MCNUTT WATER SUPPLY PROJECT

LEVEL II - EXECUTIVE SUMMARY

NOVEMBER, 1998

WYOMING WATER DEVELOPMENT COMMISSION

STATE OF WYOMING

SCALE: 1" = approximately 70 miles
FORWARD

Comments on the Draft Report issued October 9, 1998 were received from the City of Worland and from the USDA Rural Utility Service (RUS). As appropriate, these comments were incorporated into the Final Report contained herein. A summary of the more significant comments follows:

- **City of Worland**: The majority of Worland’s comments focused on rates which will be charged by Worland to McNutt. Currently Worland has stated their intent to supply McNutt with water, however, the final rate structure has not been negotiated. The matter is complicated by current State statute, Worland City Code, and current practices for outlying districts. The figures utilized in the report reflect the expected rates based on the most similar outlying district, the South Worland Water Users. During Level III and water purchase agreement will be negotiated.

- **RUS**: The most substantiative comment received from RUS was that they felt that McNutt should be incorporated with the Washakie Rural District. As subsequently discussed, the WDC concurred with this position.

CURRENT PROJECT STATUS

During the November 17, 1998 WDC meeting the commission emphasized that the regional system should be developed whenever feasible and that small satellite systems, such as McNutt, should be avoided when possible. The WDC recommended that Level III funding be approved for the Washakie Rural District with the addition of McNutt to that system. On November 18, 1998 the McNutt District Board issued a letter to potential users stating that this would be the approach that they must follow and that any initial tap fees would be returned. The McNutt Improvement District may remain in force for the development of other improvements but will petition the Washakie County commissioners to be incorporated within the Washakie Rural District for water service.

ACKNOWLEDGMENTS

BRS Inc. would like to acknowledge the efforts, assistance, and data provided for this project by the City of Worland, Mayor Herm Emmett, the Worland City Council and Utilities Commission, Gary Thompson (Superintendent of Public Works), Gary Gerber (Department of Public Works), and Mike Donnell (City Engineer). BRS would also like to thank the McNutt District Board members Carl Yorgason, Eileen Dangle, and Blain Beall for their time and support.
PROFESSIONAL CERTIFICATION

I, Douglas L. Beahm, President of BRS Inc., a Wyoming Corporation, hereby certify that the professional services required for the McNutt Water Supply Project, Level II, were developed by me or under my direction and that I am a Professional Engineer licensed in Wyoming as required by the provisions of W.S. 33-29-105 through W.S. 33-29-113. IN WITNESS WHEREOF, I have hereunder set my hand and affixed my seal.

By:

Douglas L. Beahm, P.E., #5499
President, BRS Inc.

I further certify that I am a Professional Geologist licensed as required by the provisions of W.S. 33-41-101 through W.S. 33-41-121, and that all geological work performed in relation to this Project was performed by me or under my direction. IN WITNESS WHEREOF, I have hereunder set my hand and affixed my seal.

By:

Douglas L. Beahm, P.G., #1341
President, BRS Inc.
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1.0 INTRODUCTION

The McNutt Water Supply Project is a Level II feasibility study, funded by the Wyoming Water Development Commission (WDC). The McNutt Water District is separate from, but surrounded by, the Washakie Rural Water District which is also a Level II study being funded by the WDC. BRS Inc. is the project engineer for both projects.

The McNutt Subdivision is located in Washakie County, Wyoming, within portions of Section 3, Township 46 North, Range 93 West (refer to Figure 1.1). The McNutt Improvement District was formed in 1997 and encompasses all but five of the lots within the subdivision and limited adjacent acreage. Current water supply is from individual wells or hauled from Worland. There is no current sewer service.

Given the limited size of the district, public participation in the project is a critical issue. Initial public participation began with a "block party" or neighborhood meeting was held on July 17, 1998. Approximately, 20 persons were in attendance representing 8 families. The status of the project and anticipated activities were discussed along with potential costs and funding. Those residents who attended granted permission for access, site investigation and water sampling completed as part of the site investigation. The major concerns raised were related to costs. The project was welcomed by all but one of those in attendance. The meeting was followed up with individual contacts and a subsequent meeting with the district board to discuss conceptual designs and potential rate structures.

