



CITY OF RAPID CITY

RAPID CITY, SOUTH DAKOTA 57701-2724

Public Works Department

Wastewater Division

7903 South Side Drive

Telephone: (605) 394-4174

Web: www.rcgov.org

MEMORANDUM

TO: Public Works Committee

FROM: Dave Van Cleave

DATE: 28 February

RE: Water Reclamation Report To Public Works

The Water Reclamation Division currently provides sewage collection and treatment to approximately 65 square miles including the City of Rapid City and surrounding area. The sewer system customer base consists of 20,042 customer accounts, of which we have 481 commercial / industrial accounts subject to the industrial pretreatment program. The system also serves 5 sanitary district accounts. The sanitary districts served include Rapid Valley, Terra Cotta, Rapid Canyon, North Dale, and the Black Hawk sanitary districts.

To provide this service, the Division employs 30 employees (27.18 FTES) The operators of both the collection system and treatment facility are required to be certified under the state board of operator certification. Both the collection system and treatment plant are considered class 4 facilities which is the top level of state certification. This means that the facilities must be under the direction of one or more class 4 operators. Functionally the staff is divided into three groups:

Utility Maintenance: Under the direction of **Chip Petrick**, the Utility Maintenance Group is a shared function between Water and the Water Reclamation Divisions, and is responsible for maintenance of the water distribution, and the sewer collection system for the City. Specifically the sewer crew consists of 10 staff members who are responsible for maintaining 322 miles of sanitary sewer line, 6,410 Manholes, and 8 sewage lift stations that pump sewage from the basins around the edges of Rapid City into the interior gravity trunk mains. The routine maintenance work includes jetting and vacuuming of the sewer system, root cutting as needed, and televising of all new sanitary and storm sewer mains as well as routine televising of lines for maintenance purposes. The group also takes care



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of the occasional sewer main break and smaller replacement projects. The Water Division also provides sewer billing services for the Water Reclamation Division as well.

Treatment Facility: Ron Back Facility Supervisor, The day to day operations of the plant, which is located 5 miles east of Rapid City, is handled by Ron, and his staff of 13. This includes 9 operators, 1 truck driver, and one maintenance technician, plus two industrial electronic technicians that are shared with the Solid Waste and Water Divisions. The facility is designed to treat up to 15 million gallons of wastewater daily, or peak hydraulic flows of up to 40 MGD. Last year the facility treated an average of 9.59 million gallons of wastewater daily, removing approximately 2,592 tons of organic material last year.

The facility is regulated under three state permits, a surface water discharge permit which regulates the discharge into Rapid Creek, a biosolids permit which governs the disposal of solids from the waste stream, to include the co-composting operation at Solid Waste, and a ground water permit that is in place to cover remediation and long term monitoring of the old sludge disposal site located next to the plant.

The treatment operation works closely with the Solid Waste Division, who through the co-composting and land fill operations, provides final disposal for the biosolids removed from the waste stream. In 2011 the Material Recovery Facility co-composted 569 Dry Tons of biosolids, along with Municipal solid waste, distributing 667 dry tons of finished co-compost to users last year. In addition, the landfill also disposed of an additional 1096 dry tons of biosolids.

Environmental Programs Group: Supervised by **Bob Druckrey**, this group is a result of a one year trial consolidation between the laboratory and the industrial waste programs that was initiated last year. This initiative was proposed due to the retiring of the previous industrial waste supervisor Chuck Larson and the previous industrial waste inspector Ritchie Nordstrom at the end of 2010. The consolidation eliminated the position of industrial waste supervisor, and appears to be working well so far. The industrial waste program regulates 467 minor users at last count, and 14 significant / categorical industries in the Division service area. The minor users are commercial establishments with pretreatment devices such as grease traps, or sand / oil interceptors, while the significant / categorical users are industries that contribute substantial flows or loads to the system, or are regulated due to specific categories of waste as are determined by the Environmental Protection Agency. The environmental programs group also operates the plant laboratory with two laboratory technicians, conducting over 21,000 separate tests each year for regulatory and operational purposes.

The overall budget for Water Reclamation for 2012 is \$12,096,351, with \$4,304,501 million allocated to operations, and \$6,054,884 into capital repair & replacement, and \$1,736,964 allocated to system expansion. 2013 will be the last year of the programmed rate increases that were approved as part of the five year plan in 2008. As of last report the fund balance stood at \$8.85 Million.

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Projects:

In the past several years the Division has embarked on several projects to expand and maintain the collection system. Among the projects for 2012, are Seager Drive Phase II, expansion of the Elk Vale lift station, and a lift station telemetry project. The telemetry project is designed to provide a more cost effective and enhanced method of monitoring lift station operations. The initial phase of relocation of the Utility Maintenance Facility is also slated for this year.

The Treatment Facility has also completed a number of projects to maintain the plant processes. Key projects in the past few years have included renovations to the anaerobic digester complex, replacement of the non potable water system and a replacement of the main motor control center in the plant. Current and upcoming projects include:

- A partial rebuild of the Ultra Violet disinfection system at a cost of \$48,370 ytd. Last fall we experienced electronic failures in this system that resulted in 6 permit violations.
- A project to renovate the plant pretreatment building and head works screening equipment, at a cost of \$1.9M. The project will replace faulty screening equipment that has been particularly problematic resulting in down stream failures to other plant equipment. Repair costs for the screens last year alone were close to \$40,000.00.
- We are proposing a project to replace an out of service lift pump for our trickling filters with ball park costs of about \$65,000.00.
- We will also be proposing an evaluation of the Trickling filter system in 2013 to extend the life of the system and improve reliability and efficiency. This system is the heart of the plant, and may involve significant dollars to retrofit.
- Within the next month or so the Division should also be seeing the results of an energy audit that was conducted by HDR for the State of South Dakota, and that Rapid City was selected to participate in free of charge. This report will have potential recommendations for energy saving measures and projects at the plant.
- Last but not least, Public works is also looking at options to provide water service to the plant as well, once the additional airport water line is installed.

Other Future concerns:

- The increased use of electronics technology and potential need for additional staff.
- Nationally, new standards for nutrient removal criteria for total nitrogen and phosphorus, could have significant impact on the treatment facility.

Open for questions