

**PROGRAMS FOR THE HIGH PLAINS AQUIFER;
AND A HYDROELECTRIC PROJECT IN ILLINOIS**

HEARING
BEFORE THE
SUBCOMMITTEE ON WATER AND POWER
OF THE
COMMITTEE ON
ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE
ONE HUNDRED EIGHTH CONGRESS

FIRST SESSION

ON

S. 212

TO AUTHORIZE THE SECRETARY OF THE INTERIOR TO COOPERATE WITH THE HIGH PLAINS STATES IN CONDUCTING A HYDROGEOLOGIC CHARACTERIZATION, MAPPING, MODELING AND MONITORING PROGRAM FOR THE HIGH PLAINS AQUIFER, AND FOR OTHER PURPOSES

S. 220

TO REINSTATE AND EXTEND THE DEADLINE FOR COMMENCEMENT OF CONSTRUCTION OF A HYDROELECTRIC PROJECT IN THE STATE OF ILLINOIS

H.R. 397

TO REINSTATE AND EXTEND THE DEADLINE FOR COMMENCEMENT OF CONSTRUCTION OF A HYDROELECTRIC PROJECT IN THE STATE OF ILLINOIS

MARCH 6, 2003



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**PROGRAMS FOR THE HIGH PLAINS AQUIFER;
AND A HYDROELECTRIC PROJECT IN ILLI-
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THURSDAY, MARCH 6, 2003

U.S. SENATE,
SUBCOMMITTEE ON WATER AND POWER,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, DC.

The subcommittee met, pursuant to notice, at 2:30 p.m., in room SD-366, Dirksen Senate Office Building, Hon. Lisa Murkowski presiding.

**OPENING STATEMENT OF HON. LISA MURKOWSKI,
U.S. SENATOR FROM ALASKA**

Senator MURKOWSKI. We will now call to order the first subcommittee meeting of the Water and Power Subcommittee. It is a pleasure to be here today. We have this afternoon S. 212.

And just for the record, we will have statements from Senators Bingaman, Hutchison, Campbell, Allard, and from Dr. Peter Scholle, and Dr. M. Lee Allison, the American Farm Bureau, the Texas Water Resources Institute, from the Colorado Farm Bureau, and the Western States Water Council. Those statements will all be included in the record. And as it relates to S. 220, House Resolution 397, we have a statement from Senator Fitzgerald. And this statement will also be included in the record.

I would remind members that I expect both of the items before the committee today will be on the markup agenda for the business meeting, which is set for next Wednesday.

We will keep the record open for 2 weeks to allow members and other interested parties to submit statements and additional testimony.

Let us see here. At this time, I would like to welcome to the committee, we do have Senator Brownback who is with us this afternoon.

I understand, Senator, that you have a few brief comments that you would like to provide on S. 212, the High Plains aquifer legislation. If you would like to, present those comments to the committee at this time.

[The prepared statements of Senators Murkowski, Campbell, Fitzgerald, Hutchison and a letter from Senator Allard follow:]

PREPARED STATEMENT OF HON. LISA MURKOWSKI, U.S. SENATOR FROM ALASKA

It is indeed a pleasure to be holding the first Water and Power Subcommittee hearing of the 108th Congress. At a time when the country is facing its worst

drought in decades and water is in increasingly short supply, I believe this subcommittee will find itself working through a vast number of these difficult challenges.

I would like to take the opportunity to welcome Senator Brownback, who will be offering a few brief comments on this bill in just a few moments.

I would also like to welcome our Administration witness, Mr. William M. Alley, the Chief of the U.S. Geological Survey's Office of Ground Water, who will be testifying on S. 212, the High Plains Aquifer Hydrogeologic Characterization, Mapping, Modeling, and Monitoring Act.

This bill was introduced by Senator Bingaman in the 107th Congress and passed the Senate last year. I understand that some members and the Administration had some concerns with the bill last year. I believe that changes were made to the bill to address some of these concerns. However, as a new member I wanted to have the opportunity to listen to testimony and to gain a better understanding about what this bill does since I was not here last year to participate in the process.

Since this bill was passed by the Senate last year, it was my intent to hold a hearing expeditiously. In an effort to accomplish this, we will only be hearing from Senators and the Administration today. However, I understand that other parties with an interest in S. 212 will be submitting testimony for the record.

While Alaska is not one of the eight states that relies on the High Plains Aquifer, I understand that it is a vital resource for those states that do! Being the largest single water-bearing unit in North America, covering approximately 225,000 square miles in the Great Plains region, particularly in the High Plains of Texas, New Mexico, Oklahoma, Kansas, Colorado, and Nebraska, I can appreciate the need to more fully understand what has long been a major source of water for agricultural, municipal, and industrial development.

Due to the nature of western water resources in general, I can also appreciate concerns about the level of federal involvement in what has historically been state regulation of those resources. Therefore, I hope that I can come away with a better understanding of this particular bill and how exactly it will work to ensure that we use good science to save not only the resource, but also the economies in those counties who have relied on these resources since the turn of the century.

This hearing will also examine S. 220, sponsored by Senator Fitzgerald, and its companion legislation, H.R. 397. These bills would reinstate a Federal Energy Regulatory Commission license of a four-megawatt hydroelectric project in the State of Illinois and extend the deadline for the commencement of construction. Both S. 220 and H.R. 397 would allow the City of Carlyle, Illinois to construct the hydroelectric power facility on an existing U.S. Army Corps of Engineers' dam on the Kaskaskia River. In addition to benefitting the City, this project will provide a renewable energy source for surrounding communities.

During the last Congress, Senator Fitzgerald's legislation on this issue was reported by the Energy and Natural Resources Committee and passed by the Senate. However, the House was not able to consider the measure prior to adjournment and the legislation was not enacted. The Administration, which has submitted testimony on both S. 220 and H.R. 397, does not oppose the legislation.

PREPARED STATEMENT OF HON. BEN NIGHTHORSE CAMPBELL,
U.S. SENATOR FROM COLORADO

Madame Chairwoman, thank you for holding this hearing on these important bills. My statement only relates to one—S. 212, a bill to study and monitor the High Plains Aquifer (Ogallala).

I am concerned that S. 212 provides a window for federal involvement in managing the most scarce and important resource in the West—water.

The Federal Government has repeatedly recognized that states best manage water, and many states have developed successful water management systems. One of the finest is in my state of Colorado. Colorado water law has worked well in practice with the respective federal agencies and Colorado has developed the foremost instream flow program in the nation.

I believe that the sponsors of the bill are well-intentioned, as they recognize many states would like to better monitor their water, but deficits and funding constraints preclude additional spending.

Yet, this bill seems unnecessarily complicated to do something that is relatively simple, if assistance is all that is in mind.

Too often we have seen federal assistance turn into federal data gathering turn into federal suggestions turn into federal guidelines turn into federal regulation

with delegation to the States only when the States do what the federal government wants.

My respectful suggestion would be to have the Secretary provide assistance to States at the request of the States. Since there are limited funds, we should consider language stating that the Secretary give deference to any priority list that has been approved by all eight Governors. The Governors are in the best position to determine what should be done within their respective states and also to determine whether the activity is best carried out under the direction of the State geologist or the State engineer or a university.

I also think we need to appreciate the role of tribal governments and their needs. We have made it very difficult for some of my constituents to have access to surface waters for irrigation. Ridges Reservoir is now designed to only provide M&I instead of the irrigation supplies contemplated for the Animas-LaPlata project under the Colorado Ute Settlement Act.

However well intentioned, I think we would be better off recasting this bill so that the assistance is directed to Governors based on requests from the Governors and letting the Governors work with local communities and tribal governments to form their priority lists.

As currently drafted, I know that my state's administration has serious concerns with this bill, and I have a letter from the Colorado Farm Bureau expressing their strong opposition to S. 212. I ask unanimous consent that a copy be placed in the Record.

Coming from a state that recently experienced its worst drought on record, I recognize the great demands being placed on our water resources. Efficient management of water is necessary for the West to be able to meet its projected future growth.

We are all familiar with Mark Twain's saying: "whiskey's for drinking and water's for fighting over"—unfortunately, his saying has proved accurate over the years. I look forward to working with my friend, Senator Bingaman, to have a bill that we can all be comfortable with, and in so doing, prove that Mark Twain isn't always right.

Thank you.

PREPARED STATEMENT OF HON. PETER G. FITZGERALD, U.S. SENATOR
FROM ILLINOIS

Madam Chairman, I would like to thank you for holding this hearing to address legislation that is of great importance to my state. I would also thank you for affording me the opportunity to voice my support for this bill. The legislation that I have introduced seeks to reinstate a license, surrendered to the Federal Energy Regulatory Commission ("FERC"), which authorized the construction of a hydroelectric power plant in Carlyle, Illinois. In order to facilitate the construction of the hydroelectric power plant, the bill also contains a provision that extends the deadline for beginning construction of the plant.

Carlyle, Illinois, is a small community of 3,406 people in Southwestern Illinois, fifty miles east of St. Louis. Carlyle is situated on the Kaskaskia River at the southern tip of Carlyle Lake, which was formed in 1967 when the U.S. Army Corps of Engineers completed construction of a dam on the river. Carlyle Lake is 15 miles long and 3½ miles wide—the largest man-made lake in Illinois.

When the Army Corps of Engineers constructed the dam, it failed to build a hydroelectric power plant to capitalize on the energy available from water flowing through the dam. A hydroelectric power facility in Carlyle would produce 4,000 kilowatts of power and provide a renewable energy source for surrounding communities. Furthermore, the environmental impact of adding a hydroelectric facility would be minimal, and such a facility, located at a site near the existing dam, would not produce harmful emissions.

