FINAL

ENVIRONMENTAL IMPACT STATEMENT

LINCOLN-PIPESTONE RURAL WATER

Lake Benton, Minnesota

Existing System North/Lyon County Phase
Northeast Phase Expansion

United States Department of Agriculture

RURAL UTILITIES SERVICE

(THE LEAD AGENCY)
and

U. S. ENVIRONMENTAL PROTECTION AGENCY REGION 8

(A COOPERATING AGENCY)

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May 1999

Appendix A

Minnesota Department of Natural Resources

500 Lafayette Road
St. Paul, Minnesota 55155-40__

April 23, 1998

Mark S. Plank
USDA Rural Utilties Service
Engineering and Environmental Staff
Stop 1571
1400 Independence Avenue
Washington, D.C. 20250

Re: Comments on Draft Environmental Impact Statement for the Lincoln-Pipestone Rural Water, Existing System North/Lyon County Phase, Northeast Phase Expansion

Dear Mr. Plank:

The Minnesota Department of Natural Resources has reviewed the above-referenced document and provides the attached comments for your consideration.

If you have any questions regarding these comments, please call Ken Wald of my staff at (612) 296-4790 or Jim Japs of our Division of Waters at (612) 297-2835.

Thank you for the opportunity to review this document. We will be looking forward to receiving the Final EIS and working with Lincoln-Pipestone Rural Water to address regional needs in an environmentally compatible manner.

Sincerely,

Thomas W. Balcom

Thomas W. Balcom, Supervisor
Enviromental Review and Assistance Unit
Office of Management and Budget Services

c:

Kent Lokkesmoe	Cheryl Heide
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MINNESOTA DEPARTMENT OF NATURAL RESOURCES

Comments on
Lincoln-Pipestone Rural Water (LPRW)
Draft Environmental Impact Statement (DEIS)

Executive Summary

The Minnesota Department of Natural Resources (MDNR) agrees with the conclusion of the Rural Utility Service (RUS) that the proposed action to increase authorized pumping rates and volumes of water at the Burr Well Field poses an unreasonable environmental risk and that another well field is needed to provide reliable water service for Lincoln-Pipestone customers. We also support a reduction in pumping rates and volumes from wells at the Burr Well Field completed in the "Burr Unit" of the Prairie Coteau aquifer, but do not support the recommendation that another well field with more wells be completed in the Burr Unit. Based on available pumping volumes and recovery data from last year, the Altamont well at the Burr Well Field appears to be able to support higher water withdrawals than previously thought when the well was constructed. Recently reported appropriations from the existing 8" well indicate this well can produce over 500,000 gallons per day, and the proposer's consultant believes the Altamont well could possibly produce 180 million gallons per year (MGY) or double the current authorized volume for this well. Attachments 1, 2, and 3 provide pumping rate and water level data. Continued water level monitoring is still needed to determine the sustainable limit for this resource.

Currently the Altamont well is authorized for up to 90 MGY and any appropriation from this source reduces the 400 MGY authorized from the Burr Unit. Lincoln-Pipestone Rural Water (LPRW) representatives met with MDNR staff on March 13, 1998 to discuss the potential for increases in the authorized volume for the Altamont well and the total authorized volume from the Burr Well Field. The MDNR indicated a willingness to consider a request to increase Altamont appropriations if appropriations were reduced from the Burr Unit consistent with recommendations in the DEIS. If the existing Altamont well can sustain appropriations of 180 MGY, this would result in a total potential volume of 452 MGY from current sources at the Burr Water Treatment Plant. The MDNR also supports exploration and development of another well field that would utilize the Altamont aquifer as the primary source of water, as recommended in Section 3.2.1.3 of the DEIS. The MDNR would like to see further reductions in appropriations from the Burr Unit, especially during drought periods, if an adequate water supply from a well field completed in the Altamont aquifer or another source can be developed. The MDNR can help provide technical assistance for locating an alternative water supply.

The DEIS recommends development of a comprehensive water resource management plan for monitoring resources and impacts from pumping as a mitigation measure. A feasible contingency plan would also be an appropriate mitigation measure, and specific contingency actions should be defined in the DEIS. The MDNR also strongly recommends development of a
1-1 comprehensive plan that defines the ultimate extent of the system so that existing water resources can be evaluated within the ultimate service area to meet future demands. Water sources are available in the proposed expansion area that are capable of supporting moderate size service areas, and the MDNR continues to support construction of a treatment plant on the east side of the system to improve reliability.

The DEIS lacks adequate documentation on projected water demands, which are significantly different than previous projections provided by LPRW. The projected demand of 628 MGY for the Burr Well Field is based on continuous service to both primary and secondary service areas for an entire year. The logic used to justify water demands for the Burr Well Field indicates that a much larger deficiency exists in the 892 MGY demand for the Verdi Well Field primary and
1-2 secondary service areas. The consultant that provided water demand projections also states that the Verdi and Holland Well Fields are at or nearing safe capacity with a total combined appropriation of 737-757 MGY, so it is not likely that the Verdi Well Field could supply 892 MGY. The method used in the DEIS (Tables 1-8, 1-10, and 1-11) to define the purpose and need for annual demands would justify an additional well field similar in size to the current Verdi Well Field. Additional capacity for the Verdi Well Field primary and secondary service areas would appear to be a higher priority to protect existing customers on the system, especially due to current nitrate problems, before proceeding with new expansion proposals.

The Executive Summary includes a statement often quoted by LPRW regarding their broad statutory powers to do all things necessary to establish, construct, operate and maintain a rural water system. The MDNR is concerned about continued expansion of this system, when system improvements are required for existing customers to address nitrate levels at the Holland and Verdi Well Fields, and that LPRW may not have adequate funds available for contingencies or system improvements. Additional funding from Rural Development or other sources will continue to be needed to address system problems for existing service areas impacted by lack of adequate storage capacity, and with nitrate levels that have exceeded maximum contaminant
1-3 levels (MCLs). The DEIS does not indicate if future participation costs for rural users will be impacted by LPRW's agreement to provide a minimum of 300,000 gallons per day to the City of Marshall, which is not eligible for Rural Development funds. The City of Marshall is receiving a large share of the water produced at the Burr water treatment plant, and the EIS should discuss impacts on future participation costs for rural users that may be caused by the benefits the City of Marshall is receiving from federal funds that paid for the treatment plant, storage, booster stations and other system costs. Again, we do not deny the importance of the water supply for the City of Marshall, but question whether this increased demand should be putting additional pressure on the aquifer and limiting the supply or reducing benefits for existing and future rural water users in the total system.

The no action alternative (#6) in the DEIS indicates that rates will increase 11% even if the NE Expansion is not constructed. The reason for this cost increase is not clear, but appears to be
1-4 related to the $476,000 LPRW has requested for EIS participation costs. These participation costs and the costs for the NE Expansion should be itemized in the DEIS. It should be noted that Minnesota, South Dakota and the federal government have also expended a lot of resources for pump tests, monitoring and studies related to the EIS.

Attachment 4 is a copy of LPRW's February 1996 amendment request to increase pumping rates and volumes as described in the proposed action evaluated in the DEIS. The amendment request simply states that "Permit No. 91-4159 needs to be increased to 1,500 GPM and 800,000,000 per year. The wells are in and are on line so we need to increase the volume. You have all the information that is required." Clearly, additional information is needed to support water management decisions that will protect LPRW customers and environmental resources. We appreciate the effort RUS has taken in the development of the EIS to identify potential adverse environmental impacts and alternative water sources.

1-5 *Page iii, first paragraph:* "During construction..." should state "Prior to construction...".

Page vi, Table ES-1: The MDNR permitted capacity for Canby is listed as "0", which implies Canby can not serve water to LPRW because of MDNR permit authority, when in fact it was LPRW's decision to no longer use Canby as a source.

Page xiii: "In consultation with experts in the field of hydrology and geology, it is the Agency's opinion that Lake Cochrane...would not have significant environmental impacts." While this
1-6 statement may be the opinion of some unnamed experts, staff at MDNR and the South Dakota Department of Energy and Natural Resources (DENR) agree that significant impacts are possible, because data show that reductions in groundwater input occur even with pumping at current rates (of about 500 gpm) and that this reduction would be significant during a "dry spell".

Page ix, Table ES-3, Alternative 3: should read "750 gpm/400 Mgpy".

Page xiv: "At no time did the hydraulic head or water table elevations in the fens or potentiometric surface fall close to or below the surface elevations of the peat domes." The
1-7 water levels in the deep well at the Sioux Nation fen dome started out "close to" the surface of the peat, less than 2 feet above the surface of the dome. A decline of almost ten percent was observed during the 1996 test. Concern is heightened because the period of observation is a "wet spell". The remaining head above the elevation of the fen dome does not appear to be sufficient to sustain adequate ground water discharge through the peat when pumping stress coincides with climatic stress.

1.1 Purpose and Need.

This section states that MDNR permitted volumes are adequate for immediate needs, but there is a deficiency to meet needs at the Burr source. Deficiencies at the Burr source are self imposed by LPRW's decision to supply the City of Marshall with 200 MGY and the decision to terminate
1-8 the agreement with the City of Canby to supply the Yellow Medicine Phase. The deficiency is based on a minimum need of 628 MGY, but Table 1-8 indicates a total need of 492 MGY (282 MGY for the existing service area, 210 MGY for the proposed NE Expansion). The 136 MGY (21%) difference between the 492 MGY (Table 1-8) and 628 MGY is assumed to be unaccounted-for water. If Canby serviced the Yellow Medicine/St. Leo service area, water demands would be reduced approximately 39 MGY.

MDNR comments provided on the Preliminary DEIS regarding the 210 MGY projected for the proposed NE Expansion have not been addressed and documentation should be added to justify this volume of water. The 210 MGY need conflicts with Attachment 5, which is a January 22, 1997 letter from LPRW attorney David Watson (Exhibit A), which states that a pumping rate of 175 gpm is required for the "300 rural users that have petitioned for service" in the NE Expansion. Pumping 175 gpm, twenty four hours per day, 365 days per year equals 91.9 MGY, and applying the 1.7 peaking factor for the entire year equals 156.3 MGY. This letter indicates that the "real" numbers for the existing Burr customers, the customers that have been assessed but are not using water, the City of Marshall, and the NE Expansion, total 892 gpm (annual average, not peak) or 468.8 MGY. Defining water requirements is important for identifying supply alternatives, but projections in the DEIS appear inflated based on actual use and don't always add up. Obtaining accurate and consistent data has been a general problem with this project and the EIS should carefully explain and verify data included in the document.

Page 13, first paragraph: "...Previous requests to increase appropriation rates at the Burr Well Field have not been acted on by the MNDNR because of concerns that groundwater withdrawals

at the well field may have..." The MDNR wanted the EIS to be completed before taking final action on the permit request.

1.2 Groundwater Availability and Quality in Southwestern Minnesota

A 1997 memorandum prepared from a file memorandum developed by LPRW's consultant in 1995 gives a nice history, using sources that for the most part were published more than twenty
1-9 years ago, and provides general conclusions that may not be appropriate for specific resource decisions in southwestern Minnesota. As stated in Section 2.2.2.2.5, "Specific exploration efforts undertaken by local municipalities, various units of Minnesota State Government and the USGS are not comprehensive nor specific enough for the Agency to evaluate conclusively other alternative sources aquifers that could potentially serve LPRW's needs."

Page 20-22: The document states that five USGS Hydrologic Atlases cover the LPRW service area and yet the document does not specifically reference HA-269 (Lac qui Parle) which covers the watershed that includes the Burr Well Field. It may be appropriate to discuss the data specific to the Lac qui Parle watershed.

Page 22, paragraph 3: "...showed that the average nitrate-nitrogen levels...were above 10 mg/L." How many of the wells with NO_3-N levels above 10 mg/L have problems due to poor well construction instead of aquifer wide contamination as the document implies? The DEIS cites a 1991 MPCA publication which states that 37.5% of the Sioux Quartzite wells sampled exceeded the 10 mg/l nitrate-nitrogen standard, which indicates most wells do not have nitrate problems.

This section states that with availability of treated water, farmers have been able to diversify
1-10 farming operations to include raising of livestock, and lower sulfate levels reduce mortality problems with immature animals. New livestock operations and lower animal mortality are positive benefits provided by rural water service that would increase livestock numbers and operations contrary to the conclusions in Section 3.4.

Consolidating community water systems can be beneficial for helping small systems comply with water quality standards, but can increase the potential for environmental impacts by reducing the number of water sources that supply much larger service areas. Cooperative arrangements to assist with improvements to community water treatment plants, and the purchase of water from these systems to supply moderately sized service areas, can improve reliability for a rural water system and the sustainability of water resources.

While the purpose of the LPRW is to provide a consistent and reliable supply of high quality, affordable water, it has continued to expand service areas that lack adequate storage capacity and are supplied by sources that are near capacity and have high nitrate levels close to or exceeding safe drinking water standards. As indicated in the 1994 U.S. EPA testimony, the number of
1-11 "non-viable" systems that lack financial, managerial, and technical capacities to meet drinking water standards continues to grow. The EIS should include information on the financial viability of LPRW to address system improvements that are necessary for current water quality and storage problems. High debt and low reserves may increase eligibility for Rural Development grants and loans, but the need for RUS to provide financial resources to the region through loans and grants will continue unless changes are made so systems become less dependent on grants for funding contingencies and system improvements.

1.3.1 System History and Summary

The City of Canby has almost completed construction of a new water treatment plant, so it does not appear that Canby has a need to purchase water from LPRW. The City of Canby should be
1-12 contacted to determine if they are interested in obtaining water service from LPRW and paying assessments. The 1,349 MGY projected annual demand in Tables 1-8 and 1-11 could be reduced by 51 MGY if Canby intends to supply its own water needs.

On page 25, the DEIS states that the NE Phase consists of 170 rural customers and two communities. Other sections of the DEIS indicate there will be 240 rural customers, and the
1-13 January 22, 1997 letter (Attachment 5) from LPRW's attorney states that 300 rural customers have petitioned for service. The actual number of rural customers that have signed up for service in the proposed NE Expansion should be verified and documentation provided for the 210 MGY projected demand for this service area.

Table 1-3 indicates that the Burr Water Source is softened to 460 mg/l, and Table 1-4 states it is treated to 360 mg/l. At either 360 or 460 mg/l the water supplied from the Burr water treatment plant would be considered very hard according to Table 1-2, and customers may prefer additional water softening. Please note our comments on the Preliminary DEIS regarding point of use (POU) water softening costs.

1.3.1.1 Regional Rural Water Development

In Table 1-5, POU costs include water softening equipment, but water softening equipment is not identified as a cost for LPRW customers even though softened water provided from the Burr water treatment plant is considered "very hard" according to Table 1-2. The EIS should respond to the following questions to clarify cost data provided in Table 1-5:

1) Do LPRW customers require water softening equipment for water supplied from the Burr Water Treatment Plant?
2) Do LPRW customer costs include Rural Development grant funding?
1-14 3) Will the benefits received by the City of Marshall impact Rural Development grant and loan funding for NE Expansion participation costs and, if so, are these costs reflected in Table 1-5?
4) Do customer costs reflect the 11% rate increase for the no action alternative or the 21% increase for the preferred alternative?
5) Do individual well systems require $1,500 TDS reduction equipment in addition to water softening equipment, and if so, why?

Including costs for water softening and TDS reduction does not appear to be appropriate for comparison purposes; an explanation justifying these costs would be helpful. Any cost impacts due to Marshall's benefits from utilizing a significant share of the Burr water treatment plant should also be clarified.

1.3.1.2 LPRW Growth

This section states that LPRW had difficulty supplying demands in 1988 and 1989. LPRW added the Holland Well Field and continued expansion of both Holland and Verdi service areas, but did not construct additional storage which is identified as a critical need in the DEIS. The Holland Well Field exceeded drinking water standards for nitrates, and LPRW has requested Rural Development funding for a treatment plant to reduce nitrates. Additional water will be

needed for the treatment process, and since this well field is already at or near capacity, modifications in the size of the Holland and Verdi service areas may be necessary. The Verdi Well Field also has elevated nitrate levels, and the lack of adequate storage along with the water quality problems could result in a need for increased pumping from the Burr Well Field. To protect existing customers, priorities for locating additional storage and other system improvements should be evaluated along with the proposed NE Expansion and the storage tank near Minneota.

The LPRW "official policy" on future growth is based on a personal communication by LPRW's consultant John Madden of Dewild, Grant and Reckert and Associates (DGR). Use of a personal communication from a consultant to document an apparently unwritten policy is not credible or appropriate. It is clear from the "official policy" included in the DEIS that LPRW
1-15 does not have a detailed comprehensive plan for system expansions and that a very large potential service area exists which includes Lac Qui Parle and Redwood Counties and the northeastern part of Yellow Medicine County. Without a comprehensive plan that defines the ultimate size of the system, it is difficult to evaluate treatment plant requirements and water supply alternatives appropriate for the NE Expansion or future expansions of the system. The MDNR recommends that the plan for the ultimate size of the system be developed so that potential water source alternatives can be evaluated in a comprehensive approach that will best serve the long-term needs for LPRW customers while protecting environmental resources.

1.3.2 Existing System North/Lyon County Phase History

This section indicates that the elevated storage tank near Minneota was part of this expansion effort, but does not explain why it was decided to postpone the storage tank and replace it with a
1-16 booster pump. It appears the $395,000 booster pump (Attachment 6) was needed primarily to supply the City of Marshall, and the EIS should clarify why this decision was made if additional storage capacity is so critical to the system as stated in Alternative 6.

Projections from Table 1-8 are used to indicate that 300,000 gallons per day for the City of Marshall account for 8.1% of the average day and 4.7% of the peak day needs for the Burr Well Field. It is not clear how these averages were calculated. Table 1-8 states that 773,000 gallons is the average demand for the Burr Existing System, so the minimum volume of 300,000 gallons
1-17 per day (109.5 MGY) supplied to Marshall equals 38.8%, and the 200 MGY volume (548,000 gallons per day) currently supplied equals 70.8%. Using the 628 MGY projected demand for the Burr primary and secondary service areas, the minimum volume is 17.4% and the current volume is 31.8%. The percentage numbers used in the DEIS distort actual water volumes supplied to Marshall from the Burr Well Field.

As indicated above, Marshall currently benefits by receiving at least 30% or more of the water produced by the Burr water treatment plant, but will pay only $229,000 for pipeline construction costs. However, the DGR 1991 Engineering report (Attachment 7) reflects itemized costs for treatment, storage, wells, engineering, legal and other costs that total $2,500,000. This figure
1-18 would not include any cost overruns identified in Attachment 6. Attachments 8 and 9, from the FmHA and from LPRW's attorney, reference the need to pay up-front costs of $800,000 for up to 300,000 gallons per day. The EIS should indicate why costs for treatment, storage, booster pumps, wells, engineering, legal and other cost schedules are not included as a cost of service for Marshall. Impacts on future participation costs for rural users due to the benefits Marshall is receiving from the federally funded project should be discussed in the EIS.

The Rural Development funding request for the City of Canby did not meet the criteria that facilities be modest in size, design, and cost. It is hard to understand how the LPRW system
1-19 expansion that included the Burr Well Field and treatment plant met these criteria based on actual demands for the system, unless water service to Marshall was included in the demand projections.

Page 35, paragraph 2: The text references a January 1991 DGR report (Attachment 7) which states that LPRW, the City of Marshall and Minnesota Corn Processors (MCP) discussed water service agreement alternatives of 500,000 and 2,000,000 gallons per day. Attachment 10 is part of LPRW's March 14, 1991 MDNR permit application requesting 325 MGY for Marshall/MCP. However, a November 8, 1993 letter from LPRW's attorney to Bill Dempsey (Attachment 9) states that the first contact with MCP occurred after receiving a permit from MDNR in 1992, and a September 8, 1993 FmHA memorandum (Attachment 11) states MCP was not included in the
1-20 original Environmental Assessment because it was not a consideration at that time. Attachments 7 and 10 appear to contradict statements made by LPRW's attorney and FmHA in Attachments 9 and 11. Part of the controversy about this project has been due to perceptions that the Burr water treatment plant was originally designed with intentions to serve Marshall/MCP, and these perceptions are supported by the DGR report and LPRW's water appropriation permit application, which were used to secure federal funding of the project. To help resolve any controversy and contradiction regarding water service to Marshall/MCP, the EIS should explain the reason for these conflicting statements and the lack of information in the original Environmental Assessment on this issue.

