



STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

EAG-W-07-02

1410 North Hilton • Boise, Idaho 83706 • (208) 373-0502

C.L. "Butch" Otter, Governor
Toni Hardesty, Director

June 26, 2007

TSP&S-142/2007

Mr. Robert V. DeShazo, Jr.
Eagle Water Company, Inc.
172 W. State Street
Eagle, Idaho 83616

Mr. James Rees, P.E.
MTC, Inc.
707 N. 27th Street
Boise, Idaho 83702

RE: Eagle Water Company (*City of Eagle, Ada County*)
Acceptance of Preliminary Engineering Report

Dear Mr. DeShazo and Mr. Rees:

The Idaho Department of Environmental Quality (DEQ) has reviewed the Preliminary Engineering Report for the Eagle Water Company (EWC) water system, received on June 18, 2007, and has determined that it satisfies the requirements for such a document as set forth in the DEQ/EWC Consent Order signed by both parties on February 17, 2006. In accordance with that Consent Order, DEQ hereby directs EWC to change the title of the document to "Final Engineering Report", and submit it to DEQ for formal approval.

Please call me with any questions at 373-0514, or contact me via e-mail at peter.bair@deq.idaho.gov.

Sincerely,

Peter S. Bair, P.E.
Technical II Engineer

PSB:slt

C: Tiffany Floyd, Drinking Water Manager, DEQ Boise Regional Office
Mark Mason, P.E. Engineering Manager, DEQ Boise Regional Office
Stephanie Ebright, Attorney General's Office, DEQ State Office
Monty Marchus, P.E., DEQ Boise Regional Office
Molly O'Leary, Richardson & O'Leary PLLC, P.O. Box 7218, Boise, Idaho 83707
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MTC, INC.



CONSULTING ENGINEERS, SURVEYORS, AND PLANNERS

707 N. 27TH ST. BOISE, IDAHO 83702-3113 (208) 345-0780 FAX (208) 343-8967

Ms. Tiffany Floyd, Regional Drinking Water Manager
Department of Environmental Quality
Boise Regional Office
1445 N. Orchard St.
Boise, ID 83706


June 27, 2007
Project 05-840

Dear Ms. Floyd;

Transmitted herewith are three copies of the Final Engineering Report on the Eagle Water Company, Inc. water system as required by 1076 / 16RO Consent Order.

We look forward to assisting you in any manner necessary during you review of this report. Please contact us directly if you have any questions.

Yours truly,



James M. Rees P.E.
MTC. Inc.



MTC, INC.

CONSULTING ENGINEERS, SURVEYORS, AND PLANNERS

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June 27, 2007

Project 05-840

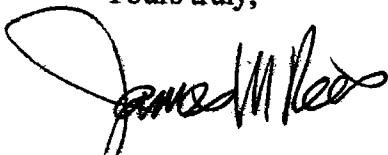
Mr. Robert V. DeShazo, Jr.
Eagle Water Company, Inc.
P.O. Box 455
Eagle, ID 83616

Dear Mr. DeShazo,

Transmitted herewith is the Final Engineering Report performed on the Eagle Water Company, Inc. Water System.

We sincerely appreciate the opportunity to be of service to you on this project and we look forward to continue to serve you.

Yours truly,



James M. Rees P.E.
MTC Inc.

FINAL ENGINEERING REPORT

on the

**Water Supply System Study
For
Eagle Water Company, Inc,
Eagle, Idaho**

By

**MTC Engineers Inc.
707 N. 27th Street
Boise, Idaho 83702**

June 2007

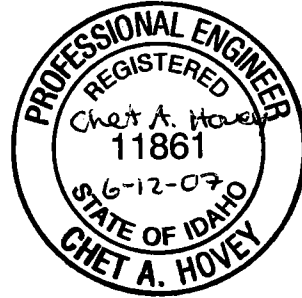
1	ENGINEER'S CERTIFICATE
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ENGINEER'S CERTIFICATION AND DECLARATION

James M. Rees and Chet A. Hovey, hereby certify that they are Registered Professional Civil Engineers in the state of Idaho. They declare that this ^{Final} ~~Preliminary~~ Engineering Report was prepared under their direct supervision for Eagle Water Company, Inc., Ada County, Idaho.



James M. Rees, P.E.
Idaho Reg. 1830



Chet A. Hovey, P. E.
Idaho Reg. 11861

Idaho Public Utilities Commission
Office of the Secretary
RECEIVED

AUG - 6 2007

Boise, Idaho

Acknowledgements

We wish to acknowledge the willing cooperation and assistance of the staff of Eagle Water Company and the City of Eagle. Particularly we acknowledge the efforts of Mrs. Betty Holt, Norman Revels and Mrs. Toni Velie at Eagle Water Company in providing us with the meter records necessary to perform the consumption analysis. Your patience and forbearance were exemplary. We would also like to acknowledge the modeling efforts provided by Ward Engineering Group. Thank You.