In 1997, Southwestern Electric Cooperative obtained a license from the FERC to begin work on a hydroelectric project in Carlyle. In 2000, Southwestern Electric Cooperative surrendered their license because they were unable to begin the project in the required time period. The City of Carlyle is interested in constructing the hydroelectric power plant and is seeking to obtain Southwestern Electric Cooperative's license.

The bill I am introducing is required for the construction of the facility. Legislation is necessary to authorize FERC to reinstate Southwestern Electric Cooperative's surrendered license. Because there is not enough time remaining on the license to conduct studies, produce a design for the facility, and begin construction

of the project, the bill includes a provision that allows FERC to extend the applicable deadline.

The full Senate passed this bill, during the 107th Congress, without opposition, but, the House of Representatives was unable to act on this legislation before the 107th Congress adjourned. During this Congress, the House of Representatives has already passed legislation identical to what the Senate passed in the 107th Congress and what I reintroduced in the Senate earlier this year.

This legislation is an easy and environmentally safe approach to meeting the energy needs of Southwestern Illinois. I hope that the Senate Committee on Energy and Natural Resources will report this legislation to the full Senate. I look forward to working with my colleagues in the Senate to pass this legislation that would provide a clean alternative energy source for this part of the Midwest.

PREPARED STATEMENT OF HON. KAY BAILEY HUTCHISON, U.S. SENATOR
FROM TEXAS

Madam Chairman, thank you for the opportunity to inform the committee of the vital economic impact the Ogallalla aquifer has on Texas' High Plains region and our entire state. Thirty-five percent of Texas' agribusiness is generated in the forty one counties that overlay the Ogallalla aquifer from Lubbock to Amarillo, and this area's agriculture is responsible for \$30 billion worth of one of Texas' most critical industries. Approximately 30 percent of income in the Panhandle is dependent upon its regional agricultural industry, which is a dominant economic engine for its communities and citizens. Furthermore, Texas produces 25 percent of the cotton grown in America and fifty percent of that is grown in our Panhandle. This area is also responsible for strong corn, wheat, grain sorghum, livestock, and milk production—all of which depend on water.

Texans know the aquifer is a precious and limited resource. In the 1950's the Texas State Legislature established local ground water conservation districts to ensure the area's residents can monitor and conserve their water for generations to come. I support these district's conservation efforts including observation wells, hydrologic and geologic atlases and mapping, and the promotion of improved irrigation technologies. Last year, Senator Roberts and I secured \$750,000 for the Agricultural Research Service to work through West Texas A&M University, Texas Tech University, and Kansas State University to provide research to farmers about the benefits of subsurface drip irrigation systems over traditional sprinkler systems. This innovative technology is helping farmers in all eight states that benefit from the Ogallalla aquifer to conserve our precious water and improve our irrigation efficiency to 95 percent.

S. 212, as proposed, does not address several issues I am concerned with: the economic impacts of the Ogallalla aquifer to all our states and the significant investments our local water conservation districts, our states, our research institutions, and the United States Department of Agriculture's Agricultural Research Service and Natural Resources Conservation Service are already leading. Finally, Congress should not authorize the federal government to establish a program that will regulate the management of our states' groundwater. Any funding that Congress or the Department of the Interior chooses to provide the Ogallalla aquifer's local water users should be invested in continuing water conservation efforts, so we may all continue to enjoy the benefits of our shared natural resource for generations to come.

I thank the committee for the opportunity to comment on my concern with S. 212.

UNITED STATES SENATE,
Washington, DC, March 5, 2003.

Hon. LISA MURKOWSKI,
Subcommittee on Water and Power, Washington, DC.

Re: Senate Bill 212

DEAR CHAIRMAN MURKOWSKI: Throughout my tenure in Congress, I have vigorously guarded against federal intrusion into state water issues. I firmly believe that the federal government's interest in water must be consistent with local interests, and that the government must cooperate with the states on environmental issues, as well as defer to the states on matters of state law. Such cooperation and deference extends to state law governing groundwater.

The federal government plays an important role in the development and implementation of national environmental policy. However, Congress must not create programs that pose a threat to state authority over water and which could send state

groundwater law down a path similar to the federal handling of surface water. While I believe the intent of Senate Bill 212 is not to usurp state water law, I would like to point out that the responsibility to perform such a course of study rests in the hands of the state water authority.

I strongly urge the Committee to work with the sponsors of the legislation to develop a state focused, state centered, law; one that does not threaten state autonomy over groundwater. By allowing the states to direct the program, the federal government will accomplish its objectives in a way respectful of state law while still serving the federal environmental interest.

Thank you for allowing me the opportunity to discuss these thoughts with the Committee. I look forward to working with the Committee and bill sponsor on this legislation.

Sincerely,

WAYNE ALLARD,
United States Senator.

**STATEMENT OF HON. SAM BROWNBACK, U.S. SENATOR
FROM KANSAS**

Senator BROWNBACK. Thank you very much, Madam Chairman. I appreciate that opportunity to present these thoughts. What I thought I would do is just submit my full statement in the record, if that would be acceptable, and then just briefly summarize off of it.

Senator Bingaman and I last year, last 2 years, have been working on the issue of the High Plains aquifer, the Ogallala aquifer, and its depletion and the problems associated with it. This is an issue of long interest for me. Before I was in the Senate, I was in the House. Before I was in the House, I was the Secretary of Agriculture for the State of Kansas, and in that capacity worked on the issue of the Ogallala aquifer. The regulation of that was in our agency in the State.

Before that, I was a farm broadcaster. I was a lawyer and a farm broadcaster. And while a farm broadcaster, I covered the issue of the depletion of the Ogallala aquifer. As a lawyer, I learned and taught and practiced some water law and learned quickly the basics of Western water law, which the very basic fundamental of it was "first in time, first in right." And the operational effects were: Whiskey is for drinking; water is for fighting. And there is a lot of fighting that goes around on the issue of water.

What we are trying to do here should be a completely non-controversial issue, something we did 20 years ago, which was to map the Ogallala aquifer to see how much water is still there. We did that 20 years ago to try to estimate what is the nature of the Ogallala. We have not had a comprehensive mapping of it since. This will help State policy makers to make appropriate decisions regarding water policy, State and local units of government.

This is not the Federal Government taking over water rights, water issues affecting any of our States. If it were, I would be adamantly opposed to it. Water is a State-level issue, as far as the rights and responsibilities of water. And we do not want to federalize water law issues. Those must remain at a State level.

What this is to provide is resource information as to the nature of the Ogallala aquifer within the eight States that are covered. A portion of it is in each of these eight States. And this is going to be good policy information that States are asking for, as they monitor and work with it.

I would also note that we used to think that the Ogallala aquifer did not move very much underneath the ground. And as we have had more of a pull-down on depletion of this aquifer, we are finding that there is much more movement underground of it than we thought in the past. And we need this type of information as well to be able to make policies at a State and local level to try to preserve this aquifer for our future generations.

In a number of areas across the country already, people have stopped irrigating out of the Ogallala aquifer. And it has not been because they want to stop doing this, but because of depletion of the aquifer in that particular area. If we do not start providing this kind of information for policy makers to review where we are with the aquifer, particularly since the past 20 years, what are the possibilities into the future, and I am afraid we are not going to have good policy making, and we are not going to be able to have an extended life of this aquifer that is critical to the future of my State and the eight States that it serves.

So with that, I submit my statement. I am very pleased you are bringing this up, delighted to hear it is going to be on the markup soon, in the next committee markup that there will be. And this is valuably sought-after information by State and local policy makers. So we are going to have wise policy.

Thank you, Madam Chairman.

[The prepared statement of Senator Brownback follows:]

PREPARED STATEMENT OF HON. SAM BROWNBACK, U.S. SENATOR FROM KANSAS

Madam Chairwoman, I would like to thank you for giving me the opportunity to speak before your Committee today about S. 212, the High Plains Aquifer Hydrogeologic ["hydro-geo-logic"] Characterization, Mapping, Modeling and Monitoring Act. As you may know, this bill was actually passed by the Senate last year, but unfortunately did not see action on the House side. I am pleased that this bill is moving forward again here in the Senate and hope that we can rapidly move this bill through passage again. I continue to encourage our Colleagues on the House side to take up this issue as well.

My involvement with saving North America's largest aquifer is a lifelong one. In my early days of public service as the Kansas Secretary of Agriculture my conviction to sustaining the way of life dependent on the Ogallala resulted in the Kansas Agriculture Ogallala Task Force. Given the charge to explore all possible options for long-term conservation, the Ogallala Task Force brought forth many of the same ideas that we are fortunate to now be seeing action taken on through the combined effort of local and state governments, as well as, Congress.

S. 212 is another in a series of steps that I have been involved with in the preservation of the Ogallala Aquifer. This bill would authorize the Secretary of the Interior to cooperate with the High Plains Aquifer States in conducting a hydrogeologic characterization, mapping, modeling and monitoring program for the High Plains Aquifer. This kind of scientific data has not been collected comprehensively across the Aquifer in over 20 years. This type of data is important so that we can accurately aim our efforts at preserving the Ogallala.

The data collected from the components in this bill will provide us with accurate information relating to groundwater depletion and resource assessment of the Aquifer. I am pleased with this bill because it relies on cooperative efforts between state, local, and federal entities. The Association of American State Geologists, the Western States Water Council, and the U.S. Geological Survey were all instrumental in the drafting of this bill. I am committed to the fact that while the federal government is involved with the preservation efforts, it is the states that retain the ultimate control of the Aquifer.