Section 1.4 System Needs

Comments on other sections of the DEIS identify inconsistencies, need for supporting documentation, and problems with data provided in Tables 1-8, 1-10 and 1-11, and these items will not be repeated in detail with the hope that projected demands will be modified or justified
1-21 in the Final EIS. What must be repeated is that it is not reasonable to justify projected annual demands based on continuously supplying both primary and secondary service areas. As shown in Table 1-10, the projected average demand for the Verdi Well Field is 892 MGY, and this well field is at or near capacity at volumes less than 500 MGY.

Table 1-8 on page 38 states that the source capacity for the Burr Well Field is 1,720 thousand gallons per day (kgpd) (628 MGY). Please include supporting documentation and an explanation on how this number is derived.

The text at the bottom of page 39 states that for planning purposes the system has been designed to meet averaged day and peak day demands, which are estimated as 70% above average daily use. This does not appear to be modest in size or design, but data in peak day columns in Tables 1-8 and 1-9 reflect average demands that do not exceed 58% of peak demands. The Burr NE Phase is the one exception, with average demands equal to 81% of the peak day demand, and again we request documentation to support projected demands for the proposed NE Expansion.

The total projected demand of 1,349 MGY includes 221 MGY (16.4%) of unaccounted-for water. Table 1-9 states that unaccounted-for water is typically reported under 10%. A history of unaccounted-for water should be added to the plan along with a description of the method for determining the "water loss adjust" used to calculate reported water loss. Attachment 12 shows volumes of water pumped and sold and an adjustment that is used to estimate unmetered uses such as leaks, line flushing, and treatment backwash. Water sold has ranged between 17.6% and

25.6% of water pumped since 1994, but applying the water loss adjustment reduces this volume considerably and has even reduced water losses to the point of showing a net gain of up to 16% more water than actually pumped.

Page 43, top of page: The text states that the Verdi and Holland Well Fields are at or near safe capacity and that minimum annual needs from the Burr Well Field are 628 MGY based on existing and long-term future needs. The total combined volume pumped from the Verdi and Holland Well Fields was 757 MGY in 1996, while combined total annual needs (Table 1-11) are 806 MGY for the primary service area and 1,238 MGY for the primary and secondary service areas. The primary and secondary combined total of 1,238 MGY is 432 to 481 MGY (35-38%) above the actual use and capacity for these well fields. The Verdi and Holland Well Fields are not capable of supplying combined demands for primary and secondary service areas based on these theoretical calculations, and the use of similar logic to justify the 628 MGY average day demands for the Burr Well Field is questionable at best.

1-22 While the DEIS includes data on projected water demands, there are no data or projections in the DEIS regarding demand reduction measures, improvements in water use efficiencies or reductions in water losses. An evaluation of the demand reduction potential for the system should be added to the EIS.

Section 2.1 Alternatives

Page 46, paragraph 2: "...When the FONSI was issued in 1992, there were no indications, nor could it be substantiated, that appropriations from the Prairie Coteau aquifer would irreversibly or irretrievably destroy the resources that were of concern..." While it is true that it was not until the aquifer testing, conducted in June 1993, confirmed the connection between the Sioux Nation fen and the Burr Unit, LPRW was notified in early 1991 that there was a likely connection between the aquifer and fen. If the well had been tested at the time, as requested by MDNR, the connection would have been confirmed much earlier in the process.

Page 46, paragraph 4: "...In previous years, the City of Granite Falls was using the Minnesota River (as) a source of drinking water for its citizens and because of reliability and public health concerns related to water quality Minnesota State officials required the City to switch to a groundwater source..." The City of Granite Falls was forced to switch drinking water sources because federal standards became more stringent and their water treatment plant is physically too small to accommodate the necessary resident time for treatment.

Section 2.2 Description of Alternatives Considered

1-23 Tables 2-3 and 2-4 include $476,000 for LPRW EIS participation costs which are not itemized in the EIS. This funding request accounts for 10% of the costs for the proposed action and 7.6% of the costs for the preferred alternative. The EIS should itemize costs and the purpose for the requested federal funds.

1-24 Please clarify the actual number of rural users in the proposed NE Expansion. The executive summary and several other sections state the proposed NE Phase includes 240 rural users, but Section 1.3.1 (page 25) indicates there will be a total of 170 rural users. Attachment 5 states there are 300 petitions for service in the Northeast Expansion, and the LPRW CEO recently stated there are 1,000 people interested in receiving rural water service.

2.2.1 Proposed Action

The MDNR agrees that the proposed action poses unreasonable environmental risks to natural resources and supports a reduction in pumping rates and volumes from the Burr Unit.

A statement in the last paragraph on page 55 indicates that the MDNR is involved with decisions to abandoned water sources previously used by communities now served by LPRW. These decisions were made by the communities, and along with the reasons cited in the DEIS the availability of federal funding is another major reason for choosing rural water. Rural Development funding decisions have even dictated water sources that can be used for community needs based primarily on economics. A recent example is the City of Canby Rural Development funding request during the preparation of this DEIS. As indicated on page 36, the application was not processed because it was economically cheaper to connect to the LPRW Burr Well Field service area. The MDNR and Rural Development have started working on early coordination procedures to help identify potential resource issues and help prevent future problems.

DEIS page 57, paragraph 2: "...additional geologic exploration efforts near the Holland Well Field has not produced any formations of sufficient thickness that would be able to supplement supplies to the Holland field (Berg, 1997b)." LPRW CEO Don Evers reports that test drilling conducted by LPRW in July 1997, approximately two miles north of the Holland Well Field, had identified a potential source to augment the Holland Field (personal communication, July 1997).

2.2.2.1 Alternative 1

We agree with the conclusion that Verdi and Holland Well Fields are operating near capacity (combined total of 737-806 MGY) and are not adequate to supply the Burr service area, let alone the 1,238 MGY indicated for primary and secondary service areas (Tables 1-8 and 1-11).

Tables 1-8 and 1-11 indicate that an estimated 1,349 MGY are required for the system, including 221 MGY of unaccounted-for water, 103 MGY for drought demand, 492 MGY for the Burr service area, and 51 MGY for Canby. Eliminating the approximately 200 MGY currently supplied to the City of Marshall would leave a total system demand of 1,150 MGY, according to
1-25 the DEIS. It is not clear why the total system demand is used to subtract the City of Marshall's demands, which are supplied by the Burr Well Field. However, subtracting 200 MGY from the 492 MGY for the Burr service area would reduce demands in the primary service area to 292 MGY. Subtracting the 200 MGY from the 628 MGY for the primary and secondary Burr service areas would reduce demands to 428 MGY, and this figure is actually close to the 413 MGY obtained by subtracting the 1997 combined total for the Verdi and Holland service areas from the 1,150 MGY calculation in the DEIS.

If Canby supplied the LPRW Yellow Medicine Phase with 39 MGY, the potential decrease would be 90 MGY, because the 51 MGY for Canby is included in the total system demand of 1,349 MGY (Tables 1-8 and 1-11). This option would appear to reduce Burr Well Field demands to 202 MGY for the primary service area and 338 MGY for primary and secondary service areas.

2.2.2.2.2 Adjacent Rural Water Systems

Page 59, paragraph 3: "...The surrounding rural water systems in Minnesota include ... None of these systems have any excess capacity that could be utilized by LPRW (Madden, personal communication, 1997)..." Attachment 13 is a letter from Jay Gilbertson to Jay Frischman describing a phone conversation between Gilbertson and Martin Jarrett of the Big Sioux Community Water System that indicates a potential to provide LPRW with 300 gpm.

2.2.2.2.4 Canby Aquifer

The City of Canby is appropriating approximately 50 MGY and in addition supplied 39 MGY to the LPRW St. Leo service area until 1996. If Canby continued to supply the St. Leo service area, the annual water demands for the Burr Well Field in Tables 1-8 and 1-11 should be reduced by about 90 MGY.

2.2.2.3 Alternative 3

Purchasing water from Canby or other community systems located near the proposed NE Expansion service area should be considered as an alternative.

The minimum volume of water supplied to the City of Marshall is 300,000 gallons per day or 110 MGY, and approximately 548,000 gallons per day or 200 MGY are currently being supplied (page 57). It is inconsistent to use the annual demand for both primary and secondary service areas (628 MGY), while using the minimum amount of water supplied to the City of Marshall instead of the 200 MGY currently being supplied. Subtracting the 110 MGY minimum service amount from the 492 MGY for the primary service area would equate to 382 MGY. Subtracting the current volume of 200 MGY from the primary and secondary service area demand would equate to 428 MGY. Utilizing Canby water to supply the St. Leo service area should provide additional reductions in annual appropriations.

2.2.2.4 Alternative 4

1-27 Construction of a water treatment plant and well field in the proposed NE Expansion is MDNR's preferred alternative.

Page 64, paragraph 3: "B.A. Liesch and Associates completed the only pump test that has been performed in this aquifer...(Berg, 1997b)". The Berg document referenced in the DEIS was actually a draft copy of the report. The final version of Berg 1997b contains data collected from two aquifer tests completed in the Wood Lake aquifer, one conducted by B. A. Liesch and one by the USGS. See Southwestern Minnesota Groundwater Exploration Project 1996-1997, Final Report, Berg 1997 (Attachment 14).

The DEIS states that water quality for the Wood Lake aquifer is not as good as that for the Burr or Altamont aquifers, but the data provided indicate the range of total hardness and TDS may be lower (better quality), while sulfates levels are higher.

The January 1991 Engineering Report and Feasibility Study for the System Expansion by DGR (Attachment 7) indicates that use of up to 2 MGD from a water source by Hanley Falls was evaluated as a source of water for the Minnesota Corn Processors and the City of Marshall. The potential for a good water supply exists in the Hanley Falls/Wood Lake area, and development of

a comprehensive plan that defines the ultimate size of the system may justify a new water source and treatment plant in the proposed NE Expansion.

The DEIS states that if this is the only alternative available, LPRW would not pursue the proposed expansion or a well field and treatment plant at this location. Another alternative worth consideration is funding the upgrade of a community water system in this area and selling water to LPRW for the proposed expansion. The City of Canby is one example where this potential alternative could have worked.

2.2.2.6 Alternative 6

The storage tank proposed near Minneota is critical to meet the hydraulic needs of not only the proposed NE Expansion but all of the East and most of the West Phase of the Existing System North/Lyon County Phase (Krause, 1993, 3). This elevated storage tank was part of the North Phase, but was replaced with a $395,000 booster station (Attachment 6). The DEIS states that
1-28 "One of the shortcomings of the LPRW system is the lack of sufficient water storage capacity to meet its peak daily demands (Jacobsen); therefore, this storage facility is critical to maintain the proper hydraulic integrity and storage capacity of the system. Certainly if this project were not to be built it would create system-wide management problems but these would not be insurmountable." If this storage tank was part of the North Phase and is so critical to the system, why was it replaced with a booster station? MDNR supports the need for additional storage, but it appears the storage was postponed so that a booster station could be constructed, primarily to provide service to the City of Marshall.

RUS concludes that it would be unreasonable to not fund the NE Expansion proposal, and that "it appears likely" that resources will be protected with regulatory oversight "and a willingness of LPRW to closely monitor and manage groundwater appropriations in such a fashion that minimizes the drawdown or reduction in the potentiometric surface of the Burr Unit...". However, LPRW sued MDNR to circumvent MDNR's regulatory authority, and has spent a
1-29 considerable amount of money to lobby for a statutory exemption from developing a fen management plan and to prevent completion of the EIS. Up to this point there has not been a lot of willingness by LPRW to protect surface water resources, and the MDNR hopes this situation will improve. We are also concerned about the potential use of federal funds for legal, consulting and other costs related to activities intended to prevent environmental assessments or contest laws and permits that protect environmental resources.

2.2.3 Preferred Alternative

Page 68, paragraph 3: "Supplement existing wells at the Burr Well Field with a new well field in an area south-southeast of the current Burr Well Field. This new well field could utilize both the Burr Unit and Altamont aquifers in a configuration similar to that at the Burr Well Field..." The MDNR does not find the recommendation to install additional wells in the Burr Unit to be
1-30 prudent. The artesian conditions south-southeast of the Burr Well at the proposed test well site are expected to be similar to that at the well field. These artesian conditions result in a high probability that known fens, as well as any presently unidentified ones, will be impacted just as the fens near the current well field are impacted.

Page 68, paragraph 5: "The Agency recommends that the appropriation rates of the supplemental wells be similar to those permitted at the Burr Well Field or higher in the case of the Altamont aquifer....This recommendation would likely 'spread out' the effects or reductions

in the potentiometric surface of the Burr Unit caused by production pumping, thus potentially avoiding or minimizing any adverse effects to surface water resources in the area." The MDNR can support the recommendation to pump more from the Altamont aquifer because the Altamont appears to be separated from the system which provides the head to move ground water up to the fens. The MDNR does not, however, support the premise that pumping from the Burr in two locations will necessarily 'spread out' the pumping effects. There can only be a benefit in the area around the current well field if pumping from that well field is reduced and the added drawdowns from the supplemental wells are too small to negate the impact of the reduction. In fact, since the recommended drilling locations are located farther from the suspected recharge area west of Lake Cochrane, it is possible that the drawdown effects may be greater at the new site than at the Burr Well field.

3.2.1.1 Burr Unit

1-31 *Page 72, last paragraph:* "...Burr Well Field Aquifer Test Analysis, April 1995;..." Is this actually the MDNR report entitled Burr Well Field Aquifer Test Analysis, April 1994 ?

1-32 *Page 73, paragraph 2:* The text references a Figure 1-6, but there does not appear to be such a figure in the document.

Page 78, paragraph 1: "...A till sequence consisting mostly of sandy clay with a rocky zone from 82 to 102 ft overlies and confines the Burr Unit." The till sequence at the Burr Well Field is actually much thicker. The log for PW-1 (unique #440325) shows top soil from 0-2 feet, clay from 2-98 feet and sandy clay from 98-113 feet. The log for PW-3 (unique #527475), at the highest elevation in the well field, shows top soil from 0-3 feet, sandy clay from 3-30 feet, clay from 30-61 feet and sandy clay from 61 to 106 feet.

Page 82, Table 3-2: What is listed as well 93-9 is indicated as having a water elevation of 1692.8. However, 93-9 is a boring, not a well. MDNR believes this water level belongs to well 93-10. If indeed this is a reference to a water level recorded in a boring, then the reference should be accompanied by the caveat that water levels measured in borings are less reproducible and less reliable than water levels measured in wells (i.e., borings can cave in, cannot be kept open long enough to record water levels over time, and usually can't be developed).

Page 84, paragraph 2: "...potentiometric surface decline in OW-90 was 15.28..." Should read OW3-90.

Page 84, paragraph 2: "Although pump tests are a valuable tool in determining aquifer characteristics, they do not emulate the normal operation of production pumping. ...it is difficult to use the results of pump tests to predict the effects that ground water withdrawal will have on surface water resources..." This is true, but at a certain distance from the pumping well, the effects of pumping an average of X amount from the well field will be adequately approximated
1-33 by a pump test at a rate of X. Then those drawdowns can be used to make predictions about changes in gradient which will induce changes in surface water resources. Our analysis of these gradient changes reveals that the Fairchild and Sioux Nation fens will receive less water because of pumping at the Burr Well Field. The same analysis shows that ground water inputs to Lake Cochrane will be reduced by pumping at the Burr Well Field. Other surface water resources within the impacted area will also be affected if they have a ground water component. The importance of any ground water component is accentuated during dry periods. Ground water is what sustains the obligate wetland plants in fens regardless of the current climatic regime.

3.2.1.2 Other Portions of the Burr Unit

Page 87, paragraph 3: The document discusses the installation of a test production well and observation wells, and includes a recommendation "...If the well field is not developed the borings could be plugged in a few days,..." Even if a new well field is not developed at a test site, any observation wells that are installed should be left in place for long term monitoring.

3.2.2.1.1 Fens

Page 91, figure 3-5, Generalized Schematic of Calcareous Fens: This depiction leads to misconceptions about the nature of the connection to the aquifer, which is by no means
1-34 comparable to a pipe, nor should it be suggested that there really is a pocket of free water within the dome. It is possible that peat-water slurry is what one sees after the disturbance and liquefaction of the peat by sampling. It should not be thought of as the natural condition.

Page 98, paragraph 2: "...Before pumping, the potentiometric surface stood about 10 ft above the OHWM of this lake. After pumping the Burr Well Field at 1,500 gpm continuously for 7 days, the potentiometric surface was still 6 ft above the lake surface along the eastern margin and
1-35 more than 8 ft above the lake surface at the western margin of the lake." There appears to be confusion regarding 'OHWM' and 'lake level'. These are two different levels which only coincide rarely. The document should be comparing the water level in the aquifer to the actual water elevation of the lake at the time of the pump test. It is probable, since the lake outlet is at an elevation of 1682.8, that the water elevation of the lake is multiple feet lower than the OHWM.

Page 98, paragraph 2: "Because the Fairchild and Sioux Nation Fens are situated more than 30 ft below the potentiometric surface of the Burr Well Field, it seems unlikely that production pumping at current rates of 400-525 gpm will have other than minimal effects on these resources." This makes it sound as though 30 feet of head is available to move water through the peat domes to sustain them. That isn't a useful model of how the fens function. At present, after a series of wet years which has caused the potentiometric surface on the Burr aquifer to rise, only about 1.6 feet of head is available beneath the Sioux Nation fen dome. Because ground water must move through the peat continuously and at amounts above evapotranspiration (ET), all of that head may be necessary to sustain the fen in its current condition. During the pump test in 1996, ground water discharge from the Sioux Nation fen dome was reduced below ET. This indicates that there is little if any room to reduce heads without consequences.

Page 105, paragraph 3: "The information provided concerning the pools is not consistent with the measured hydraulic conditions during the test...the Canby area received 0.72 inches of rain. Rainfall was measured in 5 out of 7 days during the test." Under normal conditions, rainfall is irrelevant to fens, because the peat is already saturated. Rainfall is thus "rejected" and flows away with the discharging ground water. It is important to the health of calcareous fens to maintain the dominance of ground water and the ability of the peat to "reject" the precipitation,
1-36 because the rainwater has the potential to change the chemistry of the surface of the peat, and thus change the growing environment for the plants. During the test at the end of June 1996, it appeared that ground water discharge was reduced below the amount required for evapotranspiration -- thus not enough water was available to keep the surface of the fen saturated. An estimate of daily ET for this area is from 0.16 to 0.18 inches per day (Hydrology Guide for Minnesota, USDA Soil Conservation Service). Ground water supply must constantly exceed this amount for the fen to remain saturated.

Rain data were collected on site, as follows:

6/23/96	0.01"
6/24/96	0.35"
6/30/96	0.01"
7/2/96	0.01"
7/4/96	0.05"
7/12/96	0.04"
7/14/96	0.02"

The total rainfall was 0.49", with rain on 7 of 22 days, whereas the ET equals 3.6 to 3.9".

Evapotranspiration and initial abstraction were exceeded on only 6/24/96, and the impact of that 0.35" of rain could not be expected to persist past the day it occurred, because the side slopes of the fen are a flow-through system, as mentioned above -- any excess is "rejected" and flows away. If precipitation had any significant effect on the fen, it would only be further proof that harm is being done.

Page 106, paragraph 4: "To determine the natural...cone of depression..." While the idea of establishing a "control fen" is a very good idea, it has not yet been acted upon for three reasons: 1) It would cost about $30-35,000 for the baseline vegetation survey and an additional $20,000 to instrument the fen. Upkeep and servicing of the instrumentation would be approximately $5,000 per year. Subsequent vegetation surveys would cost about $10,000. 2) The fragile nature of fens make them susceptible to damage from the installation and on-going servicing of the instrumentation. 3) MDNR has not had the money, the staff, or an ideally located calcareous fen. However, given money and staff time, a location could be found.

Page 106, paragraph 5: "It is assumed that the MNDNR will continue to monitor and update the evaluations based on this study to assess any changes in the calciphile populations at the fens...." Under current budget and staff constraints, there are no dedicated fen funds nor fen staff. This
1-37 means that monitoring tasks are slighted when staff respond to flood, drought, and other higher priority tasks. The MDNR has borne the majority of the monitoring costs. LPRW, the beneficiary of the water withdrawals, or RUS, which underwrote the construction of the project, should be called upon to finance more of the monitoring costs. Adequate dedicated funding would insure that monitoring tasks are completed.

