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Attorneys for Applicant SUEZ Water Idaho Inc.

RECEIVED
APR 04 2018
DEPARTMENT OF
WATER RESOURCES

BEFORE THE IDAHO DEPARTMENT OF WATER RESOURCES

IN THE MATTER OF INTEGRATED MUNICIPAL APPLICATION PACKAGE ("IMAP") OF SUEZ WATER IDAHO INC., BEING A COLLECTION OF INDIVIDUAL APPLICATIONS FOR TRANSFERS OF WATER RIGHTS AND APPLICATIONS FOR AMENDMENT OF PERMITS.	**NINTH AFFIDAVIT OF JACK W. RELF (EAGLE MASTER PLAN)**

State of Idaho)
) ss.
County of Ada)

JACK W. RELF, being first duly sworn upon oath, deposes and states:

1. I am an associate attorney with the above-captioned firm, Givens Pursley LLP. I am one of the attorneys representing SUEZ Water Idaho Inc. in the above-entitled action and am duly licensed to practice law in the state of Idaho.

2. I make this affidavit based upon my personal knowledge of the facts set forth in this affidavit and to the best of my information and belief.

3. A true and accurate copy of the City of Eagle, Municipally Owned Water System – Master Plan Update #3 (September 2015), as obtained from the City of Eagle, Idaho is attached hereto as Exhibit A.

DATED this 4th day of April, 2018.

GIVENS PURSLEY LLP

By ______________________
Jack W. Relf

Subscribed and sworn to before me this 4th day April, 2018.

LISA A. HUGHES
NOTARY
PUBLIC
STATE OF IDAHO

____
Notary Public for Idaho
Residing at: Boise Idaho
My Commission Expires: 3·22·2019

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 4th day of April, 2018, the foregoing was filed, served, and copied as shown below. Service by email is authorized by the Hearing Officer's Order of September 11, 2017 at page 3. Due to the size of the exhibit, a courtesy copy of the foregoing without the exhibit attached was emailed to all parties noted below, and a physical copy of the same with the exhibit has been placed on a disk and mailed as indicated below.

DOCUMENT FILED:

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Sharla Cox Administrative Assistant Eastern Regional Office Idaho Department of Water Resources 900 North Skyline Dr., Ste. A Idaho Falls ID 83402-6105 Facsimile: 208-525-7177 sharla.cox@idwr.idaho.gov	☒ ☐ ☐ ☐ ☒	U. S. Mail Hand Delivered Overnight Mail Facsimile E-mail
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Jack W. Relf

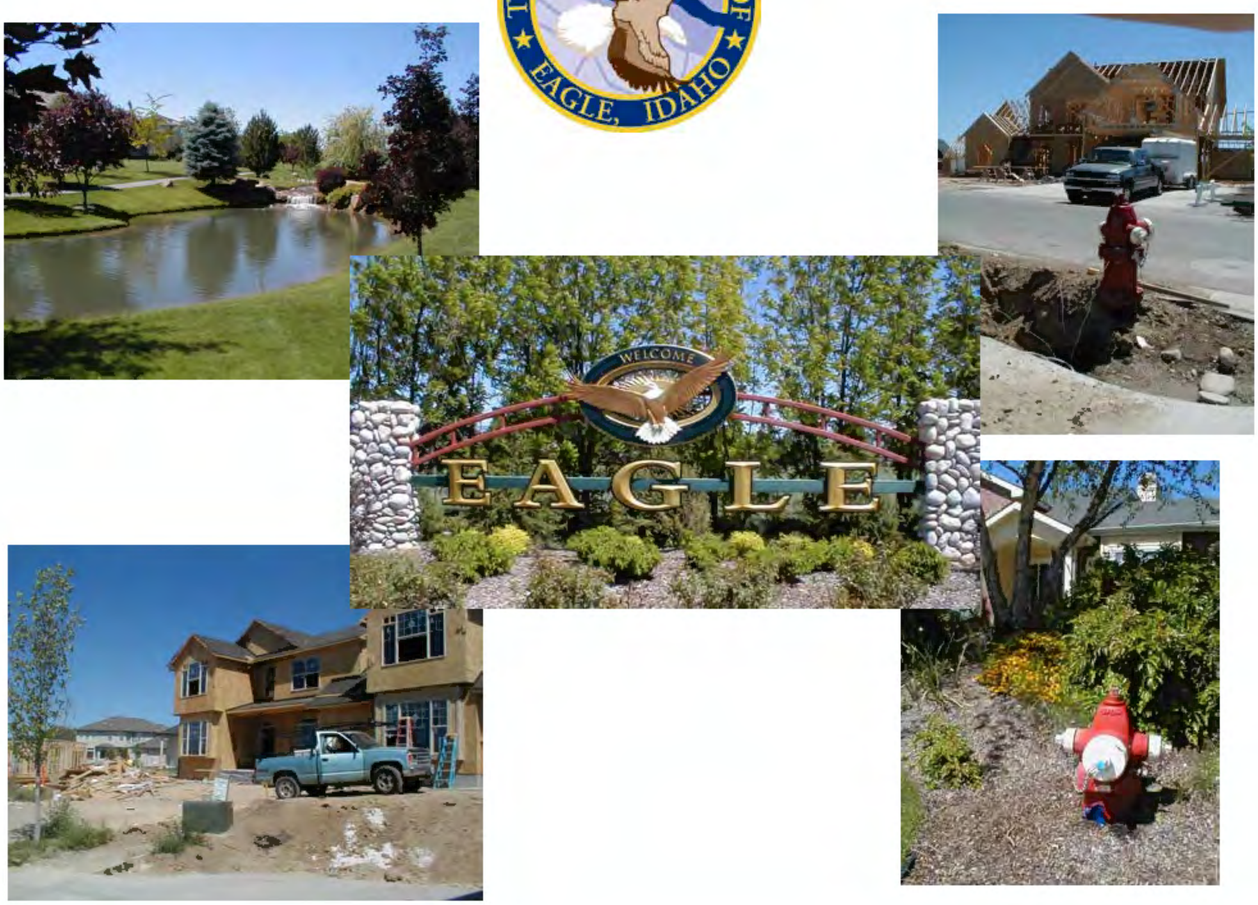
Exhibit A **EAGLE UTILITY MASTER PLAN**

CITY OF EAGLE

Municipally Owned Water System

PWS #ID4010201 and PWS #ID4010222

Master Plan Update #3
- September 2015 -



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EG14-0058 WMP

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1445 North Orchard • Boise, Idaho 83706 • (208) 373-0550
www.deq.idaho.gov

December 2, 2015

The Honorable James D. Reynolds
City of Eagle Mayor
P.O. Box 1520
Eagle, ID 83616

RE: City of Eagle Water System Master Plan 2015 Update (Eagle, Ada County)
Public Drinking Water System - Facility Plan

Dear Mayor Reynolds:

The referenced project appears to meet State of Idaho standards and is approved based on the conditions listed below.

I. PROJECT SPECIFIC CONDITIONS:

A. This approval is for the Public Drinking System Facility Plan (FP) update only. Please submit a Preliminary Engineering Report (PER) to the Department of Environmental Quality (DEQ) for review and approval prior to preparing and submitting detailed plans and specifications. Detailed plans and specifications cannot be reviewed until the PER is approved; furthermore, no construction can begin until the detailed plans and specifications have been reviewed and approved by DEQ.

Please call me with any questions at (208) 373-0184 or contact me via e-mail at kevin.ryan@deq.idaho.gov.

Sincerely,

Kevin Ryan
Staff Engineer

Enclosures: One Approved and Stamped Facility Plan

ec: Michael W. Davis, P.E., City Engineer
Todd Crutcher, P.E., Boise Regional Office
TRIM Record #2015AGD3848

WATER SYSTEM MASTER PLAN
2015 UPDATE

AMENDED MASTER PLAN
Revised November 2005
Revised March 2008

Prepared for:

THE SEAL OF THE CITY OF EAGLE, IDAHO

City of Eagle
Eagle, Idaho

PROFESSIONAL ENGINEER
REGISTERED
Michael W. Davis
8823
9-29-15
STATE OF IDAHO
MICHAEL W. DAVIS

Prepared By:

HOLLADAY ENGINEERING CO.
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EG14-0058 WMP

Water System Master Plan
2015 Update

Prepared for:

City of Eagle, Idaho

REVIEWS AND APPROVALS

Prepared by:

Michael W. Davis ____________________ 9-30-15 ____________________

Michael W. Davis, City Engineer — Date

Acceptance:

____________________ 9-29-15 ____________________

Ken Acuff, Water Superintendent — Date

James D Reynolds ____________________ 9-29-15 ____________________

James D. Reynolds, Mayor — Date

ACKNOWLEDGEMENTS

CITY COUNCIL

James Reynolds, Mayor

Stan Ridgeway, Council President

Mark Butler, Council Member

Mary McFarland, Council Member

Jeff Kunz, Council Member

WATER DEPARTMENT

Kenneth Acuff, Superintendent

Kellie Rekow, Accounts Manager

Greg Foley, Operator

PLANNING DEPARTMENT

William Vaughan, Administrator

Nichoel Baird Spencer, Planner

Ross Dodge, Mapping

A special thanks to Mr. Dodge for his contribution of map exhibits for this Water System Master Plan 2015 Update

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TABLE OF CONTENTS

MAPS

The following maps are used in this 2015 Update

Large Scale maps located in map pockets

ABBREVIATIONS

The following abbreviations are used in this 2015 Update

ARDA	Amended and Revised Development Agreement
CCR	Consumer Confidence Report
cfs	Cubic Feet per Second
CID	Community Infrastructure District
EDU	Equivalent Dwelling Unit
EPA	US Environmental Protection Agency
EWC	Eagle Water Company
ft	Feet
IDAPA	Idaho Administrative Procedures Act
IDEQ	Idaho Department of Environmental Quality
IDWR	Idaho Department of Water Resources
M3	M3 Eagle LLC
MSL	Mean Sea Level, in feet
PRS	Pressure Reducing Station
PRV	Pressure Reducing Valve
PUMP #1	Planned Unit Master Plan #1
PWS	Public Water System
RAFN	Reasonably Anticipated Future Needs
Rules	Idaho Rules for Public Drinking Water Systems
SCADA	Supervisory Control and Data Acquisition System
sqft	Square Foot
STL	Storage and Trunk Line Fee
UWI	United Water Idaho
WCE	Water Conservation Fee

EXECUTIVE SUMMARY UPDATE – 2015

This update to the City of Eagle Amended Master Plan presents additional information and recommendations for the ongoing development of the City's water system. It addresses growth of the City population, the addition of the foothills including the Spring Valley planning area, water use and future water needs. Previous updates (the 2005 Plan and the 2008 Plan) addressed development of the existing eastern water system serving Lexington Hills and Brookwood subdivisions and a second, separate water system west of Linder Road. This 2015 Update acknowledges the progress made since 2008. It also presents new exhibits that deal with a third major expansion of city water utility service into the foothills. With these existing and planned expansions the City has established a Water Department to respond to the needs of the utility and its customers.

This Update incorporates by reference all the agency approved and city approved planning documents for the first phase of the Spring Valley water system. The Spring Valley Service Area will remain a distinct City subsystem under the Water Department with its separate water rights, redundant supply and distribution system.

The City will continue to develop its water utility to meet the challenges of serving its planning area as identified in the Comprehensive Plan. The Water Department has demonstrated its capability to operate and maintain the rapidly expanding system. The City has made significant progress in growing and developing a public water system that meets or exceeds the standards for drinking water systems in the State of Idaho.

CHAPTER 1.0 CONCLUSIONS AND RECOMMENDATIONS

A review of the existing water system and the planned components of the utility system to accommodate the service needs for the future allows a number of conclusions.

1. Eagle's population will continue to expand at a 4% annual average growth rate over the planning period of 30 years as forecast by the City and by the regional planning agency, COMPASS.
2. Development of Spring Valley and City ownership of the water utility has been accounted for in the planning horizon of the City and Spring Valley.
3. Water service operation in the western portion of Avimor as a future, separate service area is consistent with the planning and operation capability of the Water Department as demonstrated by its current operation of multiple, separated utility systems under a single management structure.
4. Intertie agreements with Eagle Water Company and United Water Idaho provide an additional measure of water quality and quantity redundancy in the Eastern Service Area.
5. Residential water consumption is within the normal use range of residential use in systems with separated surface water irrigation systems.

A number of additional conclusions have been drawn from information developed in the 2015 Update that are accompanied by recommendations. These conclusions are further developed in the report.

6. The SCADA system installed in 2008 was never fully operative and as a result pumps and reservoirs do not have the necessary operating history to draw more accurate conclusions for system improvement. This is being addressed with a new SCADA program and control contractor. The control system should be completed as soon as possible.
7. The flushing program in the Western Service Area was excessive and wasteful for water and for energy cost. Flushing should be measured to assure efficient use of equipment and natural resources.
8. The Operating and Maintenance manuals last updated in 2008 do not reflect the startup, operation and disinfection procedures that are currently being modified. The manuals should be updated.
9. Capital projects have been identified by the Water Department to improve water quality and system performance. These projects should be placed into a prioritized, multi-year capital improvement budget for funding in an appropriate timeframe.
10. The City has two new water right applications on file with the IDWR. It should diligently pursue these applications to gain greater flexibility and operational control of its water supply for the future.

11. The 2011 RAFN Application submitted to the IDWR was denied. After the current two water permit applications are secured, the City should follow up with the IDWR to restart the RAFN process to gain adequate supply for its 30 year planning horizon.
12. The foothill region of the City's planning area is generally identified by surface elevations above the area served by surface water rights or irrigation distribution systems. The City does not have sufficient ground or surface water rights or pumping capacity to irrigate the foothills area. Irrigation standards and policies for the foothill region should be developed and adopted by the City to reflect the reality of limited natural resources.
13. Water quality in the Western Service Area remains an ongoing issue for operations. Following IDEQ approval, the City recently began an analysis of the chlorination equipment and water quality for a long-term treatment and disinfection program to serve the Western area. This should be pursued as currently planned.
14. The City's capital needs require a multi-year approach for funding and improvements. This will require a multi-year approach to budgeting that reflects identified funding sources and schedule of improvements to maintain system value over time. It is recommended the City Water Department adopt a rolling five year department budget that accounts for inflation of materials and labor.

CHAPTER 2.0 INTRODUCTION

2.1 General

The 2015 Update ("Update") to the City of Eagle Amended Master Plan, March, 2008 ("2008 Plan") presents new information on the existing municipal water system and addresses the addition of the foothills planning area with respect to water planning. The North Foothill and Brookside Planning Areas were approved in the 2007 Eagle Comprehensive Plan. Subsequent updates to the 2008 Plan have been delayed until receipt of Spring Valley and other developer-driven infrastructure plans. With the annexation of Spring Valley coupled with other annexation actions in the Western Service Area, the Update is necessary for the City Water Department and is required by the Idaho Rules for Public Drinking Water System ("Rules"), IDAPA 58.01.08.502.01 for a "material modification or expansion" of the water system.

An initial City of Eagle water utility planning document, "Municipally-Owned Water System Master Plan and Budget Study", was prepared in 2002. This planning document served to launch the City's efforts to move away from contract operation of its water system to develop its role in the operation of the municipally owned utility. That document was revised by the Amended Master Plan, November, 2005 ("2005 Plan") establishing a service area that encompassed the entire planning area of the City and set the stage for significant improvements including a one million gallon storage reservoir, a new Well No. 3 (a.k.a. Brookwood Well) and development of water ordinances dealing with growth of the water utility and water rights. At the time, a functioning water system existed only in the Eastern Service Area (PWS # 4010201). With the annexation and development of the Legacy and Eaglefield subdivisions on the western side of the City, two new wells, Well No. 4 (a.k.a. Legacy Well) and Well No. 5 (a.k.a. Eaglefield Well) and interconnecting water distribution system were added. This prompted preparation of the 2008 Plan which dealt primarily with the improvement and operation of the City's Western Service Area water system (PWS # 4010222).

2.2 Scope and Purpose of Plan

The focus of this Update is expanding the framework of water utility planning for the foothill area including Spring Valley and other planned unit developments by demonstrating the City's ability and capacity to manage multiple discrete water systems until they merge into a unified, networked system. References to Eastern, Western and future Spring Valley Service Areas are used herein to identify the separate public water systems operated and maintained by the City. This naming convention may be discontinued when the systems are interconnected. A map of various designated service areas of water systems is included in Section 3.1.

Incorporation of the Spring Valley water system into Eagle's Water Master Plan 2015 Update satisfies the requirements of Section 6, Technical, Managerial, and Financial Capacity requirements of IDAPA 58.01.08 Section 500 of the Spring Valley Water Facility Plan, approved January 9, 2013 by IDEQ.