Idaho Public Utilities Commission
Office of the Secretary
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AUG - 6 2007

Boise, Idaho



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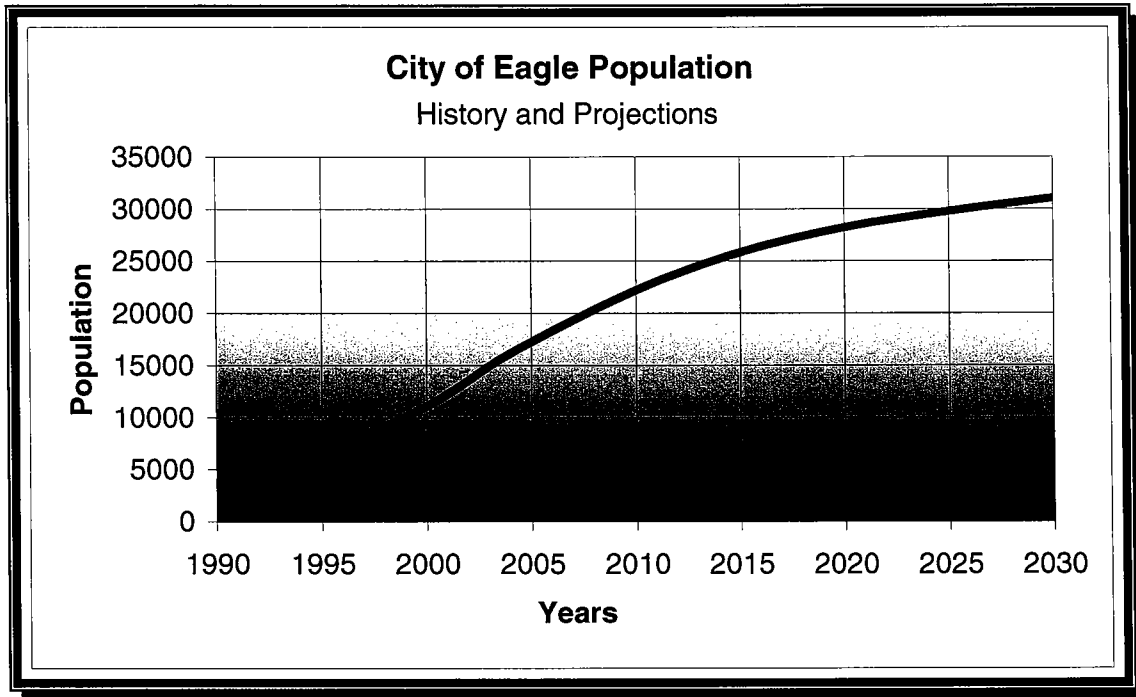
Mr. Robert V. DeShazo, Jr.
Eagle Water Company, Inc.
P.O. Box 455
Eagle, ID 83616

June 27, 2007
Project 05-840

Dear Mr. DeShazo,

The Final Engineering Report characterizes the water system of Eagle Water Company (EWC) for the purpose of 1) to identify current system pressure and supply deficiencies, if and 2) to identify and analyze potential remedial actions, and 3) to generate a model for EWC to use as a tool in current and future planning, monitoring, and management. The scope of the Final Engineering Report was system-wide. At the current time, the Idaho Department of Environmental Quality (IDEQ) has placed a development moratorium on the Company's certified service area until potential remedial actions are identified.

The City of Eagle has been a significant growth pattern. Census and population estimates (as obtained from the Idaho State Department of Commerce and Labor and other sources) and population projects from the demographic group COMPASS of IDAHO was integrated to develop the chart below which was used in estimating population and growth rates:



Portions of this growth were by annexation and were outside the Company's service area. However, growth has also occurred within the EWC service area through population growth, residential infilling, and an expanding commercial base. This is shown in the table below by the increase in the number of residential and commercial accounts serviced for the current water accounts and the anticipated water accounts for 2010 and 2026.

Water Accounts Summary

Year	Residential Accounts	Commercial Accounts	Agricultural Accounts	Total Water System Accounts
2006 w/ Approved Developments	2,924	358	112	3,394
2010	3,333	408	112	3,853
2026	3,603	530	112	4,245

The above table above indicates, the assumption that growth will only occur in Residential and Commercial accounts. Agricultural accounts would conservatively

remain constant even though Agricultural accounts will likely decrease as development occurs. In addition, the City of Eagle has policy that all new development must be equipped with a pressurized secondary irrigation system utilizing existing irrigation water rights.

The maximum day demand data was obtained from EWC personnel. The data indicates a steadily increasing which is attributed to the increase in water accounts served. To determine the maximum day demand per account and if it's changing with time, the maximum day demand was divided by the number accounts for the years 2003 through 2006. The results are listed in the table below.

The maximum day demand results are listed in the table below.

Maximum Day Demand

Year	Maximum Day Demand (gpd)	Account Total	Maximum Day Demand per Account (gpm)
2003	4,647,000	2,745	1.18
2004	4,763,000	2,888	1.15
2005	5,180,000	3,196	1.13
2006	5,261,000	3,261	1.12

The table shows a continual decrease with time for maximum day demand per account. In projecting future demands on the water system, it is conservatively assumed that each water account would have a maximum day demand of 1.12 gpm instead of following the downward trend.