3.2.2.1.2 Lake Cochrane

Page 109, paragraph 2: "...the potentiometric surface of the Burr Unit (as recorded in observation wells around Lake Cochrane) stood 10 to 12 ft above the OHWM of Lake Cochrane. Drawdown at Lake Cochrane during this test ranged from over 3 ft at the Christenson well on the eastern margin of the lake to about 1 ft in Well 94-15 at its western margin...." First, there is no well 94-15; there was a boring 93-15 on the western margin of Lake Cochrane. The document
1-38 should be referencing well 94-27, which is located on the western edge of the lake. Second, to more accurately describe the impacts of pumping on the lake, the discussion should compare water levels of the lake at the time of the pumping vs. the potentiometric surface, not potentiometric vs. OHWM.

Plots 1 and 2 (Attachment 15) depict water elevations recorded in, from west to east, wells 94-27, 93-14, Christenson, and 93-13, in July 1996. Plot 1 illustrates the static water elevation in the wells; the first water level measurement taken in the Christenson well is below the static

level in the remaining wells. However, this measurement was recorded some 300 minutes after pumping had started and after drawdowns had been recorded in another nearby well – and which cannot actually be considered to be a static water level. An additional reason for this discrepancy in water elevation is the existence of small leaks in the Christenson well's waterline (Stan Pence, personal communication) which cause the well to flow at a small but constant discharge. If the initial water level in the Christenson well is "corrected" to fit with the potentiometric levels of the other wells, the estimated static level in the well would be approximately 1692.6 (MSL) or 8.3 feet above the OHWM. Plot 2 shows the potentiometric surface at maximum drawdown. We note that the water surface plots as a smooth line, indicating that the influences of the leaks is minimized and therefore the water level recorded in the well is quite representative of the actual potentiometric surface. From this plot it is clear that the water elevation in the Christenson well at the end of the test was less than 2 feet above the OHWM. This represents a decrease in head relative to that reference point at the eastern edge of the lake of almost 80%!

Page 114, paragraph 1: "...If the potentiometric surface were lowered below the OHWM, surface water flow from Lake Cochrane to the Burr could happen." It is true that if the potentiometric surface falls below the OHWM, discharge into the lake would decrease and may
1-39 even stop, but it is not until the potentiometric surface falls below the lake water surface elevation that water could potentially flow from the lake into the Burr Aquifer (i.e., when the lake water surface elevation is higher than the potentiometric surface, water can move from the surface water body to the aquifer).

Page 114, paragraph 2: "...in consultation with experts in the field of hydrology and geology, it is the Agency's opinion that effects to Lake Cochrane...would not have significant environmental
1-40 impacts." While this statement may be the opinion of unnamed experts, staff at MDNR and DENR agree that significant impacts are possible, because data show that reductions in groundwater input occur even with pumping at current rates (of about 500 gpm) and that this reduction would be significant during a "dry spell".

Page 116, paragraph 3: "It is reasonably logical to state that as long as the fens remain saturated, minimal impacts to their ecological integrity would be expected even if the hydraulic head in the peat dome fluctuating (sic) but did not drop below the surface of the dome." We have seen that an estimated minimum of 1.6 feet of head is necessary to drive enough water through the peat to meet midsummer ET demands. Reductions or fluctuations will lead to changes in the water chemistry, including changes in the location of the zone of carbonate deposition, which could have drastic impacts on the rooting zone.

3.4 Systemwide Socio-economic Effects

MDNR supports agricultural operations, but the conclusion that the availability of potable water
1-41 supplied by LPRW will not cause an increase in large scale livestock operations is not consistent with the statements summarized in the following documents:

> January 31, 1991, Farmers Home Administration Form 1940-20. "It will allow those farm residences to have a dependable supply of water for their domestic use, along with allowing expansion of livestock enterprises."

September 16, 1994, Affidavit by Gordon B. Krause. "Many (new Burr Well Field customers) have invested in newer or larger facilities that will allow them to feed more livestock ..."

May 27, 1997, LPRW Board of Commissioners Meeting Minutes. "A group of gentleman from the Marshall/Green Valley area spoke to the commissioners regarding their need for water. They are looking at expanding hog operations and dairy set-ups and rural water is necessary for this to happen."

Preliminary DEIS, page 23, paragraph 3: "Therefore prior to the availability of treated water, many farmers were unable to diversify their farming operations to include the raising of livestock."

Even members of LPRW's Board of Directors have commented in the past that, but for the availability of rural water, they themselves could not raise hogs in the numbers that they now can. Rural water systems have had a positive impact on growth of livestock operations and this has led to increased use of water from centralized water sources in southwestern Minnesota. Even if rural water systems do not increase the number of livestock operations or numbers of animals, they have eliminated the use of individual well systems and have concentrated water demands on fewer resources which increases the potential for impacts on environmental resources.

To help protect existing water resources and address potential water quality impacts, a mitigation measure that requires proof of compliance with feedlot regulations should be required for customers benefiting from federally funded rural water systems.

References

The DEIS references a source, "MNDNR, Burr Well Field Aquifer Test Analysis, April 1994", several times in the document, however the document is not included in the references section. This document should be added to the list of references and fully be referenced in the body of the document.

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181

April 22, 1998

Mark S. Plank
Rural Utilities Service
Mail Stop 1571
Washington, DC 20250

Dear Mr. Plank:

I am writing to provide comments on the February 1998 Draft Environmental Impact Statement (DEIS) for the Lincoln-Pipestone Rural Water (LPRW) project. Please consider and incorporate our comments and suggestions as you prepare the final Environmental Impact Statement.

My staff has reviewed this document and found the February 1998 DEIS contains changes that reflect some of South Dakota's concerns. I want to thank you for including those changes. We are, however, disappointed that not all of our previous comments were adequately addressed. We also note that comments from the State of South Dakota were not included at the end of the DEIS. Comments from the State of South Dakota, dated November 6, 1997, were hand delivered at a November 7, 1997, meeting in Minneapolis, Minnesota. They should have been included in a manner similar to the comments from the Minnesota Department of Natural Resources (MNDNR). We trust that the Final Environmental Impact Statement will include complete comments from the State of South Dakota.

As you are well aware, our interest in the environmental impact statement process is to ensure any potential adverse impacts to the water resources of South Dakota are identified, as well as alternatives that will either eliminate or reduce those impacts. Therefore, we appreciate the acknowledgment in the DEIS that Lake Cochrane is hydraulically connected to the "Burr Unit"
2-1 and is receiving ground water input. However, the DEIS makes no attempt to quantify these ground water inputs to the lake, nor was an attempt presented to provide an estimated water budget for the lake. Even though we understand that these will be estimates subject to professional judgements and opinions, we believe these are critical components of the DEIS, and consequently the omissions are major deficiencies in the DEIS.

To attempt to quantify ground water inputs to the lake and estimate a water budget for Lake Cochrane, all available information needs to be considered. For example, at the top of page xiii it states that "Pumping from the "Burr Unit" at the Burr Well Field reduces the potentiometric

surface in the aquifer and would cause proportional reductions in discharges to fens and Lake Cochrane." While we agree with that statement, we believe there is enough information to estimate that the ground water contributions to the lake from shallow sources and the "Burr Unit" are significant to the lake.

Part of that information is already in the DEIS. For example, the reference provided in the DEIS on page 156 [(SCS, undated) Soil Conservation Service, U. S. Department of Agriculture, June 1988, *Ponds—Planning, Design, Construction. AG Handbook #590*] and a newer version of that report dated September 1997, indicate a minimum ratio of watershed area to lake area of 16 to 1 is necessary to maintain a lake in this region of the country. The ratio of the watershed area to the lake area for Lake Cochrane is 2.4 to 1. This ratio indicates the drainage basin is inadequate to sustain Lake Cochrane at normal lake levels, unless the lake is likely receiving appreciable amounts of ground water contributions.

Information concerning the water levels in Lake Cochrane shows there is a certain amount of fluctuation in lake levels. Aerial photos taken in the late 1930's show that Lake Cochrane water levels dropped considerably (estimated up to 10 feet) during the 1930's when precipitation was abnormally low. However, the point is the lake never went dry. DENR began measuring actual water levels in Lake Cochrane during 1981. Measurements to date show a fluctuation of five feet through a period of below normal to above normal precipitation. However, the DEIS does not contain this information, nor is there any comparison made between fluctuations in the lake level with the potentiometric surface of the "Burr Unit." In order to attempt to quantify ground water inputs to the lake and estimate a water budget for Lake Cochrane, this information needs to be included.

The final piece of information in the DEIS linking the importance of ground water contributions to Lake Cochrane is contained on page 111. It states that the observance of a reddish cast in the water as the ice is melting in the spring is indicative of ground water recharge to the lake from a deeper aquifer such as the "Burr Unit." DENR personnel observed such a reddish cast or precipitate on April 6, 1998, in four distinct areas along the shoreline. The reddish cast or precipitate was found to be most prevalent along the northeastern portion of the lake, and again supports that ground water contributions to the lake are significant Therefore, these reports need to included in the DEIS, and considered as an attempt is made to quantify the ground water inputs, and estimate a water budget for Lake Cochrane.

2-2 However, even without ground water contributions to the lake being quantified and without a water budget to the lake, the DEIS states on pages 53 and 54 that the proposed action of pumping at a rate of 1,500 gallons per minute under drought conditions poses unreasonable environmental risks to surface water resources of the area. Several reasons to support this conclusion are presented in the DEIS, and we fully agree with those reasons. But it needs to be pointed out that these same reasons also directly apply to the preferred alternative that proposes to pump water at a rate of 400-525 gallons per minute.

2-3 The DEIS states on pages xii and 54 that "Long-term impacts to surface water resources from groundwater appropriations are unknown" and the "Magnitude of existing or future impacts are

not accurately known or understood." Because the DEIS identifies the potential for adverse impacts to Lake Cochrane, and the potential magnitude of these impacts is unknown, a reduction of present pumping rates by LPRW in the "Burr Unit" is warranted.

However, our concern is that the DEIS acknowledges there is insufficient information on how the aquifer will be affected during years with normal precipitation amounts, and especially during drought periods. Therefore, there still is a very real potential that pumping at 400-525 gallons per minute may have an adverse impact on Lake Cochrane during dry years. For this reason, a methodology to measure the impact of pumping by LPRW on Lake Cochrane water levels should be developed and included in the Final Environmental Impact Statement.

2-4

If pumping is allowed to continue, even at the reduced rates suggested in the DEIS, then it is also imperative that the preferred alternative require a contingency plan to mitigate any impacts to Lake Cochrane. The State of South Dakota should agree to this contingency plan before any Rural Utilities Service funds are released for construction of a LPRW expansion.

2-5

Because of all the uncertainties, we fully agree that developing an alternative water source is necessary. However, additional pumping of water from the same "Burr Unit" at a location a few miles southeast of the present wellfield, as suggested in the preferred alternative on page 68 of the DEIS, will only shift these same questions to another location. All available information suggests recharge to the Burr Unit occurs near Cobb Creek in South Dakota. Hydrogeologic conditions in this possible recharge area indicate appreciable additional recharge cannot be induced regardless of the amount of water pumped from the "Burr Unit" in Minnesota.

2-6

The DEIS states on page 114 that "Certainly the most critical elevation for Lake Cochrane would be the ordinary high water mark (OHWM) and its relationship to the potentiometric surface." The ordinary high water mark is also referred to at the top of page 115 and the third paragraph on page 116. The use of the ordinary high water mark in the context presented in the DEIS is incorrect. The ordinary high water mark has been set by the South Dakota Board of Water Management, and does not change. However, as we pointed out above, there are fluctuations in the water levels in the lake. It is the difference between the elevation of the potentiometric surface of the "Burr Unit" and the lake level that determines the flow rate and the direction of flow between the aquifer and the lake. Therefore, the correct reference point is the Lake Cochrane water level itself, and not the ordinary high water mark. This error should be corrected.

2-7

This letter has addressed only the major issues and concerns in the DEIS. There are other technical errors, inconsistencies, and contradictions throughout the DEIS. My staff would be glad to meet with you to discuss these other technical items.

In summary, we believe additional work is needed to attempt to quantify ground water inputs to the lake and estimate a water budget for Lake Cochrane. In the end, if pumping the "Burr Unit" is allowed, we recommend that pumping be limited to no more than the lower part of the range presented in the DEIS, which is an average of 400 gallons per minute for a maximum allowable pumpage of 210,000,000 gallons per year. However, even with reduced pumping, the preferred

2-8

alternative described on pages 67-69 is inadequate because it does not require a contingency plan to mitigate negative environmental impacts to Lake Cochrane should those occur. To avoid any long term negative impacts, contingency plans must be made now. Finally, we fully concur with the need for LPRW to develop a new supplemental water supply; however, this should occur in an aquifer other than the "Burr Unit."

My final request involves the large amount of high public interest in this project by South Dakota citizens. Because of that interest, I strongly believe a public meeting on the DEIS should be held in South Dakota to allow for additional public input to the process before the DEIS is finalized, and hereby request that the Rural Utilities Service sponsor and hold such a public meeting.

Thank you for the opportunity to review and comment on the Draft Environmental Impact Statement. I look forward to your favorable consideration of our comments, suggestions, and requests. South Dakota will continue to cooperate with the Rural Utilities Service, Minnesota Department of Natural Resources, U.S. Environmental Protection Agency, and others to resolve issues related to the impacts of pumping of water from the "Burr Unit." However, please be assured that South Dakota will take all necessary steps to protect Lake Cochrane.

Sincerely,

Nettie H. Myers

Nettie H. Myers
Secretary

cc: Governor William J. Janklow
Senator Tom Daschle
Senator Tim Johnson
Representative John Thune
Harold Halverson, State Senator, Milbank
Larry Diedrich, State Representative, Elkton
Robert Weber, State Representative, Strandburg
John Cooper, Secretary, S.D. Department of Game, Fish and Parks
Carol Tobin, President Lake Cochrane Improvement Association
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8EPR-EP

APR 24 1998

VIA E-MAIL AND SURFACE MAIL

Mark Plank
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Engineering and Environmental Staff
Mail Stop 1571
1400 Independence Ave
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Re: EPA Comments on DEIS for Lincoln-Pipestone Rural Water System

Dear Mr. Plank;

In accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act (CAA), Region VIII of the Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) for the Lincoln-Pipestone Rural Water System.

This DEIS analyzes the potential environmental impacts of expanding the Lincoln-Pipestone Rural Water System(LPRW) including the use of ground water for supply and the construction of production fields and distribution networks. LPRW is established as a water supply district in southwestern Minnesota. The aquifer being use for the system extends into South Dakota. Consequently, there could be adverse impact to wetlands, called calcareous fens, in both South Dakota and Minnesota, and to a lake in South Dakota, Lake Cochrane.

EPA, Region VIII has participated as a Cooperating Agency in the preparation of the ground water impact analysis and has provided written comments to RUS during scoping and review of the Preliminary DEIS. In general, EPA supports the Preferred Alternative identified in the DEIS and the mitigation measures which must be implemented for approval of financial assistance by RUS. However, we offer the following comments and concerns that should be addressed in the Final Environmental Impact Statement (FEIS)

EPA strongly recommends that the pumping rate for the Burr Unit at the Burr Well field be limited to 400-450 gpm with a corresponding annual appropriation.

EPA is concerned that the total annual need deficiency identified by LPRW at the Burr Well Field is self imposed. LPRW has negotiated an agreement to provide water to the communities of Canby and Marshall even though they both have their own source of municipal water. Providing water supply to these communities seems to exceed the original purpose and need for the Proposed Action. Given the clear hydraulic connection between the Burr Well Field, the fens, and Lake Cochrane, it is prudent to limit the total yield from the Burr Well Field in order to avoid adverse impacts rather than expand the customer base for LPRW system.

3-1

EPA strongly supports the development of a new well field (as proposed in the Preferred Alternative) to offset the demand on the Burr Well Field. However, the DEIS does not include sufficient information regarding the potential location of the new well field. Since this proposed new well field will develop water from the Burr Unit, it is necessary to provide detailed information on the Burr Unit at the proposed location of the new well field. Are there fens or other important water resources nearby? Will the cones of depression from the proposed new Burr wells overlap with those from the existing wells? It should be noted that any further withdrawal from the Burr Unit in this area could result in significant cumulative impacts to the sensitive wetlands resources. EPA recommends that RUS further investigate the Altamont and other glacial drift aquifers to determine their suitability for water supply.

3-2

EPA concurs with the mitigation measures that RUS has established in the preferred alternative with two important exceptions: (1) the location of a new well field and the aquifer to be used should be carefully evaluated to avoid adverse environmental impacts; and (2) the formal water resource management plan should include contingency measures to avoid any adverse impacts to fens and Lake Cochrane. Monitoring does not constitute a mitigation measure. It is necessary to develop specific contingency measures to be implemented based on monitoring results. EPA recommends that MDNR, SDDENR and LPRW collaborate on the development and implementation of the formal monitoring, mitigation and contingency plan.

3-3

EPA recommends that RUS hold public meetings on the DEIS in both Minnesota and South Dakota. Since this project has been controversial, it would give the interested and involved publics an opportunity to fully express their concerns to the decision-makers.

EPA is concerned about the possible impacts of further water supply development in this area of Minnesota and South Dakota. While the DEIS analysis is based on the total needs for the LPRW System, there is no clear statement of reasonable foreseeable development (RFD) and cumulative impact of ground water use in this area. It could be assumed that since LPRW is the only organized

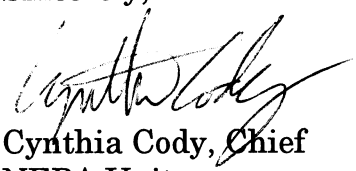
3-4

supplier of water in this area and the DEIS considers total needs of the district both RFD and cumulative impacts have been considered. However, since this information is critical to full disclosure of potential environmental impacts of this water supply project, EPA recommends that a discussion of RFD and cumulative impacts of ground water use in this area of South Dakota and Minnesota be included in the Final EIS. The full implementation of the mitigation measures outlined in the DEIS on pages 68-69 and in Chapter 3, especially the recommendations on pages 116-117, seem adequate to avoid or minimize any adverse environmental impacts from this project.

Based on the procedures EPA used to evaluate the DEIS and the potential environmental impacts of this water supply development project, the DEIS will be listed in the **Federal Register** as category **EC-2** (Environmental Concerns, Insufficient Information). This rating indicates that EPA is concerned that if the project is not approved as indicated under the Preferred Alternative and the Conditions of Approval not implemented as part of the funding process, then there could be adverse environmental impacts to wetlands and other surface water resources. As noted above, the DEIS does not contain a clear discussion of RFD and cumulative impacts. Consequently, there is insufficient information to full assess the potential impacts of this project.

If you have any questions about EPA's comments, please call Mike Wireman at (303) 312-6719, or Mike Strieby at (303) 312-6002.

Sincerely,



Cynthia Cody, Chief
NEPA Unit
Ecosystem Protection Program

cc: Mike MacMullen, EPA, Region V
Mike Wireman, EPA, Region VIII
Mike Strieby, EPA, Region VIII

East Dakota Water Development District
307 Sixth Street
City Plaza Mall
Brookings, SD 57006

(605) 688-6741 **(605) 688-6744 Fax**

April 24, 1998

Mark S. Plank
Rural Utilities Service
Mail Stop 1571
Washington, D. C. 20250

Dear Mr. Plank:

Enclosed you will find my comments on the Draft Environmental Impact Statement (DEIS) for the Lincoln-Pipestone Rural Water Existing System North/Lyon County Phase and Northeast Phase Expansion Project. The section of the report and the page and paragraph reference is provided with each comment.

In general, I was quite pleased to see that the Agency has recognized the potential for adverse impact to area surface water resources from continued utilization of the Burr Unit aquifer. However, I am concerned about the recommended plan of action, particularly the pumping rates. As noted in the comments, I do not believe that there is sufficient evidence to support this action. There is also the matter of how such a recommendation might be interpreted when the Minnesota Department of Natural Resources, Division of Waters, is asked to revisit Lincoln-Pipestone Rural Water's pumping permit(s).

If you have any questions about my comments, please let me know. I plan to be in Washington the first week of May. Time permitting, I may contact you for a personal visit on this issue. I am looking forward to receiving the final version of this report.

