STATE OF NEBRASKA

DEPARTMENT OF NATURAL RESOURCES
Roger K. Patterson
Director

April 22, 2003

IN REPLY REFER TO:

Mike Johanns
Governor

Fred Ore
Area Manager
Bureau of Reclamation
Great Plains Region
P.O. Box 1607
Grand Island, NE 68802-1607

Dear Fred,

This letter and its attachments are intended to provide some minor modifications to the 2002 and 2003 Reclamation States Emergency Drought Relief Act proposals we sent you on March 27 and March 28, 2003. We would also like to reprioritize the 2002 proposal in light of potential funding availability. These changes are being made partially in response to discussions with your staff on how to better address program requirements. The specific proposal summaries for which we are providing wording changes are:

2002 Proposals

- Republican Basin Drought-Dry Year Proposal

2003 Proposals

- Republican Basin Water Meter Proposal
- Proposal to Equip Department of Natural Resource Field Office Personnel with Flow Measurement Equipment
- Proposal to Study Flow Augmentation to Meet State Line Target Flows on the Big and Little Blue Rivers

The modified versions of each of the above proposals are attached. The wording on the remaining proposals will remain the same as in our original submissions.

clrshare/patterson

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We have also reprioritized the 2002 request noted in the March 27 letter in light of potential funding levels. This includes splitting out the priorities for the various projects contained in the Republican River Drought / Dry Year Proposal. The priorities are as follows:

1. $200,000 Republican River Drought-Dry Year Proposal *(Meter Cost Share Assistance)*

2. $155,000 An Automated Soil Moisture Monitoring System for Nebraska

3. $ 20,000 Republican River Drought-Dry Year Proposal *(Computer hardware, software and satellite downlink for real time processing)*

4. $ 18,000 Republican River Drought-Dry Year Proposal *(Bring 3 Cambridge stream gages to real time standards)*

5. $ 23,200 Republican River Drought-Dry Year Proposal *(Upgrade all USBR canal headgates with a Sutron satellite transmitter)*

6. $ 70,000 Republican River Drought-Dry Year Proposal *(Install measuring devices equipped with Sutron satellite transmitters on all canal waste ways)*

7. $ 70,000 Republican River Drought-Dry Year Proposal *(Radio transmitters installed on all pump diversions greater than 1 cfs located between Harlan County and Guide Rock Diversion)*

8. $ 25,000 Drought Mitigation Planning

9. $ 65,000 On- Site Computer Aided Capabilities for Distribution of Surface Water

If you have any questions about either the priorities or the revisions to the drought proposals, please contact me. Thank you for your assistance.

Sincerely,

Roger K. Patterson
Director

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Attachments

DRAFT
Republican Basin Drought-Dry Year Proposal - 2002
(Revised 4/21/03)

Background

The past three years have been very dry in the Republican River Basin and drought continued into early 2003. As water supplies diminish it is even more important to manage this resource with greater precision and equity. It will also be important that all water use, including groundwater use, be managed efficiently and be metered to help assure compliance with an interstate compact. This proposal provides for both equipment to better monitor surface water use and cost share for meters to monitor groundwater use that can affect surface water flows.

Benefits/Needs of Meters

Providing information that will trigger drought related actions under the Republican Compact Settlement

In order to implement a recent Republican River Compact settlement with Kansas and Colorado it will be necessary to model how groundwater is affecting surface water and then meter and regulate groundwater use to make sure that impacts to surface water are kept in acceptable limits. The settlement is based upon consumptive water use in the basin and it is important to have information on volumes pumped. Water users will likely have an allocation and certified irrigated acres. There may be difference in the level of regulation depending upon how much groundwater use is affecting or will affect streamflow. Monitoring will be especially important in drought years when some type of dry-year leasing is likely.

Allowing irrigators to know how much water they are pumping and thus improve their efficiency of use

Better knowledge of pumping can result in improved management and less pumping by groundwater users. The improved efficiency can have a positive impact on long term baseflows. Those baseflows are especially important in times of drought

Reclamation funds would be used in conjunction with other funding, helping to broaden the impact

The total meter program in the basin is expected to cost about $7.5 million dollars. Of that amount $3.75 million is expected to come from landowners and at least $2 million will come from the state. Local natural resources districts are reading and calibrating the meters

Other Benefits/Needs

Fluctuating flows at the Superior/Courtland Diversion dam makes it difficult to manage supplies for both Kansas and Nebraska under the Republican River Compact. Improved measurements and real time data would help maximize the use of this limited resource.

The following equipment would assist the Nebraska Department of Natural Resources, The Nebraska Bostwick Irrigation District, Kansas Bostwick Irrigation District and the Bureau of Reclamation to better manage surface water supplies.

In addition, increased and more timely and accurate stream flow data will allow Nebraska Department of Natural Resources to more effectively administer surface water appropriations and protect storage releases while in transit to the diversion dams.

- ($200,000) Meter cost share assistance for Republican Valley Water Users
- ($ 18,000) Bring the three remaining Cambridge area stream gages not on a real time basis up to real time standards.
- ($ 23,200) Upgrade all U.S.B.R. canal headgates with a Sutron satellite transmitter.
- ($ 70,000) Install measuring devices, equipped with Sutron satellite transmitters on all major canal waster ways.
- ($ 70,000) Radio transmitters installed on all pump diversion greater than 1 cfs located between Harlan County Dam and Guide Rock Diversion Dam.
- ($ 20,000) In addition to these, Computer hardware, software, and a satellite downlink to process this information in a real time fashion would assist in future water administration.