This Update with new Exhibit (formerly labeled "Appendix") designations follows the outlines and chapter conventions of previous planning documents for convenience and clarity. The information presented in this Update is additive to those Plans unless otherwise noted. Where the 2005 Plan or 2008 Plan information has been changed or updated it will be noted under the appropriate section to minimize confusion.

New Exhibits in the 2015 Update contain significant additions to the 2005 and 2008 Plans representing an entire body of public and private work on population, water rights, and infrastructure master planning completed since the 2008 Plan. The purpose of the 2015 Update is to identify and integrate the ongoing planning efforts of the City and private sector to accomplish the City's long range water service goals for the future.

2.3 Western Service Area Startup – *Completed per 2008 Plan*

The Western Service Area served by Well No. 4 and Well No. 5 contained no homes or facilities at the time of startup in 2008. At present this system provides metered service to 369 residences with 732 lots approved for connection with water infrastructure in place or scheduled for construction. An additional 670 lots are in the preliminary or final stages of approval. Updated water use and added facilities in the Western Service Area are discussed in Chapter 4 and Chapter 6 of this Update.

2.4 Population, Growth and Allocation

In 2011, the City developed a population and growth forecast analysis specific to the City of Eagle for use as a basis for projecting water needs through 2040.[1] See Exhibit M. The scope of the analysis included the North Eagle Foothills Plan which, in turn, included all of Spring Valley and a majority of the Avimor development area including areas served by United Water Idaho ("UWI") and Eagle Water Company ("EWC") located within the Comprehensive Plan.

[1] The population and growth analysis was prepared by Nichoel Baird Spencer, City Planner, to evaluate the growth rate pursuant to Local Land Use Planning Act ("LLUPA") for the planning period of the Comprehensive Plan. This analysis was presented in a hearing before the Idaho Department of Water Resources on October 18, 2011 to support the City's future needs water right application.

Certain elements of the 2011 analysis are particularly important as planning guides for the future of the water system and this Update. These elements are identified below.

1. Population projections at build-out are consistent with the vacant land analysis of annexed and non-annexed areas of the 2011 Comprehensive Plan.
2. The City's projected 4.39% growth within Eagle's Comprehensive Plan Area is consistent with regional 4% growth model from COMPASS.
3. The City's overall growth, as it relates to future water needs, included but separately accounted for the build-out of vacant lands lying within the EWC and UWI service areas.
4. The City's growth projection accounted for the Spring Valley population component which was granted a separate water right, 63-32573.
5. By 2040, the City municipal water system (as distinguished from EWC and UWI systems) plans to serve a 31,363 population.
6. At total build-out of the water service area within the Comprehensive Plan, the City water system will serve a 109,958 population.

Since the 2010 census, growth in the City as tracked by the planning department and COMPASS reflects the regional model for the Eagle area.

Population Growth History		
Year	Population	Annual Increase, %
2010	19,908	
2011	20,140	1.2%
2012	20,550	2.0%
2013	21,350	3.9%
2014	24,360	14.1%
	Annual Average	5.3%

The 2011 forecast analysis was further validated as a measure of water needs using the data from the 2014 COMPASS regional transportation model to forecast growth potential in specific areas based upon present development, designated land use and traffic patterns. The COMPASS model divided the City into 108 partitioned zones and assigned population, households, and potential jobs to each zone. Using COMPASS population data, the City was able to calculate water needs for EDU's based on the history of use in similar areas. It was also possible to forecast growth within undeveloped zones of the City including those outside the City's public water system in the EWC and UWI certificated areas. This calculation resulted in a City-only service population approaching 31,400 in 2040 virtually mirroring the findings of the City's 2011 analysis.

CHAPTER 3.0 SYSTEM OWNERSHIP AND MANAGEMENT

3.1 Ownership and Contacts

The City of Eagle owns two public drinking water systems identified by the following Public Water System designations:

PWS # 4010201 – Eastern Service Area, and
PWS # 4010222 – Western Service Area.

Owner Contact Information:

Owner: City of Eagle
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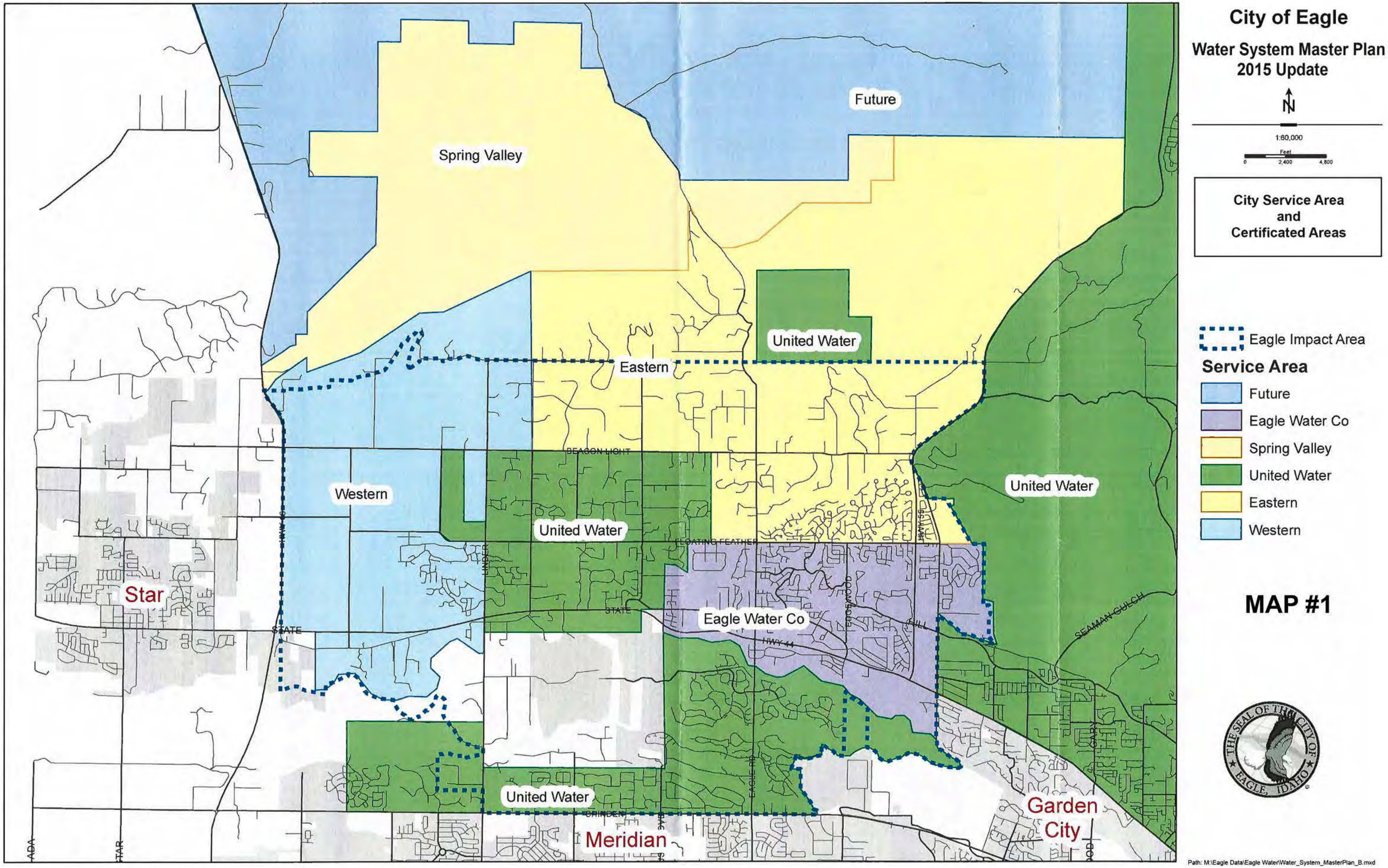
Telephone: (208) 939-6813
FAX: (208) 939-6827
Website: www.cityofeagle.org

Water Department Contacts:

Water Superintendent: (208) 489-8776
Account Manager/Office: (208) 489-8762

The public drinking water system is operated by the City of Eagle through its Water Department with offices located at City Hall. Map No. 1, City Service Areas and EWC, UWI Certificated Areas, is included for clarity. Contacts for these private water companies operating within the City of Eagle are as follows:

Operator:	Eagle Water Company, Inc. Mailing Address: 188 W. State Street Eagle, ID 83616 Telephone: (208) 939-0242
Operator:	United Water Idaho Mailing Address: 8248 W. Victory Road Boise, ID 83709 Telephone: (208) 362-7304



City of Eagle
Water System Master Plan
2015 Update
N
1:60,000
Feet
0
2,400
4,800
City Service Area
and
Certificated Areas
Eagle Impact Area
Service Area
Future
Eagle Water Co
Spring Valley
United Water
Eastern
Western
MAP #1
Future
Spring Valley
United Water
Eastern
Western
United Water
United Water
Eagle Water Co
United Water
Star
Meridian
Garden
City
BEACON LIGHT
FLOATING FEATHER
STATE
HWY 44
SEAMAN GULCH
Path: M:\Eagle Data\Eagle Water\Water_System_MasterPlan_B.mxd

3.2 Management Functions

The City Water Department is managed by the Water Superintendent, Ken Acuff, with assistance from Account Manager, Kellie Rekow. Additional licensed operators and crew assist with daily testing, routine water quality checking, meter installation and reading and maintenance of the system. When required, engineering services are provided by the City Engineer. The Account Manager oversees general customer service duties and initial response to customer complaints. The Superintendent handles quality assurance during construction, cross connection control program, water quality testing and reporting. In the event of an emergency, the Superintendent and staff are capable of 24-hour, 7-day response. Capital improvement planning and development plan review for line extensions are conducted by the City Engineer in conjunction with input from the Superintendent and Account Manager.

Technical aspects of water system management including department training, licensure, permitting, and the issuance of Consumer Confidence Reports[2] as required by the Environmental Protection Agency ("EPA") and IDEQ are duties of the Water Superintendent.

The Water Department's financial responsibilities are shared by the Account Manager and the office of City Clerk. These include preparation of budgets with assistance of the Superintendent and Engineer, City disbursements for water system, collection of fees, preparation of notices, and managing customer accounts. The City regularly upgrades its software accounting programs for more efficient analysis and reporting. Financial records of income and balances of water system fund accounts are audited annually as a part of the regular general financial audit conducted for the City.

Water revenues are periodically reviewed against operating costs. Adjusting for inflation costs, water rates have increased two of the last four years. The current rate does not account for system depreciation (replacement) or for capital improvements. The current rate does not employ a rate setting methodology to adequately fund reserves or rising operating cost for the water utility. With the anticipated completion and approval of the 2015 Update, a full water rate study should be completed to account for equipment replacement, the Capital Improvement Plan ("CIP") improvements or upgrades, and additional operating costs. Rates should be reviewed annually.

3.3 Organization

The 2005 Plan and the 2008 Plan referenced a Facilities Manager and contracted services operation of the City water system that reflected the initial steps of organizing a municipal utility service with trained experienced operators. In subsequent years, the City has developed an in-

[2] EPA 40 CFR 141 Subpart O; IDAPA 58.01.08.51

house Water Department staffed by experienced personnel including Water Superintendent, Account Manager and licensed operators. The Water Superintendent is a department head responsible to the Mayor and City Council to oversee the operation and development of the water utility. Current operation and policies affecting or describing City oversight of the water system are consistent with previous planning documents unless otherwise noted.

3.4 Western Service Area Ownership and Management

Initial phases of the Western Service Area water system have been completed in accordance with the 2005 and 2008 Plans.

3.5 Contract Operation

Eagle's Water Department is in charge of the water system, its operation, development and management. The City no longer uses contract operators for any aspect of routine operation and maintenance. Operators utilize licensed contractors on an "as-needed" basis for construction or repairs requiring construction equipment.

The City's technical, financial and managerial capacity has continued to evolve in response to the demands of the larger customer base, more detailed cost control measures, and input from elected officials and staff. Eagle's Water Department and City Engineer are continually working with developers' engineers on long-range planning for several large developments including Spring Valley and Avimor and with the demands of infill growth and western area expansion. The City staff and the Water Department are fully capable of managing these anticipated developments.

CHAPTER 4.0 SERVICE AREA, EXISTING FACILITIES & WATER USAGE

4.1 Service Area *(Previously 4.1.1)*

The current municipal water system is geographically partitioned by two miles of City area served by private water purveyors, EWC and UWI. Additionally, a large portion of partitioning land is developed as two to five acre rural residential lots with individual wells, thus requiring no municipal service for domestic supply.

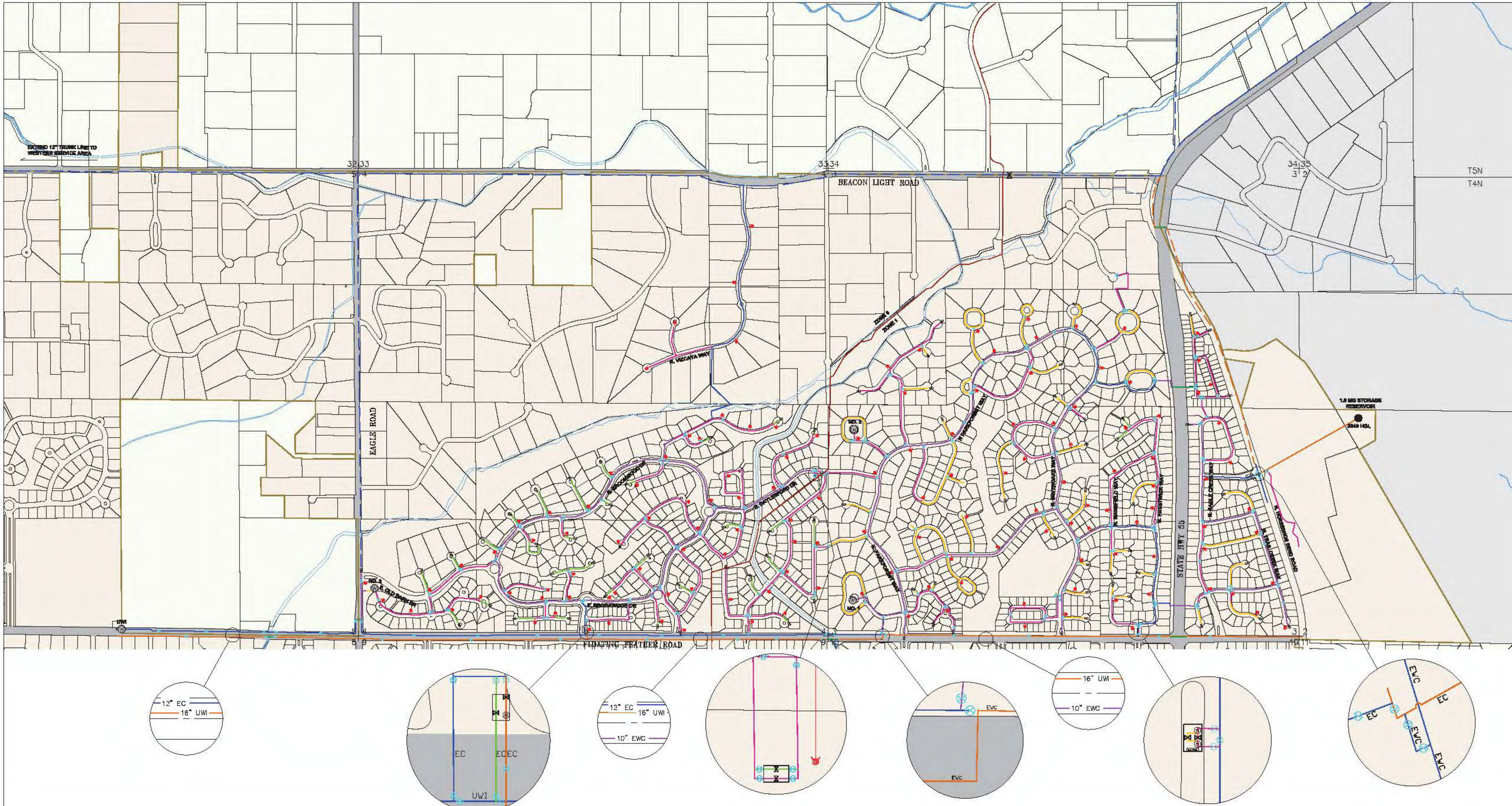
In the 2008 Plan, the City identified its water system as the Eastern Water System and the Western Expansion Area to describe this growth pattern. This has been changed to Eastern Service Area and Western Service Area. When these are eventually joined by a connecting trunk line and operation controls can be linked, the East/West Service Area designation may be dropped. Until then, these represent two distinct systems (PWS # 4010201 and PWS # 4010222) for operation parameters but a single system for regulatory and administrative functions. Map No. 2, Eastern Service Area, and Map No. 3, Western Service Area, show the extent of the current distribution systems. System development continues to remain consistent with previous water system planning documents. The 2005 Plan and the 2008 Plan contain accurate descriptions of general service areas, service expansion potential and system facilities. Annexations have been consistent with past master planning documents approved by the City and by IDEQ.