2.0 PROJECT SETTING AND WATER SUPPLY ALTERNATIVES

As shown on Figure 1.1, the McNutt District is located along U.S. Highway 20 approximately 4 miles south of Worland, Wyoming. An existing eight inch water service is located within the highway right-of-way between the Wyoming Boy’s School and Worland’s West Tank. A six inch valve was installed along the eight inch service line near the junction of the county road which provides access to McNutt. This will be the likely point of connection to Worland’s system.

Based on questionnaires received during the block party individual well depths vary from 56 to 260 feet. The shallow wells are completed in Quaternary alluvial deposits and would most likely be in communication with surface water. Such wells, used as a drinking water source pose health risks especially given the immediate proximity of individual septic systems. The deeper wells are completed in the Willwood Member of the Fort Union Formation (Tertiary age). These are the most common completion in the county with depths ranging from 100 to 300 feet. The well yields are relatively low ranging from 1 to 28 gallons per minute. Water quality is generally poor and exceeds EPA secondary standards and health advisories for TDS, sulfate, and sodium.

Potential water supply sources include the purchase of water from the City of Worland, ground water sources and surface water sources. Based on water quality, health risk, and cost, the preferred water supply alternative is the purchase of water from Worland.
3.0 SERVICE AREA/WATER DEMAND

The service area of the McNutt District includes the platted McNutt subdivision less lots 8, 12, 13, 24, and 25, and includes limited adjacent acreage. The district is located entirely within Section 3, Township 46 North, Range 93 West. Nineteen individual service (3/4 inch) taps have been committed and the potential exists for the addition of nine more taps for a total of twenty eight taps. For planning purposes, it is recommended that twenty taps be considered the minimum number of taps and that twenty five taps be considered the most likely. Although there are forty five lots in the subdivision, the potential for growth appears limited.

Current demands from water systems in the region, as reported to the WDC, show average monthly demand was 13,582 gallons per tap with a corresponding peak monthly demand of 26,151 gallons per tap. For the purposes of this investigation an average per tap demand of 15,000 gallons per month and peak demand of 30,000 gallons per month was used.

Fire flow could not be sustained without onsite storage and/or a booster pump station. The cost for inclusion of fire flow in the system would be prohibitive for the limited number of users.

4.0 PRELIMINARY DESIGN

The preliminary design relies on Worland for water supply from the 8 inch line along Highway 20 which runs from Worland’s West tank to the Boy’s School tank. The design does not incorporate any storage or booster facility. However, the southern portion of the Washakie Rural System is designed to tie into the Boy’s School system. The south Washakie system is proposed to tie to the Worland system at the intersection of Lane 12 and Road 11. This location is above Worland’s PRVs and would rely on pressure from the East Tank. The main supply from this location would proceed by gravity flow to a tank located on an elevated ridge near Gooseberry Road south of the Boy’s School. The Washakie Rural Tank will be set at a elevation of 4290 feet or higher. Connecting this system to the Boy’s School and McNutt would raise the pressures in both systems and eliminate the need for the booster station. In the preferred design alternative all water lines are located within existing rights-of-way. The main supply line would be 6 inch with a 4 inch distribution loop within the subdivision and limited 2 inch distribution lines to limited residents. An existing 2 inch service line is in place to the most distant user. At the point of connection a master meter, backflow preventer, and meter pit would be installed, as a minimum. In addition an automatic shutoff valve is recommended.

5.4 Design Flows/Network Modeling

System design and network modeling for this project was developed utilizing "Cybernet" hydraulic software developed by Haestad methods and licensed to BRS Inc. This software is an "Autocad" based software which allows the user to evaluate system layout and simulate flow conditions and demand scenarios. The system displays data on flow, pressure, and various other parameters in graphic and text formats.
For peak demand network modeling a worst case daily demand was employed using 60 gallons per minute, this would simulate the peak daily demand for 100 people. This simulation assumed the pressure available from the 8 inch supply line based on 71 psi at the booster station. At the most distant location and the highest elevation, the residual pressure is approximately 32 psi. This compares to WDEQ/WQD Chapter XII Regulations which require a minimum pressure of 20 psi under all conditions and a normal working pressure of 35 psi. If the top elevation of the Boy’s School tank (4282 feet) were to control the system, pressures would increase by approximately 12 psi as reflected by the static pressures.

5.0 ESTIMATED COSTS AND FINANCING

The construction subtotal for all components is estimated at $114,109.00. Unit cost data was derived from recent contractor bids in the vicinity, vendor quotations for materials, and cost data from city of Worland Public Works Department. Approximately 62% of the system components are related to the water supply system, eligible for WDC funding, and 38% are related to the distribution system, eligible for State Land and Investment Board funding.

