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EXECUTIVE SUMMARY

RAWLINS RAW WATER STORAGE
LEVEL II, PHASE I AND II
REPORT

October 18, 2006

Submitted to:

Wyoming Water Development Commission
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In Conjunction with:

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I, Murray T. Schroeder, a Wyoming registered Professional Engineer, certify that this Rawlins Raw Water Storage Level II, Phase I and II Report was prepared by me or under my direct supervision.

Murray T. Schroeder

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I, Debora J. Miller, a Wyoming registered Professional Engineer, certify that this Rawlins Raw Water Storage Level II, Phase I and II Report was prepared by me or under my direct supervision.

Debora J. Miller
1.0 EXECUTIVE SUMMARY

1.1 Objective and Background

The Rawlins Raw Water Storage Project, Level II is a Wyoming Water Development Commission study that evaluated the feasibility of constructing a raw water storage reservoir. The purpose of the reservoir is to maintain the reliability of the City of Rawlins’s (the City) municipal water supply system while accommodating increased water demand and or decreased water supply, such as that brought on by drought. The study addressed three issues including 1) water supply system capability, 2) technical siting for reservoirs, and 3) project financing. Figure 1-1 is a project location map and Figure 1-2 is a water system schematic that shows the basic relationship between the various water supplies and water demands of the City.

The following sections summarize the study findings and provide recommendations for the Sponsor’s and WWDC’s consideration.

1.2 Water Supply Evaluation

A water supply evaluation was performed which examined several water supply and water demand scenarios including:

- Modeling the system as it is currently operated,
- Varying degrees of water supply drought,
- Existing and aggressive water demand increases due to population growth,
- With and without the use of the existing Atlantic Rim Reservoir,
- With and without assertive use of the North Platte River water supply.

The evaluation concluded that assertive use of the North Platte River water supply increased the reliability of the entire water supply system and eliminated the need to provide additional storage under most conditions. The evaluation also concluded that a combination of assertive pumping and an additional 500 to 600 ac-ft. of water storage maintained the water supply reliability under all scenarios.
1.3 **Reservoir Evaluation**

A two phase (I and II) reservoir evaluation was performed. The Phase I work (Attachment to Appendix B) was a reconnaissance level evaluation of five alternative locations for raw water reservoir storage. The Phase I investigation recommended study of one site in a detailed Phase II field investigation. That site was south of the water treatment plant in an area known as Five-Mile Ridge Reservoir site. However, access for surveys and geotechnical testing was not obtained for that site so the detailed field investigation was performed on the Peaking No.2 site just east of the existing Peaking Reservoir. Figure 1-3 is an exhibit showing the conceptual layout for the Peaking No.2 Reservoir site as prepared in the Phase II evaluation.

In addition to evaluating new reservoirs, the consulting team reviewed the available information related to the existing Atlantic Rim Reservoir. This facility has a history of seepage problems, (as documented in Appendix C), and the team recommends it should not be an element of a long term water supply and storage system. A more detailed analysis of the Atlantic Rim Reservoir is given in chapter 5.

The consulting team also prepared a conceptual design for a pipeline that would replace the existing pipeline between Atlantic Rim Reservoir and the water treatment plant. The existing pipeline may not be large enough, may not have adequate pressure rating, and has experienced some reported line breakage problems. This pipeline is a critical link in the City water supply and may be required as part of a program to replace the Atlantic Rim Reservoir. Additional evaluation of the pipeline without the Atlantic Rim Reservoir should be performed.

1.4 **Project Financing**

WWDC financing was evaluated for constructing a reservoir at the Peaking No.2 site and for replacing the Atlantic Rim Reservoir Pipeline. The total project cost for these two improvements was estimated to be $14,650,000, which
NOTE:
PROPOSED HIGH WATER ELEVATION
NEEDS FURTHER STUDY WITH REGARD
TO OPERATING NEEDS. THIS MAY
REQUIRE CHANGES TO THIS
CONCEPTUAL DESIGN.
included an approximate allowance for the removal and reclamation of the Atlantic Rim Reservoir.

Assuming WWDC participation with a 67% grant and 33% loan and a $15,000 per year operating budget, the annualized cost of constructing and maintaining the projects is about $295,000. This annual cost translates to an approximate user fee increase of $6.28 month/water tap. This annual value is very similar to the annual cost of more assertive North Platte River pumping which is an alternative strategy for maintaining water supply reliability.

1.5 Project Resolution

At a City Council meeting on July 12, 2006 at Rawlins City Hall, the draft report and recommendations for further activity were presented and discussed. The City agreed to ask WWDC for a continuation of the Level II study to explore options for decommissioning Atlantic Rim Reservoir, to explore the Five-Mile Ridge Reservoir site, and to perform a more detailed study of the Atlantic Rim Pipeline. The City also decided that the reservoir and Atlantic Rim Pipeline projects would not be advanced to Level III since the City had identified a higher priority Level III project (steel water storage tank repairs).

1.6 Recommendations

The team recommends that the City apply for an additional WWDC-funded Level II study to perform the following tasks:

- Prepare a conceptual design and cost estimate for decommissioning and reclamation of the Atlantic Rim Reservoir.
- Identify a resolution of the potential water supply issue for the Bureau of Land Management’s Rim Lakes which are supplied partly from leakage of the Atlantic Rim Reservoir.
- Obtain access permission from the surface owner of the Five-Mile Ridge Reservoir site and perform a field investigation and other activities to advance the level of evaluation of the Five-Mile Ridge Reservoir site location to an equal level with Peaking No.2 site and to support a conceptual design. The Phase I reservoir evaluation indicated that
reservoir construction at the Five-Mile Ridge Reservoir site location would be about 30% less expensive (more than $3 million) than at the Peaking No.2 site, primarily because the topography is more favorable for efficient dam and reservoir construction. Also, the Phase I matrix evaluation indicated that the Five-Mile Ridge Reservoir site was a better overall project than the Peaking No.2 site project. However, foundation conditions and borrows material availability and quality at the site is unknown at this time.

- Advance the conceptual-level design of the Peaking No.2 site location or Five-Mile Ridge Reservoir site, including optimizing the configuration of the reservoir and its operating pool elevation to best serve the system, and performing additional engineering analyses and value engineering that could potentially identify cost savings for reservoir construction.

- Perform further evaluation on the Atlantic Rim Pipeline project. This project may be needed if the City abandons the use of the Atlantic Rim Reservoir. The configuration of the project depends on the final site selection for a reservoir and how the pipeline is operated.