This bill calls for a report on the status of the implementation of the mapping program to be given not only to your Committee, but also to each Governor of the High Plains Aquifer States. It is imperative that the states remain in open dialogue with each other and with the federal entities involved in the collection of this data. This bill is aimed at collecting the much needed accurate data about the Aquifer,

not at forcing the Federal government into regulating use of the water. I am confident that this bill does not infringe on the rights of the states and is truly aimed at collecting accurate data about the Aquifer.

There is no other aquifer in the United States pumped as intensely as the High Plains Aquifer. The technology that has allowed many farmers to produce higher yields with different crops through irrigation, is unfortunately the same technology that has led to the depletion of the Aquifer. For years many people thought the Aquifer was bottomless. Today we are being faced with the reality that the Aquifer supply is limited. There are some estimates that state that parts of the aquifer could be completely dry in less than 25 years. We cannot ignore this problem any longer. With an accurate assessment of the Aquifer levels we will be able to more efficiently focus our efforts at preserving the resources of the Ogallala.

Of the eight states affected by the lowering levels of the Ogallala Aquifer, Kansas has taken a significant leadership role in saving its usable life. Without the combined efforts coming out of Kansas, the Western States Water Council would be far from where they are today. Thanks to the Kansas Water Office, the Kansas Geological Survey, and the Mayo Commission, and the Western States Water Council we are taking significant steps toward a unified conservation plan that will serve all eight Ogallala states.

I would like to thank my Colleague Senator Bingaman, who has been absolutely instrumental in getting these measures through the Senate. I encourage all of the members of this Committee to look closely at what this bill will do and support passage of this bill through the Senate. Having the support of members of this Committee will be truly beneficial in getting this bill passed. I would especially hope that the members of this Committee from the High Plains states would join Senator Bingaman, Senator Domenici, and myself in sponsoring this bill.

I commend you for holding this hearing today. It is my hope that my Colleagues, not only from the eight High Plains States, but also throughout the Senate will see how important this legislation is at preserving the usable life of the Ogallala Aquifer. We were successful in getting this bill passed last year, and I would think this is something we could rapidly achieve again during these early days of the 108th Session of Congress.

Again, thank you for holding the hearing. And thank you for allowing me to come before your Committee today to speak about this bill. I look forward to working with you in the near future in bringing this bill to the Senate floor for passage.

Senator MURKOWSKI. Thank you, Senator. Appreciate you taking the time to come before the subcommittee this afternoon.

Let us see. We do have also with us this afternoon our administration witness. This is Mr. William M. Alley, the Chief of the U.S. Geological Survey's Office of Groundwater. He will also be testifying on S. 212.

And just as—if you want to come and join us at the table.

As I understand, this legislation was introduced last year, Senator Bingaman, by yourself and passed the Senate, but that—there were some concerns at that time. And I do understand that the concerns have been addressed, and changes have been made to the legislation accordingly.

It was my desire to have this hearing this afternoon to just understand a little bit better what we have before us. So I appreciate, Mr. Alley, you coming this afternoon and would welcome your testimony.

**STATEMENT OF WILLIAM M. ALLEY, CHIEF, OFFICE OF
GROUND WATER, U.S. GEOLOGICAL SURVEY, DEPARTMENT
OF THE INTERIOR**

Mr. ALLEY. Thank you for the opportunity to provide the views of the Department of the Interior on S. 212. In the interest of time, I also will summarize the written comments, which have been submitted to the committee.

The administration agrees with the committee concerning the importance of ground water monitoring and the coordination of

monitoring efforts among Federal, State, and local agencies. We especially appreciate the bipartisan efforts of the sponsors of the bill to address this important issue and the emphasis within the bill on the need for sound science.

The administration does have a few concerns with the bill. The goals of the bill can be achieved without legislation through better coordination of existing Federal and State programs. And the total costs are uncertain. Funding for this program is not included in the fiscal year 2004 President's budget and will be subject to available resources.

The irrigation water pumped from the aquifer has made the High Plains one of the Nation's most important agricultural area. The intense use of ground water has caused major declines in ground water levels, raising concerns about the long-term sustainability of irrigated agriculture. The changes are particularly evident in the central and southern parts of the High Plains where more than 50 percent of the aquifer has been dewatered in some areas.

The bill directs the Secretary of the Interior, acting through the USGS and in cooperation with the State geological surveys and water management agencies, to establish and carry out a program of characterization, mapping, modeling, and monitoring of the High Plains aquifer. The role identified for the Department of the Interior is consistent with USGS leadership in monitoring, interpretation, research. And the USGS has been active in a number of programs and investigations in the High Plains and has offices in each of the eight States.

We carried out the first comprehensive quantitative study of the High Plains aquifer in the late 1970's through the Regional Aquifer System Analysis Program. We continued to provide ground water models in some parts of the High Plains, although an overall assessment of the aquifer is now over 2 decades old.

In response to the water level declines, the ground water monitoring program was begun across the entire High Plains in 1988 to assess annual water level changes, an effort that required collaboration amongst Federal, State, and local entities. Water levels continued to decrease in many parts of the aquifer, but monitoring has indicated that the overall rate of decline has slowed somewhat during the past two decades, a change attributed to improved irrigation and cultivation practices, decreases in irrigated acreage, and above-normal precipitation during parts of this period. More in-depth studies would be required to determine the relative importance of these particular factors.

We recognize the need to ensure that any USGS monitoring activities should complement State monitoring activities. In order to ensure cooperation between USGS and non-Federal communities, S. 212 requires that the Federal share of the cost of an activity be no more than 50 percent of the total of that activity. This is consistent with our earlier recommendation and thus resolves that particular issue as noted.

And also in testimony on an earlier version of the bill, the Department testified that we were advised by the Department of Justice that sections three and four unconstitutionally required that States take certain actions. The committee has made revisions in

S. 212 in an effort to address these concerns. The Department of Justice has reviewed the bill and advised us that the new bill meets their concerns.

In summary, a reliable source of ground water is an essential element of the economy of the communities in the High Plains aquifer. The goals of the bill are commendable. It contains provisions that are well within the scope and expertise of the USGS. And it emphasizes a high level of coordination between the Department of the Interior and the States in addressing an issue of significant economic concern to the nation. However, the administration has some concern for the bill. And any new funding would remain subject to available resources.

Thank you, Madam Chairman, for the opportunity to present this testimony. I am pleased to answer any questions that you or others may have.

[The prepared statement of Mr. Alley follows:]

PREPARED STATEMENT OF WILLIAM M. ALLEY, CHIEF, OFFICE OF GROUND WATER,
U.S. GEOLOGICAL SURVEY, DEPARTMENT OF THE INTERIOR

Madam Chairman and Members of the Committee, thank you for the opportunity to provide the views of the Department of the Interior (DOI) on S. 212, the "High Plains Aquifer Hydrogeologic Characterization, Mapping, Modeling, and Monitoring Act." The Administration agrees with the Committee concerning the importance of ground-water monitoring and coordination of monitoring efforts among Federal, State, and local entities. We especially appreciate the bi-partisan efforts of the sponsors of the bill to address this important issue and the emphasis within the bill on the need for reliance on sound science.

However, the Administration has a few concerns with this bill. The goals of this bill can be achieved without legislation, through better coordination of existing Federal and State programs. Further, the U.S. Geological Survey (USGS) and DOI are in the process of revising their strategic plan; while important, the proposed program would have to be taken into account among all DOI priorities as the strategic plan develops. The total costs of the proposed program are uncertain. Funding for this program is not included in the fiscal year 2004 President's budget, and would be subject to available resources.

Irrigation water pumped from the aquifer has made the High Plains one of the Nation's most important agricultural areas. The intense use of ground water has caused major declines in ground-water levels raising concerns about the long-term sustainability of irrigated agriculture in many areas of the High Plains. The changes are particularly evident in the central and southern parts of the High Plains, where more than 50 percent of the aquifer has been dewatered in some areas.

The bill directs the Secretary of the Interior, acting through the USGS, and in cooperation with the State geological surveys and the water management agencies of the High Plains Aquifer States, to establish and carry out a program of characterization, mapping, modeling, and monitoring of the High Plains Aquifer. This would be accomplished through mapping of the configuration of the High Plains Aquifer, and analyses of the rates at which ground water is being withdrawn and recharged, changes in water storage in the aquifer, and the factors controlling the rate of flow of water within the aquifer. Effective coordination of the data collection and monitoring efforts requires that any data collected under the program be consistent with Federal Geographic Data Committee data standards and that metadata be published on the National Spatial Data Infrastructure Clearinghouse.

The role identified for DOI in this bill is consistent with USGS's leadership role in monitoring, interpretation, research, and assessment of the earth and biological resources of the Nation. As the Nation's largest water, earth, and biological science, and civilian mapping agency, USGS conducts the most extensive geologic mapping and ground-water investigations in the Nation in conjunction with our State and local partners. Furthermore, the USGS has been active in a number of programs and investigations that involve the High Plains Aquifer, specifically.

The USGS has offices in each of the eight States underlain by the High Plains Aquifer (Texas, Oklahoma, Kansas, Nebraska, South Dakota, Wyoming, Colorado, and New Mexico). These offices have a long history of ground-water monitoring and

assessment activities within the aquifer. Existing USGS programs that are highly relevant to High Plains Aquifer issues include the Ground-Water Resources Program, National Cooperative Geologic Mapping Program, National Water-Quality Assessment (NAWQA) Program, National Streamflow Information Program, Water Resources Research Act Program, and the Cooperative Water Program.