A significant planning event occurred in November, 2007 with the approval of the North Foothill and Brookside Planning Area amendments to the 2007 Comprehensive Plan.[3] Eagle's planning area was expanded to include lands north of its northern boundary from Highway 16 on the west to and beyond Highway 55 on the east essentially doubling its planning region. The impetus behind this substantial planning effort was a regional emphasis within the private sector to promote and develop large planned communities. This movement was countered by Eagle residents who placed a high value on preserving the foothills and the picturesque northern horizon. Extensive public input was gathered in the process of setting forth the land use plan for the foothills and is most recently defined in the current, updated 2015 Comprehensive Plan.

With the adoption of a planning boundary and utility service area, the City undertook a complex infrastructure challenge to develop and maintain a water system that could serve independent, disconnected developments located in foothill areas considered buildable by the City for residential dwelling units and other structures. The ongoing discussion of decentralized service

[3] The 2007 Comprehensive Plan was reformatted and updated to the 2009 Comprehensive Plan. This Plan was amended to the 2015 Comprehensive Plan and Future Land Use Designation Map which is available on the City's website.

areas, availability of isolated potable water sources, and interconnection of development enclaves will require additional study beyond the scope of this Update. An overall boundary of the water service planning area was adopted by the City in 2011. This is included with 2015 modifications as Map No. 4, Water Service Planning Area.



Legend:

PARCEL BOUNDARY		WELL LOCATION	
ESTIMATED RIVER BOUNDARY		PRESSURE ZONE BOUNDARY	
CITY LIMITS		4 INCH MAIN	
IMPACT AREA		6 INCH MAIN	
VALVES		8 INCH MAIN	
HYDRANT W/ VALVE		10 INCH MAIN	
BLOWOFF		12 INCH TRUNK	
PRV		16 INCH TRUNK	
RESERVOIR		FUTURE 12 INCH TRUNK	
		FUTURE 16 INCH TRUNK	

This map represents a compilation of public information from diverse records gathered by the City of Eagle and Holladay Engineering Company. The purpose for which this map is prepared is an overall general representation of positional relationships, and not a definitive description of location of any class of objects or conditions. Hence, no responsibility for errors can be or is assumed. The City of Eagle and Holladay Engineering Company CANNOT AND DO NOT GUARANTEE the absence of errors or the corrections of all information furnished to them for the preparation of this map.

Information from City April 2015

Revised August 2015

HOLLADAY ENGINEERING CO.
ENGINEERS - CONSULTANTS
32 N Main • PO Box 235 • Payette, ID 83661
(208) 642-3304 • hec@holladayengineering.com

MAP KEY:

WESTERN SERVICE
EASTERN SERVICE
HWY 44
EAGLE RD

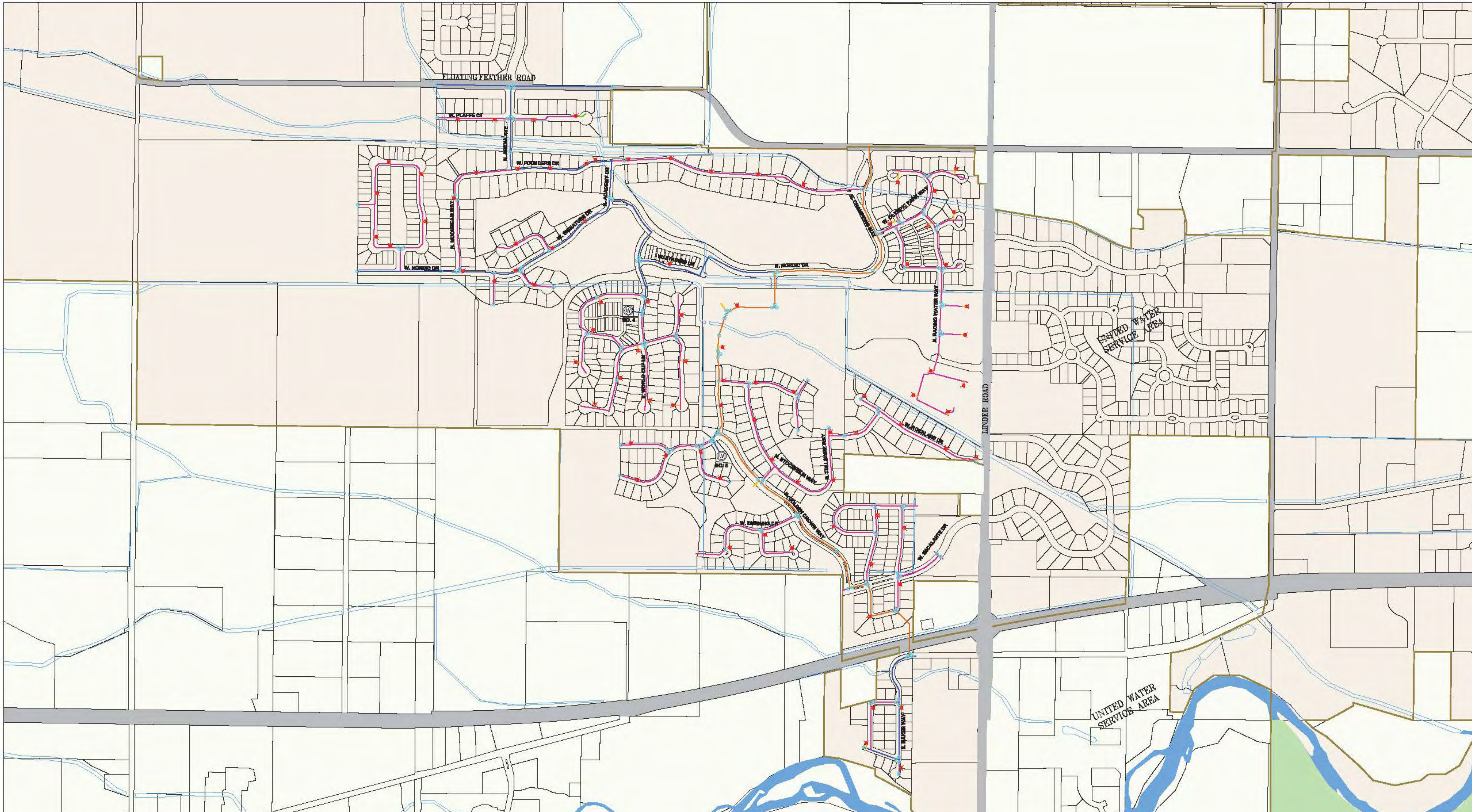
500 0 500 1000
SCALE OF FEET

City Of Eagle

Eastern Service Area Future Trunk Lines, Pressure Zones, & Water Utilities Map, 2015

THE SEAL OF THE CITY OF EAGLE, IDAHO

MAP #2



Legend:

PARCEL BOUNDARY		WELL LOCATION	
ESTIMATED RIVER BOUNDARY		4 INCH MAIN	
CITY LIMITS		6 INCH MAIN	
IMPACT AREA		8 INCH MAIN	
VALVES		12 INCH TRUNK	
HYDRANT W/ VALVE		16 INCH TRUNK	

This map represents a compilation of public information from diverse records gathered by the City of Eagle and Holladay Engineering Company. The purpose for which this map is prepared is an overall general representation of positional relationships, and not a definitive description of location of any class of objects or conditions. Hence, no responsibility for errors can be or is assumed. The City of Eagle and Holladay Engineering Company CANNOT AND DO NOT GUARANTEE the absence of errors or the corrections of all information furnished to them for the preparation of this map.

Information from City April 2015

Revised August 2015

HOLLADAY ENGINEERING CO.
ENGINEERS · CONSULTANTS
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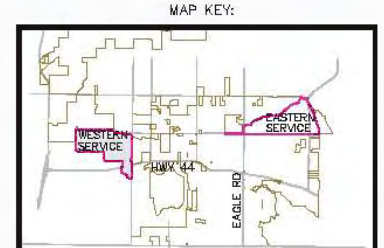
(208) 642-3304 · hec@holladayengineering.com

MAP KEY:



SCALE OF FEET

City Of Eagle

Western Service Area Water Utilities Map

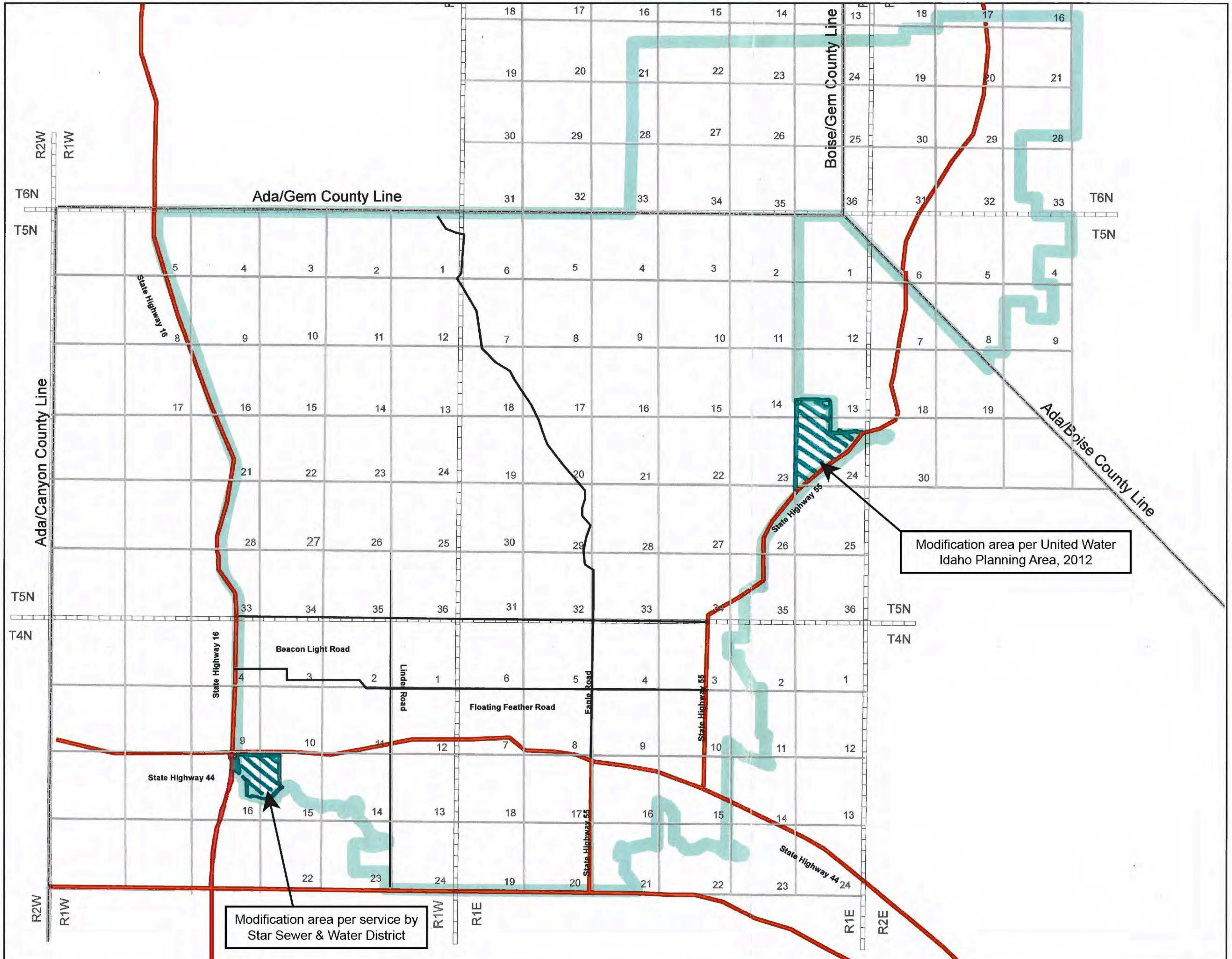
MAP #3

City of Eagle

Water System Master Plan 2015 Update

N

Water Service Planning Area: with 2015 modifications



MAP #4

KEY

- City of Eagle Water Service Planning Boundary
- County Lines
- Local Roads
- State/US Highways
- Parcel Lines
- Township & Range Lines
- Section Lines
- # Section Numbers
- M3 Eagle - Seperate Water Right Applicaton

Aspects of future development plans, water availability and the geographic constraints in the foothills cannot be resolved by a foothill-specific infrastructure master plan prior to submittal of development concepts for City consideration. Only two planned communities have been sufficiently planned for consideration of infrastructure development since the adoption of the Comprehensive Plan: Spring Valley and Avimor. Each of these is discussed in greater detail below. The City plans to provide water service for its entire service area boundary.

4.1.2 Spring Valley Development and Service Area

In 2007 the City entered into a Pre-Annexation and Development Agreement with M3 Eagle, LLC ("M3"), setting forth a course of action that will lead to development of 6,017 acres of land in northern Ada County. The development is named Spring Valley. In succeeding years significant steps have been taken by the City, the developer, and the public to resolve the growth and impact issues raised in dealing with this application. In September, 2012, Spring Valley was annexed into the City of Eagle. In January, 2014, the City approved the Amended and Restated Development Agreement ("ARDA") by and between the City of Eagle and M3 Eagle, L.L.C. addressing key aspects of development design.[4] The Spring Valley Water Facility Plan was approved by IDEQ in January, 2013 and by the City on February 22, 2013. The approved Spring Valley Water Facility Plan is incorporated in its entirety into this Update by reference. See Exhibit N. For the purposes of this Update, the immediate focus shall be the first phase of the proposed water system within Spring Valley subject to the constraints and conditions of the ARDA.

Spring Valley is divided into multiple phases for the sequential extension of infrastructure for residential or commercial development. The initial phase, which includes 249 units, has a separate water master plan document, the Spring Valley Water Facility Plan, PUMP #1 Amendment ("PUMP #1") which was approved by IDEQ in May, 2014 and by the City on August 26, 2014.[5] See Exhibit O. The City of Eagle gathered significant planning and public input during the City approval process. The conditions attached to PUMP #1 approval are set forth in an April 15, 2014 letter from the City Engineer. See Exhibit P. Until modified by succeeding planned unit phases as required by ARDA, the PUMP #1 adequately delineates master planning elements of the first phase of the Spring Valley water system.

