

Calendar No. 36

108TH CONGRESS }
1st Session }

SENATE

{ REPORT
108-21

HIGH PLAINS AQUIFER HYDROGEOLOGIC CHARACTERIZATION, MAPPING, MODELING AND MONITORING ACT

MARCH 19, 2003.—Ordered to be printed

Mr. DOMENICI, from the Committee on Energy and Natural Resources, submitted the following

R E P O R T

together with

MINORITY VIEWS

[To accompany S. 212]

The Committee on Energy and Natural Resources, to which was referred the bill (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, having considered the same, reports favorably thereon with an amendment and an amendment to the title and recommends that the bill, as amended, do pass.

The amendments are as follows:

1. Strike out all after the enacting clause and insert in lieu thereof the following:

SECTION 1. SHORT TITLE.

This Act may be cited as the “High Plains Aquifer Hydrogeologic Characterization, Mapping, and Modeling Act”.

SEC. 2. DEFINITIONS.

For the purposes of this Act:

- (1) ASSOCIATION.—The term “Association” means the Association of American State Geologists.
- (2) COUNCIL.—The term “Council” means the Western States Water Council.
- (3) DIRECTOR.—The term “Director” means Director of the United States Geological Survey.
- (4) HIGH PLAINS AQUIFER.—The term “High Plains Aquifer” is the groundwater reserve depicted as Figure 1 in the United States Geological Survey Professional Paper 1400-B, titled “Geohydrology of the High Plains Aquifer in

Parts of Colorado, Kansas, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, and Wyoming”.

(5) **HIGH PLAINS AQUIFER STATES.**—The term “High Plains Aquifer States” means the States of Colorado, Kansas, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, and Wyoming.

(6) **REVIEW PANEL.**—The term “Review Panel” means the panel provided for by section 3(d).

(7) **SECRETARY.**—The term “Secretary” means the Secretary of the Interior.

SEC. 3. ESTABLISHMENT.

(a) **PROGRAM.**—The Secretary, through the United States Geological Survey, and in cooperation with the High Plains Aquifer States, shall establish and carry out the High Plains Aquifer Comprehensive Hydrogeologic Program, to characterize, map and model the High Plains Aquifer. The Program shall undertake at the most detailed levels determined to be appropriate on a state-by-state basis, characterization, mapping and modeling of the hydrogeological configuration of the High Plains Aquifer.

(b) **OBJECTIVES.**—The objectives of the Program are to:

(1) provide for the hydrogeologic characterization, mapping and modeling of the High Plains Aquifer through a cooperative partnership effort between the U.S. Geological Survey and the High Plains Aquifer States;

(2) coordinate Federal, State, and local data, maps, and models into an integrated physical characterization of the High Plains Aquifer;

(3) support State and local activities with scientific and technical specialists; and

(4) undertake activities and provide technical capabilities not available at the State and local levels as may be requested by a Governor of a High Plains Aquifer State within such State.

(c) **REQUESTS FROM GOVERNORS.**—The Governor of a High Plains Aquifer State may submit a proposal to the Secretary requesting the Secretary to undertake activities and provide financial and technical capabilities not available at the State and local levels to carry out the purposes of the Program.

(d) **REVIEW PANEL.**—Not later than six months after the date of enactment of this Act, the Secretary shall establish a Review Panel to: (1) evaluate the proposals submitted for funding under subsection (f); and (2) review and coordinate Program priorities. In performing its functions, the Review Panel shall consult with the Association and the Council.

(e) **COMPOSITION AND SUPPORT.**—The Review Panel shall be comprised of: (1) five representatives of the United States Geological Survey, at least two of which shall be hydrologists or hydrogeologists; and (2) one representative who is knowledgeable regarding hydrogeologic data and information from each of the High Plains Aquifer States that elects to participate in the Program. Each representative of a High Plains Aquifer States shall be recommended by the Governor of such State. The Secretary shall provide technical and administrative support to the Review Panel. Expenses for the Review Panel shall be paid from Program funds other than those referred to in subsection (f).

(f) **FUNDING.**—Fifty percent of the funds appropriated to carry out this Program shall be allocated equally by the Secretary for the participation of State and local agencies and institutions of higher education within each of the High Plains Aquifer States that elects to participate in the Program. Grants may be made by the Secretary from the funds described in this subsection based on proposals that have been recommended by the Governor and reviewed by the Review Panel. Proposals for multistate activities must be recommended by the Governors of all the affected States.

SEC. 4. REPORTS.

(a) **REPORT ON PROGRAM IMPLEMENTATION.**—One year after the date of enactment of this Act, and every 3 years thereafter through fiscal year 2011, the Secretary shall include a report on the Program in the annual budget documents for the Department of the Interior. The initial report submitted by the Secretary shall contain a Program plan developed with the concurrence of the Review Panel.