The USGS carried out the first comprehensive quantitative study of the High Plains Aquifer in the late 1970's through the Regional Aquifer-System Analysis (RASA) Program. With our partners in the Cooperative Water Program, we continue to provide ground-water models to evaluate the present and future state of the aquifer in some parts of the High Plains, although an overall assessment of the aquifer is now over two decades old.

In response to the water-level declines, a ground-water monitoring program was begun across the High Plains in 1988 to assess annual water-level changes in the aquifer, an effort requiring collaboration among numerous Federal, State, and local water-resource agencies. Water levels continue to decrease in many areas of the aquifer, but the monitoring has indicated that the overall rate of decline of the water table has slowed during the past two decades. This change is attributed to improved irrigation and cultivation practices, decreases in irrigated acreage, and above normal precipitation during this period. More in-depth studies are required to determine the relative importance of these different factors and to improve estimates of recharge rates, which is crucial to projecting future water levels and their response to changing agricultural practices.

We recognize the need to ensure that any USGS monitoring activities should complement State monitoring activities. In order to ensure cooperation between USGS and the non-federal community, S. 212 requires that the Federal share of the costs of an activity funded under subsection (d)(2)(B) be no more than 50 percent of the total cost of that activity. This is consistent with our earlier recommendation to include language similar to that currently contained in the National Cooperative Mapping Act (43 U.S.C. Chapter 2, Section 31 c.).

In testimony on an earlier version of this bill, S. 2773 in the 107th Congress, the Department testified that we were advised by the Department of Justice that Sections 3 and 4 unconstitutionally required that States take certain actions. We recognize that the Committee has made revisions in S. 212 in an effort to address these concerns. The Department of Justice has reviewed the bill and advises that the new bill meets their concerns.

In summary, a reliable source of ground water is an essential element of the economy of the communities on the High Plains. The goals of the bill are commendable, it contains provisions that are well within the scope and expertise of the USGS, and it emphasizes a high level of coordination between the Department of Interior and the States in addressing an issue of significant economic concern to the Nation. However, the Administration has concerns with the bill and any new funding would remain subject to available resources.

Thank you, Madam Chairman, for the opportunity to present this testimony. I will be pleased to answer questions you and other members of the Committee might have.

Senator MURKOWSKI. Thank you, Mr. Alley, for your testimony.

Just very briefly, you stated that the administration does have concerns. You have outlined a couple of them, the uncertainty about the total cost. But you also mentioned at the outset that you felt it could be achieved, that the goals of the legislation could be achieved, without legislation.

Mr. ALLEY. Yes, the bill calls for better coordination of Federal and State programs. And so obviously trying to get a larger perspective on the High Plains aquifer is contingent upon essentially an overarching view of the aquifer. And so through better coordination of existing programs, that would provide some of that type of information.

Senator MURKOWSKI. All right. And then if—you have indicated that the concerns the Department of Justice had for the previous bill have been met with the changes that we have before us. But you have not clearly stated what the administration's position is. I think you have just left it to say that there are concerns.

Mr. ALLEY. I think that the two concerns that were raised were, one, whether or not the issues could be addressed through better coordination of existing activities. And the second residual concern would be the costs that are uncertain and how that plays out with other priorities.

Senator MURKOWSKI. As to the costs themselves, which you keep referring to as uncertain, do you have an estimate, a ballpark, in terms of what the cost of the proposed program may be?

Mr. ALLEY. I do not, no.

Senator MURKOWSKI. So it is that uncertain.

Mr. ALLEY. It is uncertain, yes.

Senator MURKOWSKI. All right.

At this time, I would like to go to the members of the committee. Senator Bingaman, if you would care to ask your questions or make an opening statement.

**STATEMENT OF HON. JEFF BINGAMAN, U.S. SENATOR
FROM NEW MEXICO**

Senator BINGAMAN. Well, thank you very much, Madam Chairman. Congratulations on your first meeting of the subcommittee. And I am honored that we are the first item up.

Let me just make a couple of statements first. And then I will ask a couple of questions.

This is legislation that I worked with Senator Brownback and Senator Domenici on in the prior Congress and again this time, when we introduced the bill. There is a chart that we are going to put up here, that we will also give you a small copy of, that shows the Ogallala aquifer. It is one that the USGS prepared. I am sure Mr. Alley has seen it many times.

But it tries to identify the areas in the aquifer that are being depleted most rapidly. And that is the red areas. Particularly, we are concerned in those southern States on the east side of New Mexico. Of course, you see that the aquifer does come into our State. Much of it is in Texas and then some in Arizona and Colorado and Kansas and up into Nebraska, and even into Wyoming, I would point out.

But our intent in this legislation is quite clear. And that is that we believe since this is a multi-State issue and since this aquifer underlays several States, it is important that we use Federal resources to assist the State geologists, to assist the water users in these communities that depend upon this aquifer, to understand what the extent of the resource is, how it is changing, how it is being depleted. And if we can pass this legislation, it will bring a focus and a real increased priority to doing this work. That is the hope behind the legislation.

Now I understand that if the administration had this as a top priority themselves, it may be that legislation like this would not be needed. But in the past, it has not been a priority for the prior administration or for this administration. And I think they have provided assistance where they could.

[The prepared statement of Senator Bingaman follows:]

PREPARED STATEMENT OF HON. JEFF BINGAMAN, U.S. SENATOR
FROM NEW MEXICO

I am pleased that the Subcommittee on Water and Power is conducting this hearing today on S. 212, the High Plains Aquifer Hydrogeologic Mapping, Characterization, Modeling and Monitoring Act. This is bi-partisan legislation, co-sponsored by my friends Senator Brownback and Senator Domenici, which I hope will be considered very soon by the full Committee and approved by the Senate. This legislation was passed last Congress by the Senate by unanimous consent.

The High Plains Aquifer, comprised in large part by the Ogallala Aquifer, is experiencing alarming rates of decline in many areas. This Aquifer is the lifeblood of many communities, ranches and farms throughout the Great Plains. It plays a key role in providing water supplies to parts of eastern New Mexico.

According to the U.S. Geological Survey, one of the largest areas of the Aquifer with the greatest water-level decline from 1980 to 1999 is found in eastern New Mexico and western Texas. That area had from 50 to 175 feet of water-level decline from 1950 to 1980 and more than 60 feet of water-level decline from 1980 to 1999.

The bill establishes a cooperative program for mapping, modeling and monitoring the Aquifer to be carried out by the USGS and the State Geological Surveys of participating High Plains Aquifer States. Under the bill, substantial funding would be made available to the State Geological Surveys and for grants for state and local government agencies, academic institutions, and other entities undertaking work related to the Aquifer.

No comprehensive modeling of the Aquifer has taken place for over two decades. The bill will ensure that adequate information is available to those who depend on the Aquifer, including ranchers, irrigators and communities. It will also provide a needed source of funding to allow states, academic institutions, and other state and local entities to continue the important work of mapping, modeling and monitoring the Aquifer.

This bill is one of two pieces of legislation relating to the High Plains Aquifer that I introduced last Congress. The other bill served as the basis for a provision that was included in last year's Farm Bill. Under that legislation, \$25 million was provided to farmers and ranchers in the High Plains Aquifer states as incentive payments to assist them in installing water conserving irrigation systems and for other water conservation measures. I hope that during this Congress we will be able to enact this second bill, to provide farmers and ranchers, communities, and others with enhanced information relating to the Aquifer.

I want to thank the Subcommittee chair for conducting this hearing and thank the witnesses for their testimony.

Senator BINGAMAN. But I believe Mr. Alley made the point, and I will just ask him this question, that it is really a couple of decades old now, our last comprehensive survey of this underground aquifer. Is that your testimony?

Mr. ALLEY. Aside from the water level monitoring that you portray in the figure it was really in the late 1970's that the last look at the entire aquifer was taken.

Senator BINGAMAN. Yes. And our concern, frankly, is that there is a lot of anecdotal evidence that there has been significant depletion at different places since then. Some of it is reflected on this map. We think we may have not captured it all. And that is why the idea was that we should do modeling and monitoring and mapping of the underground aquifer in a more comprehensive way and provide the information.

I am disappointed, frankly, that we got this statement from the American Farm Bureau Federation saying that they oppose the bill because they see it as a move toward Federal management of ground water. That is not the purpose of the bill. That is not what the bill says. But I think to suggest that each State is adequately dealing with this issue on their own is just not the real world. They are not.

I think the people responsible at the State levels would be the first to acknowledge that they need this additional help. I think the

State geologists are the strongest proponents of this legislation. So I very much hope we can pass this, as we did in the last Congress. It passed the Senate unanimously in the last Congress. I hope it can pass again this time. And I hope we can get it to the President.

Senator MURKOWSKI. Thank you, Senator.
Senator Thomas.

**STATEMENT OF HON. CRAIG THOMAS, U.S. SENATOR
FROM WYOMING**

Senator THOMAS. Thank you. Thank you, Madam Chairman. And I kind of got a last minute introduction to this bill. I believe it passed on the last night of the Senate. Was that not correct?

Senator BINGAMAN. I think virtually everything that came out of this committee passed the last night of the Senate.

Senator THOMAS. Exactly. So it really was not considered by the Senate. I am concerned about it, and I need to know more about it, and I intend to look at it. The American Farm Bureau, as you pointed out, indicates that historically the States have had this jurisdiction and, I suppose, will continue to. But then the question is: What is this Federal involvement going to be?