The peak hour flow demand was determined from available flow data, industry references, and peaking factors used by local water systems. A list of some of the industry references and peaking factors from local water systems are shown below.

System Demand

Reference	Peaking Factor for Peak Hour Flow Demand
Dewberry and Davis Land Development Handbook	1.58
City of Eagle	1.50
Star Sewer and Water District's	1.45
City of Meridian Water Master Plan Update	1.38

After careful consideration and discussion with IDEQ (See Appendix D), it was agreed that a peaking factor of 1.50 be used from maximum day demand to peak hour flow. Thus, each water account would have a peak hour flow demand of 1.68 gpm (1.12 gpm*1.5). As part of the agreement of using a 1.5 peaking factor for peak hour flow, EWC will monitor the system for peak hour flow and maximum day demand this summer (2007) in order to validate the decision.

Each water account was considered a dwelling unit (D.U.). The plan of study was to utilize computer based modeling software, calibrate the model to available existing system data, and then test various scenarios in the model to see their impact on the overall system's modeled operation.

A computer model was setup to simulate the following: maximum day demand with fire flow and the peak hour flow demand under the existing 2006 water system w/ approved developments, 2006 with required improvements, the projected 2010 water system, and projected 2026 water system. Each of these scenarios was run with Well #4 off and then Well #6 off per the General Design Conditions (Section 501.17.a).

Specific standards (utilized in this modeling) establishing pressure, flow and redundancy requirements were obtained from *Idaho Rules for Public Drinking Water Systems (IRPDWS)*. These standards require a minimum zone pressure of 20 psi during the maximum day demand plus fire flow scenario. The system also needs to meet the system wide operational pressure standards of 100 psi maximum and a minimum of 40 psi during normal operations and peak hour flow demand.

Calibration of the model was verified comparing modeling results with actual fire hydrant flow test data. Two separate scenarios were used to verify that the model reflects actual field conditions. The scenarios were before and after Well #7 was put into service and a total of 8 fire hydrant flow tests were compared. The model agrees with reasonable variance to measured field conditions. Varying pressure and flow availability within the system are likely when using data from different hours during the day, years, and seasons.

The modeling results for the different scenarios were analyzed to identify improvements to the system and make recommendations. One of these evaluated improvements was the use of a water storage facility. The concept of utilizing a tank for a supplemental source when one of the wells is out of service was studied from several angles. The recommended storage capacity of one million gallons was used for the study. To be effective the tank must supply water to the highest service connection with the required working pressure of 40 psi. This would require the minimum operating water level of the tank to be around elevation 2840 feet. The tank must be located outside the existing certificated area for proper elevation or EWC would need to construct an elevated tank. There are few, if any, locations available for the construction of an elevated tank. Two locations outside the service area were evaluated for a tank location. To fill either of the tanks, a tank booster pump station would be required. Due to siting, easements, and economics concerns along with the need for an additional water supply in the near future; it was determined that a water storage facility would be nice but not a necessity.

A computer model was setup to simulate the following: maximum day demand with fire flow and the peak hour flow demand under the existing 2006 Water System w/ Approved Developments, 2006 with Required Improvements, the projected 2010 Water System, and projected 2026 Water System. Each of these scenarios was run with Well #4 off and then Well #6 off per the General Design Conditions (Section 501.17.a).

After evaluating and modeling numerous options, a list of recommendations were developed. The recommendations were divided into the following categories: Mandatory, Future, Suggested, and Completed Actions. Mandatory Actions are those

immediately required to bring the system into compliance with regulations. Future Actions are recommendations required to support future development. Suggested Actions are items that would optimize the water system but are not required. Completed Actions are recent improvements that have been beneficial to the current water system. For ease of implementation and organization, the action categories have been divided into two subcategories: (1) planning items and (2) construction projects.

MANADATORY ACTIONS

PLANNING ITEMS

A list of MANDATORY planning items to bring the water system into compliance is as follows:

- None

CONSTRUCTION PROJECTS

The following list of MANDATORY construction projects along with their construction priority has been developed to increase the service pressure, available fire flow, and water supply within the water system. However, the 2006 Approved Development analysis identified improvement project-related deficiencies within the existing water system. As the model results indicated, the maximum day demand plus fire flow, with Well #4 off, identified 5 residential junctions in the upper pressure zone with fire flow availability less than 1000 gpm and the minimum fire flow for commercial junctions of 1668 gpm. The peak hour demand indicated that the pressure dropped below 40 psi when Well #4 off and then again when Well #6 is off. The results for the 2006 Approved Development indicate the need for the following list of Mandatory construction projects to bring the water system into compliance with IRPDWS requirements.