(b) **REPORT ON HIGH PLAINS AQUIFER.**—No later than four years after the date of enactment of this Act and upon completion of the Program in fiscal year 2011, the Secretary shall submit an interim and final report, respectively, to the Governors of the High Plains Aquifer States on the status of the High Plains Aquifer.

SEC. 5. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated such sums as may be necessary for each of the fiscal years 2003 through 2011 to carry out this Act.

2. Amend the title so as to read: “To authorize the Secretary of the Interior to Cooperate with the High Plains Aquifer States in Conducting a Hydrogeologic Characterization, Mapping, and Modeling Program for the High Plains Aquifer, and for other purposes.”.

PURPOSE

The purpose of S. 212 is to authorize the Secretary of the Interior, through the U.S Geological Survey (USGS), to cooperate with the High Plains Aquifer States (Colorado, Kansas, Nebraska, Oklahoma, New Mexico, South Dakota, Texas, and Wyoming) in conducting a hydrogeologic characterization, mapping, and modeling program for the High Plains Aquifer.

BACKGROUND AND NEED

The High Plains Aquifer (the “Aquifer”), which is comprised in large part by the Ogallala Aquifer, extends under eight states: Colorado, Kansas, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, and Wyoming. The Aquifer is experiencing significant declines in its water levels in many areas. According to the USGS, the two largest areas with the greatest water-level decline from 1980 to 1999 were: (1) eastern New Mexico and western Texas; and (2) southwestern Kansas. The area in New Mexico and Texas 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 area in Kansas had from 10 to 50 feet of water-level decline from 1950 to 1980, and over 60 feet of decline from 1980 to 1999. Other areas, such as in Nebraska, had an increase in aquifer levels from 1980 to 1999. This Aquifer is the source of water for farmers, ranchers, and communities throughout the Great Plains region.

The USGS carried out the first comprehensive quantitative study of the Aquifer in the late 1970s. USGS, working in cooperation with numerous State and local resource agencies, began a groundwater level measurement program for the Aquifer in 1988 to assess annual water-level change in the Aquifer. Most of this measurement activity is undertaken by the States. The first comprehensive modeling of the entire Aquifer occurred in the late 1970s. No comprehensive modeling of the entire Aquifer system has been completed since that time. In addition, conditions affecting recharge rates for the Aquifer have changed since this work was completed.

As a result of the legislation, more detailed information which maps and characterizes the Aquifer will be made available. This information could be useful to irrigators who depend on the Aquifer as water source and communities who derive their drinking water supplies from the Aquifer. The legislation would ensure that additional funding is available to states and local agencies and academic institutions to undertake mapping, characterization, and modeling activities related to the hydrogeology of the Aquifer.

LEGISLATIVE HISTORY

S. 212 was introduced by Senators Bingaman, Brownback, and Domenici on January 23, 2003. Similar legislation, S. 2773 was introduced by Senators Bingaman, Brownback, and Domenici in the 107th Congress. The Subcommittee on Water and Power held a

hearing on S. 2773 on July 31, 2002, and ordered the bill favorably reported, with an amendment in the nature of a substitute on October 3, 2002. The text of S. 2773, as amended, passed the Senate by unanimous consent on November 22, 2002. At the business meeting on March 12, 2003, the Committee on Energy and Natural Resources ordered S. 212, with a joint staff amendment, favorably reported.

COMMITTEE RECOMMENDATION

The Committee on Energy and Resources, in open business session on March 12, 2003, by a voice vote of a quorum present, recommends that the Senate pass S. 212 as described herein. Senators Thomas and Burns requested their votes be recorded in opposition.

COMMITTEE AMENDMENTS

An amendment in the nature of a substitute was drafted to address the concerns raised during the March 6, 2003 Water and Power Subcommittee hearing. The amendment is described in the section-by-section.

SECTION-BY-SECTION ANALYSIS

Section 1 states the short title.

Section 2(a) defines key terms used in the Act.

Section 3(a) directs the Secretary through the U.S. Geological Survey, to establish a High Plains Aquifer Comprehensive Hydrogeologic Program in cooperation with the eight High Plains Aquifer States, to characterize, map and model the High Plains Aquifer.

Subsection (b) outlines the objectives of the Program which are to: provide for the hydrogeologic characterization, mapping, and modeling of the High Plains Aquifer through the establishment of a cooperative partnership between the High Plains Aquifer States and the U.S. Geological Survey; coordination of data, maps and models; scientific and technical support of state and local activities; and undertaking activities and providing technical capabilities not currently available at the State and local level as requested by the Governor.

Subsection (c) allows the Governors of the High Plains Aquifer States to submit proposals to the Secretary of the Interior requesting the Secretary to undertake activities and provide funding or technical capabilities not currently available at the State and local levels to assist in carrying out the purposes of the Program. Section 3(c) of the bill contemplates that the Governor of a High Plains Aquifer State may submit a proposal to the Secretary of the Interior requesting the Secretary to provide financial and technical capabilities not available at the State and local levels and to undertake activities in addition to those otherwise carried out by the Secretary under existing authorities. This provision is intended to underscore that the program is to be a cooperative partnership effort between the U.S. Geological Survey and the High Plains Aquifer States.

