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Town of Granger, Wyoming
Water Supply Project

LEVEL II FEASIBILITY STUDY

EXECUTIVE SUMMARY
EXECUTIVE SUMMARY
GRANGER WATER SUPPLY PROJECT

LEVEL II FEASIBILITY STUDY

PREPARED FOR

WYOMING WATER DEVELOPMENT COMMISSION
HERSCHLER BUILDING
CHEYENNE, WYOMING 82001

Prepared by

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EXECUTIVE SUMMARY AND CONCLUSIONS

BACKGROUND

The Town of Granger has identified a problem with the reliability and operational flexibility of their municipal water supply as early as 1978. The Town has taken several steps toward resolution of this difficult situation. Some of the steps taken include:

- Water rights have been acquired on the Green River.
- Temporary provision for conveying Green River water to Granger through facilities owned and operated by FMC Corporation (FMC) has been arranged.
- A special fund has been established and contributions to the fund have continued while the Town’s leadership looks for financial assistance from sources outside the Town.
- The Wyoming Water Development Commission (WWDC) has provided grant assistance to the Town to identify alternatives and recommend a financing plan and capital construction program to help resolve the Town’s water supply problem.

This report is prepared at the direction of the WWDC to evaluate the problem and propose solutions. This study is completed in phases, with Phase I evaluating pipeline route and size while Phase II evaluates construction alternatives and economic aspects of the proposed project. This Executive Summary presents the results of both the Phase I and Phase II work.
STATEMENT OF THE PROBLEM

The immediate problem facing the Town of Granger is the fact that their water is supplied at the discretion and convenience of FMC. While no problems have been experienced with the present situation, the agreement between the Town and FMC contains a provision which allows FMC the right to terminate water delivery with as little as 30 days written notice. Additional contract conditions are such that Granger has no control over its water supply whatsoever. This study focuses on the feasibility of constructing a transmission pipeline and diversion facilities on the Green River which are owned and operated by the Town of Granger.

INVESTIGATIONS

Several governmental and private agencies have been contacted in the course of this study. Included are:


U. S. Bureau of Reclamation

FMC Corporation

Rock Springs Grazing Association

Midwest Assistance Program

Town of Granger

Sweetwater County, Clerk’s Office and Engineer’s Office

State of Wyoming, Department of Administration and Fiscal Control
Field investigations were conducted by the following firms:

Chen-Northern, who conducted geotechnical investigations.

Mariah Associates, who conducted archeological investigations.

Surveyor Scherbel, who performed field surveys.

ESA Consultants, who conducted alluvial aquifer investigations.

Public meetings were held in Granger on June 15, 1989; August 2, 1989; and May 15, 1990. General announcements of the meetings were published, and letters of notice were mailed to several directly affected parties. Attendance at these meetings was sparse, and all comments received have been incorporated into the final report.

PHASE I

This study was divided into two phases. Phase I, completed in August, 1989, addressed the following questions:

How much water should the pipe convey?

Where should the pipeline be built?

What is the approximate budget for this project?

This phase of the study developed population estimates for the Town. Population is the largest single factor affecting water consumption, and estimates of water use are required to properly
size water supply facilities. Several local utility companies, Sweetwater County and the State of Wyoming were contacted and provided information about current population and projected growth in the area.

A commercial development, known as Little America, is located near Granger. Little America presently draws water from the Ham’s Fork River and experiences water supply problems similar to those of Granger. During dry periods in the recent past, Little America has purchased raw Green River water from Granger. This report considers the impact of permanently connecting Little America to the Granger raw water supply system. Granger’s Green River water rights are capable of supplying water for both Granger and Little America. Appropriate revisions to the State Engineer’s records will be required, however.

TABLE 1

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>CURRENT (1990)</th>
<th>PROJECTED (2020)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>ANNUAL</td>
<td>PROJECTED</td>
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<tr>
<td></td>
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<tr>
<td></td>
<td>DAILY USE</td>
<td>DAILY USE</td>
</tr>
<tr>
<td></td>
<td>WATER USE</td>
<td>WATER USE</td>
</tr>
<tr>
<td>Granger</td>
<td>40,000</td>
<td>72,000</td>
</tr>
<tr>
<td></td>
<td>67,500</td>
<td>120,000</td>
</tr>
<tr>
<td>Little America</td>
<td>172,000</td>
<td>310,000</td>
</tr>
<tr>
<td></td>
<td>300,000</td>
<td>543,000</td>
</tr>
</tbody>
</table>

The Town’s existing Green River water rights are examined, and recommendations concerning possible improvements are included.
The Town holds adequate water rights on the Green River to meet current and projected demands. A portion of the water is available only during the three summer months of June, July and August. The Town may wish to supplement its current rights with additional rights for the winter months.