<u>Priority #</u>	<u>Date</u>	<u>Description</u>	<u>Cost Estimate</u>
1	(2007-2008)	Water Interconnect Interconnect water systems with either United Water or City of Eagle for emergency flow redundancy. The United Water	\$151,250

interconnect should be made on Floating Feather Road just downstream of the proposed PRSV to feed the lower pressure zone. The United Water Interconnect should be designed to produce 1845 gpm at 61.5 PSI. The City of Eagle interconnect should be made upstream of the proposed PRSV to feed the upper pressure zone. This interconnect should be designed to produce 1845 gpm at 74 PSI. Cost estimate is for United Water Interconnect as modeled in the report and would require a traffic rated vault, miscellaneous valves, flow meter, and appurtenances.

Cost Itemization

Construction	\$ 125,000
Engineering (12%)	\$ 12,500
<hr/>	
Subtotal	\$ 137,500
Contingency (10%)	\$ 13,750
Total	\$ 151,250

Timeline Overview

Design	July 2007
Permitted	September 2007
Construction	December 2007

2	(2007)	Install PRSV on Floating Feather Road\$43,120
		Replace existing throttling valve with a pressure reducing/sustaining valve. In the water model, the upstream pressure setting was set at 72.5 psi and downstream pressure remained near 55 psi.

Cost Itemization

Construction	\$ 35,000
Engineering (12%)	\$ 4,200
<hr/>	
Subtotal	\$ 39,200
Contingency (10%)	\$ 3,920
Total	\$ 43,120

Timeline Overview

Design	July 2007
Permitted	August 2007
Construction	December 2007, Will be installed during low flow conditions.

FUTURE ACTIONS

PLANNING ITEMS

A list of FUTURE planning recommendations is as follows:

- None

CONSTRUCTION PROJECTS

The list below is for Future construction projects which have been selected to able the water system to service the anticipated growth and also eliminate reliance on the proposed water interconnect.

<u>Priority #</u>	<u>Date</u>	<u>Description</u>	<u>Cost Estimate</u>
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1	(2008-???)	New Water Source	\$898,040
		There are two viable options to increase the available water supply within the water system. The first option would be to renovate existing water sources for additional supply and equip these sources with emergency backup power. The second option would be to drill and construct new water source which would be equipped with emergency backup power. As	

previously stated, the water requirement of 2365 gpm is required for the 2010 and 2026 Scenarios. This item also includes associated piping (\$35/ft at 1350 ft) and land (\$150,000).

Cost Itemization

Construction	\$ 785,000
Engineering (4%)	\$ 31,400
<hr/>	
Subtotal	\$ 816,400
Contingency (10%)	\$ 81,640
Total	\$ 898,040

Timeline Overview

Siting	October 2007
Design	February 2008
Permitted	October 2008
Construction	December 2008

* The questions marks for the completion date indicate the uncertainty associated with siting and permitting a new water source.

- 2 (2008-2009) Well #2 Booster Pump Station Modification\$38,115
 Increase the pumping head in Booster Pump Station #2 by replacing existing pumps with pumps that produce a combined flow 640 gpm at 148' TDH. This will enable the use of the 90,000 gallon Well #2 water storage tank to attenuate the peak demand on the water sources. The model was setup with two pumps in operation for convenience only. Any major pump modifications made will require the pumping station to be equipped with redundant pumping capacity. It should be designed with either a duplex pumping station with equal sized pumps or a triplex pumping station with two identical smaller pumps and a jockey pump meeting the required flow and head parameters.

Cost Itemization

Construction	\$ 31,500
Engineering (10%)	\$ 3,150
<hr/>	
Subtotal	\$ 34,650
Contingency (10%)	\$ 3,465
Total	\$ 38,115

Timeline Overview

Design	March 2008
Approval	July 2008
Construction	November 2008

(As Developed)

West Enchantment Street, West Cobblestone Way, and West Yellowstone Street Piping Interconnect \$30/ft @ 3,740 ft plus Bore & Jack \$50,000,\$253,616
Increase the capacity of fire flow near Well #6 when it is off line. It should be a requirement of the developer of residential parcel #2 to make the looped connection including the bore and jack under the canal. The cost should be split between the developer and EWC.

Cost Itemization

Construction	\$ 209,600
Engineering (10%)	\$ 20,960
<hr/>	
Subtotal	\$ 230,560
Contingency (10%)	\$ 23,056
Total	\$ 253,616

Timeline Overview – Will be development driven.

SUGGESTED ACTIONS

PLANNING ITEMS

A list of SUGGESTED planning recommendations is as follows:

- Provide notification to users in the upper pressure zone that the Main Booster Pump Station is not equipped with backup emergency power or a redundant pump. This could result in temporary loss of pressure during power outages or pump failure.
- EWC will keep the City of Eagle's plumbing inspectors informed of areas within the service area that have service pressures greater than 80 psi. A figure identifying junctions which have service pressure greater than 80 psi under any of the scenarios is included in Appendix K.
- All new construction within the 80 psi or greater pressure areas will have a recommendation to be equipped with a individual pressure reducing valve along with a thermal expansion tank.
- All new subdivisions, if possible, should be a looped system.
- Minimum 8" waterlines in residential areas and 12" waterlines in commercial areas.
- No booster pumps should be connected to the water system unless they are owned and operated by EWC and any currently unauthorized pumps should be removed, per *Recommended Standards for Water Works, 2003 (Ten States Standards)*.
- As development occurs around existing subdivisions, it should be required, to connect to the existing subdivisions creating piping loops within the water system. Multiple existing subdivisions are being serviced from one feed line, thus limiting fire flow availability and a redundant water supply.
- All proposed developments should require a fee for a water model analysis prior to approval. It is suggested that developers be required to submit electronic copies of plans to be integrated into the water model for preliminary plat review.

