

STATE OF NEBRASKA



DEPARTMENT OF NATURAL RESOURCES
Roger K. Patterson
Director

March 28, 2003

IN REPLY REFER TO:

Mike Johanns
Governor

Fred R. Ore
US Bureau of Reclamation
PO Box 1607
Grand Island, NE 68802

Dear Fred,

I am writing to you concerning Emergency Drought Assistance and Drought Planning Assistance for Nebraska in 2003. As you know drought is currently a major problem in the western portions of Nebraska. We are interested in receiving drought assistance pursuant to Section 202 of Title I of the Reclamation States Emergency Drought Relief Act of 1991 and drought funding assistance pursuant to Title II of the same act.

On March 28, 2003, Governor Johanns wrote Commissioner Keys requesting assistance under the act for 2003. Please consider this letter a more detailed request for such assistance. *We have attached a summary list and detailed descriptions of each of the drought assistance proposals.* The total need to fund all the projects in the 2003 package is \$3,163,884. In addition we understand that approximately \$262,200 of our \$662,200 request for 2002 funds will remain unfunded and we would like to see that any unfunded projects remain eligible for 2003 funds. Thus the combined need could rise to a total of \$3,426,084. In addition to the 2003 proposals, I have attached a copy of the final detailed submittal we are providing to you for the 2002 funds.

Any funding you could make available for these important projects would be extremely helpful. Please feel free to contact me if you need additional information.

Sincerely,

Handwritten signature of Roger K. Patterson in black ink.

Roger K. Patterson
Director

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Enclosures

2003 Nebraska Drought Assistance Proposals – Summary List

Priority

- | | | |
|----|-------------|---|
| 1) | \$644,000 | Republican Basin Water Meter Proposal – 2003 |
| 2) | \$ 17,600 | Proposal to Equip Department of Natural Resource Field Office Personnel with Flow Measurement Equipment |
| 3) | \$ 9,000 | Proposal to Add Real-time Capabilities to Blue River Gaging Stations |
| 4) | \$ 40,000 | Proposal to Purchase a Surface Water Management Program |
| 5) | \$ 50,000 | Proposal to Undertake a Value Study for Reservoirs to Meet State-Line Target Flows on the Big Blue and Little Blue Rivers |
| 6) | \$1,480,594 | Drought Condition Evaluation – Public Water Supply System
- Village of DeWitt |
| 7) | \$ 922,690 | Drought Condition Evaluation – Public Water Supply System
- Village of Bruno |
| | \$3,163,884 | TOTAL* |

* In addition to the \$3,163,884 noted above, funding is sought for the unfunded balance of the 2002 drought assistance request. That request level was \$662,200 and an estimated \$262,200 of that amount currently appears likely to remain unfunded.

Republican Basin Water Meter Proposal – 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

Cost share for meters would help address drought in a number of ways. First they are a necessary part of a recent Republican River Compact settlement with Kansas and Colorado. In fact, the funds would supply only a portion of the meter cost share need anticipated as a result of the recent settlement. In order to implement that settlement it is necessary to model how groundwater use is affection surface water and then meter and regulate groundwater use to make sure that impacts to surface water are kept within acceptable limits. Grant funds provided by the Bureau would be used for cost share in areas where it has been determined that groundwater's long term impact on surface flows is relatively higher than some other areas. Even more importantly, the meters would result in better management, with less pumping by groundwater users. Finally, by leveraging other money, cost share would provide additional value. The conservation resulting from meters is most important in drought years; both in terms of value and in terms of fulfilling the provisions of the compact/agreement.

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**
March 26, 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.

Currently department field staff use polysonic flow meters to calculate pumping rates at diversion sites. The Lincoln Field Office would like to try an ultrasonic flow meter to see if it produces equivalent results. The advantages that an ultrasonic flow meter has over a polysonic flow meter is that it is smaller, lighter, and less expensive.