There have been comprehensive studies going on; Texas A&M University, Kansas State University. The High Plains aquifer has been studied and is being studied. Apparently, there is a great deal of information out there now. It is interesting that the Geological Survey has indicated that it can be achieved without the legislation, which I think we ought to pay some attention to.

It is also that the funding in this program is not included in the 2004 budget. So that could have something to do with it. I notice that from Texas they are—they think the bill does not address the several issues of concern there, and that the Department of Agriculture, Natural Resource Conservation Service is already leading this, and question the need for it, of course, as the same thing is true in Colorado, where, however well intentioned it is, they claim that perhaps it ought to be recast for the States to be able to do what is done here. And I know there is controversy about that.

According to my Wyoming people, the Association of Conservation Districts, why, \$65 million has been authorized to the Natural Resource Conservation Service to do these kinds of things. \$45 million will go to High Plains aquifer States. And so if there is to be funding there, this question is already there and already a way to do it.

So I think there is some concerns about it that are going to have to have a considerable amount of discussion and I think, frankly, with more people than have come around to this particular hearing.

I guess I have one question I would like to ask. If we already have existing programs in the new farm bill, is that why we do not need another Federal program?

Mr. ALLEY. I do not think there are many programs in the farm bill related to ground water resource assessment. I am not sure on that account, however.

Senator THOMAS. I think there are; I think the Natural Resource Conservation Service. Are you familiar with that?

Mr. ALLEY. Yes.

Senator THOMAS. And you do not think they are able to do that?

Mr. ALLEY. They are probably primarily looking at management practices on the land surface and evaluating what the best management practices are, but probably not looking at the impacts on the ground water system itself.

Senator THOMAS. They are working with the States, however, to do that.

Mr. ALLEY. Probably, yes.

Senator THOMAS. Well, in any event, what method are you going to use for monitoring, if you do this?

Mr. ALLEY. The principal method of monitoring would be basic water level monitoring; in other words, observation wells that have water levels measured on a fairly frequent basis.

Senator THOMAS. And we have those now?

Mr. ALLEY. We have those now.

Senator THOMAS. Well, I will not take more of your time. But I guess I just want to express the concern that many people have and that—and, frankly, that, by many people's view, this is somewhat of an intrusion of the Federal Government into the management of underground water, which has largely been—now you say, "Well, this does not have anything to do with management." But I do not think that is the view that many people have.

The administration testified last year that existing programs could accomplish the goal without this. What programs exist now that would do that?

Mr. ALLEY. I am not sure that there is an overarching program at the moment—aside from the water level monitoring, which is a collaborative effort between the States and the USGS.

Senator THOMAS. That is what it is all about, is water monitoring, right?

Mr. ALLEY. For the water monitoring component, yes.

Senator THOMAS. Well, I hope we have some more input into this bill before we seek to go forward, because there does seem to be a substantial amount of question.

Thank you, Madam Chairman.

Senator MURKOWSKI. Thank you, Senator.

Senator BINGAMAN. Madam Chairman, maybe I could just shed some light on the farm bill provisions that related to this that Senator Thomas was asking about, because I also proposed those. And we were able to get them included in last year's farm bill.

What we did there was to get some funds that could be used by the Federal agency, the Natural Resource Conservation Service, to assist water users that voluntarily chose to improve their irrigation practices or to go to more water efficient irrigation practices. Essentially, the Federal Government would step up and pay half the cost of that, if you wanted to shift over to better sprinklers so that you were not using so much water and were not wasting so much water.

And we had \$25 million identified in last year's farm bill for the use in this Ogallala aquifer area for that. But that was a strictly voluntary program that did not include within it anything related to the monitoring and mapping and modeling of the underground aquifer. This part of it was not an appropriate thing to include in

the farm bill. And this was, therefore, moved as a separate piece of legislation.

Senator MURKOWSKI. Thank you, Senator.

Just very quickly, Mr. Alley, I understand that the USGS has had some ongoing studies that relate to the aquifer. Do you have any idea how much has been spent on these research efforts?

Mr. ALLEY. I do not know the amount that has been spent. The Republican Basin in Colorado, Kansas, Nebraska, and the panhandle of Oklahoma are the two places where we have looked at the aquifer in some detail most recently. Most of the other studies have been related to localized studies or specialized data collection activities, with the exception of our National Water Quality Assessment Program, which is focused on water quality and is in fact looking at the entire High Plains. But it is limited to an evaluation of the water quality aspects of the aquifer.

Senator MURKOWSKI. Okay. Thank you.

Senator Bingaman.

Senator BINGAMAN. Yes, Madam Chairman. Let me mention one other option. Senator Thomas's concern is that some of the States did not want this done. I would have no problem with writing a provision in that States that did not want to participate in this would certainly have the option of not participating. I think that would be an appropriate way to go.

If Wyoming or Nebraska or Colorado had any objections to participating, I think they should certainly have the right to not participate. But it would be a very useful thing in my State of New Mexico to have this assistance in modeling and monitoring what is going on in the underground aquifer.

Senator THOMAS. Madam Chairman—

Senator MURKOWSKI. Just one moment. I want to clarify.

It was my understanding, Senator Bingaman, that this was elective by the States. Is that not correct?

Senator BINGAMAN. It is. You are correct. And I stand corrected on that. They already have an opportunity. Yes. Every State opts in if they want to and participates or has the option to stay out.

Senator MURKOWSKI. Okay.

Senator Thomas.

Senator THOMAS. On the USGS past and current activities, the sheet you publish, what is new, major aquifer study, Ogallala formation, Northern High Plains. This is for 2002. Activities for fiscal year 2001, major aquifer study, Ogallala formation, Southern High Plains. It sounds as if you have already been doing this substantially. Why do we need to do more?

Mr. ALLEY. I am not sure where you are reading from. But my guess is it is probably related to the National Water Quality Assessment study, that I previously mentioned.

Senator THOMAS. Well, it is from your Department. I should think you might become familiar with it, if you are going to testify on this bill.

Senator MURKOWSKI. Senator Bingaman.

Senator BINGAMAN. Yes. Let me just also clarify. Our bill would, assuming that we get some appropriation to support this authorized activity, our bill makes funds available to States to do a lot of this monitoring as well, which they do not, USGS does not now

have that authority, as I understand it, to turn over its funds to the States to do this monitoring.

Mr. ALLEY. That is correct, Senator.

Senator MURKOWSKI. Well, if I can follow up then, Mr. Alley. If the funding is then going into the States, what organizations—in terms of the management, what organizations within the States are you working with, is USGS being worked with?

Mr. ALLEY. Currently?

Senator MURKOWSKI. Currently.

Mr. ALLEY. Currently, we are working with water management districts and State water management agencies within the States through the Cooperative Water Program.

Senator MURKOWSKI. Okay. So—and so they are implementing it on behalf of USGS.

Mr. ALLEY. The Cooperative Water Program works in a way that, where there is a Federal interest and a State interest investigating particular aspects of water resources, then we essentially have funding, part funding from Federal and part funding from the States, to carry out those kinds of investigations. So they are focused on particular issues within particular States.

Senator MURKOWSKI. Okay. Are there further questions?

Senator THOMAS. Just again an observation: According to the Natural Resource Conservation Service, \$65 million was authorized and appropriated. \$45 million go to High aquifer States, and \$20 million is distributed nationwide. So, you know, in the Agriculture Department, they have already been there. Now you may say, “Well, they are not doing the same thing.” But how many times are we going to have the same people from the Federal Government out there doing these things, I think is a question we have to ask.

Senator MURKOWSKI. Senator Bingaman.

Senator BINGAMAN. Yes. I do think that what that funding is for is improved water conservation practices, which I think is what we included in the farm bill. And what we are trying to do here, of course, is to provide assistance with the monitoring and modeling and mapping of the underground aquifer, which is obviously not done through that agency, but through USGS and the State geologists primarily.

Senator MURKOWSKI. Mr. Alley, before we let you go, I will ask again, because I am still not certain in terms of the response that you gave me as to the administration’s position—

Mr. ALLEY. Okay.

Senator MURKOWSKI [continuing]. Can you elucidate just—

Mr. ALLEY. The two points?

Senator MURKOWSKI [continuing]. Just yes or no?

Mr. ALLEY. Yes or no to?

Senator MURKOWSKI. Yes or no: Does the administration support the legislation that we have?

Mr. ALLEY. I would say there are two concerns associated with the bill that would make it difficult to say completely yes to the bill without reservations.

Senator BINGAMAN. And the two concerns are, again?

Mr. ALLEY. The two concerns would be whether or not—

Senator BINGAMAN. It is not funded.

Mr. ALLEY. It is not. There is no funding for it.

Senator BINGAMAN. Right.

Mr. ALLEY. And the other one would be whether or not these same goals could be achieved through better coordination of existing activities.

Senator MURKOWSKI. Okay. Well, I appreciate you coming before the subcommittee this afternoon. Thank you.

As I indicated earlier, this hearing is also examining S. 220, sponsored by Senator Fitzgerald, and its companion legislation, H.R. 397. These would reinstate an FERC license of a four-megawatt hydroelectric project in Illinois and extend the deadline for the commencement of construction.

These bills would allow the city of Carlyle, Illinois, to construct the hydroelectric power facility on an existing U.S. Army Corps of Engineers dam on the Kaskaskia River. And in addition to benefit to the city, this project will provide a renewable energy source for surrounding communities.

Senator Fitzgerald's legislation on this issue was reported during the last Congress by the Energy Committee and passed the Senate. The House was not able to consider it at that time. The administration, which has submitted testimony on both S. 220 and H.R. 397, does not oppose the legislation.

