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SUMMARY REPORT on the GILLETTE PROJECT

A SYSTEM OF WATER WELLS IN THE MADISON FORMATION AND PIPELINE TRANSMISSION TO THE GILLETTE AREA

GOVERNOR'S INTERDEPARTMENTAL WATER CONFERENCE

Wyoming Water Planning Program
State Engineer's Office
December, 1977
REPORT ON THE GILLETTE PROJECT

OBJECTIVES OF THIS REPORT

The City of Gillette applied to the Governor's Interdepartmental Water Conference for determination of the feasibility of the State participating in financing a ground water well field in the Madison formation and a 41-mile pipeline from the vicinity of Keyhole Reservoir to the City of Gillette. (See Figure 1).

Interest in energy resources in the Gillette area has caused population growth that can be expected to continue. The City of Gillette has had problems maintaining a sufficient municipal water supply, and the townspeople and residents in the surrounding area have had to use water of substandard quality. The ability to develop sufficient water supplies in the Gillette vicinity to supply growing domestic and municipal needs appear problematical, and a new water supply is needed for Gillette area residents who will support the coal and other industries of the area.

There have been several proposals through the years relating to transporting water from various water sources into the Gillette, Wyoming, area primarily for industrial use and associated municipal uses. Virtually all of the proposals have envisioned relatively large water uses for conversion of coal to electric energy and synthetic fuels or for coal slurry pipeline proposals. Aside from the soon to be completed 330 MW thermoelectric power plant of Pacific Power and Light and Black Hills Power and Light Companies, there are no known firm plans for coal conversion plants that would involve importation of water to the Gillette area. Importation of a water supply for slurry pipeline purposes also appears to be several years away.

Thus, the development and transport of water by energy companies or others into the Gillette area which could be utilized for municipal water supplies, does not appear probable in the immediate future. Nevertheless, the population of Gillette is now drinking substandard quality water and the quantities of locally available ground water appear insufficient for meeting present and future needs.

Purpose and Scope of Report

The Gillette Madison well water project is of such cost magnitude that it appears that funding from the coal excise tax provided for in the Wyoming Water Development Fund will be required. The purpose of this report, then, is to present the feasibility of the project, to compare the project with other potentials to deliver the same quantity of water, and to make recommendations to the Wyoming Legislature for project authorization.

The report is written to comply with Section 41-1.44 of the Wyoming Statutes pertaining to the Wyoming Water Development Program. The topics addressed in this report are those specified for feasibility studies in the statute.
This report addresses the feasibility of financing the project and sets forth the requirements for undertaking the project once the financing is approved by the Wyoming Legislature.

**Legislative Action Required**

The Wyoming Water Development Program Act specifies in W. S. 41-1.45 the procedure to be followed by the Interdepartmental Water Conference, the Legislature, the Governor, and DEPAD in the authorization and construction of projects.

After hearings on this report and findings by IDWC relative to the feasibility of undertaking the project, the report and draft legislation for authorizing the project, for financing it, and for design, construction, and operation and maintenance of the project will be transmitted to the Legislature.
CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The City of Gillette and surrounding area has an urgency to develop a sufficient quantity of suitable quality water to meet the municipal water needs of the area. Ground water from the Madison formation at the location of the proposed well field will provide water of improved quality suitable for municipal and anticipated industrial uses. Closer to the City of Gillette, the Madison ground water is of poor quality, and the formation is much deeper. There appears to be a sufficient quantity of water to meet the project needs, and the water can be made available with the water rights for the project. The well field and transmission pipeline at a cost of about $22 million is a least-cost way to bring a potable water supply of sufficient quantity from the known available sources to the City. Only a much larger quantity of water being transported to Gillette would reduce the water costs significantly. Such supplies of water are not needed unless commitments are made to build coal conversion facilities in the vicinity of Gillette. There are no known firm plans for new power plants or other conversion facilities which would bring in water supplies in time to meet the Gillette area municipal and domestic needs.

Therefore, the Interdepartmental Water Conference concludes that the Gillette Project, consisting of a system of water wells in the Madison formation and a transmission pipeline to the Gillette area is a feasible water supply project to meet municipal and related industrial water needs. Withdrawals of ground water from the proposed Madison well field are expected to cause little change in artesian pressures in the Madison aquifer beyond the periphery of the well field. The withdrawals should have no effect on the water in overlying aquifers because the Madison aquifer in the proposed well field area is confined from overlying aquifers and is under great pressure. This project would, through staged development together with use of existing soft water wells for a standby water supply, meet the municipal water needs of the Gillette area, associated industrial water supplies, and other potential municipal, domestic, and agricultural uses. The design population of 35,000 people is nearly triple the present Gillette municipal population, and is expected to be reached by about 1990.

