

**CITY OF BOULDER  
WATER RESOURCES ADVISORY BOARD  
INFORMATION ITEM**

**MEETING DATE: October 21, 2013**

**AGENDA TITLE:** Information Item – Overview of the Industrial Pretreatment Program

**PRESENTERS:**

Jeff Arthur, Director of Public Works for Utilities  
Bret Linenfelser, Water Quality / Environmental Services Manager  
Ridge Dorsey, Laboratory and Industrial Pretreatment Supervisor

**EXECUTIVE SUMMARY**

The City of Boulder's (city's) 75<sup>th</sup> Street Wastewater Treatment Facility (WWTF) receives all residential, commercial and industrial wastes disposed to the city's sanitary sewer system. At the WWTF, wastewater passes through a multi-stage treatment process before discharging treated wastewater into Boulder Creek.

Wastewater generated by industrial activities may contain pollutants that are harmful to wastewater workers, compromise the effectiveness of wastewater treatment operations, or have an adverse effect on the environment. The city is required by the Environmental Protection Agency (EPA) to maintain an Industrial Pretreatment Program (Pretreatment Program) to prevent these negative impacts. The city's Pretreatment Program is required to establish local limits for various industrial dischargers and pollutants to ensure the city's WWTF is not adversely impacted, can meet state-issued discharge permit limits and protect Boulder Creek. Chapter 11-3 of the Boulder Revised Code (B.R.C.) establishes the regulatory authority for the city's Pretreatment Program and sets forth limits for the acceptance of discharges to the city's sanitary sewer system. Code revisions are periodically developed to comply with state, federal, and local requirements.

Pretreatment Program staff responsibilities include general program implementation, compliance monitoring, data management, industrial sampling, industrial/business surveying, education/outreach programs, discharge review/permitting, regulation review, and special projects. Currently, the Pretreatment Program permits 13 significant industrial users (SIUs) (see Attachment A) with process discharges ranging from chemical manufacturing to food processing. The total average flow from SIUs to the WWTF is approximately 5 percent of the overall flow. The Pretreatment Program also works to control pollutant discharges from non-

permitted industrial users (IUs) such as dental office, photo-processors, and restaurants. IUs are estimated to account for an additional 2.4 percent of the average WWTF flow.

This item is being presented as an informational item to WRAB. No formal action by the WRAB is requested at this time.

## **BACKGROUND**

The Federal Water Pollution Control Act in 1972 required the EPA to establish the National Pretreatment Program and to develop pretreatment standards to control industrial discharges to the sanitary sewer. EPA promulgated the General Pretreatment Regulations for new and existing sources of pollution in 1978 with revisions in 1988 and 1990. Further revisions were made to the General Pretreatment Regulations by EPA in October 2005 and termed Pretreatment Streamlining. These regulations established the procedures for developing and enforcing the national industrial pretreatment standards. All publicly owned treatment works with design flows greater than 5 million gallons per day (MGD) are required to develop an Industrial Pretreatment Program to implement the regulations. In response to these regulations, the city developed its own Industrial Pretreatment Program that was approved by EPA in January of 1983.

Since its initial inception, the city's Pretreatment Program has worked to build partnerships with both regulated and non-regulated commercial industrial facilities throughout the city. The Pretreatment Program operates with three full time employees and is funded through the Wastewater Utility Fund. The program generates revenue through permit fees and sewer surcharge fees (excess user fees).

The objectives of the program are as follows:

- To prevent the introduction of pollutants onto the city's wastewater collection and treatment system that could interfere with treatment operations.
- To prevent the pass through of untreated pollutants into Boulder Creek.
- To improve opportunities for recycling of wastewater treatment biosolids.
- To protect the general health and safety of WWTF workers and downstream water users.

## **ANALYSIS**

The city implements the Pretreatment Program based on local, state and federal requirements. Under federal code the Pretreatment Program is required to implement specific program elements. The major program elements include: deny or condition contributions of pollutants; control pollutant contributions through permits; carry out inspections and pollutant monitoring; obtain remedies for non-compliance (enforce the rules); authority to prevent or halt discharge of

pollutant that may cause harm. These requirements have continuously been implemented by city staff since Pretreatment Program approval in 1983.

Pretreatment Program focus areas can be divided into activities associated with permitted sanitary sewer users or non-permitted sanitary sewer users. Permitted users, due to facility size or manufacturing activities, are referred SIUs. The Pretreatment Program permits thirteen SIUs, and all SIUs are required to submit periodic compliance reports demonstrating compliance with permit requirements. The Pretreatment Program is also required to verify compliance independently of the information provided by the SIU. Independent information is gathered through the inspection and monitoring (sampling) components of the program. Annual reporting to EPA summarizes all city compliance activities related to SIUs.

Program activities associated with non-permitted users seek to identify and control potential new or changing sources of pollution discharged to the city sanitary sewer system. Staff is regularly involved in the evaluation of new discharges and new or growing industrial sectors, such as dental offices, brewers, medical marijuana growers, or photo-processors. Information gathered from inspections and wastewater sample analysis can lead to a determination of no impact (as is the case with medical marijuana) or may lead to the development of local regulations. As an example, an in-depth study of city dental offices led to the development and subsequent implementation of the city dental amalgam management rule in 2007. A brief summary of three newer on going Pretreatment Program initiatives is provided below.