And as I indicated earlier, we will be taking these up in markup next Wednesday.

And with that, there is nothing further to come before the subcommittee, and we stand adjourned.

[Whereupon, at 3:05 p.m., the hearing was adjourned.]

APPENDIX

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

STATEMENT OF PAT WOOD, III, FEDERAL ENERGY REGULATORY COMMISSION

Madam Chairman and Members of the Subcommittee:

I appreciate the opportunity to comment on S. 220 and H.R. 397, identical bills to reinstate the surrendered license and to extend the commencement of construction deadline applicable to a hydroelectric project licensed by the Federal Energy Regulatory Commission in the State of Illinois.

Section 13 of the Federal Power Act requires that construction of a licensed project be commenced within two years of issuance of the license. Section 13 authorizes the Commission to extend this deadline once, for a maximum additional two additional years. If project construction has not commenced by this deadline, the Commission is required to terminate the license. Section 13 also authorizes the Commission to extend the deadline for completion of construction when not incompatible with the public interest.

The Project

On June 26, 1997, the Commission issued a license to Southwestern Electric Cooperative, Inc. (Southwestern) to construct, operate, and maintain the 4-megawatt Carlyle Hydroelectric Project No. 11214, to be located at the U.S. Army Corps of Engineers' Carlyle Dam on the Kaskaskia River in Clinton County, Illinois. Construction of the project entails installing an intake structure, five intake conduits, a powerhouse with five 800-kilowatt generating units, a transmission line, and appurtenances. The deadline for the commencement of project construction was June 26, 1999.

By filing of March 3, 1999, Southwestern advised the Commission that it would be applying to surrender the project license. On March 27, 2000, Southwestern filed an application to surrender the license, stating that the project was no longer economically feasible. No project construction had commenced. The Commission accepted the surrender, effective June 24, 2000.

S. 220 and H.R. 397

Both bills would authorize the Commission, upon request of the licensee, after reasonable notice and in accordance with the requirements of Section 13 of the Federal Power Act, to reinstate the surrendered license for Project No. 11214 and to extend the deadline for commencement of project construction for three consecutive 2-year periods beyond the date that is four years after the issuance date of the license.

As a general matter, enactment of bills authorizing or requiring commencement-of-construction extensions for individual projects delays the development of an important energy resource and therefore has not been recommended. In cases where project-specific extensions are authorized by the Congress, it has been the policy of prior Commission chairmen that such extensions not go beyond ten years from the date the project was licensed. If a licensee cannot meet a ten-year deadline, then as a general rule the license should be terminated, making the site once again available for such uses as current circumstances may warrant, based on up-to-date information on economic and environmental considerations. I have no reason to depart from this extension policy.

S. 220 and H.R. 397 would provide for extensions of the deadline for commencement of construction that would not exceed ten years from the date the license was issued. Since this time period is within the ten-year deadline, I have no objection to the bills' enactment.

STATEMENT OF PETER SCHOLLE, PH.D., STATE GEOLOGIST AND DIRECTOR, NEW MEXICO BUREAU OF GEOLOGY AND MINERAL RESOURCES, NEW MEXICO INSTITUTE OF MINING AND TECHNOLOGY SOCORRO, NM AND M. LEE ALLISON, PH.D., STATE GEOLOGIST AND DIRECTOR, KANSAS GEOLOGICAL SURVEY, THE UNIVERSITY OF KANSAS, LAWRENCE, KS

Mr. Chairman and Members of the Committee, we are submitting this testimony on behalf of the High Plains Aquifer Coalition in support of Senate Bill 212—The High Plains Aquifer Hydrogeologic Characterization, Mapping, Modeling and Monitoring Act. The Coalition is a joint effort between the geological surveys of the eight High Plains Aquifer states and the U.S. Geological Survey. The Coalition objective is to improve the geological characterization and understanding of the High Plains aquifer. We appreciate the Committee holding a hearing on this important issue.

INTRODUCTION

A reliable source of water is essential to the well-being and livelihoods of people in the High Plains region where ground water is used for drinking water, ranching, farming, and other purposes. Many areas of the High Plains aquifer have experienced a dramatic depletion of this resource. Large-volume pumping from this aquifer has led to steadily declining water levels in the region, and the area faces several critical water-related issues.

Let us begin with some facts about the aquifer. The High Plains aquifer is the most widespread blanket sand and gravel aquifer in the nation. It encompasses one of the major agricultural regions in the world and underlies 174,000 square miles, including parts of eight states—New Mexico, Texas, Oklahoma, Kansas, Colorado, Nebraska, Wyoming and South Dakota (Figure 1).*

Approximately 2.3 million people live within the High Plains, and the aquifer supplies drinking water for 82 percent of them. Agriculture, however, represents both the dominant land and water use in the region (94 percent of groundwater withdrawals from the aquifer are for irrigation). The High Plains aquifer is the most intensely pumped aquifer in the United States, yielding about 30 percent of the nation's ground water used for irrigation. During 1995, total water use in the High Plains was estimated to be 19.9 billion gallons per day and, with the exception of the Platte River Valley of Nebraska, 92 percent of that need was met by aquifer water.

Although High Plains dry-land farming is possible, availability of "water on demand" from the aquifer has made abundant, reliable crop yields a reality. As a result, the region accounts for about 19 percent of total U.S. production of each wheat and cotton, 15 percent of our corn, and 3 percent of our sorghum. In addition, the region produces nearly 18 percent of U.S. beef and is rapidly becoming a center for hog and dairy industries. Those numbers alone should elevate concern about the sustainability of the aquifer from a regional to a national level.

AQUIFER CHARACTERIZATION

Aquifers are underground deposits containing permeable rock or sediments (silts, sands, and gravels) from which water can be pumped in usable quantities. Although the High Plains aquifer often is discussed as a single entity, it is a regional system composed of eight smaller units that are geologically similar and hydrologically connected—that is, water can move from one aquifer to the other. The aquifer is unconfined, that is, it is not confined under pressure below impermeable rocks as artesian water is. The aquifer consists of a heterogeneous mixture of loose clays, silts, sands, and gravels that formed over millions of years by ancient river systems. The Ogallala Formation is the principal geologic unit, but the aquifer as a whole also includes deposits that are older and younger than the Ogallala. In some locations, the Ogallala Formation crops out at the surface, forming a naturally cemented rock layer called mortarbeds.

Aquifer characteristics are determined in large part by geology. The High Plains aquifer is composed mainly of silt, sand, gravel, and clay—rock debris that washed off the face of the Rocky Mountains and other more local sources over the past several million years. The aquifer varies greatly from place to place: thick in some places, thin in others; permeable (able to transmit water easily) in some places, less so in others. Where the deposits are thick and permeable, water is easily removed and the aquifer can support large volumes of pumping for long periods. In most areas, this water is of good quality.

* Figures 1-4 have been retained in subcommittee files.

Beneath the High Plains aquifer is much older, consolidated bedrock, usually limestone, sandstone, or shale. In some places this bedrock holds enough water to be called an aquifer, and it may be connected to the overlying aquifer. Some layers of the underlying bedrock contain saline water; where these are directly connected to the High Plains aquifer, they pose a threat to water quality.

WATER RESOURCES IN THE HIGH PLAINS AQUIFER

Usable water in the High Plains aquifer is in the pore spaces between particles of sand and gravel. This water (called ground water) accumulated slowly—in some of the deeper parts of the aquifer, over tens of thousands of years. In the subsurface, water in the aquifer generally moves slowly from west to east, usually at the rate of tens of feet per year.

Water volumes and use are measured in various ways. One measure is an acre-foot, or the amount of water necessary to cover an acre of ground (a parcel about the size of a football field) with a foot of water. An acre-foot equals 325,851 gallons of water.

Another measure of ground water is saturated thickness. The saturated thickness of the High Plains aquifer is the vertical distance between the water table and the base of the aquifer. Saturated thickness is commonly measured in feet but “feet of saturated thickness” is not the same as feet of actual water. Only about 10 to 25 percent of the aquifer volume is pore space that can yield extractable water. Therefore, in an aquifer with 17 percent pore space, removing 1 acre-foot of water causes the water table to drop by about 6 feet. The saturated thickness of the aquifer can exceed 1,000 feet, but averages about 200 feet. Depth to water table ranges from 0 to 500 feet, with an average of about 100 feet. Much greater saturated thicknesses were common before the onset of large-scale irrigation.

Ground water can also be measured in terms of its availability: how much water can be removed by a well over short periods. Large volumes of water can be pumped rapidly (1,000 gallons or more per minute) from the High Plains aquifer in many locations. This contrasts with many areas in the region, where wells generally produce smaller amounts (less than 100 gallons per minute). By way of comparison, a good household well produces 5 to 10 gallons per minute, although many household wells produce less.

Recharge is the natural movement of water into an aquifer, usually from precipitation. Areas of increase can also be the result of increased recharge to the aquifer by one or more of the following factors: greater than normal precipitation; decreased withdrawals; or downward leakage of surface-water irrigation and water from unlined canals and reservoirs. The relatively low rainfall of the region limits aquifer recharge rates and thus provides a long-term limit on sustainable water use. The estimated average annual potential recharge from rainfall ranges from as little as 1/4th of an inch per year in the southwestern portion of the aquifer area to 6 inches in the northeastern portion. Where the aquifer is closer to the earth's surface, where soils are sandier, and precipitation amounts greater, recharge can be significant, as much as 4 to 6 inches per year.