Sincerely,

Jay P. Gilbertson
Manager/Treasurer

cc: Senator Tom Daschle
Senator Tim Johnson
Representative John Thune
State Senator Harold Halverson
State Representative Robert Weber
State Representative Larry Diedrich
Secretary Nettie Myers, SD DENR

East Dakota Water Development District Comments April 24, 1998

USDA Draft Environmental Impact Statement (DEIS) for the
Lincoln-Pipestone Rural Water Existing System North/Lyon County Phase
and Northeast Phase Expansion Project

1. Section 1.3.2, page 35, 4th paragraph. The statement is made that LPRW can "..reduce water deliveries to MCP.." Prior statements indicate that LPRW does not have a direct agreement with MCP for water delivery. The system provides water to the City of Marshall, which then provides it to MCP. Does LPRW have a water delivery agreement with MCP? 4-1

2. Section 2.1, page 46, 2nd paragraph. The statement is made that "When the FONSI was issued in 1992, there were no indications, nor could it be substantiated, that appropriations from the Prairie Coteau aquifer would irreversibly or irretrievably destroy the resources that were of concern." According to the comments presented by the Minnesota Department of Natural Resources (MNDNR) in Appendix E, page 192, 2nd paragraph, MNDNR did raise this issue at that time. How does the statement in the DEIS reconcile with MNDNR's comment and documentation? 4-2

3. Section 2.2.1, page 54, last paragraph. The statement is made that "..at current appropriation rates (400-525 gpm from the Burr Unit) it is unlikely surface water resources will be significantly impacted.." Immediately prior to this statement, a number of points are made that clearly preclude such a statement. How can the Agency contend that long-term pumping at these rates will not be a detriment to local water resources when so many critical factors are poorly understood or unknown? As noted on the same page, the sustainable yield of the aquifer is unknown, recharge to the aquifer is not clearly understood, and all recent evaluations of the aquifer and pumping impacts have taken place during a period of abnormally high precipitation. Add to this the list of Significant Data Gaps/Uncertainties and the basis for the Agency's conclusion has to be strongly questioned. 4-3

4. Section 2.2.1, page 55, 3rd paragraph. The statement is made that during 1997 LPRW withdrew water from the Burr Unit at "..rates between 400-525 gpm (average rate 521 gpm).." It would seem to me that if the annual average rate was 521 and they did not exceed 525 gpm, then LPRW rarely pumped in the lower part of this range. A more appropriate and accurate representation is to use the annual average pumping rate.

5. Section 2.2.2.1, page 57, last paragraph. It is stated that currently LPRW is supplying 200 million gallons per year (Mgpy) to the City of Marshall and 39 Mgpy to the City of Canby - a total of 239 Mgpy. However, in Section 2.2.2.3, page 63, 2nd paragraph, these same sources are said to consume from 78 to 160 Mgpy. 4-4

6. Section 2.2.2.2.2, page 59. In this section, it is stated that as none of the adjacent rural water systems have excess capacity, they do not represent a viable alternative to address LPRW's water needs. I contacted the managers of the Big Sioux Community Water System and the Brookings-Deuel Rural Water System on this matter. I was informed that Brookings-Deuel does not have excess capacity, but that Big Sioux would in fact be able to provide up to 300 4-5

gpm from their system, without jeopardizing current users or future plans. The Agency should reconsider this alternative in light of the actual situation. The rejection of this alternative in the DEIS may be premature.

The source of the information in this section (2.2.2.2.2) is given as Madden (personal communication, 1997). Throughout much of the DEIS, Mr. Madden appears to be a primary reference. I feel that it is important to note that Mr. Madden and his engineering firm have been, and continue to be, the primary engineers for LPRW during the many phases of the current expansion. As such, there exists a conflict of interest regarding the outcome of the EIS.

7. Section 2.2.2.2.3, page 60, 2nd paragraph. Either the county listed in this paragraph should be Deuel County, SD or the range should be R. 46 W. T114N-R47W is in South Dakota, T114N-R46W is in Minnesota.

8. Section 2.2.2.4, page 64, 2nd paragraph. Reference is made to the "..**limited** *(my emphasis)* number of test borings.." in the Berg (1997b) investigation of the aquifer near Wood Lake. As I reviewed the reports of Berg's investigation, I could find no significant difference between the amount of information available for the aquifer in the Wood Lake area (MNDNR's preferred alternate source) and the Altamont aquifer south of the Burr water treatment plant (the Agency's choice). Use of the qualifier "limited" in the description of information on the Wood Lake area aquifer is prejudicial and should be dropped.

9. Section 2.2.2.4. page 65, 2nd paragraph. Reference is made to the potential increase of 27-31% in user rates for this option as part of the reasoning for rejecting it. It should be noted
4-6 that even with the No Action option, rates rise by 10%. Presentation of the rate increases needs to be presented in proper context.

10. Section 2.2.2.6 and 2.2.3, page 67. As noted in comment 4 above, the information needed to support the statements that pumping at rates of 400-525 gpm will not result in adverse impact is not supported. As demonstrated by the bullet points on page 54, the required data to make such a sweeping statement does not exist.

11. Section 2.2.2.6, page 67, 4th paragraph. Reference is made to ".. a willingness of LPRW to closely monitor and manage groundwater appropriations in such a fashion that minimizes the drawdown or reduction of the potentiometric surface of the Burr Unit,.." However, in
4-7 Appendix E, page 204 - 3rd paragraph, MNDNR questions this type of commitment, and lists examples of past LPRW actions in support of their position. How is the DEIS statement justified in light of this behavior?

12. Section 2.2.3, pages 68 & 69, Agency mitigation measures.

Bullet 1 - see previous comments on basis for 400-525 gpm pumping rate.

Bullet 3 - While this action would definitely "spread out" the impacts to the aquifer, all of the uncertainties regarding impacts to the aquifer and surface water resources remain. The net

result will still be an increased withdrawal of water from an aquifer about which very little is known.

Bullet 4 - This is in direct conflict with the Agency's Preferred Alternative recommendation. The action calls for MNDNR to establish pumping rates (and other protocols and operations) to minimize drawdown of the potentiometric surface. However, the Agency has already stated (in the DEIS) that a pumping rate of between 400 and 525 gpm is acceptable and won't cause problems. Any Agency recommendation as to a "safe" pumping rate should be withdrawn from the DEIS.

4-8

Bullet 5 - The call for a cooperative, cross-border plan to monitor the impacts of production pumping (if that occurs) on the aquifer and surface water resources in the area is a supportable position. However, it should also be noted, at this point that LPRW, as the primary benefactor of the withdrawals, should incur the majority of the costs of the proposed monitoring. Also, how will the results of monitoring in South Dakota be included in water appropriation decisions made in Minnesota?

4-9

13. Section 3.2.1.1, page 77, 3rd paragraph. What is the reference for the statement that the Altamont aquifer "..is estimated to cover over 500,000 acres."?

14. Section 3.2.1.1, page 81, 2nd paragraph. The statement is made that "..most groundwater recharge is made during the period that coincides with snowmelt and spring runoff." This is presented in the context of describing long-term concerns for the area. However, on page 54, under the heading of Sustainable Yield of the Burr Unit, it is stated that "Recharge mechanics are not clearly understood." Which statement is correct?

4-10

15. Section 3.2.1.1, page 81, 3rd paragraph. Cobb Creek is located north and west of Lake Cochrane, not south and east as listed.

4-11

16. Section 3.2.1.1, page 82, last paragraph. The statement is made that "..recharge to and discharge from the aquifer are closely balanced." If this is the case under current (natural) conditions, it would seem that the Agency proposal to allow withdrawal of up to 1,050 gpm would seriously upset an otherwise balanced system. This increased discharge would then result in long-term lowering of water levels in the aquifer. See the attached editorial (Sophocleous, 1997) for additional comments on this subject.

17. Section 3.2.1.1, page 84, 2nd paragraph. The intent of this paragraph is apparently to discredit the applicability of aquifer pumping test results in the prediction of aquifer response to production-level pumping. In support of this notion, it is noted that when the aquifer was pumped at a high rate (1,500 gpm) during a pumping test, water level in an observation well declined 15.28 feet, but when pumped at a lower production rate of 650 gpm, the decline was less than 8 feet. Such a response is exactly what would be expected (that is, lowering of the potentiometric surface is a function of the pumping rate). Aquifer pumping tests may not be identical reproductions of actual production activities, but they serve a very useful and valid role in prediction aquifer response.

18. Section 3.2.1.1, page 85, 3rd & 4th paragraphs. Both paragraphs are filled with conflicting statements. In the 3rd, it is stated unequivocally that the recharge/discharge characteristics of the Burr Unit aquifer are not understood. This is immediately followed, however, with a statement that municipal level withdrawals can be safely made.

In the 4th paragraph, it is said that because the unit has been pumped at between 400-525 gpm (see comment 5 above) and no adverse impacts have been noted, continued long-term
4-12 pumping at this rate is expected to be safe. This ignores points raised elsewhere in the document concerning the abnormal nature of precipitation over the same time period. Finally, while recognizing the limited amount of information available and the general lack of understanding of the true relationship between the aquifer and surface water resources, the statement is made that predicting impacts to these resources is reasonably straightforward.

19. Section 3.2.1.2, page 87, 3rd paragraph. Use of the word "advantageous" is unwarranted. There is no advantage gained by the aquifer under the scenario described. Any advantage would be to LPRW by reducing impacts in a given area.

20. Section 3.2.2.1.1, page 96, 1st paragraph. First, the elevation of the potentiometric surface is given for the Burr Unit aquifer. What is the source for this information and are these average values or spot occurrences? Second, reference is made to the Ordinary High Water
4-13 Mark (OHWM) of Lake Cochrane. Of what significance is the OHWM to this discussion? It is an artificial elevation set by the State of South Dakota and has no apparent bearing on this discussion. The important factor is the difference between the potentiometric surface and the actual lake level at any given point in time.

21. Section 3.2.2.1.1, page 97, 4th paragraph. The statement is made that long-term continuous pumping at a rate of 1,500 gpm would cause a gradual lowering and widening of the cone of depression in the potentiometric surface, but that it would not be dramatically different from that shown on the map in Appendix A. If in fact this is the case, then this would indicate that the aquifer is not capable of supporting this level of withdrawal. If it was, the only changes in the "cone" would be the result of climatic variations, not pumping impacts. Any increase in the size of the cone indicates that withdrawals are being made at an unsustainable rate. This effectively results in the mining of the water resource; that is, extraction at rates greater than recharge.

22. Section 3.2.2.1.1, page 98, 1st and 2nd paragraphs. The drawdown at the Christenson well is listed at 3.24 feet and 3.74 feet for the same event.

23. Section 3.2.2.1.1, page 98, 3rd paragraph. The second and third sentences in this paragraph are contradictory. If there is insufficient data available to predict long-term response of the aquifer, then it is not possible to establish safe pumping rates based on the same information. Also, I read the final sentence as an endorsement of mining the water in the aquifer during periods of drought. In South Dakota this is prohibited by law. Extraction can not exceed recharge.

24. Section 3.2.2.1.2, page 108, 3rd paragraph. The Lake Oliver outlet referred to has been

completed.

25. Section 3.2.2.1.2, page 109, 2nd paragraph. In the last sentence, the percentage of head pressure reduction, relative to the surface of the lake, is given as 33%. A 3-foot decline would be a 30% reduction from the 10-foot reference mark, not 33%.

26. Section 3.2.2.1.2, page 109, last paragraph, and page 110, 1st paragraph. First, the range of values from 0.8 in/yr to 1.5 in/yr **does not** include the value of 0.55 in/yr as stated in the text. Second, the 0.55 in/yr value provided by NRCS was a value determined based on relevant, local information, not generalizations. Finally, the really important point to this whole discussion is the fact that no matter what runoff parameter was used, the water budget for the lake could not be balanced without a significant ground water component.

27. Section 3.2.2.1.2, page 111, 2nd, 3rd and 5th paragraphs. There is repeated mention of "shallow" sources (aquifers) as a source of groundwater to the lake. However, there is no reference or other information that would establish the existence of these shallow aquifers, other than broad speculation. Without substantiating evidence, these references should be dropped.

28. Section 3.2.2.1.2, page 113, 1st paragraph. Reference is made here and in other parts of the text to leachate from septic fields being a source of water quality degradation in Lake Cochrane. All permanent and non-permanent homes, cabins and businesses around the lake are hooked to a contained waste water treatment system operated by the Lake Cochrane Sanitary District. The system has been operational for nine years. It is unlikely that any waste water remains in the unused septic tanks that would contribute to water quality degradation.

4-14

29. Section 3.2.2.1.2, pages 114 and 115. Statements are made in the final paragraph on page 114 (continuing on page 115) regarding the relative position of the potentiometric surface to the OHWM of Lake Cochrane. Again, while the OHWM makes a handy reference point, it is the lake water level that is important. Also, the statement about groundwater contributions continuing as long as the potentiometric remains above the OHWM should be modified to reflect the reduction in input described on page 109.

30. Section 3.2.3, page 116, 3rd paragraph. The statement is made that "..reductions in the potentiometric surface below the lake's OHWM will reduce groundwater input to the lake.." It should read "..reductions in the potentiometric surface ~~below the lake's OHWM~~ will reduce groundwater input to the lake.."

31. Section 3.2.3, page 117, Mitigation requirements. The second bullet point states that MNDNR shall establish various management plans for the existing and proposed well fields in the Burr Unit and Altamont aquifers to minimize drawdown of the potentiometric surface. As noted in point 13 above, this recommendation is in conflict with the Agency statements that the pumping rates (400-525 gpm) do not cause problems.

If the Agency is going to defer the regulation of the pumping rates to MNDNR, the references to "safe" 400-525 gpm pumping of the Burr Unit should be deleted. MNDNR will determine

what constitutes an acceptable pumping rate. If the Agency wishes to promote this pumping rate as safe, they should also accept some measure of responsibility for managing the resource.

The Agency should define "minimize" in the context of the drawdown of the potentiometric surface.

32. Section 3.2.3, page 117, Mitigation requirements. The third bullet point calls for a formal agreement between LPRW and SDDENR regarding monitoring and impact determination on surface water resources in South Dakota. This should also include some statement and/or requirement as to how this information will be utilized by MNDNR in their control of ground water withdrawals. If nothing is to be done with this information, why collect it?

33. Section 3.2.3, page 118, 1st paragraph. The Agency recommendation is that the costs of all monitoring be divided up between LPRW, MNDNR and SDDENR. As noted earlier, this does not seem appropriate. While both state agencies do maintain monitoring programs as part of their general mission, some of which may be in this vicinity, the detailed monitoring proposed goes well beyond this. Given that the reason the monitoring is required is the desire by the Agency and LPRW to continue to utilize the Burr Unit aquifer as a water source, these entities should shoulder the majority of the monitoring costs.

34. Section 6, page 161. The proper street address for the East Dakota Water Development District is 307 Sixth Street, City Plaza Mall, Brookings, South Dakota 57006.

EDITORIAL

MANAGING WATER RESOURCES SYSTEMS: WHY "SAFE YIELD" IS NOT SUSTAINABLE

by Marios Sophocleous[a]

Although major gaps in our understanding of soil and water ecosystems still exist, of more importance are the gaps between what is known and what is applied. One such gap is in the use of the concept of "safe yield" (SY) in ground-water management. Despite being repeatedly discredited in the literature, SY continues to be used as the basis of state and local water-management policies, leading to continued ground-water depletion, stream dewatering, and loss of wetland and riparian ecosystems.

Traditionally, "safe yield" has been defined as the attainment and maintenance of a long-term balance between the amount of ground water withdrawn annually and the annual amount of recharge. Thus, SY limits ground-water pumping to the amount that is replenished naturally. Unfortunately, this concept of SY ignores discharge from the system. Under natural or equilibrium conditions, recharge is balanced, in the long term, by discharge from the aquifer into a stream, spring, or seep. Consequently, if pumping equals recharge, eventually streams, marshes, and springs dry up. Continued pumping in excess of recharge also eventually depletes the aquifer. This has happened in various locations across the Great Plains. Maps comparing the perennial streams in Kansas in the 1960s to those of the 1990s show a marked decrease in miles of streamflow in the western third of the state. (For more information on SY, see the edited volume by Sophocleous, 1997, "Perspectives on Sustainable Development of Water Resources in Kansas," Kansas Geological Survey, Bulletin 239, in press.) Policymakers are primarily concerned about aquifer drawdown and surface-water depletion, both unrelated to the natural recharge rate. Despite its irrelevance, natural recharge is often used in ground-water policy to balance ground-water use under the banner of SY. Adopting such an attractive fallacy does not provide scientific credibility.

To better understand why "safe yield" is not sustainable yield, a review of hydrologic principles (concisely stated by Theis in 1940) is required. Under natural conditions, prior to development by wells, aquifers are in a state of approximate dynamic equilibrium: over hundreds of years, recharge equals discharge. Discharge from wells upsets this equilibrium by producing a loss from aquifer storage. A new state of dynamic equilibrium is reached only by an increase in recharge (induced recharge), a decrease in natural discharge, or a combination of the two. Initially, ground water pumped from the aquifer comes from storage, but ultimately it comes from induced recharge. The timing of this transition, which takes a long time by human standards, is a key factor in developing sustainable water-use policies. However, it is exceedingly difficult to distinguish between natural recharge and induced recharge to ascertain possible sustained yield. This is an area that needs further research. Calibrated stream-aquifer models could provide some answers in this regard.

The concept of sustainable yield has been around for mar years, but a quantitative methodology for the estimation of suc yield has not yet been perfected. A suitable hydrologic basis f determining the magnitude of possible development would be quantification of the transition curve (from ground-water sto age depletion to full reliance on induced recharge), coupled wit a projected pattern of drawdown for the system under consider tion. The level of ground-water development would be calcu lated using specified withdrawal rates, well-field location drawdown limits, and a defined planning horizon. Stream aquifer models are capable of generating the transition curve fo most situations.

Another problem with SY is that it has often been used as single-product exploitation goal—the number of trees that ca be cut, the number of fish that can be caught, the volume of wate that can be pumped from the ground or river, year after year without destroying the resource base. But experience has repeat edly shown that other resources inevitably depend on the ex ploited product. We can maximize our SY of water by drying up our streams, but when we do, we learn that the streams were more than just containers of usable water.

A better definition of SY would address the sustainability of the system—not just the trees, but the whole forest; not just the fish, but the marine food chain; not just the ground water, but the running streams, wetlands, and all the plants and animals that depend on it. Given the dynamic connectedness of a watershed, management activities can fragment the habitat "patches" if they are not planned and implemented from an ecosystem and watershed perspective. Such a holistic approach, however, is fraught with difficulty. We cannot use a natural system without altering it, and the more intensive and efficient the use, the greater the alteration.

Science will never know all there is to know. Rather than allowing the unknown or uncertain to paralyze us, we must apply the best of what we know today, and, at the same time, be flexible enough to allow for change and for what we do not yet know. Instead of determining a fixed sustainable yield, managers should recognize that yield varies over time as environmental conditions vary.

Our understanding of the basic principles of soil and water systems is fairly good, but our ability to use this knowledge to solve problems in complex local and cultural settings is relatively weak. Communication is vital. We need people who can transfer research findings to the field and who can also communicate water-users' needs to the researchers. Delivering a journal publication to a manager's desk is not sufficient to ensure that research results are quickly put into practice. I believe this breakdown in communication accounts for the persistence of such misguided concepts as SY in ground-water management today. Researchers increasingly must cross the boundaries of their individual disciplines, and they must look to their clients—the managers and water users—for help in defining a practical context for research. A strong public education program is also needed to improve understanding of the nature and complexity of ground-water resources and to emphasize how this understanding must form the basis for operating conditions and constraints. This is the only way to positively influence, for the long term, the attitudes of the various stakeholders involved.

[a]Senior Scientist, Kansas Geological Survey, The University of Kansas, 1930 Constant Ave., Lawrence, Kansas 66047-3726. The views expressed here are the author's and not necessarily those of the AGWSE, NGWA, and/or the Ground Water Publishing Company.

THOMPSON ENGINEERING COMPANY
RR 3 Box 142
Colman, South Dakota 57017

April 23, 1998

Mark S. Plank
USDA, Rural Utilities Service
Engineering and Environmental Staff, Stop 1571
1400 Independence Avenue
Washington, D.C. 20250

RE: Comments on Draft Environmental Impact Statement - Federal Register, Volume 63, Pages 8901-8905, February 23, 1998

Dear Mr. Plank:

I respectfully submit the following comments regarding the above referenced Draft Environmental Impact Statement (EIS) prepared by the U.S. Department of Agriculture, Rural Utilities Service (RUS). This EIS addresses the RUS funded Lincoln-Pipestone Rural Water System Burr Well Field in Minnesota.

This well field is about one eighth of a mile from South Dakota and presents the potential for significant adverse impacts to nearby South Dakota spring fed lakes and wetlands[1]. Some of these threatened wetlands may be calcareous fens. A calcareous fen is a unique and valuable spring fed wetland. Two of the spring fed South Dakota lakes are Lake Cochrane and South Slough Lake.