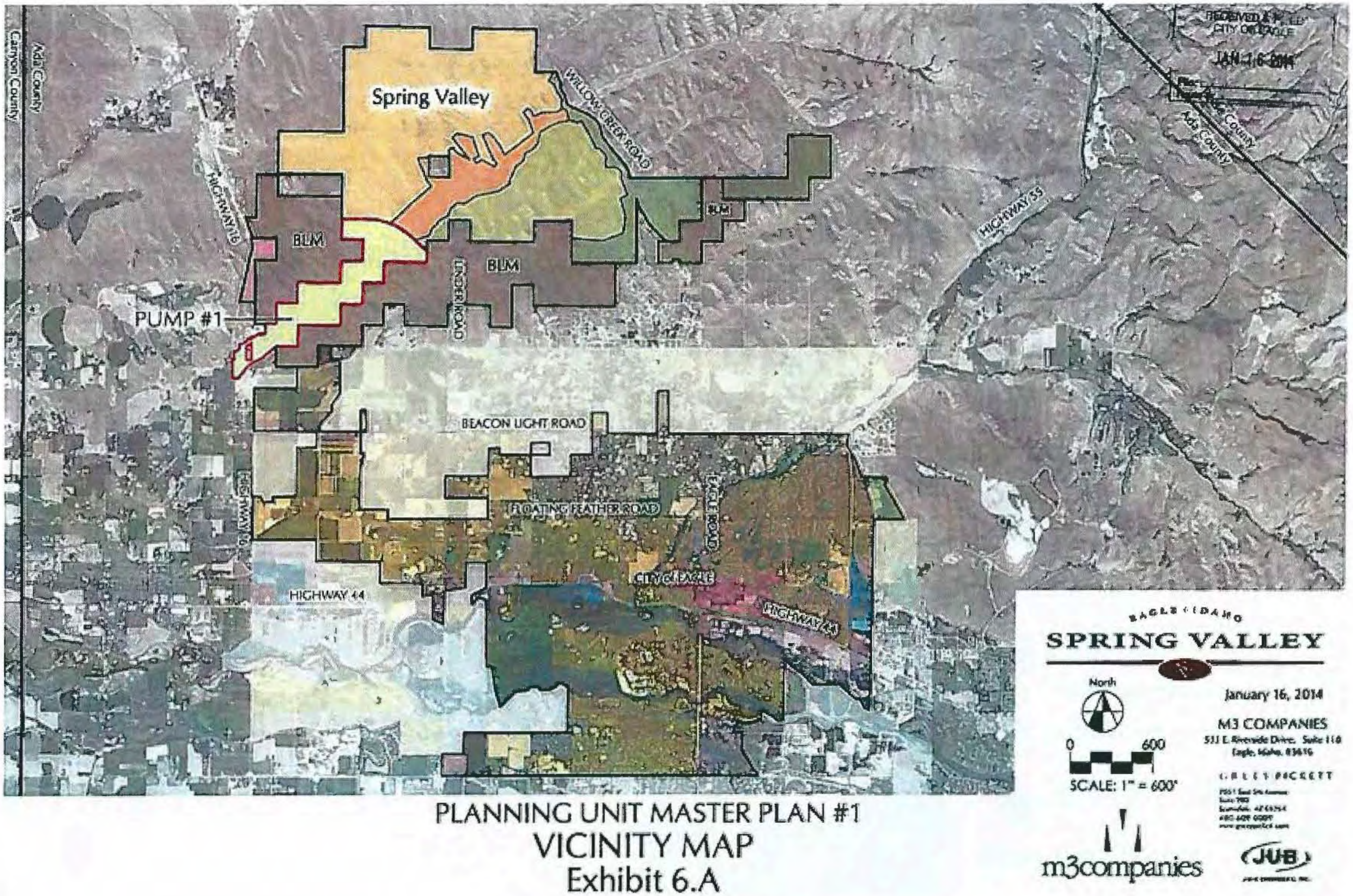
The Spring Valley water system is required to be constructed by the developer and transferred to the City. It shall be operated by the City Water Department as a stand-alone water system. At a future date when the City has sufficient infrastructure in place to evaluate the costs and benefits of connecting the Spring Valley Service Area to the Western Service Area, the systems may be

---

[4] The Amended and Restated Development Agreement by and between the City of Eagle and M3 Eagle L.L.C. was recorded on January 24, 2014. The Agreement and all its nineteen Exhibits, A through N, complete with maps and tables are included by reference only. A copy of the Agreement is available on the City's website.

[5] The Spring Valley Water Facility Plan, PUMP #1 Amendment, prepared by JUB Engineers, Inc., approved by the Idaho Department of Environmental Quality, May 12, 2014, is included by reference only.

connected for ease of control and assurance of redundant supply in emergencies. Until linked, the systems will be operated as stand-alone, compliant water systems with individual redundancy of supply and controls. Further discussion of water rights for Spring Valley may be found under Chapter 7, Water Rights and Ground Water Monitoring. Map No. 5, Spring Valley Vicinity Map, and Map No. 6, Spring Valley PUMP #1 – Land Use Plan, show the first phase of the development.

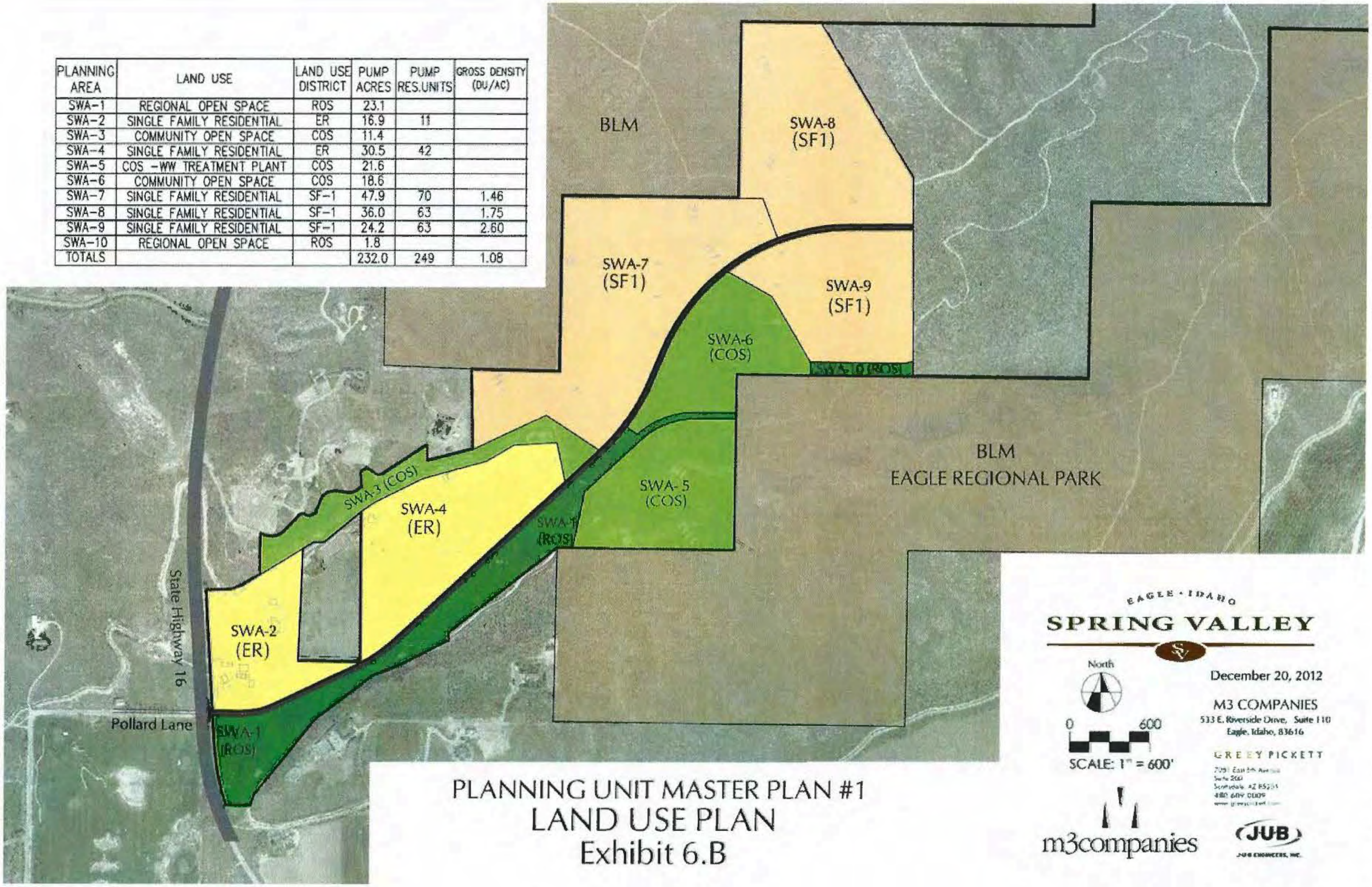


PLANNING UNIT MASTER PLAN #1
VICINITY MAP
Exhibit 6.A

MAP #5

Spring Valley Vicinity Map

PLANNING AREA	LAND USE	LAND USE DISTRICT	PUMP ACRES	PUMP RES.UNITS	GROSS DENSITY (DU/AC)
SWA-1	REGIONAL OPEN SPACE	ROS	23.1		
SWA-2	SINGLE FAMILY RESIDENTIAL	ER	16.9	11	
SWA-3	COMMUNITY OPEN SPACE	COS	11.4		
SWA-4	SINGLE FAMILY RESIDENTIAL	ER	30.5	42	
SWA-5	COS -WW TREATMENT PLANT	COS	21.6		
SWA-6	COMMUNITY OPEN SPACE	COS	18.6		
SWA-7	SINGLE FAMILY RESIDENTIAL	SF-1	47.9	70	1.46
SWA-8	SINGLE FAMILY RESIDENTIAL	SF-1	36.0	63	1.75
SWA-9	SINGLE FAMILY RESIDENTIAL	SF-1	24.2	63	2.60
SWA-10	REGIONAL OPEN SPACE	ROS	1.8		
TOTALS			232.0	249	1.08



PLANNING UNIT MASTER PLAN #1
LAND USE PLAN
Exhibit 6.B

EAGLE • IDAHO
SPRING VALLEY

North
0 600
SCALE: 1" = 600'

December 20, 2012

M3 COMPANIES
533 E. Riverside Drive, Suite 110
Eagle, Idaho, 83616

GREEY PICKETT

m3companies

JUB

MAP #6

Spring Valley PUMP #1
Land Use Plan

All elements of the water system for Spring Valley development, supply, storage and distribution, have yet to be constructed. These planned features are generally discussed in PUMP #1, but detailed design calculations, construction plans, construction specifications, and schedules have not been submitted for City review. An Irrigation Master Plan is to be submitted with the design plans for PUMP #1. Until the design and plans are finalized and approved by IDEQ and the City, the Water Department is unable to predict specific design features of the water facilities.

Several requirements of the ARDA are worthy of note for water planning purposes.

- The water system to be conveyed to the City including water rights, wells, pumps, distribution lines, meters, storage tanks, emergency generators and controls, does not include the irrigation system.
- The developer is required to design, construct and implement a ground water monitoring plan until a completed phase is conveyed to the City.
- The developer represents and has conveyed to the City a ground water right (Water Right No. 63-32573) sufficient to serve the project. If the water right is inadequate to serve the project's municipal water demands, the City and developer shall evaluate other water sources. The developer may be required to acquire additional supply or accept a reduction in lots to meet water demand and supply needs of Spring Valley.
- PUMP #1 development will be dependent upon wells and pressure controls for operation. Storage is deferred until the first phase of PUMP #2.
- A separate Irrigation Master Plan for the entire development will address reuse, surface water rights, municipal and private ground water rights, and the irrigation water distribution system.

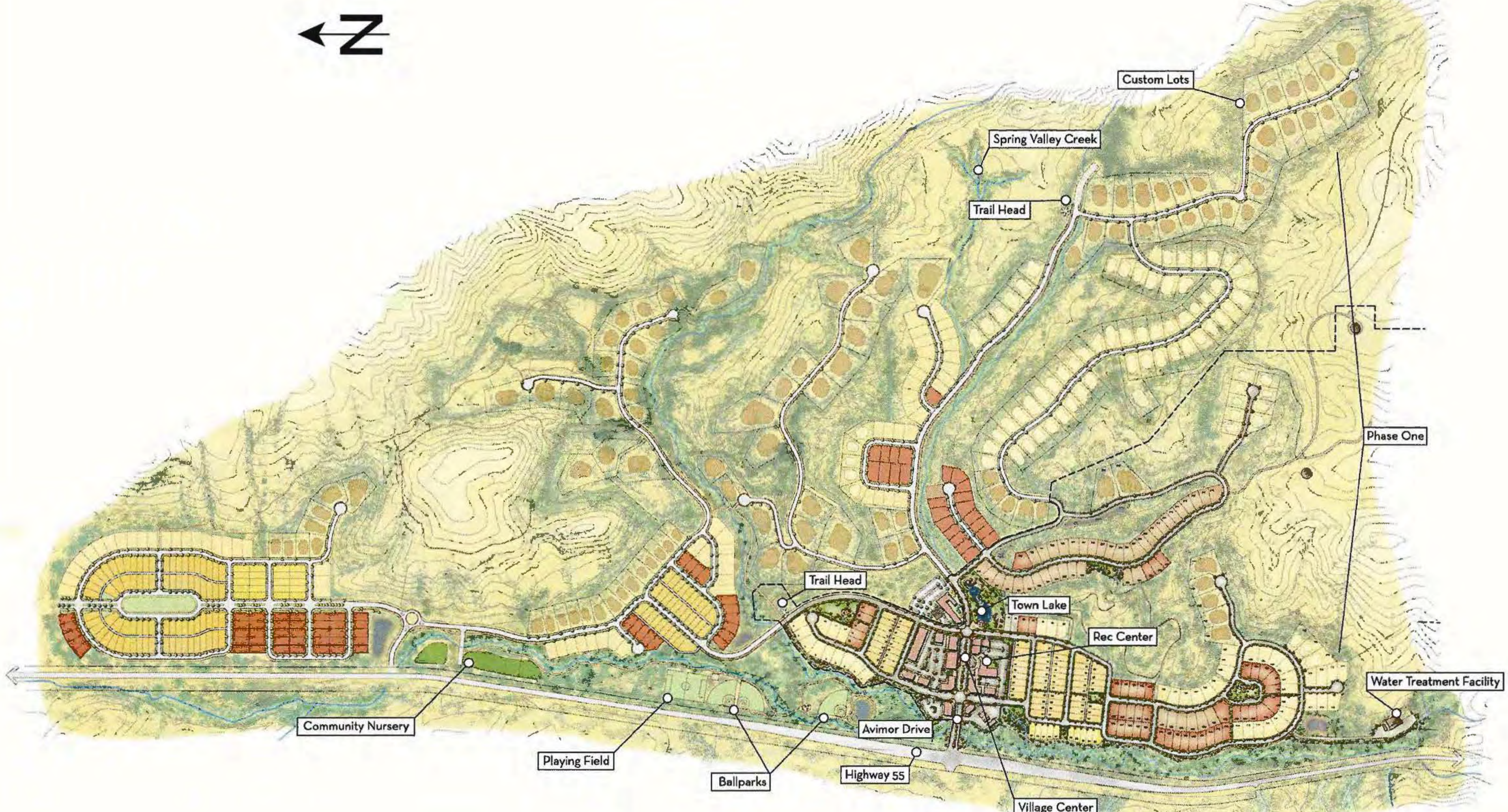
When the first phase of Spring Valley is completed it will include at least three well sources connected to PUMP #1 distribution improvements within 722 acres (232 developable acres) planned for 249 units. A backbone 24-inch transmission line will be installed to connect to future well sources and storage reservoirs. Water will be supplied into at least two pressure zones in the first phase. Five such pressure zones are required at build-out. Before PUMP #2 is submitted, a modified Water Facility Plan for the future phases of Spring Valley development is required from the developer.

4.1.3 Avimor Development

Avimor is a planned community located in the foothills north of Eagle. At the present time an 840 acre portion of the community is entitled for development through Ada County. The water service provider for this area is UWI. In its entirety, the Avimor planning area comprises about 23,000 acres. Avimor has requested a majority of their development land be included in the Comprehensive Plan and Water Service Planning area adopted by the City. As more information is available and additional growth is planned that may be served by City water, the City and Water Department will evaluate the opportunities and constraints for providing and managing water service for future phases of Avimor. Map No. 7, Avimor Phase 1, shows the current phase being developed.

Avimor Site Map

MAP #7



4.1.4 Required Level of Service – (Unchanged from 2005 Plan) *(Previously 4.1.3)*

Level of Service is governed by the Rules, IDAPA 58.01.08. Water quantity, pressure and flow requirements remain consistent with the 2005 Plan. All these elements of the water system design comply with the Rules.

Evidence of compliance with the water quality component of the Rules may be found in the current Water Quality Reports located on-line at IDEQ website. This is discussed in Chapter 8, Water Quality Monitoring.

4.2 Existing Facilities *(Previously 4.2.1 Wells and 4.2.2 Distribution System)*

Existing facilities, in particular wells, well houses, pressure reducing valves, interties, and the storage reservoir, remain as described in the 2005 Plan and 2008 Plan. Distribution lines in the Western Service Area have expanded in conformance with previous plans. Maps illustrating the distribution systems are included in the Section 4.1, Service Area.

4.2.3 Hydraulic Modeling *(Previously 4.2.1.1)*

One step in utility planning is hydraulic modeling for the purpose of sizing major distribution components to ensure delivery of water at prescribed pressure and flow under design demands. A review of the Eastern Service Area demonstrates only minor changes to the 2005 Plan, mainly the reduction of line size on Beacon Light from a 16-inch to a 12-inch diameter trunk line. The pressure zones remain unchanged. The Western Service Area, which in 2005 was in the beginning stages of development, had insufficient well data and operation history to update the concept model of the distribution system. Subsequent developments and the recent history of well performance required the Western Service Area model to be updated. The model update identified significant changes in the distribution system based on refined designation of pressure zones for the area.

4.2.3.1 Western Area Modeling Results Summary

The service boundaries of the Western Service Area, for current planning purposes, are approximately Highway 16 on the west to N. Linder Road on the east, and approximately Homer Road on the north to Highway 44 and Moon Valley Road to the south. An area between Lanewood Road and Linder Road is within the UWI certificated area and will not be served by the City of Eagle western distribution system. There are several developments in various stages of the planning or review process within the service area and maintaining an up-to-date hydraulic model of the system is critical.

The ground surface elevations within the service area range from approximately 2490 feet[6] mean sea level in the southwestern portion to approximately 2660 feet in the northern portion to the north of W. Beacon Light Road. The western system presently has a single pressure zone (Zone 1). However, future expansion of the distribution system within the planned service area will require three pressure zones. The proposed pressure zones are summarized in the following table.