Withdrawals greatly exceeded recharge in many areas since intensive irrigation began in the 1940's. This has resulted in widespread water-level declines, especially in southern areas more than 100 feet in parts of Kansas, New Mexico, Oklahoma and Texas. In some places, irrigation has become impossible or cost prohibitive because of such declines. From 1980 to 1997, the average water level in the aquifer fell 2.7 feet (Figure 2).

Aquifer water generally flows eastward and discharges naturally to streams and springs. Water may also be lost from the aquifer by evapotranspiration or through leakage into underlying rock units. However, pumping from the numerous irrigation wells is the number one cause of groundwater withdrawal. Decreases in saturated thickness of 10 percent or more result in a decrease in well yields and an increase in pumping costs because the pumps must lift the water from greater depths (Figures 3 & 4).

WATER-LEVEL DECLINES IN THE AQUIFER

Large-scale irrigation began in the High Plains in the late 1800's, with the use of ditches to divert water from rivers. As technology improved, groundwater became the major irrigation source because surface water (lakes, rivers, and streams) is relatively scarce in the region. With the advent of large-capacity pumps that were capable of drawing several hundred gallons of water per minute, people began to exploit that ground water. Water was pumped through long pipes or ditches along the edges of a field, then out onto rows of crops, using a technique called flood irrigation.

In the 1950's and 1960's, technological developments led to a dramatic increase in large-scale pumping. In particular, center-pivot irrigation systems—large sprinklers that roll across the land on wheels—allowed people to irrigate uneven terrain, thus opening up large new areas for irrigation. These irrigation methods led to the cultivation of crops, such as corn, that could not previously be grown reliably in the area.

For many years, people believed that the High Plains aquifer contained an inexhaustible amount of water. However, large-volume pumping (mostly for irrigation) eventually led to substantial declines in the water table, and people realized that the amount of water in the aquifer was finite and could be exhausted. Much of the Ogallala portion of the High Plains aquifer has declined since predevelopment, with some areas having declines of more than 60 percent.

WHEN WILL THE AQUIFER RUN DRY?

Perhaps the most common and important question about the High Plains aquifer is: How much longer can it support large-scale pumping? It's a simple question with a complicated answer. First, the aquifer will probably be able to support small, domestic wells far into the future. With proper planning, most cities and towns should be able to provide for their water needs. Second, the future of agricultural use of the aquifer depends on a variety of factors, including the price of irrigated crops, the price and availability of energy (the deeper the water table, the more energy it takes to pump water), climate, and how the water is managed. Third, it is important to remember that the aquifer is not one consistent, homogeneous unit. Rather, it varies considerably from place to place. In places, the aquifer consists of less than 50 feet of saturated thickness and receives little recharge. In other places, the aquifer is far thicker or receives considerably more recharge.

With those qualifications in mind, researchers have made projections about the aquifer, based on past trends in water-level declines. Obviously, the actual future use of water will be affected by commodity prices, energy prices, climate, and management policies. In addition, relatively little data are available for some parts of the aquifer, and projections are not practical in those areas. Assuming a saturated thickness of 30 feet as the minimum amount necessary to support large-scale pumping, researchers concluded that parts of the aquifer are effectively already exhausted in some areas. Other parts of the aquifer are predicted to have a lifespan of less than 25 years, based on past decline trends. However, the biggest share of the aquifer would not be depleted for 50 to 200 years or longer. It is important to remember that these projections are based on past trends, and future changes could alter the actual depletion rate.

WHERE DO WE GO FROM HERE?

Individuals, governmental agencies, and private organizations are all attempting to address issues related to the High Plains aquifer. In addition, several new institutions have recently been proposed to deal with issues concerning the aquifer on a regional basis. Irrigators have implemented a number of techniques that have improved the efficiency with which they use water—using low-pressure application methods on center-pivot systems, for example, instead of spraying water high into the air.

Among the more far-reaching proposals for extending the life of the aquifer is the idea of sustainable development. This is the concept of limiting the amount of water taken from the aquifer to no more than the amount of recharge, and perhaps less, depending on the impact on water quality and minimum stream flows. This level of use is the target of the safe-yield management policies currently in effect in some Groundwater Management Districts in the wetter or thicker parts of the High Plains aquifer. Adoption of a similar policy in other areas of the High Plains aquifer would require a substantial decrease in the amount of water currently used. This would have an impact on the type and amount of crops grown in the area and, in turn, on a variety of economic activities. Because many of the water rights in the High Plains aquifer were established long ago, and thus may have priority, the implementation of sustainable-development approaches to water resources has potentially serious legal implications. Other methods for dealing with the High Plains aquifer are being proposed, discussed, and implemented. All are aimed at extending the life of this crucial resource.

HIGH PLAINS AQUIFER COALITION

Each state manages its water resources differently. The number of state and local water agencies and their duties vary dramatically among the eight High Plains states. None of the eight state geological surveys deal directly with groundwater

management. State geological surveys provide scientific advice to their respective state and local management agencies. Some state surveys focus strictly on the geologic framework in which groundwater exists, others investigate both the geology and the hydrology of groundwater.

Because the structure for conducting hydrogeologic research on the aquifer differs dramatically among states, both the existing knowledge base and ongoing aquifer research efforts vary substantially from state to state. Much of past research was limited by state expertise, budget allocations and cooperation among state agencies. To prevent future inconsistencies among state research efforts and to efficiently utilize existing research data, in June 2000, the geological surveys of the eight states that contain the High Plains aquifer formed the High Plains Aquifer Coalition, in alliance with the U.S. Geological Survey. Coalition members are Kansas Geological Survey, New Mexico Bureau of Geology and Mineral Resources, Nebraska Conservation and Survey Division, Texas Bureau of Economic Geology, Colorado Geological Survey, Oklahoma Geological Survey, South Dakota Geological Survey, Wyoming State Geological Survey, and U.S. Geological Survey.

The purpose of the Coalition is to cooperate in joint investigations and scientific exchanges concerning the earth sciences (including hydrology, geology, geochemistry, geochronology, geophysics, geotechnical and geological engineering and related investigations) on topics of mutual interest. This agreement was specifically undertaken to advance the understanding of the three-dimensional distribution, character, and nature of the sedimentary deposits that comprise the High Plains aquifer in the eight-state Mid-continent region. It recognizes that the distribution, withdrawal, and recharge of groundwater, and the interaction with surface waters is profoundly affected by the geology and the natural environment of the High Plains aquifer in all eight States—New Mexico, Texas, Oklahoma, Colorado, Kansas, Nebraska, South Dakota, and Wyoming—thereby establishing a commonality of interests among the Surveys and citizens of these states.

The Geological Surveys agreed that reaching a fuller understanding of the three-dimensional framework and hydrogeology of the High Plains Aquifer is necessary to provide local and state policymakers with the earth-science information required to make wise decisions regarding urban and agricultural land use, the protection of aquifers and surface waters, and the environmental well being of the citizens of this geologically unique region.

RESEARCH NEEDS

Through past research, we have learned that the aquifer consists of many subregions or smaller units. Past research also helped identify the need to focus future efforts on geological and hydrological characterization, mapping, modeling and monitoring of aquifer subunits. The eight state geological surveys and the U.S. Geological Survey, in consultation with state and local water agencies and groups, have agreed on the need for comprehensive understanding of the subsurface configuration and hydrogeology of the High Plains Aquifer. Improved knowledge in these areas will refine our understanding of the aquifer and provide better tools and strategies for long-term, coordinated aquifer management.

The High Plains Aquifer Coalition is in the early stages of developing a cooperative regional strategic plan for scientific research and collaboration that will lead to a more detailed understanding of what research is required in the region. Major research questions in the High Plains aquifer include: rates and controls on recharge, relationships among saturated thickness, geologic character, and well yield, relationship among water levels, water use, and aquifer lifetime, impacts of climate changes, and appropriate scale and precision of data sets for new management approaches.

Topical research areas that we anticipate to be addressed by this legislation include the following:

- Research on the regional geologic framework, particularly the completion of detailed, quadrangle-size (1:24,000 scale) surface and subsurface geologic maps and models in digital format, and the public dissemination of these maps and models, as well as interpretive information derived from them.
- Research on geologic processes relating to deposition of sedimentary sequences—their definition, nature, extent, origin, and bounding surfaces—forming the High Plains aquifer and adjacent aquifers.
- Research on the region's hydrogeology and its fluid systems.
- Research on processes controlling the quantity and quality of water recharging the High Plains aquifer, including the effect of past and future changes in climate and land-use activities on recharge.
- Research on enhancing the recharge of the High Plains aquifer.

- Research on the porosity, permeability, storage capacity, and specific yield of the aquifer.
- Research on the geological and hydrological processes controlling regional differences and temporal changes in water quality.
- Research on the vertical and lateral exchange of groundwater between different formations that make up the High Plains and adjacent aquifers and the effect of such exchange on water quality in the High Plains aquifer.
- Research on the age of groundwater recharging and moving through the aquifer.
- Research on improved techniques for modeling the occurrence, movement, and quality of water in the High Plains aquifer.
- Research on using geophysical techniques, procedures, and models for regional application in mapping subsurface deposits in the Mid-continent region.
- Transfer of technology and information among the Surveys and to both the private and public sectors.

