

Flow meters to determine wells' impact on Solomon drainage

In November of 2004, the Division of Water Resources' Chief Engineer signed orders requiring water flow meters to be installed on all non-domestic water wells in a large area of north-central Kansas, to see if those water rights had the potential to affect the stream flow of the Solomon River.

The owners of water rights in this area, if their water right had not previously been subject to a metering requirement, received by certified mail: an order, a copy of the regulations regarding meters, a copy of the "List of State-Approved Meters" and a reporting

*Doug Helmke
Source Water Tech*

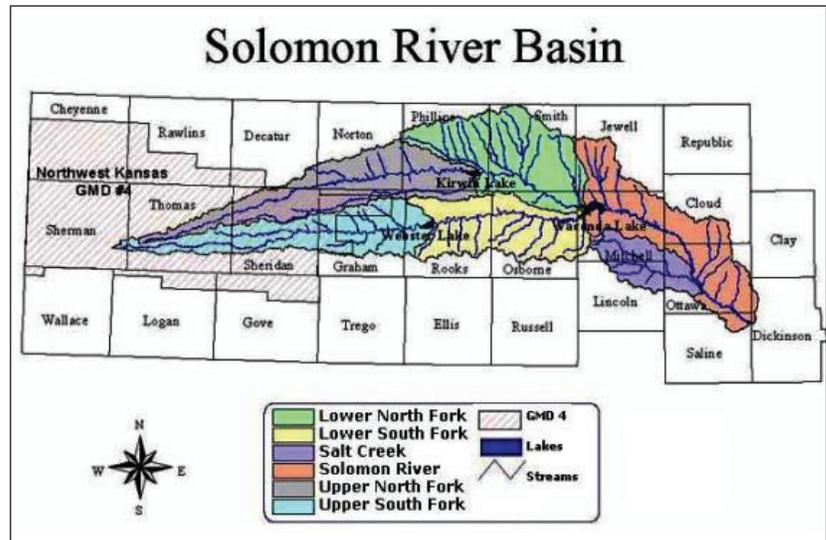


form with instructions. All wells and intakes in the Solomon River basin, including the Division of Water Resources (DWR) recognized basins of the North Fork Solomon River, the South Fork Solomon River and Salt Creek, except those

portions within Northwest Kansas Groundwater Management District No. 4, are subject to this order. (see <http://www.ksda.gov/Default.aspx?tabid=204>)

Deadlines for installation and reporting vary. They are based on the existing situation of the water right. If an approved meter was already installed, which is very likely for public water suppliers, the deadline to report the meter and its installation was January 1, 2005.

If a meter is installed, but it does not appear on the listing of state-approved meters, it is



possible to ask for an exception if it can be shown that the meter is accurate. Testing can be done by anyone that has been certified by the state and has the proper equipment. The Division of Water Resources can do this for you as well as your Kansas Rural Water Association Circuit Rider. The

older irrigation water rights, the deadline to install and report the installation is May 1, 2005.

Before issuing these orders, DWR compiled a list of all the water rights in the five basins. The wells located within Northwest Kansas Groundwater Management District No. 4 were removed from

For wells and intakes where no meter has been installed, which would primarily be the case with older irrigation water rights, the deadline to install and report the installation is May 1, 2005.

same situation applies for approved meters that are not installed per the regulations or the manufacturer's recommendations regarding upstream and downstream pipe obstructions and turns.

For wells and intakes where no meter has been installed, which would primarily be the case with