CONSTRUCTION PROJECTS

A list of Suggested construction projects have been developed for operational purposes for the water system.

<u>Priority #</u>	<u>Date</u>	<u>Description</u>	<u>Cost Estimate</u>
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1	(N/A)	Pump Redundancy for the Main Booster Pump Station ..\$51,744 Provide pumping redundancy through either a water system interconnect to the upper pressure zone (the City of Eagle Water Interconnect) or an additional pump in the Main Booster Pump Station.	
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Cost Itemization

Construction	\$ 42,000
Engineering (12%)	\$ 5,040
<hr/>	
Subtotal	\$ 47,040
Contingency (10%)	\$ 4,704
Total	\$ 51,744

Timeline Overview

Design	2 Months
Permitted	1 Month
Construction	1 Month, during a low demand period.

2	(N/A)	Install Recording Flow Monitors\$47,080 Install recording flow meters on Well #4, Well #7, Well #6, Well #1, Main Booster Pump Station, and Booster Pump Station #2.	
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Cost Itemization

Construction	\$ 42,000
Engineering (Specs Only)	\$ 800
<hr/>	
Subtotal	\$ 42,800
Contingency (10%)	\$ 4,280

Total \$ 47,080

Timeline Overview

Design	2 Months
Permitting	2 Months
Construction	3 Months

COMPLETED ACTIONS

PLANNING ITEMS

A list of COMPLETED planning recommendations is as follows:

- Planning and implementation of Well #7.

CONSTRUCTION PROJECTS

A list of Completed construction projects performed by EWC in an effort to increase source availability within the water system is provided below.

<u>Priority #</u>	<u>Date</u>	<u>Description</u>	<u>Cost Estimate</u>
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Completed (2006)		New Water Source – Well #7 (Constructed and Online) Construct new water source and associated piping with emergency backup power supply. (Per EWC's understanding of the consent order, EWC must indicate what specific actions are required to bring the water system into compliance. Additional source was determined the #1 priority and Well #7 and interconnect listed below was construction. Therefore, it is included as our #1 priority for improvement).	\$638,600
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Cost Itemization

Construction	\$ 620,000
Engineering	\$ 18,600

Total	\$ 638,600
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Timeline Overview - Completed

Completed (2006) Well #7 Interconnect (Constructed and Online)\$153,300
 Construct new transmission piping from Well #7 to existing piping along Eagle Bypass.

Cost Itemization

Construction	\$ 146,000
Engineering	\$ 7,300
<hr/>	
Total	\$ 153,300

Timeline Overview - Completed

Completed (2007) Repair Well #4.....\$56,100
 Well #4 is currently being rebuilt to provide additional water source. The reconditioned pump will be online prior to summer demand of 2007.

Cost Itemization

Construction	\$ 51,000
<hr/>	
Subtotal	\$ 51,000
Contingency (10%)	\$ 5,100
Total	\$ 56,100

Costs are estimates only and because final billing has yet to be received and finalized.

Timeline Overview - Completed

Financial Plan

The following calculations have been prepared by Geneva Trent, CPA, for Eagle Water Company, Inc. Eagle Water Company intends to file an Application with the Idaho Public Utilities Commission (IPUC) to finance the recommended system improvements, as needed. If the system improvements and related surcharges are approved by the

IPUC, Eagle Water would seek commercial financing for the projects and the borrowed funds would then be repaid through a surcharge on customers' usage.

The attached surcharge calculations indicate the percentage that Eagle Water's customers might be required to pay over-and-above current water rates, for the various recommended improvements, if approved by the IPUC.

Eagle Water has been ordered by the IPUC to submit an Application for financing necessary systems improvements by July 15, 2007. Eagle Water is prepared to do so immediately upon DEQ's acceptance of its Preliminary Engineering Report.