A pumping test by Vista Technologies Inc. on the Burr Well Field indicates that the the water levels in a South Dakota fen are responding to the pumping.[2] Also, the Draft EIS acknowledges that Lake Cochrane has the smallest amount of surface drainage area of any public lake in South Dakota[3]. As a result of this low amount of surface area runoff into the lake, the RUS states that it is likely that the artesian aquifer beneath Lake Cochrane contributes groundwater to the lake[4]. Since there is an indication of potential adverse impact from this federally funded project to these valuable South Dakota resources, the National Environmental Policy Act (NEPA) regulations require that the RUS establish monitoring requirements and thresholds of protection for these lakes and wetlands, and locate an alternative that avoids the impact to the lakes and wetlands.

5-1

I and other South Dakota residents are very concerned about RUS preparing this EIS in a manner that provides adequate protection to the nearby South Dakota lakes and wetlands.

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1 USEPA, Letter to Janice Daley, State Director, FmHA, St. Paul, Minnesota, September 16, 1994,(attachment No. 1).

2 Data from seven day pump test (starting on June 24, 1996), Vista Technologies, fax message dated September 11, 1996, (attachment No. 2).

3 RUS,"Draft Environmental Impact Statement,Lincoln-Pipestone Rural Water, Lake Benton, Minnesota, Existing System North/Lyon County Phase, Northeast Phase Expansion," February, 1998, pp.110.

4 Ibid., pp.111.

Therefore, I respectfully request that the RUS take the following actions in preparing the final EIS:

1. Ensure compliance with the National Environmental Protection Act (NEPA) in the protection of Lake Cochrane, South Slough Lake and the documented South Dakota fens. This includes (1) establishing monitoring at or immediately adjacent to these South Dakota lakes and documented fens and (2) establishing protection mechanisms for the South Dakota lakes and documented fens to avoid potential damage from the Burr Well Field pumping. The RUS, in granting federal funds to the project, is responsible for complying with the National Environmental Act (NEPA) and for establishing thresholds of impact.[5]

2. Find alternate sources of water, other than the aquifer feeding the Burr Well field. This solution is needed to protect South Dakota lakes and wetlands from
5-2 potential adverse impacts. Drilling more wells into the same artesian aquifer is proposed in the Draft EIS.[6] However, since this proposed well field would be in the same aquifer - there is no evidence that this proposed measure will not cause further impacts to South Dakota lakes and wetlands.

In fact, an FmHA document shows that the RUS has already been advised to find another water source. The document, entitled "Amendment to Environmental Assessment," accompanied a November 18, 1994 letter to Don Lander, Rural Development Administration, USDA. This document states that a proposed expansion project, for the service area described as the "Northeast Phase," is "no longer feasible as designed primarily because of the project's dependence on water being supplied from the Burr Well Field." The document goes on to say that "LPRW will be required to develop an alternative water source for the proposed expansion and re-submit the project reflecting required design changes. The Burr Water Treatment Plant remains a viable resource for treatment of water received from another water source."[7]

In addition, the South Dakota Department of Environment and Natural Resources has stated that, based on the hydraulic connections between the aquifer and South Dakota lakes and wetlands, it is important for RUS to find alternative water supplies[8].

Finally, the National Environmental Policy Act regulations for the Rural Utilities Service require that "the main focus of the review process must to be to locate an alternative that avoids the impact to a floodplain or wetland."[9]

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5 Farmers Home Administration NEPA Regulations,Title 7, Code of Federal Regulations, Part 1940, Subpart G, Exhibit C,Section 3(a) (2), "Threshold of Impact."

6 RUS,"Draft Environmental Impact Statement,Lincoln-Pipestone Rural Water, Lake Benton, Minnesota, Existing System North/Lyon County Phase, Northeast Phase Expansion," February, 1998, pp. xiv,xv.

7 "Amendment to Environmental Assessment, Lincoln-Pipestone Rural Water System Project Existing System North/Lyon County Expansion," attached to letter from Thurman P. Bryant, Team USDA, to Don Lander, Program Support, Rural Development Administration, Washington, D.C., November 18, 1994, page 2, (attachment No. 3)

8 SDDENR, letter to Mark S. Plank, USDA, RUS, December 6, 1996, (attachment No. 4).

9 Farmers Home Administration NEPA Regulations,Title 7, Code of Federal Regulations, Part 1940, Subpart G, Exhibit C, Section 3(c)(1), "Mitigation measures."

3. Adequately evaluate the potential damages from the original project, dating back to 1991. The first Environmental Assessment for the original project, called the Existing System North/Lyon County Expansion (ESN/LC), was amended and then abandoned in favor of an EIS[10]. The first Environmental Assessment for this original project included a FmHA form, dated January 31, 1991, that incorrectly stated that environmental resources such as wetlands and shorelines "were not to be affected by the proposal" or " were not located adjacent to the project site." [11] A 1995 estimate by Stockwell Engineers counted approximately 179 South Dakota wetlands within a two mile radius of the Burr Well Field[12]

5-3

Currently, the Draft EIS addresses the original project and an additional proposed project. The additional project is called the Northeast Phase Expansion project. The Draft EIS states that "Because all of the decisions and funding obligations have been on the previous ESN/LC Phase project, the only decision facing the Agency at this time is whether or not to provide financial assistance to LPRW for the construction of the Northeast Phase Expansion proposal."[13] I respectfully suggest that while it true that funding decisions have already been made, the RUS is still obligated to establish adequate monitoring, thresholds of impact, and mitigation in this EIS for impacts to South Dakota lakes and wetlands under NEPA and Executive order 11990.[14] I believe that these actions must be taken to protect South Dakota lakes and fens from the potential adverse impacts of this federally funded project. Your assistance in this matter is greatly appreciated. Thank you.

Sincerely,

Jim Allen Thompson

Jim Allen Thompson, PE
Thompson Engineering Company
(605) 997-3167

cc: The Honorable Thomas A. Daschle
Shirly and Clayton Holt

---

10 Federal Register, Volume No. 60, June 8, 1995, pp. 30265,30266, (attachment No 5).

11 FmHA form 1940-20 (Rev. 11-14-83), signed for the Lincoln Pipestone Rural Water System on January 31, 1991, (attachment No. 6).

12 Stockwell Engineers, Inc., letter on Wetlands count, January 27, 1995 (attachment No. 7).

13 RUS,"Draft Environmental Impact Statement,Lincoln-Pipestone Rural Water, Lake Benton, Minnesota, Existing System North/Lyon County Phase, Northeast Phase Expansion," February, 1998, Executive Summary, p. v.

14 Unites States Executive Order Number 11990, Title 40, Code of Federal Regulations, "Codification of Presidential Proclamations and Executive Orders."

Lincoln - Pipestone Rural Water
East Highway 14, Box 188 (507) 368-4248
Lake Benton, MN 56149 Fax: (507) 368-4573

April 22, 1998

Mark S. Plank
USDA
Rural Utilities Service
Engineering and Environmental Staff
1400 Independence Avenue, Stop 1571
Washington, DC 20250

Re: Draft Environmental Impact Statement
Lincoln-Pipestone Rural Water

Dear Mr. Plank:

The Board of Commissioners of Lincoln-Pipestone Rural Water have reviewed the subject report and respectfully offer the attached comments.

The Agency cooperation and assistance throughout the EIS is very much appreciated. We sincerely regret the delay that this has caused for a much needed project, however, we understand the requirements placed on the Agency by the NEPA process.

Please contact our office for any questions of clarification that you may require.

Sincerely,

Joseph Weber

Joe Weber,
Chairman

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Lincoln-Pipestone RWS
Comments on Draft EIS

6-7 **EIS Recommendation:** LPRW supports the Agency's preferred alternative and supports construction of the NE Phase, with the supplemental well field on the following conditions:

1. That the recommendation to limit groundwater appropriation from the Burr Well Field to 400-525 g.p.m. be removed because it is beyond the scope and authority of the EIS and that it is not supported by the EIS findings.

2. That the financial burden to construct the supplemental well field not be assigned to existing LPRW members because the proposed alternative was not shown to have any measurable adverse environmental impacts and because they receive no direct benefit.

3. That the requirement to formalize an agreement with SDDENR as a condition of the Agency's assistance be deleted on the basis that SDDENR has no approval authority in Minnesota and that Minnesota DNR and SDDENR have the option of formalizing a cooperative agreement.

EIS Report Findings: The study represents about three years of effort that included public participation in the scoping, multi-agency representation on the study team, contracted technical resources retained by Rural Development, and extensive consultation by the participants in evaluating the findings. The primary issues to be evaluated include the environmental impacts on fens and Lake Cochrane from groundwater appropriations at the Burr Well Field and the potential impacts from the construction of the Northeast Phase Expansion proposal (See Executive Summary, page iv). A general summary the findings include:

1. No measurable effect on Lake Cochrane.

2. The Burr wells, Burr Aquifer, are hydraulically connected to fens in the area, however the impact of pumping at the maximum test rate was only a minor percentage reduction in the potentiometric surface and pumping under operating conditions for several years has had no measurable adverse impact.

3. The Burr Aquifer and the Altamont Aquifer are both of greater extend and higher yielding capacity than assumed by LPRW in their initial evaluation of potential affects.

4. There are no adverse socio-economic impacts.

5. No direct impact to threatened or endangered species is expected to occur.

EIS Preferred Alternative: The Preferred alternative includes all of the facilities in the Proposed Action and expands it by developing additional wells at another location with the objective of minimizing potential adverse environmental impacts.

1. It addresses public opinion that LPRW should develop an alternative water source and have it on line so that potential adverse impacts could be avoided. Additional wells in the Burr Aquifer are not a true alternative source, however, the remote site distributes the impact over a larger area and thereby reduces the impact at any one location. Added wells in the Altamont are truly an alternative source.

2. Supplemental wells are a significant development cost increase and result in some operating cost increases. The study has not shown that LPRW will benefit directly.

Economic Impact on LPRW: The Northeast Phase is proposed to add 170 individual users and the communities of Hazel Run and Echo. LPRW currently serves 2,619 individual users and 23 Cities. The Proposed Action would serve the Northeast Phase with an increase in cost to present users.

The Preferred Alternative represents an estimated increased cost of $1,420,000 (See Table 2-4) and a 4% increase in costs, to all members, over the Proposed Action. (Note: The cost estimates for the Preferred Alternative were made using 750 g.p.m. from the existing well at the Burr site and anticipate 750 g.p.m. from the supplemental well field. Limiting pumping at the Burr site will increase the construction and operating costs for the supplemental well field.)

Specific Report Comments:

Groundwater contribution to Lake Cochrane: The report **overstates** any evidence obtained to establish the nature of contributions to the lake. The Exec. Summary, on page xi, last paragraph states; "all lines of evidence indicate . . .," and on page xii, last paragraph states, "Multiple lines of evidence indicate that groundwater contributions or discharges from the Burr Unit to Lake Cochrane are likely."

The fact that the potentiometric surface from the Burr Unit is higher than the surface of Lake Cochrane is an established fact, however, it only establishes that flow to the lake is possible. The apparent thickness of the glacial till between the lake and the Burr Unit is a "line of evidence" that significant flows are not possible. Existing fens in the are a "line of evidence" that a similar condition "could" exist below the lake.

Section 3.2.2.1.2 Lake Cochrane, Environmental Consequences, pages 109 to 113, report discussion of both potential shallow and deep aquifer contribution to Lake Cochrane. The potential for shallow aquifer contributions is stated on page 111: "The presence of these zones around Lake Cochrane could and likely do provide additional groundwater contributions separate from the Burr Unit to the lake." That section states the following, on page 113, regarding conclusions that are to be made:

> "Therefore, it is not possible, nor would it be meaningful, to predict specific potential effects on the lake caused by a decrease in groundwater inflow."
>
> "Furthermore, even if it were certain that Burr Well Field pumping would cause a

decrease in the groundwater inflow into Lake Cochrane, the ecological effects of that cannot be reliably distinguished from the ecological effects of human management actions or activities."

6-1 It is our understanding that the conclusions stated above are those of technical experts retained by the Agency, however, it would appear that the Agency did not rely on this technical expertise in making it's conditions for providing assistance to LPRW.

Limiting groundwater appropriation from the Burr Well Field to 400-525 g.p.m.: The report states, page xiii of the Executive Summary, that "notwithstanding a lack of long-term data" the Agency is recommending a pumping rate limitation of 400-525 g.p.m. The Agency is in effect saying that, even though they do not have evidence to support their action, they and state and federal agencies have determined 400-525 g.p.m. should be the limitation at the Burr Well Field.

The report provides no data to support a limit of 400 g.p.m. A limit of 525 g.p.m. is apparently based on 1997 pumping by LPRW which averaged 521 g.p.m., 274 MG averaged over 365 days pumping 24 hours per day (page xiv). The report further states that no adverse environmental impacts have been reported to date. In making it's recommendation the Agency overlooks the fact that LPRW pumping from the Burr and Altamont wells averaged 715 g.p.m. from May 2, 1997 to March 2, 1998. The average from July thru October of 1997 exceeded 800 g.p.m. To date no adverse impacts have been reported.

The pumping limitation ignores the evidence presented in Table 3-4 and the following summary statement on page 84: "The information presented in Table 3-4 is remarkable in that the aquifer recovered to pre-pump test levels in a very short time -- 2-3 days, demonstrating the good transmissive character and the elasticity of the Burr Unit."

6-2 The Agency's recommendations for the preferred alternative include, on page xv, that MNDNR establish, as part of its permitting requirements for LPRW, protocols and standard operating procedures for well field operations that are designed to minimize drawdowns in the potentiometric surface in the Burr Unit. An extensive network of observation wells has been developed as a result of efforts by LPRW, MNDNR, SDDENR and the EIS. Appropriation from the Burr Unit should be based on potentiometric surface thresholds established in the MNDNR permit process and not by conclusions based on the limited data reviewed in the EIS.

Purpose and Need: The Draft report presents extensive evidence (Section 1.1 thru 1.4, pages 11 thru 43) that people living in LPRW's service are using terrible water that does not meet SDWA standards. They are using this water because better quality is not otherwise available to them or because the cost of treating the water they now have is prohibitive. Their present water supplies are recognized as presenting hazards to human health and as not being good for their livestock. As a result they are exposed to potential health hazards and are realizing economic losses.

The number of members being served by LPRW depends on the point in time in which the reference is made. The report, middle of page 25, references current service to 2,800 rural customers and 24 cities. The system reported sales in February, 1998 to 2,709 rural customers

and 26 bulk users, including water delivered to MCP at Marshall. Table 1-9 lists water needs for 2,619 rural customers and 26 bulk users and is based on previous design estimates including members and cities in the NE Phase. Readers of the report need to be aware that these small differences do not represent significant differences in the estimates of total water needed.

LPRW, and other rural water systems in the region, present an alternative that has been widely accepted by the public and delivers quality water that is safe to drink. The report does not attempt to evaluate the adverse health and human impact of the "no action alternative," to not build the Northeast Phase.

Potential Effect of Drought Conditions: The Agency conditions it's findings on the uncertainty of what may occur under "drought conditions." (pages 53 and 98)

Although such condition has the appearance of being logical it is undefined and highly speculative. Drought is an undefined relative term and can vary from drier that the previous year
6-3 to a repeat of the 1930's experience in the Midwest. The report offers no evidence that weather patterns during the EIS study period in any way invalidated or changed the study results.

To condition the Agency recommendation on some undefined future event is to conclude that no conclusion can be reached until all possible variables have been experienced. This is contrary to the NEPA process that requires the Agency to undertake a study, with public participation, and to make a decision based on reasonable evidence. Such a condition is also contrary to the Agency position, stated on page 67, that: "Based on the above analysis, the Agency has concluded that it would be unreasonable to not fund the Northeast Phase Expansion Proposal."

Preferred Alternative (pages 67-69):

The first mitigation measure, page 68, is unclear. It appears to say a range of 400-525 g.p.m.
6-4 from each of the Burr and Altamont aquifers. This would allow for a total of 800-1050 with a corresponding annual appropriation rate.

LPRW is not capable of meeting the conditions without significant financial assistance. The
6-5 costs to develop the new well field and formalize the protocols and management plan cannot be accurately estimated at this time.

Impacts on the Fens: Participants in the study generally agree that the fens are the most environmentally sensitive water bodies and that the Minnesota fens are protected by state law. A preponderance of the study data collected is directly related to evaluating impacts on the fens.

The report finds, on page 85, that: "Even though the nature and magnitude of impacts to surface water resources and their relationship with pumping at the Burr Well Field are not clearly understood or quantified, predicting impacts from reductions in the volume of groundwater being supplied to these resources is reasonably straightforward (see Section 3.2.2.1)."

The study participants have discussed the "sensitivity" of the fens at length. However, it is

established that the fens survived the dry 1930's and have not always been protected from man induced impacts. The report notes, on page 94: "The Fairchild fen has also been minimally affected by past agricultural activities (installation of a livestock watering device). Drain tile records previously maintained by the USDA, Natural Resources Conservation Service indicate that a subsurface drainage tile exists at this fen location. Despite these disturbances, the fen is apparently not being adversely affected."

The impact of reduced flow to the fens was not determined in the study. Related statements in the study report include:

> Page 96: . . . fens have been shown to be hydraulically connected to the Burr Unit, . . . they (the fens) could be affected if the potentiometric surface is reduced, at a minimum, below the surface elevation of the fen dome by pumping at the Burr Well Field.
>
> Page 97: . . a 7-day pump test at a pumping rate of 1,500 g.p.m. in June 1996 clearly indicated that the Burr Unit functions as an interrelated aquifer system in an area of at least 15 square miles with the Burr Well Field on the eastern edge of the aquifer.
>
> Page 98: Because the Fairchild and Sioux Nation Fens are situated more than 30 ft below the potentiometric surface at Burr Well Field, it seems unlikely that production pumping at current rates of 400-525 g.p.m. will have other than minimal effects on these resources. (Note: Actual pumping has been higher than 525 g.p.m. See related comments.)
>
> Page 99: The only threshold that was exceeded during any of the pump tests was a shallow water table monitoring well in the Fairchild Fen. MNDNR did not consider this occurrences to have exceeded the established thresholds. (And) As long as the objective of keeping the fen dome saturated and that the water table exceeded the surface elevation of the dome, MNDNR did not consider that the threshold was exceeded (MNDNR, 1996).
>
> Page 105: During the last three pump test and production pumping for at least the last 3 years, the effects or impacts from pumping at the Burr Well Field at the Sioux Nation Fen have been extremely minor measured largely in hundredths of a foot. At no time did the hydraulic head or water table elevations fall close to or below the surface elevations of the peat domes. (Refer to Table 3-8, page 105)
>
> Page 116: It is reasonably logical to state that as long as the fens remain saturated, minimal impacts to their ecological integrity would be expected even if the hydraulic head in the peat dome fluctuating did not drop below the surface of the dome.

It can be summarized that the study did not report any evidence of adverse impacts on the fens. We agree with the Agency statement, page 107, that monitoring of the Sioux Nation and
6-6 Fairchild Fens needs to continue within the context of a comprehensive water resources monitoring plan. However, LPRW should not bear the burden of significant capital expenditures and future program expenses with no findings of adverse environmental impacts from their actions.

LPRW Burr Water Treatment Plant
Partial 1997 Water Use

Record Date	Incoming Totalizer	Period Total kGal	Avg. G.p.m. For Period	Avg. G.p.m. Since May 2,97
02-May-97	360996			
01-Jun-97	386978	25,982	601	601
01-Jul-97	423545	36,567	846	724
04-Aug-97	463885	40,340	824	760
02-Sep-97	497150	33,265	797	769
01-Oct-97	529963	32,813	786	772
01-Nov-97	562776	32,813	735	766
01-Dec-97	587769	24,993	579	739
02-Jan-98	618027	30,258	657	729
02-Feb-98	648055	30,028	673	722
02-Mar-98	674187	26,132	648	715

Note: The water source includes both the Burr and Altamont wells.

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Custom House, Room 244
200 Chestnut Street
Philadelphia, Pennsylvania 19106-2904

IN REPLY REFER TO:

June 10, 1998

ER 98/122

Mark Plank
Rural Utilities Service
Mail Stop 1571
Washington, D.C. 20250

Dear Mr. Plank:

This letter responds to your request for Department of the Interior (Department) review of the Draft Environmental Impact Statement (DEIS) for the Lincoln-Pipestone Rural Water System Existing System North/Lyon County Phase and Northeast Phase Expansion Project, Yellow Medicine, Lincoln, and Lyon Counties, Minnesota, and Deuel County, South Dakota. We have reviewed the DEIS and offer the following comments, based upon input from the U.S. Fish and Wildlife Service (Service) and the U.S. Geological Survey, for your consideration.