**Medical Marijuana.** In 2009, concurrent with the city's development of comprehensive regulations for the medical marijuana industry, pretreatment staff reviewed operational practices of the industry. The purpose of the industry review was to determine if rules regarding wastewater discharge should be incorporated into the overall city regulation. Staff conducted site inspections, gathered operational information and collected two samples from nutrient solutions used by medical marijuana growers. Conclusions drawn from the investigation indicate that while the "fresh" nutrient solutions do contain some pollutants of concern, due to the low volume of (100 to 150 gallons per grow operation) of nutrient solutions, the total expected loading from medical marijuana grow operations is well below background domestic loadings. As of December 2012 there were 32 marijuana growing operations. Market expansion to accommodate the recreational market is expected, therefore additional inspections and sampling will be considered for the Industrial Pretreatment 2014 work plan.

**Dental Amalgam Management.** The dental amalgam management rule establishes requirements for controlling the discharge and recycling of amalgam wastewater from dental practices. The purpose of the amalgam wastewater rules is to reduce mercury in wastewater by preventing its release from the source through proper handling and the use of filters and separators in dental practices. This program has annually certified approximately 100 dentists/dental offices as program compliant. The average annual mercury loading has been reduced from 109 nanograms per liter (ng/l) to 59 ng/l. Following treatment, the WWTF effluent concentration has dropped from an average of 10 ng/l to 2 ng/l. The WWTF effluent permit limit is 10 ng/l for flows exceeding 20 MGD.

**Pharmaceutical Take-Back.** The Pretreatment Program has actively participated in the city's pharmaceutical take-back program, which was initiated in 2009. The pharmaceutical take-back program has focused on public education and outreach on the proper disposal of pharmaceuticals and conducting at least one pharmaceutical take-back event in the City of Boulder each year. The city coordinates pharmaceutical take-back events with Boulder County, Boulder Community Hospital and a local pharmacy, with Boulder County contributing funds to support the event. Each pharmaceutical take-back event has been very successful, collecting up to 1,000 pounds of expired or unused pharmaceuticals, some of which contain various emerging contaminants. Since Boulder County and city funding was not available in 2013, a city-sponsored pharmaceutical take-back event will not be held in 2013, but the city continues to provide education and outreach regarding the potential impacts of emerging contaminants through posting information on the City of Boulder Web site.

In addition to city pharmaceutical take-back events, the Boulder County Sheriff's office sponsors a prescription drop-off box located at the Boulder County Sheriff's Office Headquarters located at 5600 Flatiron Parkway. The drop-off box is open to the public Monday through Friday from 7:30 a.m. to 5:30 p.m. The Federal Drug Enforcement Agency (DEA) has also been sponsoring a pharmaceutical take-back event each of the past three years with interested communities in the State of Colorado. The City of Boulder Police Department and Boulder County Sheriff's Office have both participated in this event, and the next event is scheduled for October 26, 2013.

## **NEXT STEPS**

Pretreatment Program staff will continue to advance the regulatory framework to stay abreast of changes in the business and industrial community of Boulder. Staff will work to understand impacts of new regulations or shifts in pollutants of concern to meet the goals of the program. Future regulations may include an EPA requirement to manage mercury discharges from dentists and our current program positions the city to be well ahead of the curve should a federal standard be promulgated.

## **ATTACHMENTS**

Attachment A: Industrial Pretreatment Permitted Industries

Attachment A

City of Boulder – Industrial Pretreatment Permitted Industries  
WRAB October 21, 2013

Permitted Facilities	Process description
<b>Advanced Probing Systems, Inc.</b>	Manufacturer of testing probe needles by electrochemically etching blanks of various metals.
<b>Agilent Technologies, Inc.</b>	Contract manufacturer of pharmaceutical intermediaries.
<b>Amgen, Inc</b>	Manufacturer of bioengineered pharmaceuticals.
<b>Astro Endyne Co., Inc.</b>	Manufacture of printed circuit boards using screen printing and electroplating processes.
<b>Ball Aerospace &amp; Technologies Corp.</b>	Research, development, and manufacture of aerospace hardware.
<b>Corden Pharma Colorado Inc.</b>	Manufacturer of pharmaceutical products.
<b>Hain Celestial Group, Inc. dba WestSoy Tofu</b>	Produces food products made from soybeans and wheat gluten including: tofu, tempeh, and meat analogs.
<b>International Business Machines Corporation</b>	Office and computer related services. Some wastewater is treated for Lexmark.
<b>Lexmark International Inc.</b>	Manufacture laser printer supplies; toner and photoconductor drums.
<b>Merck, Sharp, &amp; Dohme Corp</b>	Biotechnology - research and development of therapeutic proteins for pharmaceutical uses.
<b>National Institute of Standards and Technology (U.S. Dept of Commerce)</b>	Research and development, metal finishing, chemistry, facility maintenance.
<b>SAE Circuits Colorado, Inc.</b>	Manufacture of printed circuit boards.
<b>University of Colorado at Boulder</b>	Research and development, metal finishing, chemistry, food service, facility maintenance, vehicle service.