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DEPARTMENT OF NATURAL RESOURCES

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July 20, 2007

Town of Rockville
C/o Dan McGuire, Mayor
PO Box 630206
Rockville, UT 84763

RE: Rockville Irrigation Measurement

Dear Dan:

On July 3, 2006, the State Engineer received your letter and referred it to me for further action and follow up. Within the Division of Water Rights (Division) I am responsible for the Cedar City Region's Distribution Systems. I will address your questions in a general manner.

I understand that despite water conservation efforts, there is a significant increased demand mainly due to culinary water being used for lawn irrigation in the Town of Rockville from April to November. The groundwater wells and tank for the culinary water cannot keep up with this demand, requiring emergency water be supplied from Springdale.

The arrangement for Springdale to supply Rockville emergency water and corresponding fee is between the towns, provided that Springdale stays within their diversion right. The Division requires records (amounts) of these transfers to insure Springdale remains within their diversion right. Springdale is still assessed for the entire amount of water diverted in the yearly distribution system assessment, even if Rockville uses this water. The amount of Springdale water diverted but actually used by Rockville should be measured and reported to the Virgin River Water Commissioner and the Division. I am concerned that eventually Springdale will have a need for the water being supplied to Rockville. If Springdale were to divert in excess of their flow right this over appropriation would be illegal unless the Division approved these changes.

Such arrangements may involve a change of Rockville Irrigation water (from the Virgin River) to provide makeup water for Rockville culinary (well-pipeline) users. There are logistical concerns associated with changes in points of diversion and place of use to accommodate such a change. Since the Virgin River is fully appropriated, an existing surface diversion right would need to be changed. This change would need to be filed with the Division's Cedar City office and approved before it is allowed. This can be a lengthy process so I suggest starting on this soon.

The requirement for measurement and control of headgates still stands. The ability to measure these amounts is required by Section 73-5-4 of the Utah Code Annotated, 1953 as amended. Keeping track of these records are primarily the duty of the water commissioner. Although the diversion is not monitored on a daily basis, the flow is assumed to be consistent between the times when readings are taken. For this



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reason we encourage water users to also keep track of the flow rate themselves, to insure they do not exceed the flow rate allowed by their water right. Water Commissioner measurements are done by monitoring the flow rate in cubic feet per second (cfs) and calculated to determine the total Acre Feet (AF) diverted for the water year. If flows exceed the diversion flow right, we prefer that the water users would adjust their gates accordingly, however the water commissioner is allowed by law to do this. In dry period when river flow drops significantly, he may regulate gates to less flow by percent of water available. Or, if regulating on priority basis, shut water off entirely to favor the more senior priority water users.

Diversion, flow and total AF diversion information is public record and is compiled in the annual distribution report to the water users and the State Engineer. To the best of my understanding, Rockville Town Ditch does not have a measuring device to allow the Water Commissioner to take readings. This needs to be remedied by the start of the next irrigation season, not later than March of 2008 or it will become an enforcement issue at that time. Measurement will also provide some basis for the amount that would be transferred from the Rockville Town Ditch and applied to the augmented water received from Springdale. Until measurement is established there is no basis for this amount.

Analog measuring devices, such as flume and weirs, work well in open channel flow. These are made to a common standard design where staff gauge measurements provide flow amounts that are known and accepted. These are read by the Water Commissioner and do not need to be certified by a licensed professional. Pipe flow usually requires an automated sensor of some type, analog devices exist (propellers), but are fraught with problems and wear out. For in pipe-automated devices, the manufacturer calibrates each one as accurate digital equipment. For Rockville's application you most likely would benefit from an in pipe "velocity depth sensor" that can provide accurate flow rates in partially full pipes. This signal then would need to be supported by a data logger, and data transfer device (usually via phone- modem) to a computer, where data would be stored and available for review. The Division maintains a system to support accumulation of the data to the website and compiles the record.

We would encourage Rockville to optimize the installation of an automated measuring device as reasonably possible by using digital readouts, recording and data transfer devices. This eliminates human error and allows remote access to the information for both the water users and the water commissioner. Since these diversion amounts are public record, this provides equity whereby all water users have access to all the diversion data on a real time basis. This also allows the commissioner to know at an instant what the flow of the river is and establish appropriate diversion amounts. This provides for more productive use of the water and overall provides a better service to the water users.

The Division does not specifically endorse suppliers. However, I spoke with Mr. Bill King (435) 559-0759; he is working with the Bureau of Reclamation to install telemetry on the Grafton Hall diversion which Rockville shares. He is working under grants and matching federal funds to accomplish this work. He related that it would be a relatively simple task to include your diversion automation into this telemetry. I suggest that you contact him for further information and discussion on this topic, as it may optimize the use of your town's limited resources. I have also included a copy of business cards from manufactures representatives that may be able to

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assist Rockville in this endeavor to find alternatives with various types of automated measuring device equipment.

I hope that this letter answers your questions and provides some clarification as you consider the options for installing measurement on your system. Keep me abreast of your progress, as I will be down in the area from time to time. If I can be of additional assistance please contact me at (801) 538-7430 or by email at MikeSilva@utah.gov.

Sincerely,


Mike Silva
Distribution Engineer

pc: Kurt Vest / Regional Engineer , Cedar City
Kerry Carpenter, Enforcement
Lyod Jessop / Water Commissioner
File: Virgin River Distribution System



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