Design Pressure Zones

Pressure Zone	Target Hydraulic Grade Line (HGL) MSL[(A)]	Minimum Service Elevation (Approx.) MSL	Maximum Service Elevation (Approx.) MSL
Zone 0 (Future)	2605	2420	2500
Zone 1 (Existing)	2652 (Existing)[B] 2685 (Future)[C]	2500	2550 (Existing) 2580 (Future)
Zone 2 (Future)	2765	2580	2660

[A] Mean sea level, in feet.
[B] HGL 2652 is approximately 60 psi at Well No. 4, Legacy.
[C] HGL 2685 is approximately 75 psi at Well No. 4, Legacy.

The Idaho Rules for Public Drinking Water Systems requires service pressures generally within the range of 40-80 psi, with pressures above 20 psi during fire flow conditions. Pressures up to 100 psi may be allowable, but require special considerations and customer notifications.

The Western Service Area currently has two ground water sources, Well No. 4, Legacy, and Well No. 5, Eaglefield. Both wells consist of a large vertical turbine pump and three smaller booster pumps. The booster pumps generally meet the normal system demands, with the large vertical turbine pumps meeting fire flow demands and other peak demands, as necessary. All pumps at these two existing well locations are controlled through variable frequency drives (VFDs). It should be noted that for each of these locations, the system is designed so that the booster pumps cannot run when the vertical turbine pump is running, to prevent damage to the booster pumps

[6] All elevation data reference mean sea level.

due to excessive drawdown. However, the booster pumps can be operated at the same time as the vertical turbine at the other well site (e.g. Legacy vertical turbine plus Eaglefield booster pumps or Eaglefield vertical turbine plus Legacy booster pumps).

The City is in the process of optimizing its SCADA system and operating parameters and settings for the Western Service Area. A third well, Well No. 6, is planned to be located near Palmer Lane south of Floating Feather Road. Additional potential well sites are identified in the Update.

Demand conditions used in the water model include average day, maximum day, and peak hour demands. The model demand values are consistent with the demands in the Update, with unit demands summarized in the following table.

Design Demands per EDU	
Demand Condition	Demand/EDU (gpm)
Average Day Demand (ADD)	0.20
Max Day Demand (MDD)	0.34
Peak Hour Demand (PHD)	0.58

Fire flow requirements within the Western Service Area are generally 1,500 gallons per minute (gpm), minimum. Individual structures or areas may have increased or reduced fire flow requirements, based on approval from the Fire Chief. However, for system planning purposes, 1,500 gpm fire flow will be used unless otherwise noted.

Redundancy requirements of the Idaho Rules for Public Drinking Water Systems require that the system demand and pressure requirements be met with the largest pump out of service. In the current system, Well No. 5 vertical turbine is the largest capacity pump. Therefore, the worst case condition within the system is Well No. 5 vertical turbine OFF. During a fire flow plus maximum day demand condition, the current system must meet flow and pressure requirements with Well No. 4 vertical turbine pump and the three Well No. 5 booster pumps.

A storage reservoir is planned within the Western Service Area, with a proposed site north of Beacon Light Road near the north end of Hartley Road. The site location and the design elevations have not yet been finalized. One of the primary design considerations of the Western Service Area is planning suitable water main sizing that will meet both future goals for transmission of water to/from the storage reservoir, with sufficient redundancy. Equally important, the ongoing distribution system extensions to serve new developments must be adequately sized to meet flow and pressure requirements prior to construction of the storage reservoir and prior to construction of the entire looped distribution network.

Existing System Model

As part of the existing system hydraulic model, two system conditions were modeled. The first is the existing Zone 1 target HGL of 2652, which is equivalent to a pressure of approximately 60 psi at Well No. 4. The second is the planned future Zone 1 target HGL of 2685, which is equivalent to a pressure of approximately 75 psi at Well No. 4. Under the first system condition, the maximum water service elevation is limited to 2550. Future planned upgrades to the Well No. 5 booster pumps will allow the Zone 1 target HGL to be increased to 2685, which will increase the maximum water service elevation limit to 2580. This Zone 1 target HGL upgrade will extend the Zone 1 service boundary to Beacon Light Road. Limited portions of the service area to the north of Beacon Light Road may also be served in Zone 1, depending on topography.

Under Condition 1, model predicted service pressures range from 44 to 63 psi and predicted available fire flows range from 1,400 to 2,100 gpm. Under Condition 2, model predicted service pressures range from 44 to 77 psi and predicted available fire flows range from 1,500 to 1,900 gpm. It is important to note that under both conditions, Well No. 5 vertical turbine pump has been modeled in the OFF position since it is the largest supply pump. This is required to meet redundancy requirements. With both Well No. 4 and Well No. 5 online, available fire flows are higher. Select model output reports for the existing system hydraulic model are included in the Update, Exhibit Q.

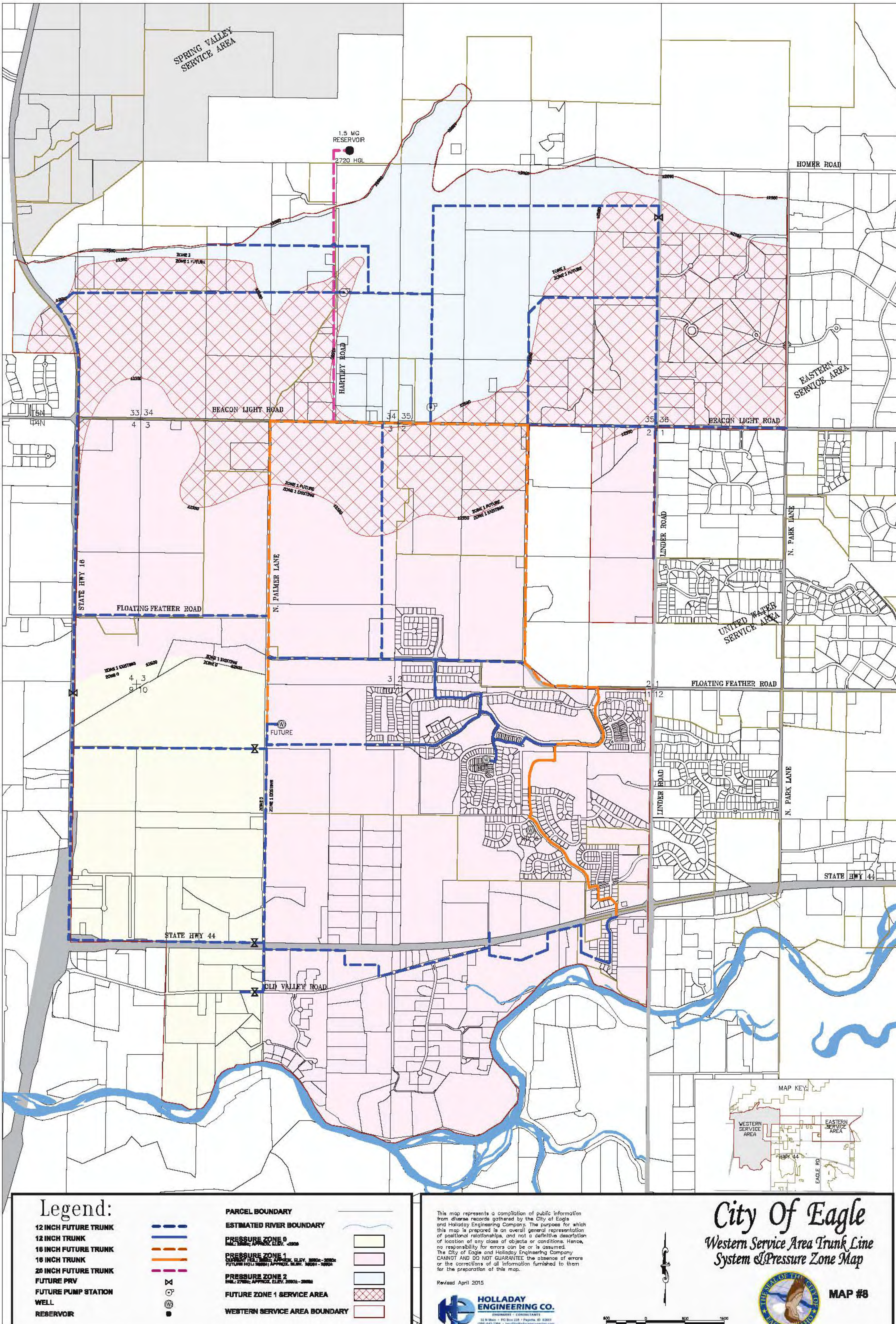
Future Improvements Model Run

The future improvements model run includes the planned storage reservoir, Well No. 6, a Zone 2 booster pump station, and various pressure reducing valve (PRV) stations necessary for serving three pressure zones. For planning purposes, it has been assumed that Well 6 will be equivalent to the Well No. 4. To meet redundancy requirements, Well 5 vertical turbine pump has been modeled in the OFF position since it is the largest supply pump. Model predicted service pressures range from 44 to 80 psi. Model predicted available fire flows range from 1,750 to >5,000 gpm. Output reports for the future improvements hydraulic model have been included in the Water Master Plan, Exhibit S. A map illustrating the planned trunk line network responsive to the land use designations and design demands is included as Map No. 8, Western Service Area Trunk Line System and Pressure Zone Map. A larger scale copy of Map No. 8 may be found in the Map Pocket Section of the Update.

4.2.4 Reserve Provisions *(Previously 4.2.2)*

In 2008 the City entered into an Intertie Agreement with EWC. This Agreement allowed EWC to gain the benefit of the City's one million gallon water storage tank for "redundant fire flow protection capacity." The 12-inch trunk line connection between the two systems is two manually controlled gate valves. In the event that an emergency transfer of water is required, a meter can be placed in line to record the amount of water used, and the system receiving water shall pay in accordance with standard rates. The City, in turn, was granted a permanent Right of First Refusal to lease up to 10 cfs of municipal water rights from EWC. The Agreement also grants the City the Right of First Refusal if EWC "determines to sell or convey all or part of its Water System." See Exhibit R.

In 2010, the City entered into an Emergency Interconnection Agreement with UWI. The purpose of this Agreement was to provide an emergency supply for each party. The intertie consists of a pressure reducing valve vault, piping and meters to measure the two-way flow of water. The valves operate in a normally closed position. In the event of a transfer of water, the selling party shall purchase the supply under the rate established by the Volume Charge set forth in United Water's Schedule 1 – General Metered Service rate. See Exhibit S.


SPRING VALLEY SERVICE AREA
1.5 MG RESERVOIR
2720 HGL
HOMER ROAD
HARTLEY ROAD
BEACON LIGHT ROAD
EASTERN SERVICE AREA
T5N
T4N
33 34
4 3
34 35
3 2
35 36
2 1
ZONE 2
ZONE 1 FUTURE
ZONE 1 FUTURE
ZONE 1 EXISTING
LINDER ROAD
N. PARK LANE
STATE HWY 16
N. PALMER LANE
FLOATING FEATHER ROAD
UNITED WATER SERVICE AREA
FLOATING FEATHER ROAD
ZONE 1 EXISTING
ZONE 0
4 3
9 10
3 2
10 11
2 1
11 12
FUTURE
STATE HWY 44
STATE HWY 44
OLD VALLEY ROAD
MAP KEY
WESTERN SERVICE AREA
EASTERN SERVICE AREA
HWY 44
EAGLE RD
Legend:
12 INCH FUTURE TRUNK
12 INCH TRUNK
16 INCH FUTURE TRUNK
16 INCH TRUNK
20 INCH FUTURE TRUNK
FUTURE PRV
FUTURE PUMP STATION
WELL
RESERVOIR
PARCEL BOUNDARY
ESTIMATED RIVER BOUNDARY
PRESSURE ZONE 0
PRESSURE ZONE 1
PRESSURE ZONE 2
FUTURE ZONE 1 SERVICE AREA
WESTERN SERVICE AREA BOUNDARY
This map represents a compilation of public information from diverse records gathered by the City of Eagle and Holladay Engineering Company. The purpose for which this map is prepared is an overall general representation of positional relationships, and not a definitive description of location of any class of objects or conditions. Hence, no responsibility for errors can be or is assumed. The City of Eagle and Holladay Engineering Company CANNOT AND DO NOT GUARANTEE the absence of errors or the corrections of all information furnished to them for the preparation of this map.
Revised April 2015
HOLLADAY ENGINEERING CO.
ENGINEERS · CONSULTANTS
0
1500
SCALE OF FEET
City Of Eagle
Western Service Area Trunk Line System & Pressure Zone Map
THE SEAL OF THE CITY OF EAGLE, IDAHO
MAP #8

4.3 Well Production and Water Usage

4.3.1 Recordkeeping and Data Acquisition

A Supervisory Control and Data Acquisition ("SCADA") control system for the Eastern and Western Service Areas was installed in 2008. However, no SCADA compiled records were available from the Water Department for a pumping operation or supply assessment. Records used for assessing well production were taken from meter readings entered by hand on well records. Meters are read every working day. Well production on weekends and holidays may be estimated by proration. Prorated meter readings from well records were adjusted to develop the production totals below. See Section 4.3.3.

A number of problems plagued the Western Service Area water system in the 2010 and 2011 time period including an inoperable SCADA system, broken well meter, well off-line due to disinfection system malfunction, and unmetered flushing volumes. These occurrences resulted in system records that are missing several months of reporting. See following pages. A new SCADA system has been installed in 2015 and is in the process of optimizing operation in the Western Service Area. Since the new installation, SCADA information and control system is performing as designed for the Eastern Service Area. For the 2015 Update, annual water use records are based on the operation of the Eastern Service Area well records.

4.3.2 Wells

There have been no wells added to the system since the 2008 Plan. The proposed Orchard Well (Well No. 6) referenced in the 2008 Plan was never constructed by the developer and the permit application has expired.

4.3.3 Well Production Records

As noted, Well No. 1 and Well No. 3 pump to a storage reservoir. From well records, there is little correlation between any given day of production records and daily use records. Well No. 4 and Well No. 5 supply water to the Western Service Area. Well production records do not represent actual consumptive use due to unmetered flushing and unmetered construction use activities. Overall production records are based on monthly metered use at the well and track with historic seasonal demands for water in the region.

WATER PRODUCED – 2009 through 2014 Summary[1]						
	Well No. 1	Well No. 3		Well No. 4	Well No. 5	
Year	Lexington (1,000 gal)	Brookwood (1,000 gal)	Eastern EDU's Served	Legacy (1,000 gal)	Eaglefield (1,000 gal)	Western EDU's Served[2]
2009	101,508	27,633	1,336	8,261	1,347	35
2010	67,676	62,906	1,338	3,278	176	13
2011	55,870	72,774	1,343	2,866	10,008	22
2012	44,571	76,292	1,361	10,761	1,425	73
2013	60,644	52,303	1,379	24,010	1,029	156
2014	60,315	57,031	1,381	16,833	1,354	368
Peak Day	1,244	1,477		1,220	1,098	
Date	Aug. 3, 2011	Sep. 12, 2011		May 8, 2013	April 5, 2011	

(1) For reasons discussed above, well production does not correlate with EDU consumption for wells No.4 and No. 5.
(2) Decrease in EDU's for 2010 and 2011 reflect active water users, not connected residences.

In the Western Service Area where stagnation has resulted in water quality complaints, the City has periodically resorted to trunk and main line flushing to purge the system. Hydrants used for flushing were not metered, but a review of well records can provide an approximate volume total. According to records, a typical flushing event took place between April 27 and May 9, 2013. In the 13-day period, Well No. 4 produced 13,246,000 gallons; Well No. 5 was off line. This equates to a 1,019,000 gallons per day average with a peak day in this event recording 1,220,100 gallons. Average consumptive use for the previous 23 day period was 37,173 gallons per day. When the consumptive use is subtracted, the net production for the flushing event was 12,762,800 gallons.

The Eastern Service Area is served by the one million gallon reservoir. Peak Day production represents concurrent pumping for consumptive use and refilling the reservoir over an extended time period.

There is a relatively high amount of unaccounted for water produced over the period of 2009 through 2013. This may be attributed to the Western Service Area flushing regimen. For the years of 2009, 2012 and 2013, the differences between water produced and water sold is 12.3%, 12.1% and 15.5% respectively.

