Lewis & Clark Rural Water System

EXPLORER

Spring, 1997

BLIZZARD OF 1997

When it is January and February and you live in the Upper Midwest, the weather becomes a very important topic. This year's winter has been especially challenging as deep snow and bitterly cold temperatures have wreaked havoc in the northern Midwest states.

—Blowing snow and huge drifts were a common sight throughout the tri-state area.

Some water systems have had many weather related problems this winter with frozen lines, poor access to pumping stations and snow covered buildings. Fortunately, most are prepared for these conditions but this year tested even the most prepared.

The total losses and damage won't be known for another month or two. Though damaged roads, livestock losses, building damage, and lost production will create additional costs for counties and townships. With major flooding predicted and some flooding already under way, there will be additional work to protect water systems throughout the tri-state area.

City engineers and water technology professionals have been gauging water capacity in the snow and have sent out the proper warnings. With all the discussions about water and the flooding that will occur it does present an irony while trying to convince Congress of the need for a new water system in the tri-state area of South Dakota, Minnesota and Iowa.

CONGRESSIONAL UPDATE and More

The legislation for the LCRWS project will first be introduced in both the House and Senate. The Senate Energy and Resources Committee is chaired by Frank Murkowski of Alaska. The House Resources Committee is chaired by Don Young of Alaska.

Pam Bonrud, Executive Director for LCRWS, was in Washington in January for a delegation meeting hosted by Senator Tom Daschle. All three states had staff representatives at the meeting. During the meeting, staff discussed a probable scenario for introducing legislation, including timelines, strategies and future scheduling.

The LCRWS has had meetings and discussions with the Bureau of Reclamation with issues about cost share and future water conservation programs. The Bureau budgeted $50,000 to be used, by the request of the South Dakota DENR, as funding for staff work on LCRWS projects related to the development phase. The cost share issue with Sioux Falls is expected to be resolved during the hearing process. After the project is authorized, LCRWS will meet with the Bureau to discuss water conservation, project outcome issues including training and environmental assessments.

Additional funding for LCRWS has come in the form of a grant from the East Dakota Water Development District (EDWDD). Manager, Jay Gilbertson of Brookings said, "We believe the LCRWS project is critical to the water needs of Eastern South Dakota. All communities need to identify more than one source of water–they must diversify. We support communities and counties that are planning to achieve those goals and are part of the Big Sioux River watershed." The District provided LCRWS with a $10,000 grant for development costs.

CHAIRMAN'S REPORT

By Charlie Kuehl, Chairman LCRWS

Welcome to the first issue of the Explorer for 1997. I hope you survived the winter of 1996/97 the coming floods of 1997. It is always humbling to watch Mother Nature in action.

Since our last newsletter, the project membership have been working closely with our tri-state Congressional delegation to prepare legislation for introduction. We also continue our discussions with the U.S. Senate and House of Representatives committee staff to further define any remaining issues that need to be resolved before legislation is reintroduced. At this time, we are expecting federal authorizing legislation for Lewis and Clark to be submitted to Congress during the month of April. We will then begin the task of requesting committee hearings on the project, with a target for final passage of our legislation in 1998.

Once Lewis and Clark receives its federal authorization, we will begin working on final engineering and design tasks. These will include rights of way and easements acquisitions, along with final treatment plant design and pipeline locations. We are hopeful these tasks can be completed in two to three years with a ground breaking in early 2001. With project construction beginning in 2001, Lewis and Clark will be on track for completing construction in 2011 and begin delivering water to our membership. Of course, all of this will depend on how quickly we can secure funding from Congress.

This session of the 105th Congress will prove to be an exciting adventure for Lewis and Clark. We are glad you will be along for the trip!

TECH NOTES

By David Odens, Banner Associates, Inc.

Welcome to the fifth edition of the Lewis & Clark Explorer. The Tech Notes column for the past couple of newsletters has been a series of short articles describing various design and construction aspects of the proposed project. The fourth in this series is a description of the proposed water system telemetry and controls and their function.