Rough Estimated Overall Budget

$401,200

Republican Basin Water Meter Proposal – 2003

(Revised April 21, 2003)

Background

The past three years have been very dry in the Republican River Basin and drought continued into early 2003. As water supplies diminish it is even more important to manage this resource with greater precision and equity. It will also be important that all water use, including groundwater use, be managed efficiently and be metered to help assure compliance with an interstate compact. Monitoring is especially important in dry years. This proposal provides for cost share for meters to monitor groundwater use that will be affecting surface water flows.

Benefits/Needs

Providing information that will trigger drought related actions under the Republican Compact Settlement

In order to implement a recent Republican River Compact settlement with Kansas and Colorado it will be necessary to model how groundwater is affecting surface water and then meter and regulate groundwater use to make sure that impacts to surface water are kept in acceptable limits. The settlement is based upon consumptive water use in the basin and it is important to have information on volumes pumped. Water users will likely have an allocation and certified irrigated acres. There may be difference in the level of regulation depending upon how much groundwater use is affecting or will affect streamflow. Monitoring will be especially important in drought years when some type of dry-year leasing is likely.

Allowing irrigators to know how much water they are pumping and thus improve their efficiency of use

Better knowledge of pumping can result in improved management and less pumping by groundwater users. The improved efficiency can have a positive impact on long term baseflows. Those baseflows are especially important in times of drought.

Reclamation funds would be used in conjunction with other funding, helping to broaden the impact

The total meter program in the basin is expected to cost about $7.5 million dollars. Of that amount $3.75 million is expected to come from landowners and at least $2 million will come from the state. Local natural resources districts are reading and calibrating the meters.

Budget

Total meter cost share needs from this source in 2003 are $644,000, which at $450 cost share per gage equates to approximately 1431 gages. It is assumed that both 2002

drought assistance funds and Nebraska Environmental Trust Funds could be used to fund cost share for about an additional 595 wells, completing the needs for 2003. Additional cost share for meters will eventually need to be provided in 2004.

Proposal to Equip Department of Natural Resource
Field Office Personnel with Flow Measurement Equipment
Revised April 15, 2003

Background

Field Staff within the Nebraska Department of Natural Resources have the responsibility to administer Water Rights in accordance with Nebraska Law. During times of drought, the number of calls for water administration increases greatly.

Statement of Need

The water administration process requires the field staff to be able to quickly gage the flow in streams so that it can be correctly distributed out to water rights holders and to be able to calculate the pumping rates at diversion sites. The best equipment that exists today to quickly and accurately calculate streamflow are AquaCalcs. At the present time about half of the department field staff use a standard AA meter to calculate streamflow. Eight AquaCalcs would replace the AA meters used by the field office staff.

In addition, the Lincoln Field Office needs an additional ultrasonic flow meter so that all of its personnel are equipped with devices to measure pumping rates at diversion sites.

Benefits

The benefits to equipping the field office staff with AquaCalcs is threefold: 1) it will reduce the likelihood of miscalculations that can occur with streamflow is hand calculated, 2) it will provide more timely streamflow measurement, and 3) all of the field office staff will be using the same equipment.

The benefit of equipping the Lincoln Field office with an ultrasonic flow meter is that it allows all of the staff to measure diversion rates at different sites during critical periods.

Budget

The cost of each AquaCalc is $2,000 for a total of $16,000. The cost of an Ultrasonic flow meter is $1,600. The total budget requested is $17,600.

Proposal to Study Flow Augmentation to Meet State-Line Target Flows on the Big Blue and Little Blue Rivers
Revised April 15, 2003

Background

In 1971, Nebraska entered into the Kansas-Nebraska Big Blue River Compact. Part of the compact sets out "target" state-line flows on both the Big Blue and Little Blue rivers. If it were possible to augment flows in the rivers to meet the state-line target flowsat critical times, it would mean that the 800 junior water rights in the Big Blue basin and 200 junior water rights in the Little Blue basin could continue to divert water during the critical irrigation season.

Statement of Need

During the summer of 2002, the state-line target flows were in danger of not being met on the Big Blue River. Instead of shutting of the over 800 junior water rights, the Department of Natural Resources was able to work with the Lower Big Blue NRD to secure water releases from some of the NRD's reservoirs near the state-line. Even though there was not enough water to meet the state-line target flows for more than a few days, many junior irrigators were able to continue irrigation during a critical period. Ron Fleec, manager of the Lower Big Blue NRD estimated that the benefits of releasing the water at over $1 million dollars.

The Kansas-Nebraska Big Blue River Compact Administration, Nebraska Department of Natural Resources, Lower Big Blue Natural Resources District, and Little Blue Natural Resources District would like to begin the process of studying the possibility of augmenting flow to meet state-line target flows for future drought years.

Benefits

The value study would provide a road map for the future water management that would be able to meet state-line target flows during drought periods

Budget

The cost requested for the value study is $50,000.