Eagle Water Production Records - Eastern Service Area

Monthly readings of first of each month *adjusted for meter changes*

Well No. 1 - Lexington Hills 30HP Pump

Readings

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	31-Dec
2009	*269103*	*270809*	*272852*	*274345*	*274826*	*276234*	*277715*	*279865*	*282791*	*285573*	*288411*	*290523*	*290674*
2010	*290682*	*290690*	*290698*	*292646*	*293618*	*295460*	*297370*	*298913*	*300525*	*301997*	*303314*	*304305*	*304305*
2011	*304305*	*304305*	*304305*	*304305*	*304305*	*304905*	*306185*	*308101*	*310294*	*311743*	*311785*	*313844*	*314715*
2012	*314822*	*315633*	*316033*	*316621*	*317007*	*317007*	*317007*	*317007*	*317007*	*317007*	*317007*	*317007*	*317007*
2013	*317007*	*317950*	*318506*	*319636*	*321000*	*322759*	*324668*	*327675*	*329456*	*330695*	*331773*	*331990*	*332009*
2014	*332009*	*332384*	*333901*	*333901*	*333901*	*333901*	*333901*	*0*	*334145*	*334270*	*335526*	*336559*	*337336*

Jan & Feb 2010: SCADA problems *Dec to April 2010: SCADA problems* *May 2012 to Jan 2013: SCADA problems* *March to Aug 2015: Pump Problems*

Well No. 1 - Lexington Hills 30HP Pump

Production

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Gal Pumped/Year
2009	1706	2043	1493	481	1408	1481	2150	2926	2782	2838	2112	151	21571
2010	8	8	1948	972	1842	1910	1543	1612	1472	1317	991	0	13623
2011	0	0	0	0	600	1280	1916	2193	1449	42	2059	871	10410
2012	811	400	588	386	0	0	0	0	0	0	0	0	2185
2013	943	556	1130	1364	1759	1909	3007	1781	1239	1078	217	19	15002
2014	375	1517	0	0	0	0	0	244	125	1256	1033	777	5327

Well No. 1 - Lexington Hills 75HP Pump

Readings

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	31-Dec
2009	*617501*	*623691*	*631646*	*637584*	*639466*	*644402*	*652457*	*664916*	*673798*	*682099*	*690728*	*696990*	*697438*
2010	*673792*	*677415*	*681145*	*685617*	*688478*	*693896*	*699472*	*704092*	*709600*	*715303*	*718524*	*723216*	*727845*
2011	*727845*	*729918*	*733999*	*738555*	*742092*	*743728*	*747231*	*753501*	*759983*	*764493*	*764617*	*770685*	*773305*
2012	*773625*	*776359*	*777559*	*779046*	*784780*	*790630*	*790630*	*793669*	*798823*	*805038*	*808323*	*813856*	*816011*
2013	*816054*	*819549*	*821232*	*824892*	*828934*	*834093*	*839671*	*848445*	*853626*	*857229*	*860660*	*861641*	*861696*
2014	*861696*	*865702*	*867569*	*873339*	*879552*	*885708*	*893957*	*902703*	*907171*	*907763*	*911517*	*914571*	*916684*

Dec 2012 to Jun 2013: SCADA problems *Jul 2012: Pump drive replacement*

Well No. 1 - Lexington Hills 75HP Pump

Production (x 1,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Gal Pumped/Year
2009	6190	7955	5938	1882	4936	8055	12459	8882	8301	8629	6262	448	79937
2010	3623	3730	4472	2861	5418	5576	4620	5508	5703	3221	4692	4629	54053
2011	2073	4081	4556	3537	1636	3503	6270	6482	4510	124	6068	2620	45460
2012	2734	1200	1487	5734	5850	0	3039	5154	6215	3285	5533	2155	42386
2013	3495	1683	3660	4042	5159	5578	8774	5181	3603	3431	981	55	45642
2014	4006	1867	5770	6213	6156	8249	8746	4468	592	3754	3054	2113	54988
	3700	3357											

Well No. 3 - Brookwood

Readings

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	31-Dec
2009	*136*	*712*	*712*	*3468*	*11009*	*16212*	*18285*	*18285*	*18285*	*18285*	*18305*	*20318*	*27769*
2010	*27790*	*37285*	*46857*	*51183*	*54701*	*58523*	*61500*	*67200*	*72997*	*76452*	*81885*	*87078*	*90696*
2011	*90696*	*96781*	*103725*	*108063*	*113512*	*119911*	*126783*	*128911*	*135777*	*150464*	*153813*	*157012*	*163470*
2012	*164248*	*171674*	*177776*	*185443*	*188566*	*194633*	*205963*	*216148*	*224446*	*227659*	*233210*	*236225*	*240540*
2013	*241803*	*245098*	*249653*	*253422*	*257149*	*261883*	*265055*	*266239*	*272660*	*276745*	*280855*	*287397*	*294106*
2014	*294106*	*297005*	*297650*	*303962*	*306969*	*311570*	*316166*	*321048*	*328024*	*337844*	*341070*	*345572*	*351137*

Jul to Nov 2009: SCADA problems

Well No. 3 - Brookwood

Production (x 1,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Gal Pumped/Year
2009	576	0	2756	7541	5203	2073	0	0	0	20	2013	7451	27633
2010	9495	9572	4326	3518	3822	2977	5700	5797	3455	5433	5193	3618	62906
2011	6085	6944	4338	5449	6399	6872	2128	6866	14687	3349	3199	6458	72774
2012	7426	6102	7667	3123	6067	11330	10185	8298	3213	5551	3015	4315	76292
2013	3295	4555	3769	3727	4734	3172	1184	6421	4085	4110	6542	6709	52303
2014	2899	645	6312	3007	4601	4596	4882	6976	9820	3226	4502	5565	57031

All Pumps

Total Annual Volume (x 1,000)	
2009	**129,141**
2010	**130,582**
2011	**128,644**
2012	**120,863**
2013	**112,947**
2014	**117,346**

Eagle Water Production Records - Western Service Area

Monthly readings of first of each month *adjusted for meter changes and for 2011 data*

Well No. 4 - Legacy

Readings

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	31-Dec
2009	*13079*	*14959*	*15225*	*16253*	*17125*	*17762*	*18360*	*19337*	*19888*	*20489*	*20974*	*21196*	*21340*
2010	*21342*	*21478*	*21592*	*21720*	*21880*	*22117*	*22487*	*22909*	*23366*	*23779*	*24129*	*24449*	*24620*
2011	*24620*	*24760*	*24881*	*25040*	*25299*	*16980*	*52085*	*94711*	*288041*	*385779*	*379275*	*1391557*	*2245555*
2012	*2293028*	*3074737*	*4912325*	*6380121*	*7931108*	*8781395*	*10119862*	*10432881*	*10919199*	*11525372*	*12101193*	*12546291*	*13054475*
2013	*13147776*	*13577042*	*14213451*	*15012784*	*21134498*	*29862364*	*31072423*	*32589075*	*34093746*	*34985060*	*35980243*	*36509953*	*37157780*
2014	*37157780*	*38089514*	*38821413*	*39698407*	*40753014*	*41960078*	*43501147*	*45181744*	*47608076*	*49851228*	*51297903*	*52563432*	*53990685*

May & Jun 2011: Meter problems *Nov & Dec 2011: Meter replacement* *Meter readings after Nov 2011 in direct units* *Apr & May 2013: Undefined high production*

Well No. 4 - Legacy

Production (x 1,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	31-Dec
2009	1,880	266	1,028	872	637	598	977	551	601	485	222	144	8,261
2010	136	114	128	160	237	370	422	457	413	350	320	171	3,278
**2011	140	121	159	259	Do not use	Do not use	40	189	92	Do not use	1,012	854	2,866
2012	782	1,838	1,468	1,551	850	1,338	313	486	606	576	445	508	10,761
2013	429	636	799	6,122	8,728	1,210	1,517	1,505	891	995	530	648	24,010
2014	932	732	877	1055	1207	1541	1681	2426	2243	1447	1266	1427	16,833

**2011 - This meter had multiple problems throughout the year.

Well No. 5 - Eaglefield

Readings

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	31-Dec
2009	*14024747*	*14706548*	*14993599*	*15097691*	*15097860*	*15097864*	*15261680*	*15297230*	*15297230*	*15297368*	*15371425*	*15371425*	*15371427*
2010	*15371427*	*15371510*	*15371510*	*15371511*	*15381027*	*15381027*	*15459605*	*15459610*	*15494262*	*15504640*	*15504640*	*15544999*	*15547267*
2011	*15547267*	*15641654*	*15737313*	*16248402*	*23704715*	*25181011*	*25433616*	*25433616*	*25433616*	*25437982*	*25454225*	*25454234*	*25554882*
2012	*25574633*	*25628815*	*25636334*	*26143125*	*26543165*	*26717086*	*26749937*	*26882778*	*26966597*	*26972490*	*26989204*	*26994225*	*26999933*
2013	*26999933*	*27000199*	*27008943*	*27014794*	*27298474*	*27298612*	*27298656*	*27298719*	*27298945*	*27299044*	*27744928*	*28028898*	*28028898*
2014	*28028898*	*28040046*	*28057353*	*28178900*	*28189083*	*28509524*	*28768373*	*28931694*	*29186317*	*29315950*	*29374608*	*29377040*	*29383084*

Jun & Jul 2011: System flushing for aesthetic quality *May to Oct 2013: off line to modify chlorine injection system* *Sept 2012 through Sept 2013 : Chlorine injector problems, backup only*

Well No. 5 - Eaglefield

Production (x 1,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	31-Dec
2009	682	287	104	0	0	164	36	0	0	74	0	0	1,347
2010	0	0	0	10	0	79	0	35	10	0	40	2	176
2011	94	96	511	7,456	1,476	253	0	0	4	16	0	101	10,008
2012	54	8	507	400	174	33	133	84	6	17	5	6	1,425
2013	0	9	6	284	0	0	0	0	0	446	284	0	1,029
2014	11	17	122	10	320	259	163	255	130	59	2	6	1,354

TOTAL WESTERN PRODUCTION

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2009	2,562	553	1,132	872	637	762	1,013	551	601	559	222	144
2010	136	114	128	170	237	449	422	492	423	350	360	173
**2011	234	217	670	7,715	Do not use	Do not use	40	189	96	Do not use	1,012	955
2012	836	1,845	1,975	1,951	1,024	1,371	446	570	612	593	450	514
2013	430	645	805	6,405	8,728	1,210	1,517	1,505	891	1,441	814	648
2014	943	749	999	1,065	1,528	1,800	1,844	2,681	2,373	1,505	1,268	1,433

All Pumps

Total Annual Volume (x 1,000)	
2009	**11,617**
2010	**5,464**
2011	**13,140**
2012	**14,199**
2013	**27,052**
2014	**20,201**

4.3.4 Water Consumption and Declining Balance

Water consumption averages are derived from metered sales records. Household occupancy from the 2000 census to the 2010 census changed from 2.81 persons per household to 3.13 persons per household (or EDU) within the Eastern Service Area. This 11.4% increase in household size contributed to a decrease of 6.2% in the gallons per capita calculation results. Average consumption per EDU from 2009 through 2014 was 252 gallons per day.

WATER USE – 2009 through 2014 Summary [1]

CONDITION	AVERAGE DAY[2]	MAX DAY[3]	PEAK HOUR[4]
Households	1,356		
Household, gal/day/EDU	252	428	728
System, gal/day	340,918	852,300	1,278,500
System, gal/min	236	590	885
Per Capita, gal/day	80.7		

(1) These averages represent values derived from the Eastern Service Area meter records.
(2) Average Day does not include an irrigation component as pressure irrigation is supplied from surface water sources.
(3) Max Day Factor: 1.7 times Average Day.
(4) Peak Hour Factor: 1.7 times Peak Day.

In August, 2008, a letter addendum to the 2008 Plan was filed with the IDEQ updating the flow test information from Well No. 4 and Well No. 5. The purpose of the new flow test information was to document available flow using the recently installed pump systems. The conclusion of the addendum is the Western Service Area "has a maximum capacity, with the largest well out of service, of 2,300 gallons per minute (gpm)."[7] The addendum included new declining balance worksheets based on this flow rate. The addendum perpetuated the 2005 Plan and 2008 Plan assumptions of two potential water demand rates, Historic Use and Projected Use.

[7] City of Eagle, Western Expansion Area Municipal Water System Flow Testing – Updated Declining Balance, Letter to Monty Marchus, State of Idaho Department of Environmental Quality, August 8, 2008.

The origin of the hypothetical (Projected Use) water demand rate and two declining balance tables stem from the City's "Soaring 2025 Western Sub-Area Plan," an amendment to the 2000 Comprehensive Plan with a wide range of possible land uses proposed for the Western Service Area during the time frame of preparation of the 2005 Plan.

> "The distinguishing characteristic of the two declining balance worksheets is that Projected Use reflects a range of municipal water use normal to a diverse mixture of residential, commercial and industrial customers, whereas the basis for the Historical Use worksheet represents residential use only…"[8]

Since 2005, substantial developments have been constructed or are planned in the Western Service Area featuring residential uses. Residential demand with no irrigation component for this area is similar to water use pattern in the Eastern Service Area presented in the table above. Updated Declining Balance worksheets for the Eastern and Western Service Areas are presented in Exhibit T. The use of a second "Projected Declining Balance" calculation is discontinued.

[8] City of Eagle Amended Master Plan, 2008, Section 4.4

CHAPTER 5.0 INVENTORY AND CAPITAL REPLACEMENT PLAN

5.1 Storage and Component Inventory

The 1-million gallon buried concrete storage reservoir constructed in 2007 is functioning as designed. It continues to be monitored in accordance with IDAPA requirements. An unforeseen development is the use of the concrete top surface by recreation bicyclists. This has led to concerns about access to the structure and ventilation system as well as for the safety of the bicyclists. A protected and secure water system is vital to the City. The reservoir's accessibility coupled with the rise in local trail riding use increases exposure to vandalism to the water system. The City is monitoring damaged areas along the rim of the concrete top. It is recommended the City perform a vulnerability assessment of the site and plan for greater degree of protection from access suitable for the area and public uses.

A full inventory of system components will be included in a Capital Replacement and Capital Improvement Plan document when it is produced. Water lines currently installed in the distribution system are summarized in the following table.

Distribution System Line Summary		
Line Size	Length (feet)	Miles
4	6,013	1.14
6	22,614	4.28
8	68,981	13.06
10	27,286	5.17
12	21,191	4.01
16	13,476	2.55
20	1,330	0.25

5.2 Capital Replacement Plan

The Water Department is in the process of updating its water meters to radio read Neptune R900® meters. Beginning with the earliest meters placed in service in 1992 when the City acquired the water system, the Department budgets for and replaces 100 meters per year. There are 920 manual read meters remaining in the system. The replacement and upgrade to radio read of meters accomplishes two goals of utility management: improved accuracy and decreased labor cost to perform a routine monthly task.

A replacement schedule developed in the 2005 Plan remains consistent with current operation elements of the water system. Meter replacement has been accelerated to a rolling 15-year replacement cycle. Other planned elements such as the storage reservoir have been completed.

CHAPTER 6.0 CAPITAL IMPROVEMENT AND EXPANSION PLAN

6.1 General

Expansion of infrastructure to provide water service has remained consistent with the overall planning framework of the 2005 Plan. The pace of development in Eagle slowed with the contraction of the housing market after 2006 mirroring the national trend in housing starts. In Idaho, specifically in the Treasure Valley, the stagnant housing market began to improve in 2011 and since then has continued a gradual acceleration. Permits for new residential construction are on the rise. The following table demonstrates the cycle in housing starts for the entire City within a 14 year growth period.

New Residential Construction, by Permits Issued					
Year	Permits	Year	Permits	Year	Permits
2014	398	2009	33	2004	489
2013	292	2008	90	2003	427
2012	228	2007	87	2002	347
2011	140	2006	232	2001	353
2010	103	2005	512		

The location of the majority of tracts of land submitted for review and approval is in the area identified as the Western Service Area west of Linder Road and generally north of State Highway 44. Specifically, these are situated in the block boundaries identified as Block 1 and Block 3 with minor development occurring in Block 2 and Block 5 of the 2005 Plan.

The City's detailed 2008 Budget and Capital Plan identified two significant projects. The $2.59 million project to add a 1-million gallon reservoir along with the new Brookwood Well (Well No. 3) was completed and is fully operational. The planned Local Improvement District formation to acquire Eagle Water Company for $7.2 million was not consummated.

6.2 Expansion Plan

At the formative stage of the Western Service Area as described in the 2005 Plan, it was necessary for the City to plan a growth process and timetable for budgetary purposes. This enabled the City to anticipate staff, equipment, and contract requirements for the initial implementation and growth of a water department. The 2005 Plan included preliminary design for the expansion area (Section 6.2.1), envisioned development blocks (Section 6.2.2), and set the stage for contract operation until the City could staff a Water Department. Since 2005, growth in the area has rendered descriptions of development blocks unnecessary for updates. The Western Service Area is proceeding substantially in accordance with the 2005 Plan. Land use patterns adopted for this area remain valid for defining the anticipated flow and pressure demands for system expansion. The Trunk Line System and Pressure Zone Map, Map No. 8, previously discussed in Section 4, Western Area Modeling Results.

