narrow channels therefore the probability of developing a substantial groundwater supply in the Indian River study area is quite low. Starrigavan drilling showed adequate quality and quantity of water, however \$50M of distribution and treatment improvements would be needed in order to utilize.

January 2013 – Procurement of UV reactors for UV Disinfection facility. This was the option chosen for complying with the Long Term 2 Enhanced Surface Water Treatment Rule due to the lower costs associated with construction as well as operations and maintenance.

February 4, 2013-Scope and Budget for Indian River Temporary Filtration Final Design and Services During Construction and Operation- Provides scope of work, costs, schedule, etc.

February 25, 2013- Approved assembly ordinance-to award a time and materials contract for the Indian River Temporary Filtration Final Design and Services During Construction and Operation for the alternate water source filtration project

May 7, 2013-Bag/Cartridge Filter Summary-Summarizes the evaluation of bag or cartridge filters for temporary filtration at Indian River. Would require unreasonably large number of filter units, large footprint, and exorbitant amount of filters needed on-hand and higher costs than other filtration options

May 2013-Temporary Filtration at Indian River-summarizes the preliminary design for the temporary filtration needed at Indian River in order to comply with the drinking water regulations

August 12, 2013- Memo to Marlene on Temp Filtration Equipment-Rental vs. Purchase- memo discusses the rental vs. purchase prices for the temporary filtration project at Indian River

August 13, 2013- Memo to Karen Rehfeld, State Budget Director- Requesting direct funding through legislative appropriations to cover costs associated with the Blue Lake Hydro and Temp Filtration Projects

February 25, 2014-Resolution 2014-02- Approving CBS to apply for an ADEC loan in the amount of \$4.32M to finance construction of the temporary water filtration plant at Indian River.

March 6, 2014-Compliance Order by Consent between ADEC and CBS-Extension to comply with the Long Term 2 Enhanced Surface Water Treatment Rule for the emergency municipal water source at Indian River. Use of Indian River requires construction and operation of a temporary membrane filtration and chlorination disinfection system at the existing Indian River facility.

June 2014 – Advertise for bids and start construction of UV Facility.

December 5, 2014- Operational Evaluation Letter to DEC- Letter explains that while CBS was using Indian River water and the temporary filtration plant that CBS violated the disinfection byproduct limits due to high total dissolved organics in Indian River and a much higher chlorine dose was needed in order to achieve contact time.

May/June 2015 – Construction of UV Facility Complete and request to DEC for final approval to operate submitted to DEC.

November 27, 2017- Indian River Emergency Water Supply Evaluation-Evaluation discussing scope of work and costs associated with putting Indian River online for emergency situations. System-wide Boil Water Notice needed to use this source unless filtration installed and chlorine contact time met. A system-wide Boil Water Notice would have huge economic repercussions. It would significantly impact the fish processors, restaurants, hospitals, dental clinics, schools, etc.

January 23, 2018- Dedicated Water Supply Report- Evaluation looking into possible options and associated costs to provide water to the community during penstock outages. Options include intake and dedicated water line from Blue Lake, filtration at Indian River/Sawmill Creek, and development of the Starrigavan Well Field.

April 2018- Filtration Evaluation for Critical Secondary Water Source-(this report is still in DRAFT form, final report expected in April) In-depth evaluation on granular and membrane filtration options and costs associated with design, construction, operation and maintenance.