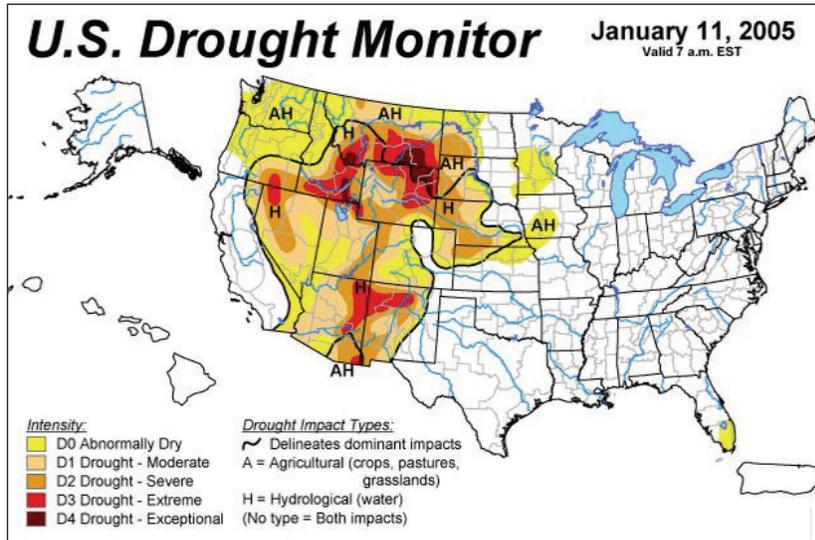
consideration under this project as the District has its own evaluation and management responsibilities. Water rights that had previous meter installation requirements on the original permit or by water right change approvals in point of diversion or place of use were also removed. Finally, water rights with a source of supply that was not hydraulically connected to the

Solomon River or its tributaries were removed. The result was that 534 orders were signed resulting in approximately the same number of meters required.

Water meter requirements have been required in limited instances along the Solomon River for many years. It wasn't long after it became a requirement that all non-domestic uses of water have water rights and that water use in excess of a water right was declared to be a violation in 1978 that the McPherson County Intensive Groundwater Use Control Area (IGUCA) order was issued requiring the installation of meters by June 1, 1980. On the same day that order was issued, Chief Engineer Guy Gibson also signed an order requiring meters for surface water users on the Solomon River between the Glen Elder Dam in Mitchell County to a bridge over the river southwest of Glasco, Kan., in Cloud County. These meters were to be installed by June 15, 1980. Surface water

users above Glen Elder Dam on both the North Fork and South Fork Solomon Rivers and between Kirwin Dam and Webster Dam were ordered to install meters in 1981. Groundwater users between

Kirwin Dam and the confluence of the North Fork Solomon River with Deer Creek, in the vicinity of Kirwin, Kansas, were ordered to install meters in 1992. With the recent orders, nearly all non-



Source: DroughtMonitor@ndmc.unl.edu,
 The Drought Monitor, National Drought Mitigation Center
 P.O. Box 830749, Lincoln, NE 68583-0749,
 402-472-6707 - voice or 402-472-6614 - fax

Less algae. Less work. Less copper.

- ◆ EarthTec is a low PH algicide/bactericide
- ◆ EarthTec reduces odor and bad taste in algae due to algae blooms
- ◆ EarthTec reduces THM precursors
- ◆ EarthTec enhances the efficiency of chlorine
- ◆ EarthTec reduces MIB
- ◆ EarthTec reduces the need for other chemicals
- ◆ EarthTec self disperses to reduce labor costs
- ◆ EarthTec's high concentration of biologically active cupric ions results in less total copper being added to the environment
- ◆ EarthTec stays suspended indefinitely until it meets demand
- ◆ EarthTec is certified to NSF Standard 60 for addition to drinking water

EARTHTEC® *Call*

(800)257-9283 to learn how EarthTec can help your treatment process

www.earthsciencelabs.com

EPA Reg. 64962-1

Flow meters to determine . . .

domestic water users will be required to have a meter on their wells and intakes.

Because DWR has required meters in parts of Solomon River Basin since the earliest days of water use regulation, one can safely conclude that water demand often exceeds water supply. This has been especially true in recent years. According to the annual summary maps on the U.S. Drought Monitor website (<http://www.drought.unl.edu/dm/index.html>), there has been only one month that at least some part of Kansas was not considered to be experiencing regional drought conditions. These same maps show that Kansas experienced severe conditions during the second half of 2002 in western and north central parts of Kansas. As shown on the most current map at press time, drought conditions continue to exist in northern Kansas. Because more irrigation is used to supplement less than average rainfall, lower

than normal stream flow is further impacted by removal of groundwater.