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 would occur if they can determine whether or not this cheaper and lighter equipment could replace the polysonic units currently being used.

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 Add Real-time Capabilities to Blue River Gaging Stations

March 26, 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. In order to make appropriate decisions concerning administration of water rights junior to those "targets" it is necessary to have upstream streamflow information available in a timely manner.

Statement of Need

Currently all but two gages used by the Department of Natural Resources to make flow administration decisions are available in realtime over the internet. In order to learn streamflow at the other two gages staff dialing up the gage, download the stage information, and finally upload the stage information into the record-keeping software. Adding realtime capabilities to the gages on would provide critical information to the Department in a more timely manner.

Benefits

The benefits to equipping the gages on Big Sandy Creek near Alexandria and Big Blue River at Beatrice with realtime capabilities allows the Department to make better and more timely decisions on administering flows for the state-line "targets".

Budget

The cost of upgrading each gage is \$4,500 for a total of \$9,000.

Proposal to Purchase a Surface Water Management Program
March 26, 2003

Background

The Nebraska Department of Natural Resources operates 72 continuous stream and reservoir gages, 4 partial year gages, 91 canal and canal return gages, and makes spot measurements or observations of stage at some sites operated by other agencies or districts. Ten additional gages are operated in cooperation with the U.S. Geological Survey.

As part of the gaging system the Department also publishes an annual hydrographic report detailing the flow records at each of those gaging stations.

Statement of Need

The software that the Department currently uses is adequate to compute records and publish the hydrographic report, but is now not supported by the company that produced it. The Department would like to purchase new software and training for a new surface water management program.

Benefits

The benefits that the new software over the old are:

- Full Support
- Realtime Internet Capabilities
- Statistic Tools for flow relationships
- GIS compatible

Budget

The cost requested for the software and training is \$40,000.

**Proposal to Undertake a Value Study for Reservoirs to Meet State-Line Target
Flows on the Big Blue and Little Blue Rivers**
March 26, 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 make releases from reservoirs to meet the state-line target flows, 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 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 constructing reservoirs to meet state-line target flows for future drought years.

Benefits

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

Budget

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

DROUGHT CONDITION EVALUATION
PUBLIC WATER SUPPLY SYSTEM
Village of DeWitt
March 27, 2003

Drought impacts experienced by DeWitt Nebraska, located in Saline County, were first reported in July of 2002. Two wells, 67-1 and 86-1, were reported as experiencing increased depth to static water levels. These two wells are the primary water supply for the Village. Normal pumping capacity of well 67-1 is 320 gpm and that of 86-1 is 300 gpm. Both wells are less than 60 feet in depth. These wells serve a population of approximately 600 people. Another well, constructed in the early to mid-1960s, is currently on emergency status and not in use due to elevated nitrate concentrations.

Historical static water level measurements recorded by the Village indicate 20 feet in well 67-1 and 21 feet in well 86-1. Static water levels recorded in mid-July of 2002 show 31 feet in well 67-1 and 39 feet in well 86-1. Water use restrictions were imposed at that time, which limited the demand placed on the system by lawn watering. The two Village wells were throttled down during this time to maintain the pumping level above the pump bowls. The restrictions remained in place through fall and winter. Static water levels, although improved during the winter of 2002, have not fully recovered.

The two existing wells are located in a thin saturated thickness of the aquifer. Water level impacts correlate with irrigation season. Exploration for new well locations has been conducted. Two potential well locations have been selected. One site is located approximately 3 miles South of the Village and another is located approximately 5 miles South. Preliminary investigation of these proposed sites indicates a potential pumping capacity of over 500 gpm per well.

The Village consulting engineer has conducted a preliminary engineering report for this proposed project. Median Household Income (2000 MHI) for DeWitt is \$38,056. State MHI is \$39,250. Estimated costs for needed improvements consisting of approximately five miles of transmission main and two wells are on the following page. These costs are provided by the engineer's estimate.