The Lewis & Clark Rural Water System water distribution system includes over 400 miles of pipe, 5 reservoirs, 11 booster stations, and 22 water service connections. Geographically, the system cover an area approximately 105 miles east to west and 90 miles north to south. It is expected that the central point of operations will be the water treatment plant which will be located in the vicinity of Vermillion, South Dakota.

The travel distance from the most distant reservoir to the water treatment plant is over 120 miles. A system covering an area of this size must rely on a telemetry system for transmission of data necessary for system operations and monitoring.

The telemetry and control system will include pressure (or level) and flow monitors at each reservoir, pump station, and service connection. The data from the instruments will be reported to the operators by the supervisory control and data acquisition (SCADA) system. The SCADA system will permit continuous monitoring of system operation and detection of unusual conditions such as a leak, a power failure, a valve or pump failure, or an excessive water demand at one of the customer meters.

The alarm system can be configured to sense when flows or pressures are operating outside normal ranges. In the event of a significant leak on either a Lewis and Clark main line or the service connection to a customer, an alarm will be reported.

The control system can also be configured to close valves to prevent loss of water from a reservoir, shut down a pump station, or shut down a service line connection. When an alarming condition occurs, the operating staff of the Lewis and Clark Rural Water System will be notified immediately. The alarm system can then provide the operator with information regarding the nature and location of the problem reported.

A SCADA system permits more efficient use of operating labor and better control of the treatment process and distribution system. Systems of the type anticipated for the Lewis and Clark Rural Water System are systems that are commercially available and are in use in several water systems in the service area of the Lewis and Clark System.

One unique aspect of the Lewis and Clark system is that it will have a relatively small number of billing accounts. The installation of a telemetry unit for control and monitoring of each service connection will also permit collection of data necessary for monthly billings for water service. The telemetry units at the service connections can provide data for both rate of flow and total volume of water delivered over a specified period of time. Utilization of these capabilities will minimize administrative costs for the system.

IN MEMORY

Water development loses friends:

Houston Rose, a friend of rural water past away in late February. Houston served on the West River/Lyman-Jones Rural Water System board for over thirty years. His contributions to the development of water in rural South Dakota are well known amongst his peers. Our thoughts, fond memories and prayers go out to Houston's family. He will be missed.

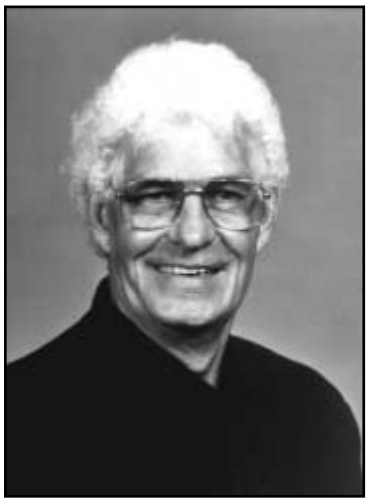
DID YOU KNOW?

70% of the earth's surface is covered by water of which less than 3% is fit for human use.

FEATURE SYSTEM

RURAL WATER SYSTEM NO. 1

As winter turns into spring and water begins to flow down our rivers once again, we prepare for another year of water development work. The development of the plains started with Lewis & Clark exploring and mapping the Plains nearly two hundred years ago. They were the pioneers who opened up the West to civilization and homesteading.



—Ron Still

Today, pioneers are needed just as they were during the time of Lewis & Clark. We recently lost one of those pioneers in the passing of Ron Still of Hospers, Iowa. Ron began his work with water development in 1972 when he became inspector/manager of Rural Water System No. 1 near Hospers. Rural Water System No. 1 was the first rural system built in Iowa.

Ron was a true pioneer in developing water systems for Northwestern Iowa. In the Spring of 1973 Ron began connecting farms and homesteads in O'Brien and Sioux Counties. His wife, Jean, now serving as manager, recalls Ron's drive this way: "To help others, to do what ever it took, to give 100% of himself and then some, that is what he believed in."

Today, Ron's legacy is the over 600 miles of pipeline that serves over 1100 rural water connections. From numerous wells to high towers, labeled Rural Water System No. 1, Ron's dream of bringing good, quality drinking water to people and their property has become a reality. Ron fostered a great deal of respect for his work and his friendships.