Many times on the Solomon River, and on other streams, too, less water in the streams causes

understanding of how much has been pumped and how much remains under the water rights and with accurate meters installed, it is possible that compromises can be reached by the water users to

Another factor influencing the decision to order the installation of meters is the Minimum Desirable Streamflow requirement of 40 cubic feet per second (c.f.s.) (September to January) to 90 c.f.s. (May & June) at the gage at Niles, Kansas, in Ottawa County.

impairment of water rights. Often water right owners ask the DWR field staff to investigate the cause of the reduced or non-existent stream flow, hoping that they will find a junior water user who can be asked to cut back on their usage or ordered to stop pumping to allow them the chance to use water on their fields. With the

share the limited resource. Sometimes, there is not enough water for anybody.

Another factor influencing the decision to order the installation of meters is the Minimum Desirable Streamflow requirement of 40 cubic feet per second (c.f.s.) (September to January) to 90 c.f.s. (May & June) at the gage at Niles,



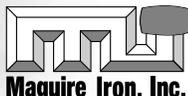
Maguire Iron & Water Tower Paint and Repair Combine Forces...

What does this mean for you?

- 75 Years of Experience
- Superior Service
- Competitive Prices
- Quicker Response
- Wider Variety of Maintenance Projects

From maintenance to engineering, fabrication to erection you get over 75 years in the business...that's experience. We didn't think it could get any better, but it just did!

Experience THE Difference

 **Maguire Iron, Inc.**

 **WATERTOWER PAINT & REPAIR**
a division of Maguire Iron, Inc.

P.O. Box 1446 Sioux Falls, SD 57101 ∞ 605-334-9749 ∞ Fax 605-334-9752 ∞ www.maguireiron.com

Kansas, in Ottawa County. When the minimum value for the month is not being achieved, the Kansas Water Office can ask that water rights with a priority date after April 12, 1984, be administered, or prohibited from diverting water. If any of these water rights exist and it is determined by DWR that stopping the diversion of water from the "junior" water rights will help the stream flow recover, they will take that action. Meters can provide the information which helped decision-makers make fair decisions and helped users understand how much water they are using.

Although meters can have a short-term impact with enforcement and administration of water rights, the best use of them is to collect data about water use throughout the Solomon River Basin. With good data to understand the locations and quantity of diversions, an understanding of the entire

groundwater system can be learned. If it is learned that certain parts of the area are withdrawing more water than is being naturally replaced by precipitation or groundwater flow, decisions to reduce pumping can be made while there is time to make them. If the data shows that more appropriations can be given without impacting stream flow and existing water rights, areas may be allowed to stay open. Accurate water use data will provide more accurate determinations of the facts of this very important resource.

If you will be affected by the decisions made in the Solomon River basin, you may want to participate in this process. Contact the Stockton Field Office of the Division of Water Resources, or the Sub-Basin Water Resource Program of DWR in Topeka for more information on the past results, future actions and upcoming meetings.

Are you Ready for the Ground Water Rule?

Hach has the following products to help your system comply with USEPA's ground water rule:

- > CL17 Chlorine Analyzer – accurate, low-maintenance, on-line analyzer for continuous chlorine monitoring
- > Pocket Colorimeters – pocket-sized to conveniently test for chlorine and chlorine dioxide
- > Test Kits for Free and Total Chlorine – color discs and reagents – CN-66 for low range, CN-70 for low and high range
- > DR/2400 Portable or DR/2500 Laboratory Spectrophotometers and AutoCAT 9000 automatic titrator – measure free and total chlorine as well as chlorine dioxide
- > 9184 On-Line Chlorine Analyzer – for continuous free chlorine analysis



S-R114

See www.hach.com/gwr and contact:

Kevin Menning
800-227-4224 ext. 2133
order online at www.hach.com



Got LayneOx™?



*Exceptional
Hi-Rate Catalytic
Filter Media
for treatment of*

- Arsenic
- Manganese
- Iron
- Hydrogen Sulfide
- Radium/Uranium

For LayneOx™ and Other
Water Treatment Technologies
Contact Layne Christensen Company

913-321-5000

rrappard@laynechristensen.com



Layne Christensen Company
Water Resource Division
www.laynewtd.com