Board of Public Utilities
Waterworks Enterprise Fund
of the City of Cheyenne, Wyoming

Citizens Water Resources Report
For Fiscal Year ending June 30, 2010
Cheyenne’s water system protects and supports our community. It provides safe drinking water. It fights fires by supplying water to hydrants and fire protection systems. It supports our local economy by providing a natural resource needed by businesses. It irrigates gardens and landscapes. We use it daily to cook, clean and wash. And, it carries away waste from toilets, drains, businesses and homes.

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Cover:

Granite Springs Dam Spillway was constructed in 1904. After 105 years of use, the concrete in the spillway began to crumble and deteriorate. Consequently, the BOPU replaced the spillway during FY 2010.

Construction work did not impact the dam. Granite Springs Dam was rehabilitated in 1985 and continues to be strong and safe. The spillway is located away from the dam, approximately 200 feet east on the other side of a large granite outcrop.

The project cost approximately $716,000. Funding came from cash reserves and a $463,812 Wyoming Water Development Commission grant.
The Most Valuable Asset

The most valuable asset in the water system isn’t a facility, reservoir or main. It’s the 129 men and women who operate and maintain the water system, treat and protect the water. The infrastructure is just the tools they use. Water department crews prepare and deliver water 24 hours a day, every day. They are passionate about water quality and dedicated to our community.

Cash and Investments

Of the $21.62 million in current assets, $17.14 million is in cash, cash equivalents and investments. These resources are allocated toward operations, debt service, system development, capital additions and replacements, bond debt reserve and funds due to customers and the City of Cheyenne Sanitation. See the chart below.

What Is Cheyenne’s Water System Worth?

To many, the answer to this question may be... priceless. Water is a valuable resource necessary for maintaining our health, keeping us safe from fire and providing for the vitality of our community. How can one put a price tag on that?

However, one can assess the net worth of the community’s long-term investments in the water system. That is, the value of the infrastructure (the land, facilities, reservoirs, wells, equipment, mains, etc.) less what the community owes on that infrastructure. This is the net assets of the water system.

The net assets of the waterworks fund increased $1.9 million from $179.14 million to $181.09 million during FY 2010.

Assets and Liabilities

<table>
<thead>
<tr>
<th></th>
<th>Amount (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assets</strong></td>
<td>FY 2010</td>
</tr>
<tr>
<td>Current Assets</td>
<td>$21.62</td>
</tr>
<tr>
<td>Noncurrent Assets</td>
<td>211.82</td>
</tr>
<tr>
<td>Other Assets</td>
<td>0.11</td>
</tr>
<tr>
<td><strong>Total Assets</strong></td>
<td>233.55</td>
</tr>
<tr>
<td><strong>Liabilities</strong></td>
<td></td>
</tr>
<tr>
<td>Current Liabilities</td>
<td>9.79</td>
</tr>
<tr>
<td>Noncurrent Liabilities</td>
<td>42.68</td>
</tr>
<tr>
<td><strong>Total Liabilities</strong></td>
<td>52.47</td>
</tr>
<tr>
<td><strong>Net Assets</strong></td>
<td>$181.09</td>
</tr>
</tbody>
</table>

Definitions

**Current Assets** - Resources that can reasonably be converted to cash, sold or consumed within the next year.

**Noncurrent Assets** - Long-term resources such as the value of land, treatment facilities, machines, equipment, water mains, reservoirs, wells, etc.

**Other Assets** - Includes deferred debt expense.

**Current Liabilities** - Debt that can be paid off within the next year. This includes vouchers, debt interest and funds due to Sanitation.

**Noncurrent Liabilities** - Debt used to finance large construction projects.

Above: BOPU distribution crews maintain 377 miles of mains that carry water throughout Cheyenne. They also respond to water main breaks and won’t stop working until water service is restored.

