PASCO COUNTY, FLORIDA
INTEROFFICE MEMORANDUM

TO: Honorable Chairman and Members of the Board of County Commissioners

DATE: 7/6/09 FILE: UTFSSP09-474

THRU: Bruce E. Kennedy, P.E.
Assistant County Administrator
(Utilities Services)

SUBJECT: Utilities Services Branch, Pasco County Industrial Wastewater Pretreatment Program, Regional Medical Center Bayonet Point - Success Story

FROM: Robert J. Sigmond
Utilities Fiscal and Business Services Director

REFERENCES: All Comm. Dists.

This data is submitted to the Board of County Commissioners for informational purposes only.

DESCRIPTION AND CONDITIONS:

Managing the occurrence of chlorides in our wastewater is a problem. They result from saltwater infiltration into the sewers or from direct discharge of backwash waste flow high in chlorides from water-treatment units, such as water softeners. Saltwater intrusions must be controlled by repair and sealing of the sewers. Controlling water treatment backwash high in chlorides is a more complex problem. Chlorides (e.g., sodium chlorides and calcium chlorides) are generally generated from households, commercial, and industrial facilities, as a result of backwashing water softeners. Households units are very small and unlike those large water softeners employed at commercial and industrial facilities for removing hardness. When discharged into wastewater flow, chlorides pass through the wastewater treatment plants because these facilities are designed based on biological treatment processes, and chlorides are not amenable to treatment or removal. As a consequence, chlorides have been a persistent issue at most if not all of our wastewater treatment plants and, in particular, at our Hudson Wastewater Treatment Plant (WWTP). This is by no means limited to Pasco County but is rather a nationwide issue. The Hudson WWTP discharges to our reclaimed water system. During wet-weather, this reclaimed water must be discharged into our Rapid Infiltration Basin System (RIBS) for disposal, and the resulting chloride concentrations in the groundwater aquifer at the Zone of Discharge (ZOD) must meet the permitted limits for drinking water of 250 mg/l; thus protecting the local supply of drinking water. Exceeding this limit is a violation of the WWTP's Florida Department of Environmental Protection (FDEP) Permit. This has been an issue at the Hudson WWTP, and our FDEP Consent Order required the County to take corrective action to bring our effluent (reclaimed water) discharges into compliance.

In order to reduce the chloride concentration levels in the Hudson WWTP's effluent or reclaimed water, County staff embarked on the difficult task of locating the sources of chlorides and attempting to regulate them through the Industrial Wastewater Pretreatment Program. As a result of this undertaking, County staff successfully located several sources of chlorides that are considered by the staff to be minor sources; these sources were issued Zero Discharge Permits (e.g., owners to haul the brine water to facilities outside the County for proper disposal) under the Industrial Wastewater Pretreatment Program. However, an extremely significant source of chlorides was found to be the Regional Medical Center Bayonet Point (RMCBP), where a series of large water softeners was used to purify over two million gallons of water per month. This resulted in the use of nearly 1,000 pounds of salt (sodium chloride) weekly. Chloride concentrations in the wastewater discharge at the RMCBP were as high as 6,000 mg/l (legal drinking water limits are 250 mg/l). Based on our findings, County staff began to regulate this wastewater source for brine through 1) issuing a Pretreatment Permit, 2) adopting a Salt Reduction Program, 3) limiting the hours of brine discharge, and 4) extensive sampling and monitoring of the discharge into the County's wastewater infrastructure for sodium and chlorides.

Because it is nearly impossible to treat chlorides, there was an understanding as well as a mutual benefit to both the County and RMCBP management that a complete dismantling of the existing water softener system and a zero salt use system be installed at the institution. In order to accomplish these objectives, a replacement system had be selected, purchased, tested, and operated. The RMCBP staff estimated such a project could cost as much as $400,000.00 and be completed in about an 18-month period. County staff agreed to work diligently with RMCBP staff and assist them to achieve this goal in that time period with the understanding that the old system must go regardless.

The management of RMCBP is to be highly commended by both County staff and County administration for being committed to this goal. The RMCBP management was extremely cooperative and worked closely with County staff to solve the problem.

Today, the old waster softener system has been dismantled and replaced by a new nanno-filtration system (a modified reverse osmosis) that has been in operation for nearly two months. See the attached photographs for before and after pictures. The RMCBP no longer uses any salt to purify its water. Chloride concentration in the hospital's wastewater discharge is now at about 200 mg/l, below the County's legal requirements.

ATTACHMENTS:

1. Photographs showing the old water softeners and the new nanno-filtration system at the Regional Medical Center Bayonet Point (RMCBP)

RJS/FME/ut/bayptpretreat