Development Block 4 ("Block 4") of the 2005 Plan describes the area lying one-half mile north of Beacon Light Road from Highway 55 on the east to Lanewood Road on the west side of the Block. The development potential for the immediate 2,080 acres that comprises Block 4 is limited to approximately 480 acres in the Eastern Service Area and to approximately 320 acres in the Western Service Area. Developed portions of Block 4, consisting of 1,280 acres of Residential Estate lots, are served by individual or private wells. The area north of Block 4 between Park and Eagle Road (approximately 2.5 miles in width) abutting the foothills is also developed with properties from two to five acres. Foothill Residential lot sizing criteria in Block 4 controls the number and type of water service customers on a central distribution system within the planning horizon.

The 2005 Plan trunk line improvements for Block 4 served to accomplish several planning elements for the water system.

A. The initial plan linked the Eastern and Western Service Areas with a 16-inch trunk line for the purpose of establishing a single, unified utility service footprint.
B. Operationally, this plan, when implemented, permits utility operation by a single pressure/flow control system.
C. A unified system has the advantage of distributing municipal water rights and supply throughout the combined service areas accomplishing the regulatory requirement for redundancy by accessing all four wells and the storage reservoir.
D. From the land use perspective, linking the Eastern and Western Service Areas signals the City's intent to provide water service for all developable land lying north of Beacon Light Road, an area defined as "Residential Estate" and "Foothills Residential" in the 2011 Comprehensive Plan.

The benefits of the joined service area have been tempered by events and actions taken since 2005. The City has adequate control system and staff in place to operate its two public water systems. Current applications, discussed below, permit the withdrawal of water from all existing points of diversion gaining valuable flexibility for ground water place of use. As the City acquires additional water rights, wells, and storage reservoirs in each service area, the benefit of shared supply for system redundancy between service areas diminishes. The City has adopted a foothill component within its Comprehensive Plan that controls growth abutting currently developed areas. With the Spring Valley annexation and development agreement requirements for open space, the City has an assurance of protecting open space thereby limiting potential ground water uses in undeveloped portions of the foothills.

Unless an additional demand can be identified and quantified, the initial 2005 Plan projection for a 16-inch diameter trunk line appears at this time to be oversized for system operation. In anticipation of build out of the Comprehensive Plan in the remaining areas of Block 4 and the abutting portions of undeveloped foothills lying north of Block 4, the connecting trunk line in Beacon Light Road from Highway 55 to Lanewood Road has been reduced to 12-inches.

Sections 6.2.1 through 6.2.3.2 of the 2005 Plan are no longer applicable to the current Western Service Area due to ongoing development since 2005.

6.2.4 Operation Plan

Section 6.2.4 of the 2005 Plan is no longer applicable for the start-up of the Western Service Area. The Operation Plan has been superseded by a separate set of operating plans for the Eastern and Western Service Areas.

In 2008, the City was under contract for operation of its two water systems, the existing Eastern Service Area and the start-up Western Service Area. Two Operation and Maintenance Manuals were prepared, one for each system. The manuals covered all aspects of operation including start-up, shut-down, emergency power, alarms and troubleshooting, routine inspections, and emergency response procedures. They also contained samples of Contamination Notices, Cross Control Plan, and other operation forms. These manuals were approved by IDEQ in April, 2008. Though the system has developed, the manuals have not been updated. The Water Department is updating emergency contacts and has made certain changes. Technical changes to the Operation and Maintenance Manuals will be addressed by design engineers and SCADA team when ongoing operational testing of the Western Service Area control and disinfection system is completed. New chapters will be added addressing chlorination, updated startup procedures, parameters for pressure and variable speed control, and lead/lag pump recommendations.

6.3 Western Service Area Startup Procedure

Section 6.3 of the 2008 Plan is no longer applicable for the start-up of the Western Service Area.

6.4 Capital Projects to Improve System Performance

The City has two water infrastructure related fees in place to address the capital costs of buy-in and expansion of the water system: the Storage and Trunk Line ("STL") Fee and the Water Construction Equivalency ("WCE") Fee. The STL Fee is specifically used to fund the storage and trunk line development for build out of the Eastern and Western Service Areas as defined in the 2005 Plan. Payment of the fee is linked to the application and platting process. The WCE Fee, adopted by the City in 1992, has been utilized for improving water supply. The fee is payable at the time of issuance of the building permit. "The purpose in designing customer-contributed-capital charges is to prevent or reduce the inequity to existing customers that results when these customers must pay the increases in water rates needed to pay for added plant costs for new customers."[9] The fees allow the water utility to finance the required facilities by use of "growth-pays-for-growth" policy.

The STL Fee was last modified in 2009. The STL fee is based on the projected costs of necessary capital improvements divided by the projected capacity of those improvements. In a recent case, NIBCA v. City of Hayden[10], the Idaho Supreme Court defined the buy-in methodology based on the estimated cost of new construction needed to extend the system to future users. The City should restructure its fee methodology in conformance with the decision when updating its STL and WCE fees. A full rate study including an updated STL Fee and WCE Fee evaluation should be proposed by the Water Department in the next budget cycle. In accordance with the decision, an analysis of a fee based on value of capacity at a point in time implies an annual review of fees.

Multiple capital projects have been identified to link existing components of the water system to improve water quality, quantity, and to provide system redundancy to better serve in emergencies or to improve the utility system generally. Capital projects featuring water lines may be constructed by the City from STL fees or by developers with credits for the STL fees owed to the City. Water lines identified for inclusion in capital planning are given in the following table.

[9] AWWA, Manual of Water Supply Practices, Water Rates and Related Charges, AWWA M26, pg. 14

[10] North Idaho Building Contractors Association v. City of Hayden, Idaho Supreme Court, February 26, 2015

	Proposed Capital Projects	Budget(1)
1	Intertie on Floating Feather Road from Snoqualmie Subdivision to Mosca Seca No. 1	$259,755
2	Intertie from North Star Charter School to Cabra Creek Subdivision	$302,364
3	Trunk line extension from E. Greenbrook to Beacon Light Road	$944,536
4	Trunk Line extension on Beacon Light Road from Hwy 55 to Vizcaya Subdivision	$750,952
5	Replace 800 Manual-read Water Meters	TBD
6	Install Security Fence at Eagle Sports Park Reservoir	TBD
7	Acquire Property and Construct Water Department Facility	TBD
8	Rebuild Eagle Well No. 1, Lexington	TBD
9	Construct 1.5 MG Reservoir in Western Service Area	TBD

(1) Capital Projects listed above are representative of identified water utility projects. The listed projects are not prioritized and do not represent all system improvement needs. A multi-year capital plan and budget analysis with guidance from decision makers is beyond the scope of this planning document.

Project budgets for trunk line construction are developed for four listed projects to achieve more efficient operation, control and security from a redundant water supply, looped lines, and better access to the storage reservoir supply. Larger water line projects were split into multiple phases of construction to reflect incremental funding from STL fees for planning budget purposes. See Exhibit U for project location maps and unit cost.

Related to water distribution lines and water supply is the need for a utility building and equipment yard. As a start-up utility the Water Department began its operation from an office in City Hall. Equipment such as meters, valves, hydrants and spare parts are stored in a rented storage facility. Safety and training meetings are held at City Hall and all of the functioning elements of maintenance including chemicals, trucks, tools, and equipment are orchestrated from the single office at City Hall. With the majority of projected growth lying in the western portion of the City, it would serve the City and Water Department to plan for a utility yard and eventually a service facility located west of Linder Road. Initially a parcel of land could be acquired and zoned appropriately. In succeeding budgets the parcel may be landscaped and fenced to screen and secure the site. When appropriate, a building could be added to complete an operation facility.

Based on experience with similar utility operation centers, the enclosed portion of a facility yard should be not less than two acres for truck access and turning movements. Allowing for screening landscape, the City may consider a three to four acre parcel. Absent an actual plan or site, the following table lists representative categories for budget planning.

Water Facility – Capital Improvement Project from Rates	
Component	Budget
Land Acquisition, 4 acres	$200,000
Screening, Landscape, Fencing	$100,000
Utilities, Base, Aggregate Surfacing	$80,000
Building (2,100 sq ft @ $170)	$360,000
Street, Parking Improvements	$100,000
Total	$840,000

Funding for a Water Department facility should come from the benefitting rate payers, both existing and new. A rate study to review and recommend funding strategies is an initial step toward securing this asset for the Water Department's functions.

6.5 Spring Valley Capital Projects

Construction of PUMP #1 improvements will be funded in part by the Spring Valley Community Infrastructure District No. 1 ("CID") and by private funds but completely independent of the City and its municipal budgets. Details of the CID organization and functions may be found on the City's website under Public Records. An overview of the boundary, the planned improvements, and financing methods is contained in the document, "General Plan for the Proposed Spring Valley Community Infrastructure District No. 1" located under the CID documents title, "Miscellaneous." Water improvements include supply production, treatment, storage, and distribution facilities.

> "The CID provides a method to secure bonding to finance the construction of improvements… The CID [Board] will review developer requests and costs for water system infrastructure improvements, and when/if approved, will draw from the CID's bonding capacity to pay for the project."[11]

The role of the Water Department in the planning and construction approvals for Spring Valley is the same as for any other development with City municipal water lines. Plans will be submitted for review by the Water Department and City Engineer. The Water Department shall be represented in preconstruction meetings, construction meetings, and shall be present for all testing. When the first phase of PUMP #1 is constructed and approved by the City and by IDEQ, ownership of the completed infrastructure will be transferred to the City for operation and maintenance. Once improvements are transferred, it becomes the City's responsibility to continue any monitoring requirements including ground water monitoring that are attached to state agency approvals for that phase.

[11] Spring Valley Water Facility Plan, Section 6

CHAPTER 7.0 WATER RIGHTS AND GROUND WATER MONITORING

7.1 Water Rights[12]

Current water rights for the City of Eagle water system other than those for Spring Valley are summarized below.

Water Rights				
Water Right No.	Well No.	Priority Date	Authorized Diversion Rate (cfs)	Combined Municipal Diversion Rate (cfs)
63-09331		1/17/1980	0.10	Irrigation, 0.10
63-11413	1	4/2/1991	3.15	3.25
63-12448	2	4/8/1998	3.25	
63-12017	3	2/2/1994	1.56 Amenity use only.	
63-32089	4	1/19/2005	4.0(1)	2.23
63-32090	5	1/19/2005	4.9(2)	
Total Municipal Diversion Rate				5.58

(1) Includes 1.77 cfs for Fire Protection.
(2) The entire diversion rate is identified for Fire Protection.

Two of the listed water right permits, 63-32089 and 63-32090, are being utilized under conditional approval by the Idaho Department of Water Resources ("IDWR") until the proof of beneficial use is filed. The due date for filing proof of beneficial use has been extended by IDWR until November 12, 2015. See Exhibit V.

[12] Chapter 7, Water Rights and Ground Water Monitoring, has been submitted for review by City of Eagle legal counsel.

As an interim measure to assure adequate water supply for the Western Service Area, the City leases ground water on a temporary basis from the Water Supply Bank through IDWR. One lease, Water Right 63-32960, for 2.00 cfs runs through December 31, 2017. A second lease from the City's Water Right 63-12448 from the Eastern Service Area is for 0.80 cfs. Once the proofs of beneficial use for 63-32089 and 63-32090 are completed, the City may elect to discontinue these leases.

7.1.1 Current Permit Applications and Listed Points of Diversion

The City has two water permit applications pending before IDWR: 63-33876 and 63-33878. Upon IDWR approval and the completion of proof of beneficial use as described above, these permits will allow the City to discontinue the interim water lease program. When new wells are drilled and completed pursuant to these applications, the restriction in the Western Service Area on residential units under the declining balance provisions of IDEQ can be re-evaluated.

There are four Points of Diversion ("POD") identified within the Western Service Area for well sites. These include the present locations of Well No. 4 and Well No. 5 in addition to two locations for future wells. These new well sites are to be located within the NW1/4, NW1/4, Section 10, and the NW1/4, NE1/4 Section 10, in Township 4 North, Range 1 West of the Boise Meridian.

Water Rights and Points of Diversion in Western Service Area				
	Points of Diversion			
Water Rights	Well No. 4 SE¼NW¼ Section 11	Well No. 5 NW¼SE¼ Section 11	NW¼NE¼ Section 10	NW¼NW¼ Section 10
63-32089 Municipal: 2.23 cfs Fire Protect: 1.77 cfs	X	X	X	X
63-32090 Municipal: 0.00 cfs Fire Protect: 4.91 cfs	X		X	X
Application 63-33876 Municipal: 4.50 cfs	X	X	X	X

Application 63-33878 Municipal: 3.00 cfs	X	X	X	X

7.1.2 Ground Water Monitoring – Western Service Area

The Final Order for water rights 63-32089 and 63-32090 issued February 26, 2008 contained stipulations for ground water monitoring including:

> "Prior to the diversion of water under this right, the right holder shall construct/identify four observation wells for future monitoring" and "Prior to the diversion of water under this right, the right holder shall develop and the Department must approve, a monitoring, recording, and reporting plan for the observation wells."

The "Monitoring, Recording, and Reporting Plan: Permits 63-32089 and 63-32090" was prepared by SPF Water Engineering and approved by IDWR. Three monitoring wells were completed in 2013 in accordance with the Plan. IDWR has elected to monitor the wells on a quarterly basis for parameters identified in the monitoring plan. See Exhibit W.

7.1.3 Water Right – Spring Valley Service Area

After an extensive ground water study and aquifer characterization, M3 filed an application (63-32573) for a water right in 2006 with the IDWR sufficient to serve their Planned Unit Development at build-out. Following the requisite hearings and findings, the application was modified and re-filed as the Second Amended Application for Water Right Permit filed with IDWR in 2008. A Final Order was issued in December, 2009. This Final Order was appealed by protestants which resulted in issuance of an Amended Final Order by IDWR in January, 2010. M3 filed for judicial review which resulted in a Settlement Agreement with IDWR on the matter of a qualifying municipal provider. The City was assigned the water right application as a municipal owner. On March 9, 2012, a Second Amended Final Order was issued granting 23.18 cfs of ground water to the City specifically to be used for the Spring Valley project. See Exhibit X.

Permit No. 63-32573 is subject to conditions of approval. Several key provisions relevant for utility planning purposes are referenced below.

- The peak diversion rate of 23.18 cfs for a 30 year planning horizon is subject to an annual diversion volume limit of 6,535 acre feet.

- The full system capacity must be constructed by the end of the 30 year planning horizon.
- The place of use is limited to Sections identified in the Permit ("Spring Valley").
- There is a conditional irrigation water component restriction.
- The Permit is subject to complying with the Monitoring Plan dated March 17, 2011 as approved by the IDWR.

7.1.4 Ground Water Monitoring – Spring Valley Service Area

The "Ground Water – Level/Production Monitoring Plan" was developed by Hydro Logic, Inc. in the format of a Technical Memorandum for M3 Eagle, LLC. in response to the condition of approval of IDWR. See Exhibit Y. The significance of this plan for the City is that, as phases of Spring Valley are completed and accepted by the City for operation and maintenance, ground water monitoring in the completed phase becomes the responsibility of the City. Monitoring protocol and test equipment are meticulously defined. Monitoring periods and reporting are described as agreed to by IDWR. At the time of acceptance, the City will evaluate monitoring options and continue the program with staff or by a contracted consultant.

7.1.5 Reasonably Anticipated Future Needs

Idaho Statutes provide an appropriation process specifically to address the continued growth of municipal populations and the water demands occasioned by those increases. Idaho Code 42-202B describes future demands as "reasonably anticipated future needs" for a municipal applicant. The application process allows cities to apply for "future uses of water…for municipal purposes within a service area which, on the basis of population and other planning data, are reasonably expected to be required within the planning horizon of each municipality within the service area not inconsistent with comprehensive land use plans…"

During the period M3 was applying to IDWR for a water right that would meet their needs for a 30 year period, IDWR requested the City prepare a separate Reasonably Anticipated Future Needs ("RAFN") application for domestic water. See Exhibit Z. The City, following the example of previous municipal RAFN applications, selected a 30-year planning horizon and conducted an extensive growth analysis as the basis for defining future water needs based on its 2011 Comprehensive Plan. See Chapter 2, above. The City presented information to the Department in several drafts to obtain feedback on what format and information the IDWR was seeking in conjunction with its review of the M3 application. IDWR did not concur with the City's draft conclusions and proceeded to develop a separate RAFN analysis of the City's needs. The City filed a Revised RAFN Water Right Application with IDWR in October, 2011 and entered an Objection and Motion to Strike the IDWR version of future needs. The City identified and supported future needs for 26.57 cfs of ground water to go with its current water rights of 5.58 cfs.