ENVIRONMENTAL IMPACT STATEMENT COMMENTS

General Comments

The Department concurs with the Rural Utilities Service's (RUS) decision to include in the DEIS an analysis of environmental impacts of the Existing System North/Lyon County Phase of Lincoln-Pipestone Rural Water (LPRW), in addition to the Northeast Phase Expansion (the proposed action to which RUS is currently responding). The Department also supports the inclusion, as part of the Proposed Action, of an analysis of LPRW's application to the Minnesota Department of Natural Resources (MNDNR) for a permit to increase (double) water appropriations from the Burr Well Field.

7-1 The DEIS does not fully describe fish and wildlife resources in the Minnesota portion of the project area, and the impacts to those resources associated with the various project alternatives. The DEIS rightly places much emphasis on describing surface water resources associated with calcareous fens and Lake Cochrane. However, we believe that the DEIS should also present information relative to other natural resources occurring in the area such as streams, non-fen wetlands, and Service-owned or managed lands occurring in the zones of influence of the existing Burr Well Field and the new well field as proposed in the RUS Preferred Alternative. If RUS concludes that those resources would not be impacted by continued appropriation of groundwater

at the Burr Well Field and the proposed expansion of LPRW, evidence to support that conclusion should be presented.

The DEIS should include a discussion of the extent to which surface discharges from the Burr Unit of the Prairie Coteau aquifer contribute to the water budget of local streams (e.g., via springs, hillside seeps, etc.), as well as possible impacts to those streams due to production pumping from the Burr Unit under the various alternatives considered.

In an April 24, 1994, letter to Mr. Jon Childers, Farmers Home Administration (a predecessor agency to RUS), the Service expressed concern regarding the possible adverse effects of groundwater withdrawals from the Burr Unit on wetlands in several Waterfowl Production Areas (WPA) and wetland easement areas owned and/or managed by the Service within the influence zone of the Burr Well Field. In response to those concerns, a water level monitoring plan was developed and instituted in 1994 on the Service's Dakota Waterfowl Production Area, located approximately 1.25 miles east-northeast of the Burr Well Field, to observe and record surface and ground water levels on the WPA. That plan included the installation of ground and surface water monitoring stations and collection of data from those stations on a weekly basis. The DEIS should include a discussion of data collected under that monitoring plan, and an analysis of those data as they relate to data collected from other observation wells or piezometer stations in the vicinity of the Burr Well Field. Data are available by contacting Mr. Gaylord Bober, Acting District Manager, Morris Wetland Management District, U.S. Fish and Wildlife Service, Route 1, Box 877, Morris, MN 56267.

The Department concurs with RUS's finding that the Proposed Action (fund the Northeast Phase Expansion, increase groundwater appropriations at the Bur Well Field to 1,500 gallons per minute/800 million gallons per year) would pose unreasonable environmental risks to surface water resources in the project area. However, information presented in the DEIS fails to support, in our view, an endorsement of the Preferred Alternative (fund the Northeast Phase Expansion, maintain current appropriations at the Bur Well Field, and develop an additional well field southeast of the Burr Well Field, using water appropriations from the Burr Unit and the Altamont aquifers), given the uncertainties that exist in relation to that alternative.

The DEIS speculates that the cones of influence of the Burr Well Field and the proposed Preferred Alternative well field could be offset, thereby minimizing the drawdown effect of each well field. However, the degree of separation of those cones would be a function of where the new well field is developed, which is unknown at this time due to the need for additional drilling to confirm even the presence of the Burr Unit in the desired area.

The decision to exclude Alternative 4 (fund the Northeast Phase Expansion, maintain or reduce appropriations at the Bur Well Field and construct a new well field and water treatment plant in the Wood Lake area, to utilize the Wood Lake aquifer) from the DEIS Environmental Analysis is based solely on RUS's determination that Alternative 4 is economically unfeasible. However, there appear to be more unknowns regarding developing the new well field as proposed in the Preferred Alternative than developing the Wood Lake well field. The DEIS should present a

7-2

discussion of how the cost estimates for the Preferred Alternative might change under likely scenarios of different well locations.

The DEIS fails to provide convincing evidence that the Preferred Alternative and its mitigation measures would be effective in avoiding or minimizing impacts to surface water resources of the area. The historical data is insufficient to predict with even a small degree of certainty the environmental impacts (or lack thereof) of the Preferred Alternative during drought periods. Additionally, virtually all of the "important points" presented on page 54 of the DEIS, which were considered in forming the conclusion that the Proposed Action would likely cause significant environmental impacts to surface water resources, are valid for the Preferred Alternative as well.

The DEIS should present a discussion of a course of action to be taken should exploration efforts (or other factors) prove the Preferred Alternative unfeasible (e.g., aquifers not present, or present with low yields or sustainability, etc.).

The Department supports development of supplemental water sources that would allow for a reduction in current pumping levels at the Burr Well Field. The Department also supports exploring the Altamont aquifer for additional capacity to relieve withdrawal needs from the Burr Unit of the Prairie Coteau aquifer, or development of an additional well field at a location or in an aquifer that will not harm surface water resources yet will allow a reduction in pumping at the Burr Well Field. However, given the distance of the Northeast Phase Expansion from the Burr Treatment Plant (about 45 miles), the apparent degree of uncertainty regarding the feasibility and/or environmental impacts of the Preferred Alternative, and the desire to increase flexibility and reliability of the LPRW system, we believe a more sound alternative would be Alternative 4,
7-3 particularly if LPRW conducts future expansions into northeastern Yellow Medicine County or northwestern Redwood County. Even considering the RUS's proposed mitigation features of the Preferred Alternative, past legal action and associated restraining orders by LPRW against MNDNR indicates that agreements and contingency plans may not be the most effective means to ultimately prevent impacts to the fen should agreed-upon impact thresholds be reached. A more conservative (environmentally preferable) course of action would dictate an alternative (such as Alternative 4) that would totally avoid the dependency on emergency or contingency actions such as forcing MNDNR to mandate reductions in appropriation rates. It may be unfeasible during times of drought for MNDNR to enforce actions necessary to avoid impacts to the fens and other surface water resources due to excessive pumping.

Specific Comments

There are numerous instances throughout the DEIS where a sentence begins with "the Agency...." The "t" in "the" should be capitalized.

Page 20, paragraph 2, first sentence -- The reference to the Rock River watershed's hydrologic atlas number should read HA-555, not HA-320.

Pg. 38 - 39, Tables 1-8 and 1-9 -- Left justify numbers in cells.

Pg. 38, Table 1-8 -- The "Annual Use gal" column should be expanded in width to eliminate wrapping of the cell entry to the next line.

Pg. 38, Table 1-8 -- The listing of Canby as a source of primary supply is confusing because the portion of the LPRW system formerly supplied by the City of Canby (the Canby aquifer) is now supplied by LPRW from the Burr Well Field, as indicated in the table. It may be less confusing to the reader to describe this supply source simply as "Burr - Yellow Medicine Phase." 7-4

Pg. 38, Table 1-8 -- The peak day demand for the Verdi Source should be 2,330,824 gallons per day, calculated as 70 percent of the average daily use (pg. 39), not 2,529,791 as reported in Table 1-9. Similar errors exist for the remaining sources listed in Table 1-9.

Pg. 39, Table 1-9 -- The footnote describing unaccounted for water loss and its relation to unmetered water and metered water use is confusing and should be reworded to improve clarity. New wording should use the same terms for the various parameters as presented in Table 1-9, as appropriate. 7-5

Pg. 42, Table 1-12 -- The City of Marshall and Minnesota Corn Processors should be listed in this table as being serviced by the Burr Well field, in addition to the 660 rural connections.

Pg. 62, para. 2 -- The text description of Alternative 3 is not consistent with the description of that alternative as presented in Table 2-1 (pg. 48).

Pg. 64, para. 3 -- The DEIS presents transmissivity and hydraulic conductivity values for the Wood Lake aquifer, but does not provide a discussion of the potential of the Wood Lake aquifer to supply the needed quantities of water. That information should be included in the EIS. 7-6

Pg. 75, para. 1, first sentence -- The reference to "southeast" should be changed to "southwest".

Pg. 86, para. 1, fourth sentence -- The reference to "T. 13" should be "T. 113".

Pg. 93-94 -- It is unclear whether Fen #5 and South Slough Fen are one in the same. Also, please clarify whether Fen #2 and Lynch Fen are one in the same. 7-7

Pg. 100, para. 1, sentence 6 -- Remove "the Fall, 1996." at the end of this sentence.

Pg. 105, para. 2 -- The historical record for the period including the referenced pump tests and production pumping consistently reflects very wet years. The impact of similar pumping rates (especially production pumping) on the hydraulic head or water table in the Sioux Nation Fen during drought conditions may be significantly detrimental to the fen. 7-8

This likelihood should be discussed.

Pg. 106, para. 2 -- Establishing monitoring piezometers in a relatively undisturbed fen outside of the cone of depression of the Bur Well Field is a tool to more closely define or detect impacts, not a mitigation feature.

ENDANGERED SPECIES ACT COMMENTS

The Service would concur with a finding by RUS that construction and operation of the proposed project is not likely to adversely affect any federally listed or proposed threatened or endangered species or their critical habitat, in Minnesota. This precludes the need for further action on this project as required under Section 7 of the Endangered Species Act of 1973, as amended. However, if the project is modified or new information becomes available which indicates that listed species may be affected, consultation with this office should be reinitiated.

Thank you for the opportunity to comment. If you have any questions regarding these comments, please contact Mr. Lloyd Mitchell at Twin Cities Field Office, U.S. Fish and Wildlife Service, 4101 East 80th Street, Bloomington, Minnesota 55425-1665 (telephone 612-725-3548, ext. 202).

Sincerely,

Michael T. Chezik
Acting Regional Environmental Officer

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Custom House, Room 244
200 Chestnut Street
Philadelphia, Pennsylvania 19106-2904

IN REPLY REFER TO:

June 17, 1998

ER 98/122

Mr. Mark Plank
Rural Utilities Service
Mail Stop 1571
Washington, D.C. 20250

Dear Mr. Plank:

This letter is in further regard to the draft Environmental Impact Statement (EIS) for the Lincoln-Pipestone Rural Water System Existing System North/Lyon County Phase and Northeast Phase Expansion Project, Yellow Medicine, Lincoln, and Lyon Counties, Minnesota, and Deuel County, South Dakota. The following comments were inadvertently omitted from the Department of the Interior's letter of June 10, 1998. Please consider these additional comments in preparing the final EIS.

ENVIRONMENTAL IMPACT STATEMENT COMMENTS

General Comments

The Preferred Alternative is based on the premise that adverse affects to the fens or surface water features are unlikely at LPRW's current rates of withdrawal of between 400 to 525 gpm. The lack of adverse affects is based on the assumption that significant declines in ground-water levels will not occur. Please provide the basis for the assumption that significant declines in ground-water levels will not occur over time at withdrawal rates of 400 to 525 gpm. Also, please indicate whether water levels in observation wells have shown annual declines since the Burr well field
8-1 was established, and whether water levels in observation wells have stabilized. Lastly, please indicate whether there is a persistent cone of depression in the area of the well field and, if present, whether the area of the cone of depression is expanding or has stabilized. The only discussion in the EIS currently related to the above issues concerns aquifer tests. On page 84, it is stated that "the aquifer recovered to pre-pump test levels in a very short time 2-3 days, demonstrating the good transmissive character and elasticity of the Burr Unit." Long-term responses to a withdrawal rate of 400 to 525 gpm may include long-term ground-water level declines.

Specific Comments

Pg. 89, para. 1. -- The draft EIS states that "...no environmental impacts from the Altamont aquifer are expected from current or additional appropriations from a new field." The DEIS also states that surface water resources that are affected by discharges from the Burr Unit would be unaffected by isolation of the Altamont from the Burr Unit. An issue not mentioned or discussed
8-2 is whether declines from the Altamont aquifer could cause significant ground-water level declines in the overlying Burr Unit. The final EIS should provide information relative to the thickness of the intervening till and clay between the Altamont aquifer and the Burr Unit at the proposed new well field. The final EIS should also discuss whether existing data indicate that significant drawdown in the Burr Unit could result from withdrawals from the Altamont aquifer.

Thank you for considering these additional comments.

Sincerely,

Michael T. Chezik

Michael T. Chezik
Acting Regional Environmental Officer

National Audubon Society

Minnesota Audubon Council
26 East Exchange Street, Suite 207
St. Paul, MN 55101
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April 16, 1998

Mark S. Plank
Rural Utilities Service
Mail Stop 1571
Washington, DC 20250

Re: Draft EIS, Lincoln-Pipestone Rural Water

Dear Sirs:

On behalf of Minnesota's 13,000 members of the National Audubon Society, I am submitting comments on the "Draft Environmental Impact Statement, Lincoln-Pipestone Rural Water, Existing System North/Lyon County Phase, Northeast Phase Expansion."

We have three specific comments to make to this draft EIS:

1) We oppose USDA funding for a project that increases dependency on the Burr aquifer;

2) We strongly disagree with assertions that monitoring will provide sufficient safeguards against serious adverse effects; and therefore,

3) We support an approach that uses a variety of sources and conservation measures to meet water supply needs in the region.

The reasoning behind the above comments follows.

1) Opposition to increased groundwater appropriations from Burr Well Field. Although the draft EIS confirms that groundwater appropriations from the Burr Well Field puts valuable surface water resources at risk, it concludes that the Burr Field should continue to be the primary water source to meet growing water demands in the region. We are very concerned that increasing the demands and reliance on Burr, particularly during dry periods, will soon pit human and agricultural water needs against the long-term viability of lakes and fens dependent on it.

This is a grave concern because the EIS acknowledges that it "has not been established what rate groundwater can be withdrawn from the Burr Unit before adverse environmental impacts would occur," (page 55). Adding to this concern are statements by MnDNR regarding the 1996 pump tests which indicate that currently permitted appropriation rates may harm the fens and thesholds, or the methods used to determine them, are being re-evaluated.

2) Disagreement that monitoring can adequately protect resources. We do not believe that the increased environmental risks to fens connected to the Burr Well Field are adequately mitigated by

monitoring. It is irresponsible to fund a project reliant on a sensitive natural resource and count on state authorities to halt its use should problems arise. Vegetative monitoring provides no margin of
9-1 safety at all, because serious damage would already be underway before any changes in plant communities are observable. Given the contentious history of this project, it is naive to expect that state authorities could expeditiously modify permit conditions even if serious problems became evident.

3) Support for expanding flexibility by developing and conserving other water sources. Because of the rarity and fragile nature of calcareous fens, Minnesota law expressly forbids activities that fill, drain, or otherwise degrade a fen unless a feasible alternative does not exist. Given the risks inherent in the existing and expanded Lincoln-Pipestone project, we believe that maximum flexibility - in the form of numerous water sources and prudent conservation measures - should be built into the system. Analysis presented by the MnDNR indicates that additional sources of water exist, some of them in or nearer to the NE Expansion area than the preferred alternative. Given this analysis, we would strongly oppose any fen management plans that allow increased pumping in the Burr Well Field before utilizing other water sources.

For the reasons stated above, we do not believe that funding the "preferred alternative" identified in the draft EIS would be in the public's best interests. We urge you to reconsider this stated preference and chose one that will better serve the long-term needs of the public for a sustainable water supply and a high-quality environment.

Thank you for considering our comments. Please keep me informed, on behalf of the Audubon membership in Minnesota, of your decisions in this matter.

Sincerely,

Cheryl Miller
Program Director

Transcribed from a hand written letter

Hazel Run, MN. 56241
August 4, 1998

Attention: Mark S. Plank
Senior Environmental Scientist
U. S. Dept of Agriculture
Washington, D.C. 20250

Dear Mr. Plank

We appreciate the fact that you are a part of a governmental agency that is working to protect a good and healthful environment for us here in S.W. Minnesota and eastern South Dakota.

This letter will not criticize any group or agency but merely explain what our concerns and needs are. We are a small city of about 77 inhabitants, 29 residences, 4 business and 1 church that are in genuine need of good quality water. At the present time there are 26 private wells of an average depth of 45 feet and 4 cisterns providing household water. The water has a hardness running the range of 40-65 grains with a great amount of iron. With a system of individual septic tanks & drain lines for each home and business we are in constant danger of contamination of our water supplies. The above facts we are sure your hydrologists are well aware of but we wish to reiterate them.

In the spring of 1992 a survey of Hazel Run was taken and a cost allocation was prepared. We then figured a monthly cost of about $30 per hook up for debt service alone. That cost plus the cost of water itself was regarded by us as pretty expensive. We thought that the fine quality of the water that L.P.R.W. promised to provide us would be worth the cost.

Now 6, and perhaps will be 7 years later we realize that perhaps our chance for water has disappeared mainly because of the increased costs to L.P.R.W. of law suits, the possible cost of finding and developing new sources of water and costs of the bureaucratic nightmare of justifying not only new expansion but their very existence.

If there is much increase in the costs of our debt service over the figure of 1992 of supplying Hazel Run with rural water we seriously believe that it will not be economically feasible focus to for us to hook on.

We hope that you do not lose sight of the fact that the balance between Flora – Fauna and the real needs of human beings must be at least a little weighed to the human side.

10-1

We were so close in 1992 and we have waited so long.

Written on behalf of Council and residents of the city of Hazel Run,

Clerk, Walter O. Wilson
Mayor, David R Esp (sp?)

Cc: Lincoln Pipestone Rural Water
State Sen., Arlene Leswiski (sp?)
State Reps,. Marty Seifert (sp?)

On Behalf of the Lake Cochrane Improvement Association (LCIA), which has 170 paid households, or 85% of the total lake property owners as members, I want to thank you for the opportunity to address concerns with regards to the Draft EIS. We, as an association, are in total agreement with the State of South Dakota's postion with regard to the DEIS.

First, I commend the researchers and authors of the DEIS for acknowledging and publishing the following items in the DEIS:

1. That the Burr Wells are hyrdaulically connected to the fens and Lake Cochrane.

2. That to appropriate ground water from the Burr wells at the rate of 1500 GPM/800MGPY poses an unreasonable environmental risk to surface water resources in the area. P53 DEIS

3. That LPRW is to develop alternative sources for water other than the Burr wells in the Coteau Aquifer.

4. That LPRW shall formalize an agreement with the SD DENR to establish monitoring procedures and protocols to evaluate the effects of pumping the Burr unit on surface water resources in South Dakota P117 DEIS

Secondly on behalf of the LCIA I would like to draw your attention to certain areas of the DEIS that need to be addressed at greater depth, revised, rethought and possibly abandon. The points are:

1. The suggestion of developing additional wells in the Burr unit to the SE of the treatment plant is absured. It does not require a hydrological genius to know that if you have a tub of water and place straws at opposite sides of the tub and

11-1

extract water at the distant end or side of the tub that water seeks it own level. It makes no difference from where it is appropriated!

2. Nowhere has there been a water budget developed for Lake Cochrane. This MUST be done. Lake Cochrane has a ratio of 2.4 acre water shed to 1 acre of lake surface. The ratio is incredibly small. Hence, it is virtually impossible for a lake to exist without huge ground water contributions or springs which IS
11-2 the case with Lake Cochrane. The fact is further illustrated by the abundant visable Iron Oxide sediment present as the ice retreats from the shore each Spring. The Iron Oxide is the trademark of springs or ground water flowing into the lake under the ice while there is no wave action to dispurse it. Again, it reinforces the fact Lake Cochrane is solely dependent upon groundwater to exist.

3. It is manditory that operations at the Burr Well unit of LPRW have rigid, strict and concise operating regulations and the regulations be continuously monitored by both South Dakota and Minnesota State officials. It CAN NOT be left to an honor system or any variation of a honor system.

4. There needs to be considerable attention on those elements that address the conditions and effects of a drought cycle. The DEIS glosses over this issue as if it is a wait and see process - - - NOT SO!!!! The water budget referred to
11-3 earlier is a start and references to the DEIS statement "pumping at the Burr Well (Coteau Aquifer) poses an unreasonable environmental risk at any rate of pumping" must be dealt with at a much greater depth.

In closing, we thank the officials of the USDA, the RUS and the USEPA for your future attention and consideration of these concerns and anticipate implementaton and action regarding these pertinent concerns of the LCIA and the State of South Dakota.

For the LCIA,

Thank You.