Subsection 3(d) establishes a Review Panel, which has as its majority, representatives of the High Plains Aquifer States recommended by the Governors. In addition to the State representa-

tives, the Review Panel composition is to include five representatives from the U.S. Geological Survey, with at least two being hydrologists or hydrogeologists. One function of the Review Panel is to review and coordinate Program priorities. In undertaking this responsibility, it is the Committee's intent that the Review Panel seek, and establish a mechanism to receive, input from users of hydrogeologic data and information in the High Plains Aquifer area, such as farmers, ranchers, livestock producers, municipalities and others. The Review Panel must also consult with the Western States Water Council and the Association of American State Geologists in performing its functions.

Subsection (e) provides that the Review Panel shall be comprised of five representatives of the U.S. Geological Survey, at least two of which shall be a hydrologist or hydrogeologist, and one representative, who is knowledgeable regarding hydrogeologic data and information, from each of the High Plains Aquifer States that elects to participate in the program. Representatives from the States shall be recommended by the Governor of such State.

Subsection (f) provides that fifty percent of the funds appropriated be allocated equally for the participation of State and local agencies and institutions of higher education within each of the High Plains Aquifer States. Grants made from these funds shall be awarded based on proposals that have been recommended by the Governor and reviewed by the Review Panel. The Committee expects that the funding provided under this Program will complement, rather than duplicate, efforts being undertaken by the State and local agencies and academic institutions. It is the Committee's expectation that funding made available under the Program will supplement ongoing mapping, modeling and monitoring efforts by State and local agencies and academic institutions, such as the State geological surveys, State water management agencies, and Land Grant Universities, or consortia of such agencies and academic institutions. The Committee also anticipates that State and local agencies will not use this Program as an opportunity to reduce resources applied to activities that are the subject of the Program, but rather will use the resources of the Program to augment and enhance ongoing State and local activities.

Under the legislation, factors appropriate for consideration in reviewing proposals for funding include the scientific merit and benefits of the proposed activity and the ability of the agency or academic institution to carry out the activity to further the purposes of the Program.

Section 4(a) directs the Secretary of the Interior to include a report on the Program in her annual budget document 1 year after the date of enactment of the Act and every 3 years thereafter through fiscal year 2011.

Subsection (b) directs the Secretary to report on the status of the Aquifer to the Governors of the High Plains Aquifer States no later than 4 years after commencement of the Program and upon completion of the Program in 2011.

Section 5 authorizes appropriations to carry out the Act.

COST AND BUDGETARY CONSIDERATIONS

The Congressional Budget Office estimate of the costs of this measure has been requested but was not received at the time the

report was filed. When the report is available, the Chairman will request that it be printed in the Congressional Record for the advice of the Senate.

REGULATORY IMPACT EVALUATION

In compliance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee makes the following evaluation of the regulatory impact which would be incurred in carrying out S. 212. The bill is not a regulatory measure in the sense of imposing Government-established standards or significant economic responsibilities on private individuals and businesses.

No personal information would be collected in administering the program. Therefore, there would be no impact on personal privacy.

Little, if any, additional paperwork would result from the enactment of S. 212, as ordered reported.

EXECUTIVE COMMUNICATIONS

On February 6, 2003, the Committee on Energy and Natural Resources requested legislative reports from the Department of the Interior and the Office of Management and Budget setting forth Executive agency recommendations on S. 212. These reports had not been received at the time the report on S. 212 was filed. The testimony provided by the Department of the Interior at the Subcommittee hearing follows:

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, "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 the 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 31c.).

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.

MINORITY VIEWS OF SENATOR CRAIG THOMAS

I remain concerned regarding the need for this legislation and have reservations about any detrimental impacts the bill may have for diluting current state authority to manage its waters as well as possible federalization of ground or surface water use. During the Senate Committee on Energy and Natural Resources, Subcommittee on Energy and Water hearing the Administration witness said “the goals of this bill can be achieved without legislation, through better coordination of existing Federal and State programs.” Additionally, the U.S. Geological Service (USGS) stated that it has the authority to map, model and monitor and in fact, has extensively studied the Ogallala Formation. If there are existing efforts to monitor any aquifer depletion, there is no need for expanding Federal authority. Further, if the states do not have sufficient or complete data, those individual states may seek additional funds for the USGS to complete supplementary studies. The creation of a new Federal panel appears to be an encroachment on State authority for an issue that has largely been managed by the States.

CRAIG THOMAS.

CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rule of the Senate, the Committee notes that no changes in existing law are made by the bill S. 212, as ordered reported.