Eagle Water Company

Calculation of Surcharge Amounts for Proposed Improvements
at June 10, 2007

MANDATORY ACTIONS – Construction Projects:

Priority #1 - Water Interconnect

Cost of Priority 1	\$ 151,250.00	
Estimated bank loan fees	1,500.00	
Amount Financed	\$ 152,750.00	
Term (estimated)	5 years	
Interest Rate	9.50%	
Monthly Payments Required	\$ 3,208.00	(approximate)
Annual Cash Required	\$ 38,496.00	
Multiplied by Gross-up (from below)	127.88%	
Total Annual Surcharge	\$ 49,228.68	
Divided by Total Annual Revenue	\$ 729,590.00	(2006 revenues)
Surcharge	6.747%	

2006 Customers	Revenues	Percent of Total
Residential	\$ 542,947.52	74.42%
Commercial	186,642.53	25.58%
Totals	\$ 729,590.05	100.00%

Calculation of Gross-Up Factor for Taxes:

1)	100.00%	taxable	
2)	8.00%	State Tax Rate	
3)	92.00%	Federal Taxable	
4)	13.80%	Effective Federal Tax Rate	(Federal Rate 15%)
5)	21.80%	Composite Tax Rate	2) + 4)
6)	78.20%	Net After Tax Income	
7)	127.88%	Gross-up Factor	

MANDATORY ACTIONS - Construction Projects (continued)

Priority #2 - Install PRSV on Floating Feather Road

Cost of Priority 2	\$ 43,120.00	
Estimated bank loan fees	400.00	
Amount Financed	\$ 43,520.00	
Term (estimated)	1 year	
Interest Rate	9.50%	
Monthly Payments Required	\$ 3,816.00	(approximate)
Annual Cash Required	\$ 45,792.00	
Multiplied by Gross-up	127.88%	
Total Annual Surcharge	\$ 58,558.81	
Divided by Total Annual Revenue	\$ 729,590.00	(2006 revenues)
Surcharge	8.026%	

FUTURE ACTIONS - Construction Projects:

Priority #1 - New Water Source

Cost of Priority 1	\$ 898,040.00	
Estimated bank loan fees	9,000.00	
Amount Financed	\$ 907,040.00	
Term (estimated)	10 years	
Interest Rate	9.50%	
Monthly Payments Required	\$ 11,737.00	(approximate)
Annual Cash Required	\$ 140,844.00	
Multiplied by Gross-up	127.88%	
Total Annual Surcharge	\$ 180,111.31	
Divided by Total Annual Revenue	\$ 729,590.00	(2006 revenues)
Surcharge	24.687%	

FUTURE ACTIONS - Construction Projects (continued)

Priority #2 - Well #2 Booster Pump Station Modification

Cost of Priority 2	\$ 38,115.00	
Estimated bank loan fees	400.00	
	<hr/>	
Amount Financed	\$ 38,515.00	
Term (estimated)	1 year	
Interest Rate	9.50%	
Monthly Payments Required	\$ 3,377.00	(approximate)
Annual Cash Required	\$ 40,524.00	
Multiplied by Gross-up	<hr/>	127.88%
Total Annual Surcharge	\$ 51,822.09	
Divided by Total Annual Revenue	<hr/>	(2006 revenues)
	\$ 729,590.00	
Surcharge	<hr/> <hr/>	7.103%

SUGGESTED ACTIONS - Construction Projects:

Priority #1 - Pump Redundancy for the Main Booster Pump Station

Cost of Priority 1	\$ 51,744.00	
Estimated bank loan fees	500.00	
	<hr/>	
Amount Financed	\$ 52,244.00	
Term (estimated)	2 years	
Interest Rate	9.50%	
Monthly Payments Required	\$ 2,400.00	(approximate)
Annual Cash Required	\$ 28,800.00	
Multiplied by Gross-up	<hr/>	127.88%
Total Annual Surcharge	\$ 36,829.44	
Divided by Total Annual Revenue	<hr/>	(2006 revenues)
	\$ 729,590.00	
Surcharge	<hr/> <hr/>	5.048%

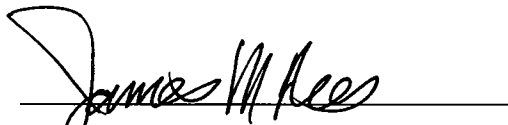
SUGGESTED ACTIONS - Construction Projects (continued)

Priority #2 - Install Recording Flow Monitors

Cost of Priority 2	\$ 47,080.00		
Estimated bank loan fees	450.00		
Amount Financed	\$ 47,530.00		
Term (estimated)	1 year		
Interest Rate		9.50%	
Monthly Payments Required	\$ 4,167.60		(approximate)
Annual Cash Required	\$ 50,011.20		
Multiplied by Gross-up		127.88%	
Total Annual Surcharge	\$ 63,954.32		
Divided by Total Annual Revenue	\$ 729,590.00		(2006 revenues)
Surcharge		8.766%	

We sincerely appreciate the opportunity to be of service to you on this project and we look forward to continuing to serve you.

Yours truly,


James M. Rees, P.E.
MTC, Inc.

AUG - 6 2007

Boise, Idaho

Authorization

Pursuant to the contract agreement between the Engineers, MTC, Inc. (MTC) and Eagle Water Company, Inc. (EWC or "the Company"), MTC, Inc. has performed this water distribution system study on the Company's system.

Purpose, Need, and Plan of Study

The purpose of the investigation was 1) to identify current system pressure and supply deficiencies, if any 2) to identify and analyze potential remedial actions, and 3) to generate a model for the Company to use as a tool in current and future planning, monitoring, and management. The scope of the investigation was system-wide. At the current time, the Idaho Department of Environmental Quality (IDEQ) has placed a development moratorium on the Company's certified service area until potential remedial actions are identified.