Prepared and presented at the DEIS hearing at Canby, MN July 30, 1998 by L. W. Tobin on behalf of the LCIA

rec'd 4/20/98

Appendix A-12

BURR WELL FIELD EIS

I am responding to the EIS that was performed on the burr well field. I am very concerned about the impact the well field will have on Lake Cochrane. Lake Cochrane is one of the top recreational lakes in South Dakota indicated by the large number of people who visit and camp at the state park on a daily basis as well as the large number of homes and cabins found on the lake. Many millions of dollars have been invested by the state of South Dakota and residents of Minnesota and South Dakota in order to develop the lake as it is today. **The EIS makes no mention of the value of Lake Cochrane as a resource or how important this lake is to the local economy.**

I support the EIS, however, I believe that the area needs to be continually monitored and that the Limits placed on pumping of the burr well are to lenient (450-500 gallons/min). It is very hard to estimate what the impact of the water resources will be when the area under goes a normal period of precipitation (it has been very wet the last few years) or even a dry period of precipitation and, most certainly these times will come. The EIS has stated that pumping from the Burr well at 450-500 gallons/min will not have an impact on Lake Cochrane or the area wetlands however, the **pressure in the aquifer continued to decrease even though they were pumping at a much lower level during a very wet period of time than the 450 limit**. What will happen to the lake and wetlands during average or dry precipitation periods. It has been stated by South Dakota Hydrologists that pumping water out of the burr well may lower the aquifer to the point were the aquifer will no longer supply the lakes or wetlands with water rather the reverse will occur where Lake Cochrane will lose water as it flows into the well very much like how a bathtub of water drains when you pull the plug. **Lowering the aquifer too far will cause irreversible damage to the areas natural resources as well as the economy**. The pumping limit of 450-500 gallons of water per min set in the EIS is sort of like playing Russian Roulette with nature, we can not predict how much precipitation the area will get in future years. Lake Cochrane was the only lake in the area that did not go dry during the great drought of the 1930s, in fact people continued to live around the lake, and many more people came great distance to Lake Cochrane to swim, fish and boat on the lake right through the 1930s. The reason Lake Cochrane did not go dry and other larger lakes did was probably due to the water that feeds Lake Cochrane from the aquifer of which Lincoln-Pipestone is pumping water from. Who will be responsible for the damage that will occur to Lake Cochrane if another drought occurs and there is no reserve left in the aquifer to supply Lake Cochrane? It is possible that during a normal year for precipitation, pumping water out of the aquifer could lower the lake level and turn Lake Cochrane into a winter kill lake. With continued pumping the lake will continue to decline. **There is no evidence in the EIS that can prove pumping 450-500 gallons per min will have no impact on Lake Cochrane or any of the wetlands during any period of time.**

I also believe that the well company: Lincoln-Pipestone Rural Water needs to be

investigated and that it is crucial that an outside source monitor their actions regarding the Burr Well Field. They have continually deceived the local residents as well as the federal government, the following are just a few of the many examples:

1)The Well company falsified documents by stating that their were no wetlands, shorelines or recreational areas near the well field in order to get funding for the project.

2)The well company also left out information to the Environmental Protection Agency that they were going to build a well at the site of the Burr well field. The leading the EPA and the department of interior that they were only going to lay water pipe through the area.

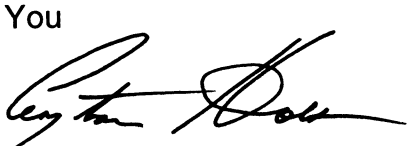
3)Rural development guidelines also state that no Rural development money can be used for a project like the Burr well field to supply water to a corn plant like the corn plant in Marshall MN. **The well company is however supplying water to the corn plant (50% of the water they pump from the well) in Marshall MN, how can this continue?**

4) The well company was told by the Mn DNR not to build until they tested the impact on the aquifer at a rate of 750 gallons per min, yet the well company continued to build the well and treatment plant before this test.

No consideration should be given to the fact that the well company built this well before the EIS due to the manner in which the well company went about this project.

I am also very concerned with why this project was started in the first place. The well company says this water is for the people of Southwest Mn yet the Mn DNR says most of the water will be used to expand commercial hog operations and as it turns out, the corn plant in Marshall MN. The towns that they are supplying water to did not need new water sources only updated water treatment plants. It appears that Lincoln-Pipestone, by pumping water out of the Burr well and supplying the water to increase production at large commercial operations (hog expansions and the Marshal corn plant) meanwhile causing potentially devastating damage to the environment (Lake Cochrane and area wetlands) is robbing from the poor (area natural resources) and giving to the rich. **I believe that no consideration should be given to Lincoln-Pipestone as to the needs of this water. Money should be spent to update the water treatment plants of communities that need it. Money should not be spent on developing new wells like the burr well field that supply water to valuable natural resources like Lake Cochrane in order to supply water expansion needs of big business.**

Thank You



Clayton Holt
Science Teacher
945 Jefferson Ln
Eagan, MN 55123

To: <mplank@rus.usda.gov>
From: Gene & Kaye Eilers <eeilers@frontiernet.net>
Cc:
Bcc:
Subject: DEIS
Attachment: Headers.822
Date: 3/4/98 7:29 PM

4 Mar 98

Dear Mark S. Plank

I am sending this message in regards to items that were stated about the City of Canby. I feel that the decision not to further investigate the potential of Canby was a bad decision. The City of Canby is now under construction of a new Water Treatment Plant with no help from USDA, which I also feel was a terrible mistake. Why does LPRW get all the grants and loans, we have a very good aquifer and only needed a filter plant and now LPRW still needs another water producing aquifer.
I hope that you can understand why the City of Canby selected to stay with their own system, how can we ever grow and depend on LPRW. Having two systems is still the best way anyway and we still could provide the Yellow Medicine Phase with good quality water. I have been employed with the Canby Water Department for 30 years and know the dependability of our aquifer. I feel some things get to political and the wrong decision are made.
As you can see the Minnesota DNR supports the City of Canby, I still do not see why USDA would not accept our request, are they covering up a mistake?? Maybe you still should reinvestigate our potential before blowing more money on LPRW, things are not fair why ??
You know as well as I do that having two systems are better, we would have to rely on one line coming into the City ten miles away to give us water while we have our own source in the City Limits. 13-1
Sure we would keep our own wells for backup but we would still need to fix our own filter plant and keep our wells operational. Why would you use a very reliable source as only a backup, it maybe more productive then LPRW at allot less cost and with no Environmental Issues stirring up trouble.
I would like to hear back from you.

Thanks
Eugene P. Eilers
Canby Water Supt.
110 Oscar Ave. N.
Canby, MN 56220
E-Mail address: eeilers@frontiernet.net

John Lentz
PO Box 395
Hayti, SD 57241
(605) 783-3226

Mark S. Plank
USDA Rural Utilities Service
1400 Independence Avenue, Stop 1571
Washington, DC 20250

Mr. Plank:

I am writing in regards to the proposed expansion of the Lincoln-Pipestone Rural Water Expansion Project. I find it unbelievable and appalling that the federal government would not only allow but also help fund a project that could jeopardize our precious natural resources.

Perhaps you have never drove around the Lake Cochrane area and seen what a truly beautiful and unique area it is. My family has farmed in that area for over 30 years and we have several of the very rare fens that I understand are now in jeopardy of being permanently altered because of the existing pumping station and the proposed expansion.

I find it preposterous that a farmer is not allowed to drain a small wetland that is less than one acre but this project could not only affect the hydrology of Lake Cochrane but also numerous other wetlands, fens, streams, and lakes.

As a citizen of the United States of America and the great state of South Dakota I implore that your department will spearhead the effort to do a thorough, unbiased scientific study of the area before continuing with this project.

Sincerely,

John Lentz

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
215 NORTH 17TH STREET
OMAHA, NEBRASKA 68102-4978
April 14, 1998

REPLY TO
ATTENTION OF
Planning Division

Mr. Mark S. Plank
USDA Rural Utilities Service
Engineering and Environmental Staff
Stop 1571
1400 Independence Avenue
Washington, DC 20250

Dear Mr Plank:

We have reviewed the Draft Environmental Impact Statement for the Lincoln-Pipestone Rural Water Expansion Project (DEIS) forwarded to us by Ben Wopat of the St. Paul District, and we offer the following comments.

As noted in the St. Paul District's March 23, 1998 letter to your office, the proposed project lies within the St. Paul District's Regulatory boundaries, and both the Omaha and St. Paul District's civil works boundaries. For this reason, The Omaha District will only comment on civil works issues.

Federal Flood Plain Management criterion basically states that construction which could be damaged by floodwaters or which could obstruct floodflows should not be located in the 100-year flood plain. If this is not practicable, any nonresidential construction that could be damaged by floodwater should be placed above or flood proofed to above the 100-year floodwater surface elevation and should be designed to minimize potential harm to or within the flood plain. Higher levels of protection are encouraged to provide added safety. If the operation of the constructed facilities is considered critical during flood periods, the facilities should be protected from at least the 500-year flood.

If construction must occur in the flood plain, it must be located outside the floodway. If a floodway has not been determined and designated, the construction should be as far from the stream channel as possible. The goal of any construction in the flood plain is to achieve the highest level of flood protection with zero impact to adjacent property.

Flood-related problems should not occur with underground water lines if the lines are buried far enough below the beds of drainageways and streams to prevent exposure due to streambed erosion during periods of high floodflows.

If you have any questions, please contact Mr. Luke Wallace of our staff at (402) 221-4885. Thank you for the opportunity to review this document.

Sincerely,

Candace Thomas

Candace M. Thomas
Chief, Environmental Analysis Branch
Planning Division

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
ARMY CORPS OF ENGINEERS CENTRE
190 FIFTH STREET EAST
ST. PAUL, MN 55101-1638

March 23, 1998

REPLY TO
ATTENTION OF
Construction-Operations
Regulatory (199305671-MMW)

Mr. Mark S. Plank
USDA Rural Utilities Service
Engineering and Environmental Staff
Stop 1571
1400 Independence Avenue
Washington, DC 20250

Dear Mr. Plank:

Thank you for providing a copy of the Draft Environmental Impact Statement for the Lincoln-Pipestone Rural Water Expansion Project (DEIS) for our review.

We have reviewed the DEIS. We concur that the proposed utility line crossings of waters of the U.S. are eligible for Clean Water Act authorization under a Department of the Army Section 404 nationwide permit, as indicated in the DEIS. This determination is contingent on effective measures being employed, such as use of anti-seepage collars, so that utility line installations do not result in any permanent wetland drainage.

Any other discharges of dredged or fill material into wetland or water areas may require additional authorization by the Corps under Section 404 of the Clean Water Act. The project proponent should obtain a jurisdictional determination from this office if any such discharges are proposed.

We have also determined that no St. Paul District real estate or current projects would be affected by the proposed work, and that no negative floodplain impacts would result.

Although the proposed project lies within the St. Paul District's Regulatory jurisdiction, it is within both the St. Paul and Omaha Districts' civil works boundaries. Therefore, we have forwarded the DEIS for review and comment to: U.S. Army Corps of Engineers, Omaha District, 215 North 17th Street, Omaha, Nebraska 68102. Mr. Steve Naylor of the Omaha District is aware of the project and may be reached at (605) 224-8531.

If you have any questions, please contact Mr. Michael Weburg in our St. Paul office at (612) 290-5367.

Sincerely,

Ben Wopat
Chief, Regulatory Branch

MINNESOTA HISTORICAL SOCIETY

May 18, 1998

Mr. Mark S. Plank
USDA, Rural Utilities Service
Engineering & Environmental Staff, Stop 1571
1400 Independence Avenue
Washington, D.C. 20250

Re: EIS; Lincoln-Pipestone Rural Water
Northeast Phase Expansion
Existing System North/Lyon County Phase
SHPO Number: 98-1911

Dear Mr. Plank:

We wrote you on 30 March 1998 regarding the above referenced project, requesting more information on the archaeological survey.

We have now received that survey report from John Madden of DGR. We appreciate the response.

Based on the survey, it appears that there are no properties listed on or eligible for listing on the National Register of Historic Places in the project area.

If you have questions, contact us at 612-296-5462.

Sincerely,

Britta L. Bloomberg
Deputy State Historic Preservation Officer

cc: John Madden, DGR

Congress of the United States

Washington, DC 20515

April 28, 1998

Mark S. Plank
U.S. Department of Agriculture
Rural Utilities Service, Engineering and Environmental Staff
1400 Independence Ave., Stop 1571
Washington, DC 20250

Re: Draft Environmental Impact Statement
Lincoln-Pipestone Rural Water

Dear Mr. Plank:

We have been provided Lincoln-Pipestone Rural Water's comments on the U.S. Department of Agriculture Rural Utilities Service Environmental Impact Statement. Said comments were dated April 22, 1998, and directed to you.

Based on information supplied to us, we support LPRW's comments and urge RUS to fund the development of the redundant supplemental well field as required in the EIS's preferred alternative. We further suggest, inasmuch as it was RUS which made the recommendation, that the funding be on a grant basis.

Please feel free to contact any of our offices for further confirmation of our support.

Sincerely,

PAUL WELLSTONE
U.S. Senator

DAVID MINGE
Member of Congress

South Dakota Legislature

State Capitol, 500 East Capitol, Pierre, South Dakota 57501-5070

Senate Chamber

March 24, 1998

Mark Plank
Rural Utilities Service
Mail Stop 1571
1400 Independence Ave.
Washington DC 20250

Dear Mr. Plank,

As a state senator in South Dakota, I am quite concerned about what I consider to be a continuing assault on the water quality of Lake Cochrane in Deuel County.

The lake and its surrounding region is a quite important natural treasure to South Dakota. I have visited the lake on several occasions in recent years, due to concerns from area residents. From my layman's perspective, it seems they have valid complaints that depletion of the aquifer from pumping in Minnesota -- and the subsequent draining of Lake Oliver into Lake Cochrane -- has already caused damage to the lake and probably threatens the entire eco-system of the area.

As I understand, an environmental impact study has also maintained that there are problems associated with the pumping.

Please do what you can to prevent further damage.

Sincerely,

Bernie Hunhoff
State Senator
Box 175
Yankton SD 57078

Bernie Hunhoff

East Dakota Water Developmen
307 Sixth Street
City Plaza Mall
Brookings, SD 57006

(605) 688-6741 (605) 688-6744 Fax

July 31, 1998

Mark S. Plank
Rural Utilities Service
Mail Stop 1571
Washington, D. C. 20250

Dear Mr. Plank:

I am writing to thank you and the Rural Utility Service for holding the public meeting on the Draft Environmental Impact Statement (DEIS) for the Lincoln-Pipestone Rural Water Existing System North/Lyon County Phase and Northeast Phase Expansion Project yesterday (July 30, 1998) in Canby, Minnesota. I am certain all the participants (local residents, elected officials and agency representatives) appreciated the opportunity to learn about the DEIS and share their comments and concerns.

I would also like to support the comments made by South Dakota Department of Environment and Natural Resources Secretary Nettie Myers and Mike Wireman of the United States Environmental Protection Agency regarding the need to restrict pumping rates from the "Burr unit" aquifer. With all the uncertainty regarding even the most basic characteristics of this aquifer, caution in this area is clearly warranted. I also strongly endorse Mr. Wireman's call for the prompt development and implementation of a contingency water supply plan for the rural water system if the "Burr unit" is to continue to be used. Failure to do so would place an unreasonable burden on the users of the rural water system if monitoring required the "Burr unit" well field to be temporarily or permanently shut down.

Once again, thank you for your efforts in Canby. I am looking forward to the issuance of the next (final?) version of the Environmental Impact Statement later this year.

Sincerely,

Jay P. Gilbertson
Manager/Treasurer

cc: Senator Tom Daschle
Senator Tim Johnson
Secretary Nettie Myers, SD DENR
Mike Wireman, US EPA

MARSHALL MUNICIPAL UTILITIES

113 South Fourth Street
Marshall, Minnesota 56258-1223
Telephone: 507-537-7005
FAX 507-537-6836

GREG SHERMAN
General Manager
MAURICE A. CHAPLIN
Water Superintendent
WILLIAM LARSON
Finance Officer
JONI LIVINGSTON
Office Manager
STEPHEN SWANSON
Plant/Properties
STEVE JOHNSON
Electrical Superintendent

1 August 1998

TO: MARK S. PLANK
USDA, RURAL UTILITIES SERVICE
MAIL STOP 1571
WASHINGTON, DC 20250

FROM: MARSHALL MUNICIPAL UTILITIES

RE: ENVIRONMENTAL IMPACT STATEMENT
LINCOLN-PIPESTONE RURAL WATER
Existing System North/Lyon County Phase
Northeast Phase Expansion

Marshall Municipal Utilities wishes to submit the following written comments in regard to the Environmental Impact Statement for Lincoln-Pipestone's Existing System North/ Lyon County Phase and Northeast Phase Expansion.

Marshall Municipal Utilities (MMU) is a municipal utility serving the city of Marshall with water and electricity. Securing a plentiful supply of water for our community has been an ongoing challenge for MMU because of the lack of abundant supply in southwest Minnesota. To help us in this regard, MMU has developed a partnership with Lincoln-Pipestone Rural Water (LPRW) and we have thereby become their water customer. This partnership has provided Marshall with a much needed supplemental water supply which has strengthened our ability to meet the growing water needs of our residents and businesses.

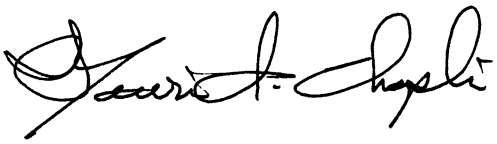
Marshall is among the few growing and thriving communities in southwest Minnesota, and we are a regional employment center. Residential areas are growing and expanding at a good pace. In order to make Marshall a viable place to live and work, we must obtain additional sources of water supply. MMU voices our utmost support for LPRW's work and their continuing efforts to secure water for Marshall and the other communities and farms in southwest Minnesota. Their continued growth and development of water supply is a tremendous enhancement to the quality of life in rural Minnesota.

LPRW has been issued an appropriations permit by the Minnesota Department of Natural Resources to pump at a rate of 750 gallons per minute (gpm) from the Burr Well Field. LPRW has been pumping at that permitted rate for some time with **no adverse effects** to Lake Cochrane or to the calcareous fens, by your own admission. This is also documented by MMU's own hydrological consultant, BA Liesch and Associates. Their investigation shows that not only have there been no adverse effects, but that a greater capacity of water is available from the Burr Well Field.

Marshall Municipal Utilities would like to go on record as strenuously objecting to the conclusion and recommendation in the 2.2.3 Preferred Alternative that LPRW should be limited to 400-525 gpm from the Burr Well Field. There is no scientific evidence to support the fact that such a reduction is necessary. On the contrary, the scientific evidence supports the fact that withdrawal from the Burr Well Field can be sustained at 750 gpm with no adverse effects. Marshall Municipal Utilities recommends that, at a minimum, LPRW be allowed to continue to appropriate water at the 750 gpm rate and if such pumping continues with no adverse effects, that the appropriation limits be increased.

In 1995, each municipal water supplier in the State of Minnesota was required to submit a Water Emergency and Conservation Plan to the Minnesota Department of Natural Resources. In its list of requirements, the DNR recommended that communities and water providers find ways to partner with each other to share and/or to better utilize resources. This type of partnering is exactly what Marshall and LPRW have done to resolve water shortages and make the best use of available resources. Marshall citizens and businesses also make great efforts to use water wisely and to be very conservative because they are well aware of the lack of abundant supply. The wise utilization of Minnesota's water resources should not be hampered based on "possible" environmental impacts that are not expected and not likely.

Sincerely,



Maurice A. Chaplin, Water Superintendent
Jim Babcock, MMU Commission Chairperson
Gary Becker, MMU Commission Vice Chairperson
John DeCramer, MMU Commissioner
Dan Baun, MMU Commissioner
Dwayne Purrington, MMU Commissioner

cc: Shane Hastings, RUS, Marshall
Jim Maras, RUS, St. Paul

MARSHALL INDUSTRIES FOUNDATION

501 WEST MAIN STREET • MARSHALL, MINNESOTA 56258 • PHONE 532-4484

September 1, 1998

Mr. Mark S. Plank
USDA Rural Utilities Service
Mail Stop 1571
Washington, DC 20250

Dear Mr. Plank:

Like many other communities in southwestern Minnesota, water is in short supply for the businesses in Marshall. The Marshall Industries Foundation has always monitored the work by the City of Marshall and the industries in the Marshall area as they have been working to both find additional water sources and conserve the water we do have. We would like to go on record in appreciation of the water allotment we receive from Lincoln-Pipestone Rural Water and support the present 750 gpm LPRW pumping permit.

The City of Marshall is presently exploring new water supplies in an area exceeding fifteen miles radius from Marshall. One of our larger industries has also dug several wells to relieve the stress on the Marshall well sites. Three of our industries have installed expensive water treatment systems to make the most use of recycled water. However, even the best conservation measures do not create water. Without the LPRW water, the community of Marshall would be adversely affected by the loss.

