

May 20, 2015

**Discussion Item:**

***Potential for trace pharmaceuticals to be discharged in the treated wastewater effluent disposal system servicing the Senior Housing complex and potentially contaminating area private water supply wells.***

**Response:**

- A groundwater discharge permit will need to be issued by MassDEP for the wastewater disposal system and this permit will establish safeguards through the issuance of specific effluent quality standards or permit limits for the site. These permit limits will consider anticipated effluent quality and address the requirements of sensitive receptors in the area, including water supply wells, based upon EPA and MassDEP standards.
- The proposed wastewater treatment facility is anticipated to utilize membrane treatment and UV technology as the primary treatment mechanisms. These technologies are state-of-the-art methods for maintaining the highest quality effluent possible for on-site wastewater treatment systems. The technology has exceptional capabilities to treat the effluent including the breakdown and oxidation of complex chemicals and the disinfection of effluent flows.
- The proposed treated effluent disposal area is located in the southeast quadrant of the project site and anticipated groundwater movement in this area is to the west toward down-gradient deed restricted wetlands. (See attached sketch.) This means the natural groundwater flow is away from the proximate homes which are east of the site and thus the infiltrated effluent flows away from those homes and away from their wells. This should result in no impact even to deeper private wells.
- The effluent disposal system is anticipated to utilize innovative drip dispersion technology which will enhance evapo-transpiration and vegetation uptake of the effluent, helping to reduce the net hydraulic loading to the groundwater system. The drip dispersion system is pressure dosed and installed 6" to 8" below the ground surface generally allowing increased and enhanced filtration of the treated effluent flow before entering the groundwater regime.
- The users of the wastewater treatment system will each be notified, generally on an annual basis, as to the proper care of the system and what not to discharge to the private sewer. The information guide will specifically list pharmaceutical products as one of the items which will be prohibited from entering the wastewater system.
- The membrane treatment reactor maintains a concentrated mixture of beneficial bacteria to treat the wastewater, more concentrated than most conventional treatment systems. This allows the reactor to more completely treat and remove trace contaminants in the wastewater and to resist any negative impacts of pharmaceuticals and antibiotic on the biological treatment system's performance. Unlike other more conventional treatment systems, the membrane also offer a physical barrier to contaminants segregating them from the treated effluent down to the sub-micro levels (0.2 um), resulting in a high quality effluent with only trace contaminant levels.

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