In addition to a possible increase in the density of data for adequate aquifer management the Coalition has identified a preliminary list of other data that would be needed to develop an aquifer management plan. These include:

- Determination of the approach to define aquifer subunits, such as hydrologic boundaries, groundwater divides, hydrological characteristics, aquifer extent, major differences in recharge, or saturated thickness, in conjunction with administrative boundaries.
- Determination of recharge, stream outflow, and ground-water inflow and outflow to give estimates of net sustainable quantities of water to be pumped from areas of different saturated thickness in the High Plains aquifer.
- Estimates of total saturated thickness and how it varies across the aquifer that will be needed for continued pumping.
- Estimates of depth ranges from ground surface to the base of the aquifer.
- Assessment of uncertainties for estimating sustainable yield volumetrics of the aquifer, including practical saturation thickness, water level measures, and depth to bedrock in different areas.
- Determination of methods to reduce the largest uncertainties in calculating the aquifer volume.
- Delineation of critical recharge areas.

WHY THE BILL IS IMPORTANT TO THE REGION AND THE NATION

Extending the life of the High Plains aquifer is essential to the economic viability of the region because there are no realistic alternative water sources. Accurate data about aquifer variability and subunit characteristics will allow us to properly determine current water levels, where and at what rates aquifer water moves, and the variables that impact water recharge rates in aquifer subunits. Knowledge of these factors will allow us to better predict future water levels and ultimately will lead to development of improved approaches for enhancing and extending the life of the aquifer and other factors useful for management purposes.

Federal funds will expand existing capabilities and enhance the effects of ongoing state and local funding. Complementary activities will allow us to build regional databases and understanding of the aquifer. The bill enlists expertise from the U.S. Geological Survey not available at the state level and fosters better coordination with other groups within states and across state boundaries. State and local water users, managers and regulators are increasingly demanding the types and quality of data needed to develop useful and reasonable water management programs.

For example, in Kansas, local Groundwater Management Districts are requesting subunit characterization of the aquifer that requires a more sophisticated and regional understanding of the nature of the aquifer. Current resources for state and federal water agencies are insufficient to meet these increasingly demanding needs.

Senate Bill 212 establishes procedures to ensure that the research carried out is that most critical to water users and managers. The bill would require that broadly based state advisory groups concur with proposed studies; that peer review ensures the research is of the highest quality; that funds are awarded on merit; and that there is technical review of both federal and state activities. These procedures provide an unusually rigorous level of accountability.

In conclusion, this bill is an important first step in a comprehensive program to extend the life of the aquifer. The bill will help ensure that the relevant science needed to address aquifer depletion is available so that we will have a better understanding of the resources of the High Plains aquifer and can ultimately lead to extending the life of the aquifer. We urge this Subcommittee to support Senate Bill

212—The High Plains Aquifer Hydrogeologic Characterization, Mapping, Modeling and Monitoring Act.

Acknowledgements:

Substantive parts of the above text were taken with permission from Buchanan and Buddemeier, 2001, and modified slightly for use here. Dana Woodbury of the Ogallala Aquifer Institute, Garden City, Kansas, assisted in the preparation of this testimony.

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STATEMENT OF THE AMERICAN FARM BUREAU FEDERATION

The American Farm Bureau Federation (AFBF) appreciates the opportunity to provide this statement expressing our concerns about S. 212 and the direct and indirect impacts of such legislation. AFBF is opposed to S. 212 and the bills language pertaining to the High Plains Aquifer.

Historically, the issue of groundwater management in the areas of monitoring, modeling, mapping, water rights and water quality of aquifers has been the jurisdiction of states. Legislative efforts that would move away from states rights to manage groundwater and move toward a federal approach should be rejected.

S. 212 contains numerous components that moves the management of groundwater toward federal jurisdiction. This legislation would require the Secretary of the Interior and the U.S. Geological Survey (USGS) to oversee work to characterize, map, model and monitor the High Plains Aquifer. AFBF opposes the entire federal component as outlined in Sec. 3 and specifically, the establishment and consultation requirements of a Federal Review Panel and the requirement of the Secretary of the Interior to report to the Senate Committee on Energy and Natural Resources the status of the High Plains Aquifer.

Each of the eight states that overlie the High Plains Aquifer have for decades, actively mapped, monitored and managed those portions of the aquifer that exists under their respective borders. The collected data continues to be used by the jurisdictional state agencies to manage the aquifer on a watershed or other sub-regional basis. Data collected to date indicates that water levels of the High Plains Aquifer can vary significantly even within a single watershed. If management strategies must be made to address localized water levels, state agencies or local governing bodies can and do make those decisions. The need to make state and local decisions regarding groundwater management is an example as to why the federal government should not have any jurisdiction over groundwater management, including oversight of mapping, modeling or monitoring of the High Plains or any other groundwater aquifer. S. 212 would move the federal government one step closer to management decisions of state jurisdictional groundwater.

Within the eight-state region of the High Plains Aquifer 4,800 wells are used annually for observing water levels. A search of the Internet produces an overwhelming amount of data that has been collected and used by states, with assistance from the USGS, to chart and characterize the High Plains Aquifer. One project that is ongoing is a comprehensive study being conducted by Texas A&M University, Kansas State University and other state institutions. This project is being conducted on the High Plains Aquifer to further assist state agencies in their management of the aquifer. While this study effort utilizes federal funding, it is not a top down, federally driven groundwater management program. The legislative criteria in S. 212 would be duplicative in nature to ongoing state programs and would allow the federal government to obtain authority over an area that is historically, and should remain, solely state jurisdiction.

The High Plains Aquifer is an open aquifer system containing some 3.3 billion acre-feet of water. The average water table thickness is 300 feet. The overlying land is some of the most fertile and productive agricultural land in the United States. Farmers and ranchers have utilized surface and groundwater resources through irrigation to produce an abundance of crops and products that beneficially add to local and state economies and help feed America and the world. While agriculture is often pointed to as the reason for water table declines in some areas of the High Plains

Aquifer, the fact is that agriculture and specifically irrigation technology, continues to make American agriculture the most efficient groundwater user in the world.

The American Farm Bureau Federation opposes S. 212 and the attempt to impose federal oversight on the characterizing, modeling, monitoring of the High Plains Aquifer.

March 4, 2003.

Hon. PETE DOMENICI,
Chairman, Committee on Energy and Natural Resources, Senate Dirksen Office Building, Washington, DC.

Hon. JEFF BINGAMAN,
Ranking Minority Member, Senate Dirksen Office Building, Washington, DC.

DEAR SENATORS DOMENICI AND BINGAMAN: On behalf of the Western States Water Council, consisting of representatives appointed by the governors of eighteen states, I am writing to express our support for federal authorization of a High Plains Aquifer Hydrogeologic Characterization, Mapping, Modeling and Monitoring Program. We supported such legislation in the last session (S. 2773). We recognize S. 212 has been introduced, which incorporates some changes to S. 2773 that we endorsed, while making other changes that we can not properly address until our meetings later this month. We understand still more changes are being considered. We believe any federal legislation must support existing state water programs and priorities, and provide the maximum flexibility possible to achieve state and federal goals.

Good decisionmaking must be based on sound science and there is a clear need for more information on the extent and nature of the ground water resources of the High Plains Aquifer. We believe that states are primarily responsible for managing ground water resources. We would expect the proposed programs would build on existing cooperative state and federal efforts, consistent with state water resources and water rights administrative laws and policies. In this regard, most western states now require some type of monitoring, measurement, and reporting of ground water pumping as part of their administrative processes. We do not read past or present proposals as creating any such federal requirements, nor does it appear the High Plains states would support such federal requirements. We support a federal program for mapping, modeling, and monitoring—building towards an integrated hydrogeologic characterization of the aquifer—in close cooperation with the High Plains states.

The High Plains states are already deeply involved in accomplishing the goals and objectives set forth in S. 212, and have already invested significant resources towards this end. High Plains state water management agencies are a critical part of any future efforts. Although none of the federal funds authorized are specifically earmarked for state water management agencies, they are eligible to apply for financial awards and we would expect they will receive a share of the money proportionate to their ongoing efforts. S. 212 adds a matching cost sharing requirement that the Council has not considered, but which may be an obstacle to program participation in some states.

As you know, the Council serves as a forum for western states to express their views on water resource issues. A number of our member states are using the Council as a vehicle to address their interests in protecting the High Plains aquifer. They have formed a working group that is meeting regularly in conjunction with our Council meetings to discuss issues of mutual concern. Those discussions have revolved around the need for conservation of High Plains ground water resources and the likely impact of incentive programs enacted as part of the Farm Bill. We have also discussed the need for further legislation and welcome your Committee's action.

We look forward to working with the Committee and your staff in the future on this bill and other water-related bills.

Sincerely,

KARL DREHER,
Chairman, Western States Water Council.

COLORADO FARM BUREAU,
Englewood, CO, February 28, 2003.

Hon. BEN NIGHTHORSE CAMPBELL,
Russell Senate Office Building, Washington, DC.

DEAR SENATOR CAMPBELL: I am writing to express my strong concern with legislation introduced by Senator Bingaman, S. 212, the High Plains Aquifer Hydrogeologic Characterization, Mapping, Modeling and Monitoring Act. I understand a hearing is scheduled for March 6, 2003 and would like to take this opportunity to inform you of Colorado Farm Bureau's opposition.

Colorado Farm Bureau has long fought the involvement of the federal government in our state's water resources. This bill brings the federal government to the forefront of Colorado ground water management. I feel this is an arena best managed at the state and local level where state water compacts can be closely monitored.

The USGS is already in the middle of a six-year study on the High Plains Aquifer. We are not opposed to getting the necessary data on the use of aquifers. However, we see this as an attempt to label the agricultural use of the High Plains Aquifer as wasteful. The real waste would come as a result of further studies on this aquifer by the federal government.

We urge your opposition to this legislation.

Sincerely,

ALAN FOUTZ, PHD,
President.

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