In addition to our own water needs, LPRW supplies water to many of our area citizens. The quality of the water through LPRW many times exceeds the quality available from the local rural well sites. The Marshall Industries Foundation has no desire to see any damage to the Lake Cochrane environment, and the scientific data you already have supports the statement that LPRW's pumping rates do not affect the area. It is our understanding of the study that the Burr Well Field could actually sustain higher pumping levels. As you do your review of the Environment Impact Statement, it is our position that the permits should, at minimum, remain at 750 gpm.

Thank you for your consideration.

Sincerely,

Paul G. Rehkamp, President
Marshall Industries Foundation

SOUTHWEST REGIONAL DEVELOPMENT COMMISSION Form R-3

PROJECT NUMBER		
#98-40	#98030501-8	Appendix A-23

PROJECT APPLICANT

Lincoln-Pipestone Rural Water

ADDRESS OF APPLICANT

Don Evers, Manager Lincoln-Pipestone Rural Wter, East Highway 14, PO Box 188
Lake Benton MN 56149

PROJECT TITLE	PROJECT COST
Environmental Impact Statement/Burr Well Field SW MN	NA

DATE PROJECT NOTIFICATION RECEIVED BY

March 5, 1998

DATE FINAL REVIEW SENT TO APPLICANT

March 20, 1998

CONSULTATION BETWEEN THE SRDC, APPLICANT, AND AFFECTED GOVERNMENT UNITS AND AGENCIES

WAS, (WAS NOT) (circle one) REQUIRED.

DATE OF CONSULTATION_____ PLACE CONSULTATION HELD_____

COMMENTS:

FINAL REVIEW COMMENTS:

The Board of Directors of the Southwest Regional Development Commission, on March 19 1998, reviewed the Environmental Impact Statement for Lincoln Pipestone Rural Water System / Burr Well Field in SW Minnesota (staff analysis of the project is attached). The SRDC Board found this project consistent with regional goals and policies.

This Form is in compliance with Executive Order 12372

plan\bod\burr

SOUTHWEST REGIONAL DEVELOPMENT COMMISSION
BOARD OF DIRECTORS AGENDA ANALYSIS FORM

AGENDA ITEM: 5 **MEETING DATE:** March 19, 1998

SUBJECT: Environmental Impact Statement for the Lincoln-Pipestone Rural Water system at the Burr Well Field in southwestern Minnesota.

COMMITTEE ACTION ___ STATUS OR SCHEDULED REPORT ___ INFORMATION ___

BACKGROUND/RATIONALE: The purpose of the proposed action and all previous phases to the Lincoln-Pipestone Rural Water (LPRW) system is and has been to provide a good, reliable, and affordable source of potable water to the rural residents, municipalities, and businesses in an area of Minnesota that has had difficulty in securing satisfactory water supplies.

LPRW has applied to the DNR to modify its Water Appropriation Permit from 750 gpm to 1500 gpm, in addition to the submittal of an application for financial assistance to fund the Northeast Phase Expansion proposal. If successful, the project would complete a multi-year / phase system expansion project started in 1991. There have been previous requests to increase the appropriation rates at the Burr Well Field. These have not been acted upon by DNR due to concerns that the groundwater withdrawals may have an adverse impact on surface water resources in the area (patterned calcareous fens and Lake Cochrane). These issues and alternative ways to meet LPRWs needs were evaluated in this EIS.

Rural water systems in southwest Minnesota have grown in response to a general need for an improved water supply. In addition, the annual operation and maintenance costs for individual and small community potable water system is often not competitive with economies of scale offered by a rural water system.

Of primary concern identified in the public scoping process was the potential affect on Lake Cocharan and the calcareous fens in the area surrounding the Burr Well Field. A second issue that arose was that with the increased quality of water, there would be an increase in the number ofd large scale confined animal operations - or expansion of existing operations.

The following identifies the proposed action / alternatives and the Agency conclusions:

Proposed Action. Fund the Northeast expansion and to continue to appropriate groundwater at the Burr Well Field at a higher rate than is now permitted. The Agency conclusion was that the proposed action poses unreasonable environmental risks to surface water resources of the area.

Alternative #1. Fund Northeast Phase Expansion and discontinue use of the Burr Well Field and Water Treatment Plant; use Verdi and Holland Well Fields to make up for the loss of the Burr Well Field to meet the systems needs. From the standpoint of system reliability and safety factors, LPRW would not be able to meet the needs of customers under this alternative and is not a feasible option.

Alternative #2. Fund the Northeast Phase Expansion and discontinue use of the Burr Well Field and Water Treatment Plant; use the Verdi and Holland Well Fields and supplement this supply with water from other sources to meet the systems needs.

(continued)

(EIS continued)

Alternative #2 using Lewis and Clark Project as another supply source. While the entire area, not just LPRW, would likely benefit from the Lewis and Clark plan, the decisions necessary to address all the issues related to the funding and feasibility of the Lewis and Clark system and interbasin transfers of water will likely require many years to resolve, and it is not reasonable for the Agency to postpone resolution of the proposed action.

Alternative #2 using Adjacent Rural Water Systems. The surrounding water systems include Rock County to the south , Red Rock to the east and the Big Sioux and Brooking-Deuel to the west. None of these has excess capacity that could be used by LPRW.

Alternative #2 using the Altamont Aquifer. Recent geophysical and geological investigations indicate that the water bearing formation in this area is greater than that of that of the Burr Well Field, and could serve as a primary source of water to LPRW. The aquifer shows great promise and is considered in the Agencys preferred alternative.

Alternative #2 using the Canby Aquifer. While the Canby aquifer provides water to the City of Canby, the extent and types of yields of the aquifer are unknown.

Alternative #3. Fund the Northeast Phase Expansion and continue to utilize the Burr Well Field and the current permitted appropriations and supplement with other sources. Both the Altamont and Wood Lake Aquifers were discussed.

Alternative #4. Fund the Northeast Phase Expansion, maintain current permit conditions at Burr Well Field and develop a new well field and treatment facility in the Northeast Phase Expansion to supply water to the Northeast Phase Expansion customers. Suitable sources of water would be the Canby Aquifer and Wood Lake. After reviewing these alternatives, it was decided that the project would be either cost prohibitive or would create affordability factors for the customers.

Alternative #5. Financing point of use systems for potential customers in the Northeast Phase Expansion area rather than financing the expansion. This option is not competitive with the economies of scale.

Alternative #6. No action. Not a feasible option. This is a multi-phase project in which engineering decisions regarding the design and operation of the system as a whole have been made earlier.

Agency preferred alternative. In order to minimize or avoid any significant adverse impacts the following mitigation measures were identified in the EIS to be implemented with the funding of the Northeast Phase Expansion:

- Continue to maintain the Burr Well Field as a primary water source, but limit the ground water appropriation.
- Supplement existing wells at the Burr Well Field with a new well field in an area south-southeast of the current Burr Well Field. Water would be transported to the Burr Water Treatment facility.
- Appropriation rates of the supplemental wells be similar to those permitted at the Burr Well Field.
- DNR establish as part of its permitting requirements for LPRW, protocols and standard operating procedures for well field operations that are designed to minimize drawdowns in the surface of the Burr units.
- Formalize a water resource management plan that will continue to use existing monitoring points at fen locations and observation wells in the Burr Unit in Minnesota and south Dakota.

Staff comments: The EIS appeared to address the issues and concerns of the proposed project and identified reasonable a reasonable alternative to prevent adverse impacts to the surface waters connected to the Burr Well Field.

302 W 6th St.
Elkton, SD 57026
4/1/97

Mark S Plank
RUS
Mail Stop 1571
Washington, DC 20250

Dear Mark,

In general I was pleased with the E.I.S. done on LPRWS burr unit well field. Some points I would like to comment about are listed below.

There should be no septic leakage from shoreline residences as we have had a closed sanitary system around Lake Cochrane since 1988.

Water quality has deteriorated in past 5 years since Lake Oliver water has flowed thru Lake Cochrane with noticeable algae, etc. now in our Lake.

Agree that Sen Protection is as important as Protection of Lake Cochrane.

Feel that L.P.R.W.S. should formalize an agreement with SDDENR to establish Procedures and Protocols to evaluate the effects of pumping the Burr unit on surface water Resources in SD.

No consideration was given to the millions of dollars worth of Property built around Lake Cochrane, its tax value to state and the

effect the loss of property value would have on the surrounding area.

We are opposed to another well being put into the Burt unit of the Prairie Coteau aquifer and to LPRWS increased Pumping rates for expansion as the Sioux Nation Calcareous Fen became dry during 1500 gpm test. This issue was ignored in order to form a conclusion that there were no effects.

Agree that any statement that impacts will be minimal is premature and should be struck from the document.

I strongly feel that environmental effects will be seen on both the Fens and Lake Cochrane from ground water appropriations at the Burt Well Field + further impacts from the Construction of the North EAST Phase Expansion Proposal. Also no consideration was made to the effects increased pumping by LPRWS would have on the aquifer reserve when a drought cycle occurs.

Sincerely,

Charlotte Bann

sent 3/17/98

Dear People

We support the EIS.
But we Must have Minnesota
alternate choice. 2nd.
We want the well put in
by Woodlake, and we do
not want a well in or
near Burr gwalfer.

Thank you
Jim & Sheryl Dunn
Irvine

recd at 11/7/97 meeting.

Appendix A-27

November 6, 1997

These are the comments of the South Dakota Department of Environment and Natural Resources (DENR) regarding the preliminary draft copy of the October 1997 report prepared by the United States Department of Agriculture, Rural Utilities Service (RUS), titled:

ENVIRONMENTAL IMPACT
STATEMENT
LINCOLN-PIPESTONE
RURAL WATER
Northeast Phase Expansion
Existing System North/Lyon County Phase

The following comments are in reference to statements and conclusions in this report which deals with the hydrogeology of Lake Cochrane and the potential impact on the lake level as a result of pumping water by the Lincoln-Pipestone Rural Water System from a buried aquifer near the lake. To simplify the readability of this letter, the direct quotations from the report will be in italic type followed by comments.

page 88, first full paragraph

It is stated that "*Water levels recorded in 1937 following the "dust bowl" drought of the mid 1930's, indicated that Lake Cochrane's water levels had declined by approximately 10 feet (Hatch, 1996). In comparing this water level reading to pond design criteria developed by the USDA, Soil Conservation Service (SCS, 1988), the SCS (predecessor to the Natural Resource Conservation Service) estimates that, in this part of South Dakota, impoundments fed by surface water should be designed 8 to 10 ft deep to hold sufficient water to offset evaporation losses and seepage. Because of the position of Lake Cochrane in its watershed; the fact that it is underlain by a thick, very slowly permeable till; and the fact that the potentiometric surface of the Prairie Coteau aquifer is above the free water surface of the lake, it is very unlikely that Lake Cochrane loses significant amounts of water through seepage. Consequently, the decline in Lake Cochrane during the mid-1930's was consistent with that predicted by the SCS and is a strong indication that the lake is not receiving significant amounts of groundwater from the Burr Unit aquifer.*"

A review of the reference (SCS, 1988) in the above-mentioned quotation and a review of a copy of a September 1997 report by the Natural Resources Conservation Service (report title: Ponds—Planning, Design, Construction) appear to indicate that, in this area, if the surface runoff is the main source of water, the required contributing drainage area should be approximately 16 acres for each acre-foot of lake storage. The storage of Lake Cochrane, when it is full, is approximately 4,028 acre-feet. Even assuming the lake is only 1 foot deep, with a surface area of approximately 366 acres, it will have a storage of 366 acre-feet. In this example, the lake will need a drainage area of at least 5,856 acres (366 x 16). The actual drainage area of the lake is approximately 876 acres which appears too small to sustain a lake of this size in this location. A minimum drainage-area to lake-area ratio of 16 appears to be necessary; Lake Cochrane has a drainage-area to lake-area ratio of 2.4. Therefore, please quantify (in acre feet) the calculated amount of annual ground water contribution to Lake Cochrane.

On page 87, referring to the presence of certain ostracod fauna in Lake Cochrane, it is stated that, "*These organisms can be very sensitive environmental indicators and respond to natural changes in water quality. According to Dr. Smith, some of the Lake Cochrane ostracods are a variety that is known to thrive in the hard water discharge in seeps along the shoreline of lakes. This combination of*

shallow water habitat in hard water suggests that these seeps are fed by the shallow groundwater aquifer system." Contrary to the implication in the last sentence of the above quotation, Dr. Allison Smith does not say that the source of ground water to the lake is necessarily from a shallow aquifer. In fact, in a letter dated December 18, 1993, she states that *". . . if there are no other shallow unconfined aquifers in the area, it is likely that there are fractures through which the water in the artesian aquifer reaches the lake."* Does your data indicate whether shallow, unconfined aquifers are present and contributing adequate flows to Lake Cochrane?

page 86, first paragraph

This paragraph discusses the decrease of ground water flow to the lake during the 7-day aquifer test. It is stated that the potentiometric surface of the aquifer was 10 to 12 feet above the lake level prior to the pumping. During the pumping, the drawdown was about 1 foot in the western margin of the lake and was over 3 feet in the eastern margin of the lake. It is also stated that *"If it is assumed that the Burr Unit is discharging to Lake Cochrane, then these reductions in head would have resulted in a change of less than 3% in the discharge at the west end of the lake and a reduction of less than 5% at the east end."* If the potentiometric surface was 10 feet above the lake in the western margin prior to the test and the potentiometric surface dropped 1 foot by the end of the test, this is a 10% reduction which corresponds to a 10% reduction in ground water flow from the aquifer to the lake. Likewise, if the potentiometric surface which was 12 feet above the eastern margin of the lake dropped 3 feet at the end of the test, this reduction is 25% which results in a 25% reduction in ground water flow. The point here is that the most fundamental principle of hydrogeology, which is Darcy's law, appears to have been misused in the EIS to arrive at the above-mentioned values for ground water flow reduction to the lake. Please recheck your calculations and the methodology used to arrive at your conclusion.

page 86, second paragraph

The Lake Cochrane water budget calculations by DENR are discussed and it is stated that *"For example, the difference in the average annual precipitation (22 inches) used by SDDENR to calculate the water budget for Lake Cochrane and the annual precipitation (24.79 in/yr) determined for Lake Cochrane by averaging the precipitation for Clear Lake, SD (24.33 in/yr), and Canby, MN (25.25 in/yr), is 12.7%."* This implies that DENR used only 22 inches for the average annual precipitation in their calculations. However, an additional calculation was also made. The average annual precipitation of 22 inches used in the first mentioned water budget calculation was taken from a publication titled *Climate of South Dakota* (Agricultural Experiment Station, South Dakota State University, Brookings, Bulletin 582, November 1971). The lake budget was recalculated by DENR by using an annual average value of 24 in/yr. The lake water budget still did not balance without ground water contribution. The results of these calculations were presented to RUS on December 20, 1995, and they were also sent to the RUS consultant on May 30, 1997. Please correct the document to acknowledge the actual DENR calculation.

used 24

It is also stated that *"Moreover, uncertainties attend* (sic) *determining a value to use for "runoff" in the water budget equation SDDENR calculated two water budgets, one using 0.8 in/yr and a second using 1.5 in/yr. The latter value is more than 93% greater than the former. From these data, it can be seen that the change that could be induced by pumping would be small in comparison to the lack of precision in the data used to calculate the water budget."* The two water budgets mentioned in the above quote were calculated early in the evaluation process to see how much, if any, ground water might be required to balance the water budget for Lake Cochrane. Subsequent to these two calculations, site specific data for the average annual runoff for the Lake Cochrane drainage were

obtained from the Natural Resources Conservation Services (NRCS) in Brookings, South Dakota. The value for average annual runoff provided by NRCS was 0.55 acre-inch/acre (0.55 in/yr). The early calculations by DENR used values of 0.8 and 1.5 in/yr for the average annual runoff. The value of 0.8 in/yr is higher than the value provided by NRCS and still the lake water budget did not balance without a ground water contribution. The value of 1.5 in/yr, which is approximately three times greater than the value provided by NRCS, may demonstrate that the lake water budget cannot be balanced with any reasonable value for surface runoff. The conclusion in the last sentence of the above-mentioned quote appears unfounded and requires clarification.

page 87, first full paragraph

It is stated that *"In the SDDENR water budget analysis, two sources of runoff were not included or considered in the calculation--sizable areas of wetland that are hydraulically connected to Lake Cochrane and four tributary systems that flow into the lake. The wetland areas can act and function as free water surfaces and direct virtually all of the precipitation that falls on them directly to Lake Cochrane. With regard to the tributary systems, some portions of these systems must act as variable source areas with most of the water falling on them running off into the lake."* First, it is not clear which wetlands and four tributary systems the EIS refers to as not being included in the drainage area used for calculation of runoff by NRCS and DENR. Secondly, if the reference is to the Lake Oliver drainage area which has been draining to Lake Cochrane during the last few years, because of the extraordinary amounts of precipitation in the area, it should be realized that generally the water level in Lake Oliver is lower than Lake Cochrane under normal precipitation conditions. Also, as stated on page 84 of the EIS *"During the period from the early 1950's until 1993, Lake Oliver did not overflow into Lake Cochrane."* The data show that Lake Cochrane receives water from the Lake Oliver drainage only during very rare and extremely high precipitation. Nevertheless, DENR calculated the water budget for the combined drainages of Lake Cochrane and Lake Oliver and for the combined drainages of Lake Cochrane, Lake Oliver, and South Slough. Considering these three surface bodies of water together in a water budget calculation increases the surface water area for evaporation and makes it even more unlikely that the water budget could be balanced without ground water contribution. It should be also noted that the results of the above-mentioned calculations were provided to RUS and the consultants and are included as part of an October 5, 1994, document titled "An Amendment to the Environmental Assessment."

pages 81 and 82, under the topic of Environmental Consequences, discussion of the lowering of the potentiometric surface due to pumping

It is stated that *"Production pumping toward the end of a protracted drought could be expected to cause the most extreme lowering of this surface. Because no data are available for either recharge of the aquifer or aquifer performance during protracted droughts, it is not possible to predict with certainty how the aquifer will respond to long-term production pumping combined with drought conditions. The size of the hydraulically connected portions of the aquifer and its response to extended pump tests indicate, however, that withdrawal rates similar to production pumping the Burr Well Field at 750 gal/min should not cause it to be excessively dewatered. In addition, the thickness and areal extent of the aquifer suggest that sufficient water is present within it to sustain pumping for the duration of such a drought."* The first part of this quoted paragraph states that the impact of production pumping during a protracted drought could be extreme and therefore it is not possible to predict with certainty what the impact of the pumping combined with the drought will be on the potentiometric surface. The subject matter is changed in the middle of the paragraph to the availability of water for pumping during a drought. The environmental consequences of impacting the potentiometric surface by production pumping must be clearly and adequately presented.

The following points summarize some major concerns regarding the EIS.

- The EIS indicates that Lake Cochrane does not receive a significant amount of ground water. However, no calculations or documentation are presented to show how Lake Cochrane could exist in this location with a drainage area to lake area ratio of 2.4. A reference is provided in the EIS which indicates that the minimum drainage area to lake area ratio should be 16 for any lake or pond without ground water contribution in this area. This discrepancy needs to be addressed, and in quantifiable terms so that the public can understand the relative importance of each source of inflow to Lake Cochrane.

- The EIS states that pumping toward the end of protracted drought could be expected to cause the most extreme lowering of the potentiometric surface. However, the statement was also made that there are no data to predict with certainty how the aquifer will respond to long-term pumping combined with drought conditions. Not quantifying the aquifer response during this time period and simply passing over this issue is unacceptable. During these periods the greatest potential exists for adverse impacts to water resources in South Dakota.

- The results of calculations in the EIS that show the decrease in ground water discharge to the lake due to pumping and lowering of the potentiometric surface appear to be in error and the method of calculation violates the most fundamental principle of hydrogeology.

Please address our comments and make any needed changes to your preliminary document prior to publishing the draft EIS. We look forward to reviewing the next draft of the EIS.

Gary, S.D
March 10, 1998

Mark Plank
Washington, DC

Dear Mr Plank,

We are in support of the E.I.S. We don't want the alternative of the new well in the same acquifer. Lake Oliver coming in now has ruined our lake. We have now an algae contaminated lake where it had been one of the cleanest in S.D. We hope the pumping of Sioux Rapistone can be controlled.

Sincerely,

Bob + Joyce Otkin
RR 1 Box 248
Gary, S.D 57237