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Cash and Investments ($ millions)

- Operating Cash ($3.99)
- Bond Debt Reserve ($0.99)
- Capital Additions, Replacements, System Development ($8.34)
- Debt Service ($3.67)
- Customer Deposits and Sanitation ($0.15)

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- Debt Service ($3.67)
- Customer Deposits and Sanitation ($0.15)
Revenues and Expenditures

Revenues
Fiscal Year 2010 revenues decreased $1.82 million from FY 2009. This is primarily due to a decrease in interest income and capital grants. For more information, see page 21 of the CAFR.

Definitions
- **Operating Revenues** - includes sales for water service and fees.
- **Nonoperating Revenues** - includes interest income, intergovernment revenues, system development fees and gains from disposal of capital assets.
- **Capital Contributions** - includes construction grants and donated utilities.

Expenditures
Fiscal Year 2010 expenditures decreased $2.88 million from FY 2009. This is primarily due to a decrease in capital purchases and construction work. For more information, see page 44 of the CAFR.

Definitions
- **Operating Expenses** - includes the costs of operating and maintaining the water system.
- **Capital Purchases** - Equipment, structures, motorized vehicles, land or other property.
- **Construction work** - See the brief descriptions of the Granite Spillway Rehabilitation, Recycled Water Pipeline Phase II, 30-inch WAFB Transmission Main Phase I and other completed water projects on page 3.
- **Debt Service** - Principal and interest payments on debt. For more information see page 5.
The BOPU transferred $8.35 million from construction work in progress to capital assets during FY 2010.

**Completed Projects**

**Granite Spillway Rehabilitation**
*Picture above and on cover. Description on inside cover.*

**Recycled Water Pipeline Phase II**
*Picture of North Cheyenne Community Park: above*

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**30-Inch WAFB Transmission Main - Phase I**
*Picture: above*

The BOPU cleaned and lined approximately 9,140 feet (2 miles) of 30-inch water transmission main that crosses F. E. Warren Air Force Base. The main was installed around 1915 and is one of the first water transmission mains to deliver treated water to Cheyenne.

Phase I involved cleaning and lining the main. This will restore flow capacity, reduce leaks and is a less costly and disruptive alternative to digging up and replacing water mains in developed areas. Cost for Phase I of the project is $2.5 million.

**Water Main Projects**
*Picture of Norris Viaduct Project: below*

Approximately $4.46 million in water main rehabilitations and replacements were added to capital assets during FY 2010. The projects added or replaced approximately 21,800 feet (4.14 miles) of water mains. Projects included water main work near West Lincollnway, Norris Viaduct, Deming and Waltersheid Avenues, Cleveland Avenue, and others.
Upcoming Projects

Southern Water Transmission Main - Phase II

*Picture: Right*

In FY 2011, the BOPU will design and pursue funding for Phase II of the Southern Water Transmission Main. Construction will add 11.5 miles of pipe as large as 42 inches. The pipe will extend the Southern Water Transmission Main from Happy Jack Road to the drinking water distribution system along Parsley Boulevard and Waltersheid Boulevard. The new main will improve water flow to developing areas in southern Cheyenne.

Estimated cost to design and construct the new transmission main is $23.4 million.

BOPU Administration Building

*Concept Sketch: Left*

This winter, crews will begin construction on a new Administration Building. The new building will be located at 25th Street, Snyder Avenue, and Dillon Avenue. The building should be completed in early 2012. Estimated construction cost is $7.5 million.

The building will create one-stop service for customers by combining administrative, engineering, and operations/maintenance services in one location. Currently, these services are scattered in inadequate offices at multiple locations around Cheyenne.

Water Main Rehabilitations

*Picture: Right*

In FY 2011, the BOPU will begin $2.22 million worth of water main rehabilitations and replacements. These projects replace deteriorating water mains or upgrade mains to improve flows. A cooperative effort with the City of Cheyenne will replace 4,950 feet of water main under East Pershing Boulevard between Dunn and Converse. Additional BOPU projects will replace 5,870 feet of water mains near Cutler Road and West Lincolnway, Linden Way, Powderhouse Road and Rio Verde Circle.