Pipe Line Size

After the population estimates and the water rights investigations were completed, the pipeline size was determined. Such factors as energy cost to pump, capital cost of construction and number and location of pumping stations were considered. The pipe diameter which appears to best meet the needs of Granger is eight inches. This pipe will convey the full Granger water right of 925 gallons per minute (gpm).

Pipeline Route

A pipeline route is proposed which lies parallel and west of the present FMC pipeline. All owners along the route were invited to a public meeting which was designed to receive input regarding owner's wishes about use of their land. No private landholders appeared. Governmental agencies did not appear, but sent by mail general descriptions of the requirements for use of land under their administration.
PHASE II

This Phase developed the conceptual design of the proposed project and considered various financial aspects of the project.

Conceptual Designs

The method of getting water into the pipeline is considered in detail. Existing industrial diversion facilities on the Green River were toured and operators interviewed to document known problems in the general vicinity of the proposed surface water diversion facility. Several alternatives are considered, and cost estimates developed for those alternatives which appear to be most feasible. A pipeline profile is developed, and possible locations for pipeline appurtenances like drains, valves and air release stations are developed.

Surface Water Intake

One of the Alternatives considered in detail is a surface water intake screen device placed in the river. Shaped much like a torpedo, this device has stainless steel wire wrapped around it to create a screen. Water flows from the screen to a river pump station, and then to a series of sedimentation basins. After much of the sediment load has been removed, a high service pump station pumps the water to the Town's water treatment plant.
Well Field

A second Alternative considered is a well field constructed in a shallow alluvial aquifer at the river's edge. Submersible pumps in a series of wells pump water to a wet well located outside the river flood plain. High service pumps pump water from this wet well to Town.

ECONOMIC ANALYSIS

Benefit to Cost Ratio

In the economic analysis portion of this report, cost estimates of each of the construction alternatives are prepared. The project benefit to cost ratio is developed and found to be approximately 60, i.e. the cost of providing water to Granger with this project is more than 60 times cheaper than other methods considered.

Financing Alternatives

Using the published policies of several financing entities, various financing options are considered. Granger has a fund established for the construction of this pipeline and has entered into water sales agreements which are projected to provide additional contributions toward the project cost. The most attractive option available to Granger is the Wyoming Water Development Programs provided through W. S. 41-2-112(a). This
program is administered by the Wyoming Water Development Commission. Terms for funding of this project are expected to be 67% grant and up to 33% loan for project costs. The loan carries a 4% interest rate for 30 years.

User Charge Impacts

An analysis of the impact of this project on user charges in the Town of Granger was performed for the recommended project improvements. Results of this analysis indicate that combining the water users at Little America and Granger results in a small increase in historical rates for Granger. Little America has no historic cost data for water supply and use. If Little America is not connected to the Granger system, Granger residents will experience a significant cost increase.

RECOMMENDATIONS

The recommended course of action for the Town of Granger is to pursue implementation of a pipeline and shallow wellfield with an initial capacity of 500 gpm designed to serve both Granger and Little America. Total project cost is estimated to be $2,400,000 (1992 construction). The reader is referred to Section IV of the Phase II Report for details related to the underlying assumptions and design considerations. Appendix E, Table 4 contains additional details. The Project cost is composed of the following:
<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final Design, Permitting and Legal Fees</td>
<td>$ 216,500</td>
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<tr>
<td>Construction Cost</td>
<td>1,724,800</td>
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<td>Construction Engineering Services @ 10%</td>
<td>172,500</td>
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<tr>
<td><strong>Subtotal</strong></td>
<td><strong>1,897,300</strong></td>
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<tr>
<td>Contingency @ 15%</td>
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</tr>
<tr>
<td><strong>Construction Cost Total</strong></td>
<td><strong>2,181,895</strong></td>
</tr>
<tr>
<td><strong>Project Cost Total</strong></td>
<td><strong>$ 2,398,395</strong></td>
</tr>
</tbody>
</table>

Use $ 2,400,000

As outlined in Section IV of the report, water system users can expect to see rates increase if this project is implemented. Construction of a 500 gpm system will result in costs for delivering raw water to Granger of approximately $0.82 per thousand gallons. Granger residents would see their current cost of $1.49 per thousand gallons for finished water increase to $2.31 per thousand gallons, an increase of 55%. The typical Granger water rate would increase from $20.00 per month to $31.00 per month.

Costs for constructing a 100 gpm system designed to serve Granger only will raise estimated costs from $1.49 to $4.62 per thousand gallons, an increase of 310%. The typical Granger water rate would increase from $20.00 per month to $62.00 per month.