The enhanced water supply would be beneficial to the City by encouraging annexing so that other municipal services and facilities can be properly planned, provided, and paid for by the City.

Considering the current debt obligations of the City of Gillette Department of Public Utilities and the extremely large "front end" investment required to build a 41-mile pipeline sized to meet requirements of three times the existing number of people, a financing plan consisting of combination of grants and revenue bond repayment guarantees is suggested. Funding from Farmers Home Administration can be utilized. FmHA has pledged a grant of $3 million for the project, and can make another $7 million available in the form of a loan. The principal for the loan would be secured by a bond issue and the City would be required to make annual loan payments on an amortized basis. The remainder of project costs ($12 million) could be financed by a second revenue bond issue by the City of Gillette.
The ability to repay for the project in the initial years of project use appears to be quite limited. The repayment ability should increase as the Gillette area population and water use increases over the years. Therefore, commitment by the Legislature of loan and bond repayment from the Wyoming Water Development Account funded by the 1.5% coal excise tax appears necessary.

Since the FmHA loan requires a bond issue, it may be desirable to have just one issue by the City backed by repayment guarantees, and eliminate the necessity for a FmHA loan. In either case, the annual payment guarantee requirement from the Water Development Account would be based on $19 million.

At 6% interest with a 20-year term, $1,657,000 per year maximum would be the initial required repayment guarantee from the Water Development Account; a 10-year term would require $2,582,000 per year maximum. The annual repayment guarantee should decrease as the Gillette area population increases, and in time the entire repayment guarantee expenditures from the Water Development Account could be repaid, as shown on Figure 6.

Recommendations

The Interdepartmental Water Conference recommends that the Legislature authorize $1,657,000 per year as a maximum repayment guarantee from the Wyoming Water Development Account to make annual payments required for a City of Gillette revenue bond issue for the Gillette Project. The period of this authorization should not exceed 20 years. Revenue from water sales is to be used to reduce the cost to the Wyoming Water Development Account, within an ability to repay project costs as determined by the Department of Economic Planning and Development.

The Interdepartmental Water Conference also recommends that the project be constructed under the supervision of DEPAD and transferred to a local operation and maintenance entity such as the City, a Public Utility Department, a water district, or other legal entity. The Legislature should authorize DEPAD to transfer the project to such entity upon approval of the Governor, subject to the following provisions:

A. DEPAD shall act as the State's financial manager of the project:

1. By approving a progressive accounting of project engineering and construction expenditures to ensure the project plan is followed.

2. By approving water rates and the annual repayment of debt service by Gillette for the project revenue bond issue(s). It should be specified that if water service revenues exceed costs in any year, which would include ordinary and necessary project operation, maintenance, and replacement costs, the profit will be applied to payment of the debt service, thereby reducing the cost to the Wyoming Water Development Account.
REVENUE 1 - GROWTH RATE = CITIES' POPULATION PROJECTION
REVENUE 2 - GROWTH RATE = EXTENSION OF 1970-77 POPULATION GROWTH

FIGURE 2
GILLETT WATE EXPENDITURES & REVENUES
3. Certifying to the State Treasurer each year the amount of project debt service payment required from the Wyoming Water Development Account, or the amount of repayment to the Account by Gillette.

B. Project construction shall not commence until the following is approved by DEPAD:

1. The project operating entity.

2. A signed project agreement between the operating entity and DEPAD specifying requirements for approvals for A & B herein.

3. A definite plan of project facilities and staged development to include possible water supply provisions for the Gillette area municipal and nearby rural needs, Moorcroft and Rozet, agricultural, domestic and stock water in the well field area, and industrial water for cooperating industries which include Black Hills Power and Light Company and Pacific Power and Light Company.


5. Water rate studies and a business analysis of the operating entity for establishing operating and maintenance requirements and ability for debt service payment from water service revenues.

6. An operation and maintenance plan. Such plan shall be developed by the operating entity in concert with the Department of Environmental Quality, and shall include the number of certified operators in each classification to be employed.