30-Inch WAFB Transmission Main - Phase II

The BOPU will begin replacing 12,000 feet of 30-Inch, cast-iron water transmission main through Warren Air Force Base in FY 2011. The project will finish efforts to replace and reline the nearly 100-year old main. Phase II is through open country making digging up and replacing the main relatively economical. Estimated construction cost is $4.18 million.
Debt Summary

At the end of FY 2010, the Water Enterprise Fund had a total outstanding debt of $46.8 million. This amount decreased by $1.7 million from FY 2009.

During FY 2010, the BOPU retired $4.6 million in debt and added $2.9 million in debt.

Right: Crews clean and line a 30-inch water transmission main that crosses F.E. Warren Air Force Base. For more information, see page 3.

FY 2010 Proceeds from Issuance of Debt

<table>
<thead>
<tr>
<th>Project</th>
<th>Advance</th>
<th>Funding Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration Building</td>
<td>$157,808</td>
<td>Loans from the State of Wyoming</td>
</tr>
<tr>
<td>30” Water Main/WAFB</td>
<td>$2,525,006</td>
<td>Loans from the State of Wyoming</td>
</tr>
<tr>
<td>FY 2010 Well Rehabs</td>
<td>$200,000</td>
<td>American Recovery and Reinvestment Act</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>$2,882,814</strong></td>
<td></td>
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</table>

Water Enterprise Fund Debt History

Debt Changes Anticipated for FY 2011

The BOPU anticipates retiring $4.9 million in debt during FY 2011 and adding approximately $5.3 million in debt. See page 4 for more information on upcoming projects.
Above normal rain during the fall of 2009 and the spring of 2010 reduced irrigation needs in Cheyenne. This coincided with an above normal snow pack and runoff. As a result, reservoirs were filled to capacity at the end of FY 2010.

**How much water did Cheyenne Use?**

In FY 2010, Cheyenne’s water customers used 4.1 billion gallons of drinking water. The ten year average water use is 4.7 billion gallons.

**How much water does Cheyenne have?**

As of June 30, 2010, Cheyenne’s reservoirs contained 13.1 billion gallons of water available for use.

**How long will Cheyenne’s water resources last?**

At current growth rates of 1 percent, per capita water use and conservation efforts, the BOPU expects average water supplies to exceed average demand through the year 2042.

That is not the same as saying that Cheyenne will have adequate water every year until 2042. On average, Cheyenne’s surface water resources can supply 5.7 billion gallons of water per year based on a 75 percent snow pack. However, since this resource comes from melting snow in the mountains west of Cheyenne, the actual amount of water supplied can vary greatly. For example, in 2002, Cheyenne’s surface water resources only supplied 1.1 billion gallons.

Cheyenne’s ground water resources can sustainably supply an additional 1.3 billion gallons per year. Combined, the resources can supply an average of 7 billion gallons per year.

**How are water conservation efforts helping water resources?**

Cheyenne’s residents are using less water. The average residential water use per person per day was 87.3 gallons during FY 2010. Compare that to the average of 110 gallons per person per day used between FY 2001 and FY 2003; before water conservation efforts in Cheyenne.
Water Quality

During Fiscal Year 2010, the City of Cheyenne Board of Public Utilities (BOPU) continued its dedication to providing safe drinking water to Cheyenne. Staff monitored drinking water quality and prepared water 24 hours a day, every day.

How hard is Cheyenne’s water?

The hardness of water refers to the amount of calcium, magnesium and up to 6 other minerals in the water. These minerals can make cleaning with the water “hard” or difficult. This is because hard water does not create suds or lather very well. It can also leave white deposits or scale on dishes and faucets.

Most of Cheyenne’s water comes from streams and reservoirs. It is not exposed to very much calcium, magnesium or the other 6 minerals. It is considered soft.