The principle need for the study was to identify facility improvements, if any, needed to eliminate low pressures.

The need for additional supply has long been recognized. In the early 1990's, a well was proposed near State Highway 55 (SH-55) and Hill Road. However, access was a major obstacle and the well was never drilled. Well #4 was completed in 1992 near the South-central area of the service area. Well #6¹ was completed in 1996 near the West end of the service area. A connection began from Well #6 thence West on State Street and North on Ballantyne Road to Country Side Subdivision. The plan was to continue North on Ballantyne Road then East to the existing Floating Feather mainline. The request for this service area was denied by the IPUC so the connection was never made. Another possible routing through the proposed Covenant Hill Subdivision was also thwarted when the subdivision area was removed from the Company's service area by the IPUC and assigned to the service area of United Water-Idaho.

In the meantime, the City of Eagle has been in a significant growth pattern. Census and population estimates (as obtained from the Idaho State Department of Commerce and Labor and other sources) are shown below:

¹ There is no Well #5.

Historical Population Data

1990	4,577
1995	6,777
2000	11,085
2004	16,176

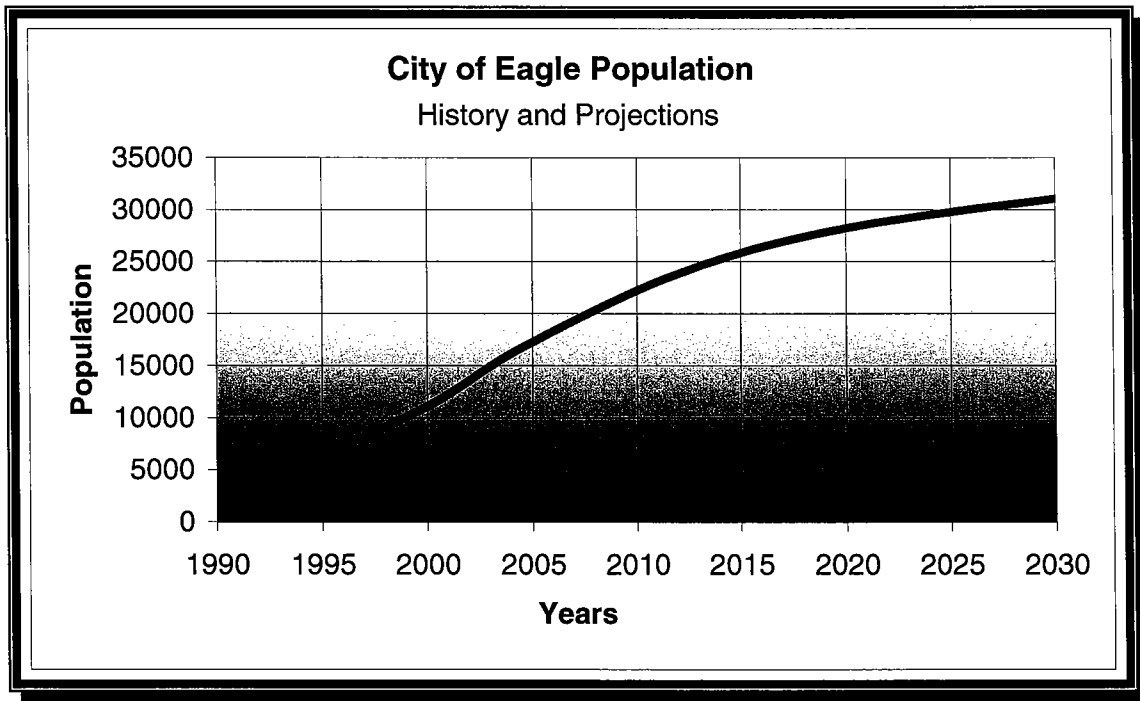
The 2006 population estimate by the City of Eagle is 20,130.

The demographic group COMPASS of IDAHO, a regional planning agency, provided the following population figures:

Population Projects

2005	19,124
2010	22,227
2015	25,854
2020	28,216
2025	29,785
2030	31,043

The chart below shows historical data in conjunction with growth projections for the City of Eagle.



Portions of this growth were by annexation and were outside the Company's service area. However, growth has also occurred within the EWC service area through population growth, residential infilling, and an expanding commercial base. This is shown by the increase in the number of residential and commercial accounts serviced. Further information about water accounts will be provided later within this summary. The need for additional supply will continue to increase with the additional demand placed on the system by the increase in the population.

EWC needs an updated master plan to keep pace with the growth in its service area and to continue to provide cost effective, quality service to its customers. EWC is addressing the above by working to stay ahead of the curve and anticipate domestic water supply needs and fire flow requirements.

The plan of study was to utilize computer based modeling software, calibrate the model to available existing system data, and then test various scenarios in the model to see their impact on the overall system's modeled operation. Based on system evaluations, the system improvements will be identified with a prioritization and cost estimate.