ESTIMATED PROJECT COST

Village of DeWitt

March 27, 2003

<u>ITEM</u>	<u>AMOUNT</u>
Transmission Line (approx. 5 miles)	\$677,500
Well Houses, Wells, Pumps and Discharge Piping	\$242,000
Access Roads	\$7,000
Chain Link Fencing	\$9,000
Electrical and Ventilation	\$25,000
Emergency Generator	\$40,000
Controls	\$17,000
Creek Crossing	\$64,000
Railroad and Highway Crossings	<u>\$104,000</u>
CONSTRUCTION COST	\$1,185,500
Engineering Fees (contract %)	\$146,544
Land Acquisition	\$30,000
Construction Contingency @ 10%	<u>\$118,550</u>
TOTAL PROJECT COST	\$1,480,594

DROUGHT CONDITION EVALUATION
PUBLIC WATER SUPPLY SYSTEM
Village of Bruno
March 27, 2003

Drought impacts experienced by Bruno Nebraska, located in Butler County, were first reported in August of 2001. Two wells, constructed in 1989 (89-1 and 89-2) experienced increased depth to static water levels. These two wells supply water for the Village and are the only sources in active use. Under normal conditions each of these two wells pump 150 gpm serving a population of approximately 145 people. Another well constructed in the mid-1960s, is currently on emergency status and not in use due elevated nitrate concentration.

Measurements collected by the Village in April of 2001 recorded static water levels of 89 feet (89-1) and 72 feet (89-2). As recorded in August of 2001 static water levels were recorded as 170 feet and 160 feet respectively with decreased pumping capacity by both wells. Water use restrictions were imposed at that time, which limited the demand placed on the system by not permitting outside water use. The pump in well 89-2 was lowered in July of 2001 to create more available drawdown in that well. The pump in well 89-1 was lowered in the mid-1990s.

In September of 2001, static water levels and pumping capacities in both wells were beginning to show improvement although not fully recovered. Restrictions were then lifted due to reduced water system demand.

Negative impacts of drought returned in July of 2002. Static water level measurements of 189 feet in 89-2 and 169 feet in 89-1 were recorded at that time. Static water level measurements of 136 feet in well 89-2 and 118 feet in well 89-1 were recorded in June of that year. Water use restrictions were lifted in September of that year due to reduced demand on the water system.

Exploration for a well location to supplement the current source has been ongoing since 1998. A potential well site was located in 2002, a test well constructed, and water samples collected. Water sample results show excessive iron, and manganese. Information provided by the Lower Platte North NRD and a geologist from UNL Conservation and Survey, the two impacted Village wells are located in the Northern fringe of a confined aquifer. Water level impacts correlate with irrigation season.

The Village consulting engineer conducted a study of a possible interconnection with the City of David City. The study indicates that a new municipal water line connecting the Village of Bruno to David City, a distance of approximately nine miles, is a viable alternative to solve the long-term municipal water needs. Median Household Income (2000 MHI) for Bruno is \$28,750. State MHI is \$39,250. Estimated costs for needed improvements consisting of approximately nine miles of transmission main are on the following page. These costs were provided by the engineer's estimate.

ESTIMATED PROJECT COST

Village of Bruno

March 27, 2003

<u>ITEM</u>	<u>AMOUNT</u>
Transmission Line (approx. 9 miles)	\$546,000
Appurtenances for Transmission line	\$32,000
Land Rights, Easements	\$25,000
Highway Crossing	\$15,000
Stream Crossing	\$10,000
Capital Allocation	\$65,000
Master Meter Vault	<u>\$6,000</u>
CONSTRUCTION COST	\$699,000
Engineering Fees @ 15%	\$104,859
Administrative, Legal @ 5%	<u>\$34,950</u>
PROJECT COST	\$838,809
Construction Contingency @ 10%	<u>\$83,881</u>
TOTAL PROJECT COST	\$922,690