Today, RWS1 has two water plants with six filter systems capable of pumping 2500 gallons per minute. Originally, three shallow collective wells were built in the Floyd River Valley area which are still used today along with an additional five deep wells located west of Sioux Center, Iowa and near the second water plant.

The demand in the area continues to grow. This spring (1997), plans are to add another storage tank capable of holding 425,000 gallons. The long-term development plans include having LCRWS water to ensure the quantity and quality needs of the future.

The impact of Ron's drive to build and manage a successful water system and to have a lasting impact for water development was a big part of his life. He was looking forward to the day when LCRWS was pumping water to RWS1.

One of Ron's grandchildren summed up Ron's passion this way: "God took Grandpa to Heaven to build a rural water system there." Our condolences and best wishes to Jean Still and the Still family.

—Rural Water System No. 1's Plant 2 under construction in 1992 (top) and in 1996 (bottom).

DIRECTOR'S REPORT

By Pam Bonrud, Exec. Director, LCRWS

As our weather starts to heat up, so do issues surrounding Lewis and Clark. Our primary focus remains getting federal authorizing legislation introduced and passed in the 105th session of Congress. We also continue working with local community and state leaders to keep them informed of the project's progress and federal activities.

The Water Omnibus Bill for 1997 (which contains funding for water development in South Dakota) passed unanimously through both appropriation committees and houses of the South Dakota legislature! Contained in this bill was a $50,000 grant for the South Dakota membership to continue in its federal authorization efforts. It was signed by Governor Janklow on February 14, which made for a great Valentine's Day present! Our THANKS to the South Dakota legislature and Governor Janklow for their continued support of water development funding, especially Lewis and Clark's funding request.

In Iowa and Minnesota, bills providing funding for Lewis and Clark and project related activities are continuing their way through the legislative process. The Iowa Legislature is considering a $15,000 grant for Lewis and Clark. In Minnesota, the state legislature is looking at granting $50,000 for continued grill drilling efforts and $50,000 for the Lewis and Clark Joint Powers Board. We are hopeful that both legislatures will continue in their support of the project.

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LEWIS & CLARK RURAL WATER SYSTEM Q&A CORNER

Q. During the water treatment process for LCRWS, what chemicals or additives will be added to the water?

A. The water treatment process proposed will use lime for precipitation of iron, manganese, and a portion of the hardness. The lime added will precipitate in the process and be removed. Other chemicals that will be used include: a polymer or other foccu-lant to enhance the clarification process, carbon dioxide for pH adjustment, fluoride, ozone or chlorine for disinfection, and ammonia and chlorine for the formation of chloramines. The chloramines are a disinfectant which is more persistent than free chlorine or ozone and will provide protection of water quality in the distribution system.

Q. If a break occurs in the pipeline, what type of emergency backup measures will be in place for continued service to member systems?

A. The reservoirs on the water system have a capacity to provide water to the customers for 24 hours at normal water use. The reservoirs and pump stations are arranged so that water can be delivered from either a reservoir or the pump station used to pump water to the reservoir. The control system will provide the operating staff with the information necessary to adjust the operation to maintain service to as many customers as possible during an emergency due to a break in a pipeline or similar problem.

The system will also be equipped with standby power generation systems or dual sources of power. This arrangement will permit the system to operate during a utility power outage.

Water Terms To Know

Acre-foot:
A volume of water that covers one acre to a depth of one foot. Equivalent to 43,560 cubic feet or 325,829 gallons.

Appropriative rights:
Rights to or ownership of a supply of water which is appropriated, independent of land ownership, and put to beneficial use. Appropriative rights are allocated based on priority of use, and are subject to loss by non-use or abandonment.

Confined aquifer:
An aquifer in which ground water is confined or overlain by an impermeable or semi-permeable formation. Compare unconfined aquifer, semi-confined aquifer.

Conjunctive use:
A program that coordinates the storage of imported surface water supplies in local groundwater basins for future withdrawal and use.