Generalized Description of the Existing Conditions and Water System

The certified service area of EWC, Inc. lies in portions of Sections 2, 3, 4, 8, 9, 10, 11, 14, 15, and 16, in T. 4N., R. 1E., B.M., City of Eagle, Ada County, Idaho. Physiographically it is on the alluvial fan of Dry Creek together with portions of the adjacent Boise Front foothills and the Boise River floodplain. It also consists of all the land North of the North Channel of the Boise River between River Miles ~42 and ~46. Portions in the North and East lie on terraced alluvium left by the down cutting of the Boise River. Topographically the majority of the service area lies West of the Boise Front foothills between elevations 2650 feet and 2546 feet; the balance rises to the East to an elevation of 2743± feet. The geology (as read in the well logs) is generally coarse sand to silts and clays, with minor horizontal lenses of coarser grained materials from major storm events, as would be expected at the mouth of a major drainage. The soils in the alluvial fan areas are in the Notus-Moulton-Falk series while those on the foothills are in the Quincy-Lankbush-Brent series.² With the exception of Dry Creek, the surface hydrology has been significantly modified by over a century of agricultural activity and by urban/suburban development. Groundwater is encountered between 2 and 40 feet below ground surface. Depending on proximity to the river, the well depths may vary from 230 to 466 feet with a drawdown that varies from 60 to 160 feet.

² Soil Survey of Ada County, Idaho; USDA Soil Conservation Service, 1977.

The Southern boundary of the service area is the North Channel of the Boise River which is in the City of Eagle's designated Scenic Corridor. The majority of the area is developed and in general, the native fauna and flora have been supplanted by domestic pets, decorative plantings and grasses.

One well is located planimetrically in the mapped fringe area of the Boise River floodplain; however, it is elevated above the 100-year base flood elevation as required by ordinance of City of Eagle.

With an estimated 2006 population of 20,130, the City of Eagle covers about 17 square miles. The Company's water distribution system lies generally within the City of Eagle and its area of impact. In 2006, service was provided to 2889 residential accounts, 260 commercial accounts, and 112 landscaping accounts.

The supply and distribution systems, owned and operated by the Company are the primary subject of this study. Included in the study are six wells (#1, #2, #3, #4, #6, and #7) and associated pumping stations, one water storage facility for Well #2 Booster Pump Station, two booster pump stations (Main and Well #2), and approximately 54 miles of waterline, with appurtenances, of which about one mile (less than 2% of the overall system) is smaller than 6-inch. All these smaller lines serve five or fewer customers and/or short cul-de-sacs, and all are without fire hydrants and flows are acceptable. See Appendix A for system inventory.

The existing water supply is pumped groundwater from the deep aquifers under the Boise River floodplain. All wells have been permitted by the Idaho Department of Water Resources and the logs are located in their offices. See Appendix B for copies of the well logs.

Water Quality/Security

The water quality is good and meets the public drinking water standards. In addition to specific testing required by the IDEQ, EWC personnel perform wellhead tests monthly. There have been no known problems with the water quality.

All well/pump house facilities are securely locked. Each facility is inspected daily and the pumping quantities and pressures are recorded.

Source Protection Plan

A Source Protection Plan is on file in the EWC office. Currently, the system operator monitors the provisions of the Source Protection Plan in operation of EWC's system. General source protection practices include (but are not limited to) the following:

1. Well houses shall not be used for storage of any chemicals.
2. Well house access is limited to operating staff and persons they admit. No person shall be admitted into a well house unless a member of the operating staff is present.
3. Well sites are visited daily by maintenance personnel in the course of operation and any potential source of contamination is immediately noted and removed.

According to the EWC personnel (Tom Gilbert), A Source Water Assessment Final Report was prepared by IDEQ that defined the potential for water contaminants.

The current know sanitary survey deficiencies are as follows:

1. Auxiliary fuel tank and piping in Well House #2 is not double walled and does not have spill containment structure. To resolve these issues, EWC will provide spill containment through elevated doorway thresholds.

A Brief System History

Eagle Ranch Water Company was formed in 1972 to serve the Eagle Ranch Subdivision. In 1974, the Company applied to the Idaho Public Utilities Commission for a ruling to establish the Eagle Ranch Water Company. In 1976, the Public Utilities Commission ruled on case No. U-1116-1 Order No. 12621 to establish Eagle Ranch Water Company. At that time, there were 150 customers and Well # 1 was the only well in the system. As the customer base grew, Well #2 was drilled and integrated into the system. Eagle Hills subdivision water system was acquired and it's well was designated as Well #3. Due to problems of sand production at high flow rates above 350 gpm, Well #3 is currently only used during high demand periods. It has been equipped with a sand separator which minimized the sanding problems and the well is normally operating below 350 gpm.

In the 1980's, the company name was changed to Eagle Water Company, Inc (EWC). Water meters were added in 1986 and the billing rate was changed from a flat rate basis to a meter rate basis. Well #4 was drilled and added to the system in 1992. With the expansion of the City of Eagle, Well #6 was drilled in 1996 in order to:

- 1.) Serve the West side of the service area,