Water Hardness

Cheyenne’s drinking water averages 4.1 grains per gallon.

<table>
<thead>
<tr>
<th></th>
<th>Soft</th>
<th>Moderately Hard</th>
<th>Hard</th>
<th>Very Hard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Hardness</td>
<td>0</td>
<td>4.4</td>
<td>8.9</td>
<td>17.5</td>
</tr>
</tbody>
</table>

TCE contamination in municipal wells

The BOPU continued to work with the Wyoming Department of Environmental Quality and the Army Corps of Engineers on mitigating TCE contamination in Cheyenne’s Borie municipal wells and in ground water on the Belvoir Ranch during FY 2010. In late 2008, testing revealed that TCE concentrations were increasing in one of the municipal wells beyond the Sherard Water Treatment Plant’s ability to remove it. This well was subsequently removed from service.

In 2009, after being equipped with a temporary granular activated carbon filter by the Army Corps of Engineers, the well was returned to service and was used as needed during FY 2010. The temporary filter successfully removed TCE from the water. The Army Corps of Engineers is currently designing and preparing to build a long-term treatment process at the Sherard Water Treatment Plant as a long-term solution to remove TCE.

What is in the water?

The BOPU monitors water quality and reports that Cheyenne’s drinking water is safe and meets and surpasses federal and local requirements.

Monitoring efforts did detect small amounts of substances that likely came from the erosion of natural deposits found in the mountain ranges where Cheyenne’s water comes from. This includes copper, fluoride, nitrate, arsenic, radium, radon, uranium and barium. The amounts of these substances in the water was very small and below the Environmental Protection Agency’s (EPA) maximum contaminant levels for drinking water.

Also detected were small amounts of substances that are the result of treating the water. This includes chlorine and fluoride. Other substances, like copper and lead, likely came from corrosion of household plumbing. Again, the amounts of these substances was very small and below EPA drinking water standards.

While many people may be interested to know what is in the drinking water, it is just as important to know what is not. Results from testing showed that Cheyenne’s drinking water does not contain 55 contaminants regulated by the EPA. Among the 55 contaminants was trichloroethylene, or TCE. Testing confirmed that Cheyenne’s drinking water does not contain TCE.

For more information, view a copy of the Consumer Confidence Report. This report is available online at www.cheyennebopu.org.
How does water get to Cheyenne?

Over half of the water used in Cheyenne comes from a trans-basin trade system. It’s a three part system that moves water from one side of a mountain to another, trades water across a valley, and then pipes water across two mountains to Cheyenne.

In the first part of the system, the BOPU collects water from streams west of the Continental Divide and transports the water under a mountain by a tunnel to two reservoirs east of the Continental Divide. The two reservoirs are Hog Park and Seminoe Reservoirs.

The second part of the system trades water from Hog Park Reservoir and from Seminoe Reservoir for water in Rob Roy Reservoir. The trade exchanges water from the west side of the North Platte River Valley for water on the east side of the valley.

The third part of the system transports water from Rob Roy Reservoir to Granite Springs and Crystal Reservoirs. The water is piped by gravity down the Medicine Bow Mountains. Pressure from water pushing down from the Medicine Bow Range pushes the water across the Laramie Valley, up and over the west slope of the Laramie Mountains. Once over the top of Laramie Mountains, the water flows by gravity to Granite and Crystal Reservoirs.

Wells provide approximately 25 percent of the treated water used in Cheyenne. Crow Creek, Cheyenne’s first water source, supplies the rest.

It’s a complex system that relies on snow. Snow in the Sierra Madre and the Medicine Bow Mountain Ranges provides the water to collect, trade with and trade for. Snow also supplies water to Crow Creek and to recharge aquifers. Because the system relies on snow, it must collect and store enough water to last Cheyenne until snow packs melt again in the spring.
Find out more about Cheyenne’s water system.


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Call (307) 637-6415 to schedule a tour of one of these facilities.