The following table provides a comparison of financing alternatives. The lowest cost per month for debt retirement would be to obtain a WDC grant for the supply components, a State Land Investment grant for the distribution components, and then secure a low interest loan for the remaining debt from RUS. RUS will require a bond election at a minimum cost of $5,000.00 and a specific application process. Currently RUS loans are at a rate of 4.75%. A rate of 5% was used in the analysis since the rates change quarterly. The maximum term for a RUS loan to an improvement district such as McNutt is 25 years. The next lowest cost per month would be to avoid the cost of the bond election and secure state loans at the current rate of 7.25% for a 30 year term.

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6.0 RECOMMENDED RATE SCHEDULE

The McNutt District rates must consider debt retirement, water purchase charges, operation and maintenance costs (O&M), water use charges, and tap fees. It is critical in the development of a rate schedule that all costs are covered and to the extent possible rates are equitable to all users. In addition, it is desirable that the rate schedule provide an affordable minimum rate with escalation of rates dependent on water use. The following rate schedule is recommended, however, the final decision of rates rests with the District.

- An initial tap fee of $1,500.00 per active tap is recommended with the option of an inactive tap fee of $300.00 per tap with the balance due upon activation. Once the system is funded and construction contracts let, it is recommended that the tap fee double. From that point forward the tap fee should increase as costs dictate.
- Debt retirement should be charged to all taps, active or inactive. It is recommended with this funding scenario that a debt retirement fee of $20.00 per month per tap be collected, at least initially, to build a reserve account.
- Worland charges will most likely include monthly debt retirement for their water supply system and per 1,000 gallons water use fees. A water purchase agreement with Worland will be required that is compatible with Worland City code and Wyoming State law. The current state law mandates that the charges do not exceed actual costs of water supply to the point of delivery. Current city code and practice is to charge an additional 25% above in-town rates applied to the monthly debt retirement of $6.00 per tap and commercial water use rate of $1.00 per 1,000 gallons. Conservatively Worland charges are estimated at $7.50 per tap and $1.25 per 1,000 gallons.
- System operating and maintenance costs may include costs for actual system maintenance and repair, meter reading and billing, insurance, water sampling costs, and incidental expenses. The estimated monthly cost per tap for 20 taps would be $15.00 per tap.

Based on the forgoing assumptions and recommendations (assuming the 25% surcharge from Worland and assuming 20 taps) the following overall rate schedule is recommended.

Minimum rate for 5,000 gallons - $20.00 District debt retirement

$ 7.50 Worland debt retirement

$15.00 O&M

$ 7.50 Water use

$50.00 Total per month per tap

Monthly bill for 15,000 gallons - $20.00 District debt retirement

$ 7.50 Worland debt retirement

$15.00 O&M

$ 22.50 Water use

$65.00 Total per month per tap
7.0 ADDITIONAL REQUIREMENTS

WDC Requirements

The District must request funding from WDC for the McNutt project as Level III. This request must be made on or before November 1, 1998. WDC will review the project, the Level II report and determine whether to present the project to the legislature for funding in 1999. If the project receives WDC funding, application can be made to the State Land and Investment Board for funding in the spring of 1999.

RUS Requirements

If the District chooses to pursue RUS funding, an application must be prepared and a bond election held. Most likely the bond election would be held in May 1999. Upon receipt of the application RUS will determine grant/loan mix based on projected user costs.

Water Purchase Agreement

A water purchase agreement must be established with Worland for the supply of the water. On October 1, 1998 the City of Worland passed a resolution allowing Mayor Herm Emmett to sign a letter of intent to supply water to the McNutt Improvement District.

Level III Requirements

- Easements and permits must be obtained.
- Final tap commitments (with partial payment) and service agreements must be established.
- Final designs and specifications must be prepared.
- The point of connection be exposed and pressure tested prior to final design.
- Critical elevations such a tanks, connection points, and highest taps should be checked.
- All tap fees should be collected on or before the bidding of the project.
- Tap fees should be increased once the project is bid.

8.0 CONCLUSIONS AND RECOMMENDATIONS

The McNutt project appears feasible based on monthly costs of comparable systems. The most variable costs will be the O&M costs. These will vary based on a variety of factors including how the District chooses to operate. It is recommended that the District contract O&M services preferably with Worland or another established water district in the vicinity. Consideration may also be given to consolidation of the McNutt District with the Washakie Rural Improvement District.