In its Second Amended Final Order, IDWR denied the City's Motion to Strike and declined to consider the City's revised application.[13]

Additional applications (See Section 7.1.1, Current Applications, above) for municipal supply were filed by the City in November, 2013. Application 63-33876 was filed for a RAFN ground water right of 3.0 cfs based on the IDWR analysis of 2011. Application 63-33878 was filed for a non-RAFN ground water right of 4.5 cfs. These applications are currently under review by IDWR. The City has an expectation of receiving the water right permit for both applications. Upon approval, the City will require an additional 19.07 cfs of ground water to meet its projected water demand within its 30-year planning horizon.

7.1.6 Foothills Planning Area Irrigation Analysis

In preparing the RAFN application, the City combined conservation measures incorporated in the M3 application and the water use standards of IDWR for irrigation. In the IDWR Water Management document it states:

> "A total diversion of 0.02 CFS per acre irrigated, unless the applicant or claimant can demonstrate that more is required. For irrigated tracts of 5 acres or less, no additional justification is required for up to 0.03 cfs per acre. For irrigation of public spaces, such as parks and school grounds, IDWR will authorize a diversion of 0.02 cfs per acre times 24 divided by the number of hours irrigation actually occurs each day."

Applying this IDWR use rate to the entire developable area of the foothills would require a water right of 234.8 cfs for the irrigation component. Rather than apply for irrigation use ten times greater than the domestic use component of 21.33 cfs, the City chose in its RAFN application to mirror IDWR approved conservation values of the M3 Application.

Contained within the M3 Second Amended Application for Water Right Permit, Feb. 1, 2008,[14] is a calculated irrigation water demand at build-out prepared by their consultants. The consultants recommended, and IDWR accepted, conservation measures based upon limited irrigable lands for various uses including single family residential, multi-family residential, public and commercial units. For example, according to the conservation practices identified in the M3 Application, only

[13] Idaho Department of Water Resources, In the Matter of Application for Permit No. 63-32573, in the Name of the City of Eagle, Second Amended Final Order, March 9, 2012, page 3, ff.

[14] Second Amended Application for Water Right Permit, M3 Eagle, LLC, February 1, 2008 on file at the Idaho Department of Water Resources.

3,500 sq ft of irrigated area was allowed per single family residence.[15] Employing the square footage per lot limitation of 3,500 sq ft irrigable area, the City of Eagle's RAFN application projected a future need component for irrigation of 10.82 cfs. Of the 3,500 sq ft, 2,000 sq ft was to be turf and 1,500 sq ft was for drip system irrigation. Following conservation measures of M3, this amount would irrigate 360.5 acres of the 7,827 buildable acres in the designated foothill area.

Foothill Irrigation Demand Based on Limited Irrigable Lot Coverage					
	Lots	Irrigable Area per Lot	Total Area (sq ft)	Total Area (acres)	Required Flow at 0.03 cfs
Rural Residential	416	3,500	1,456,000	33.43	1.00
Neighborhood Community				23.60	0.71
Unconstrained Residential	3,777	3,500	13,219,500	303.48	9.10
Total, All Uses				360.51	
Ground Water Irrigation Demand, cfs					10.82

[15] Ibid, Exhibit 5.7, pg. 1: Foothills Irrigation Demand - 2,000 sq ft turf area and 1,500 sq ft drip irrigation per [residential] unit.

Utilizing the same number of lots, total acres and 0.03 cfs flow rate, but comparing irrigable areas per lot ranging from 2,000 square feet through 7,000 square feet, the water demand for irrigation varies as shown in the following table.

Required Flow for Lot Coverage	
Irrigable Area per Lot (sq ft)	Required Flow at 0.03 cfs
2,000	6.48
3,000	9.37
3,500	**10.82**
4,000	12.26
5,000	15.15
6,000	18.03
7,000	20.92

Achieving water conservation for the foothills must be a politically directed process. Decisions are affected by environmental conditions, financial capacity and administrative processes, stakeholders and jurisdictional agencies. The City's selected value of 3,500 sq ft per lot irrigable area to arrive at an amount of irrigable acreage to expedite a water rights application served a purpose and had precedent in the IDWR approval in the City's Permit No. 63-32573. However, a foothills water conservation policy must ultimately be established through a process linking development, infrastructure and public interest.

The water conservation values used for calculating irrigation use in the foothills will require additional public education effort by the City with cooperation from the development community. An implementation plan for a conservation use policy for irrigation water from ground water sources will be vital to achieve an equitable distribution of any irrigation water right component over the 7,827 acres of developable lands within the foothills region of the Comprehensive Plan.

7.2 Water Quality Monitoring

Consumer Confidence Reports ("CCR") are prepared annually for the public's assurance of safe drinking water. Access to the latest CCR as reported to IDEQ is available on-line. To view the report information:

- Navigate to www.cityofeagle.org
- Click on "City Departments"
- Click on "City of Eagle Water Department (year) Consumer Confidence Report"

CHAPTER 8.0 WATER QUALITY MONITORING

Section 8.1 Monitoring Plan and Section 8.2 Compliance Plan presented in the prior 2005 and 2008 Plans have not been changed as they remain applicable to this Update. For the latest information on monitoring and compliance reporting frequencies, see websites identified below.

8.3 Tests and Reporting

Public drinking water systems are required to report water quality test results to IDEQ for public information. All test results are available through the IDEQ website at http://dd.deq.idaho.gov/IDPDWW. To view the test results, dates of latest tests, and related information:

- Type the PWS number in the search field (ID# 4010201 or ID# 4010222)
- Click on “Search for Water Systems”
- Click on the water system number to bring up “Water System Details”
- Click on test parameter links along the left margin for test report results.

A history of water quality test results for the City’s two public water systems may be found through the IDEQ website. Routine testing for contaminants include chemical and radiological, coliform, lead and copper, disinfection by products, and chlorine maximum residual disinfectants. See Exhibit AA.

For the most current results, type “IDEQ Water Quality” into an internet browser. Follow the steps below:

- Click on “Water Quality – Idaho Department of Environmental Quality”
- Click on “Drinking Water” and on “PWS Switchboard”
- Click on “Access the PWS Switchboard”
- Under Tools / Data, Click on “Sample Results”
- In the box, Water System No., type in the number for either water system and Click on “Search for Water Systems”
- Click on the high-lighted water system number
- Using the links in the left hand column, Click on a specific test.

8.4 Chlorination System Report for Well No. 1 and Well No. 3

In 2008, a Chlorination System Project Preliminary Engineering Report was prepared for IDEQ that established the need for chlorination in the Eastern Service Area. Two onsite sodium hypochlorite (NaClO) generation systems by MIOX® were purchased by the City and installed. Subsequently the City replaced the sodium hypochlorite generators with liquid sodium hypochlorite injection systems because of problems with the operation of the MIOX system. The City was cited for IDEQ Violation of Idaho Code 39-118 and was required to submit a preliminary engineering report to justify the modification. A copy of the IDEQ approved 2013 Project Specific Engineering Report is attached. See Exhibit AB.

8.5 Chlorination System Report for Well No. 4 and Well No. 5

During startup when fewer than 10 residential services and a charter school were connected to the new Western Service Area system, the City had a number of complaints on color and odor. Specifically, complaints include:

a. Yellow fixture staining water that is suspected from iron, and
b. “Rotten egg” water odor that is suspected from hydrogen sulfide.

The public water system including the initial largest trunk line section was sized to provide water for more than 1600 residences. The trunk line and distribution system was larger than necessary for the small number of start-up customers. The large distribution system volume created a long retention period resulting in stagnated water. The City initiated a year-long flushing program that was not successful in overcoming these issues. At that time, the City had more than 200 connections but was receiving complaints on odor and color.

In May, 2011, a preliminary assessment of water quality was forwarded to IDEQ in response to complaints about water quality. IDEQ requested the City perform a pilot study plan for approval prior to initiating chlorination. A Chlorination Pilot Study Plan was submitted in June, 2011 describing the problem, alternatives to abate poor water aesthetics, and additional analytical testing with detailed study protocol. Data for the Chlorination Pilot Study was submitted in February, 2015. IDEQ accepted the data with the directive the City present a Preliminary Engineering Report and construction drawings within 60 days following IDEQ’s concurrence with the data as presented. IDEQ approved the Preliminary Engineering Report in June, 2015. Modifications to the Well No. 4 (Legacy) including reconfiguring the chlorine injection pumps and reprograming the SCADA controls are under way. See Exhibit AC for submitted data and the approved Preliminary Engineering Report.

The Western Service Area is experiencing rapid growth relative to its small user base. This will require frequent adjustments to the injection system involving reprograming the control system until the demand stabilizes as more users come onto the system. As the user base increases, the frequency of required adjustments to the injection system will decrease.

Water quality data collected for regulatory compliance indicates the water is safe for consumption meeting primary drinking water standards, coliform, and volatile organic requirements. Test results also indicate low levels of iron and manganese in City Well No. 4 and Well No. 5 which may affect color. Iron, manganese, and other contaminates affecting water color are not considered health hazards but they do impart aesthetically negative qualities to drinking water.

8.6 Sanitary Surveys

The most recent Sanitary Surveys of the City's water systems were completed in 2010. These surveys are conducted by IDEQ to identify deficiencies and to set dates for operators to bring systems into compliance with regulations. The City's systems each had very minor deficiencies that were identified and corrected. See Exhibit AD.

CHAPTER 9.0 SOURCE WATER ASSESSMENT [16]

Source water assessments have been completed by IDEQ for each of the City wells. These completed assessments can be accessed on the IDEQ website at http://www2.deq.idaho.gov/water/swaOnline/. To view the assessment reports and interactive map:

- Click on the ink to the search page (link at bottom left)
- Type in the PWS number to the search field (ID4010201 or ID4010222)
- Completed assessments will be listed in a table below the search fields
- To view the individual assessment report for each source, click on "Summary Report" for each source (far right column of the table).

It may be useful to view the entire source for the PWS on one map:

- Click on "State Dynamic Map"
- Select the county and select "go"
- Select the PWS name from drop down list – the map will zoom to the area and display all the sources for that PWS.

[16] The web location and access information was provided by Julia Achabal of Idaho Department of Environmental Quality.

CHAPTER 10.0 SYSTEM BUDGET

The utility budget for the Water Department is prepared on a single, year-to-year basis. This one-year-at-a-time process is consistent with many City departments that function with limited long-range planning for significant capital projects. It reflects a budgeting process by the Water Department that has not adopted a systematic CIP requiring a corresponding multi-year revenue component.

In response to a fiscal year ending in September, the Water Department gathers operation revenue and expense data each spring. A three-year history of costs is compiled and an average over the period is calculated. To this average, three percent is added to account for inflation. If a single-year project, new hire, or equipment acquisition is anticipated, the budget will be adjusted accordingly for the upcoming year. Currently there is a very small amount budgeted for ongoing capital improvements outside of normal operation expenses with the exception of meter replacement. The Water Department has not yet experienced the need to reach into a reserve account to fund a major component failure or anticipated replacement. The water utility system is young by utility standards (all infrastructure has been constructed since 1992).

When undertaking long-term capital improvement projects funded through user rates, it will become imperative for budgeting and the financial stability of the utility to adopt a multi-year financial plan. The 2005 Plan, Section 5.2, Capital Replacement Plan, envisioned a utility replacement schedule built around the repair of equipment to extend its useful life, and replacement of equipment or facilities when the life expectancy was reached. Major capital items were assigned a representative useful life expectancy. In Section 10, Budget, the Plan illustrated both operating reserve funds and a capital replacement fund that would increase over time to mitigate unforeseen expenses and foreseeable replacement costs of aging infrastructure.

Budgeting for capital improvements to sustain utility operation involves a number of factors to obtain accurate budget projections for an assurance of funds when a project is scheduled. These factors include: 1) Asset inventory and evaluation, 2) Level of service, 3) Determining critical assets, 4) Inflation forecasting, 5) Bidding climate, and 6) Alternative technologies. Infrequent adjustments in utility rates can create a gap in funds available to sustain asset value making it difficult to catch up to utility needs. For these reasons it has been common in the utility industry to develop long-range budget projections. With the insight from budgeting with a five year horizon, current and next year's budgets can be revised as necessary.

A water system master plan develops a systematic capital improvement project list that will be necessary in the future. Implementation of the plan allows the Water Department to adopt a budget process that reflects the reality of upcoming capital projects and the requisite multi-year revenue component.

WATER FUND FY 2015/2016

CITY COUNCIL BUDGET MEETING ??/??/??

Major Objects and Subobjects	FY 12/13 Budget	FY 13/14 Budget	FY 14/15 Budget	FY 15/16 Budget
REVENUE				
CARRY OVER: (60-0390-00-00)	$648,592	$465,184	$363,641	$380,127
RESERVE FUND:				
Reserve for Water System R&M (60-0346-57-00)	45,930	0	32,515	37,515
Reserve for Equipment & Building Replacement (60-0346-58-00)	43,480	0	5,550	15,550
or for Emergency Replacement Items				
TOTAL RESERVE :	$89,410	$0	$38,065	$53,065
RESTRICTED FUNDS REVENUE:				
METER SETS:				
*Hook-Up Fees-City	8,500	42,500	0	0
TOTAL METER SETS:	$8,500	$42,500	$0	$0
STL FEES (SUPPLY TRUNK LINE):				
STL Carry Forward from previous fiscal years (60-0346-59-01)	112,900	110,700	358,662	358,955
Supply Trunk Line fee (STL @ $2,100.00 ea) (60-0346-59-00)	0	0	105,000	52,500
TOTAL STL FEES:	$112,900	$110,700	$463,662	$411,455
TOTAL RESTRICTED FUNDS REVENUE	$121,400	$153,200	$463,662	$411,455
OTHER REVENUE:				
Hook-Up Fees-City ($911) (60-0346-60-00)	0	0	67,275	91,100
Water Construction Equivalency (WCE @ $400 ea) Fees (60-0355-01-00)	4,000	4,000	20,000	20,000
Billing Revenue (60-0347-01-00)	333,100	338,184	357,001	391,905
Other Revenue (60-0347-02-00)	2,460	3,480	4,920	5,280
Reconnect Fees (60-0347-03-00)	320	600	600	600
Delinquent Fees (60-0347-04-00)	200	7,200	7,200	8,040
Miscellaneous Revenue (60-347-05-00)	300	300	500	500
System Enhancement Fee (60-0347-06-00)	192,000	192,000	192,000	212,000
Bank Interest (60-0371-25-00)	3,600	1,920	1,440	1,440
TOTAL OTHER REVENUES:	$535,980	$547,684	$650,936	$730,865
TOTAL WATER FUND REVENUE	$1,395,382	$1,166,068	$1,516,304	$1,575,512

EXPENDITURES

RESERVE FUND:				
Reserve for Water System R&M (60-0438-02-00)	273,732	32,515	5,000	5,000
Reserve for Equipment & Building Replacement (60-0438-03-00)	247,594	0	5,000	25,000
Reserve for Emergency Replacement Items (60-0438-18-00)	0	0	10,000	20,000
Reserve for Capital Meter Replacement (60-0438-09-00)	15,000	0	0	0
TOTAL RESERVE FUND:	**$536,326**	**$32,515**	**$20,000**	**$50,000**

RESTRICTED FUNDS EXPENDITURES:				
METER SETS:				
Meter Sets (New) (60-0438-08-00)	8,500	42,500	0	0
TOTAL METER SETS:	**$8,500**	**$42,500**	**$0**	**$0**
STL FEES (SUPPLY TRUNK LINE):				
Water System Expansion - STL Fees (60-0437-01-00)	112,900	110,700	238,662	186,455
Capital Expenditures (60-0437-02-00)	0	0	0	0
Refund of STL Fees (60-0437-03-00)	0	0	25,000	25,000
TOTAL STL FEES:	**$112,900**	**$110,700**	**$263,662**	**$211,455**
TOTAL RESTRICTED FUND EXPENDITURES:	**$121,400**	**$153,200**	263,662	211,455

PERSONNEL:				
Salaries - Full Time (60-0433-10-00)	185,861	160,128	196,175	202,112
Part Time (60-0433-10-01)	0	5,408	27,246	26,884
On-Call Time (60-0433-10-02)	0	5,600	6,000	7,000
Overtime (60-0433-11-00)	5,000	5,000	5,500	6,000
FICA (60-0433-21-00)	14,218	13,474	17,971	18,513
PERSI (60-0433-22-00)	19,743	20,413	24,915	24,351
HRA Admin Fee (60-0433-23-01)	120	2,851	120	120
HRA Billing-Premium Reimbursement **(60-0433-23-00)**	2,851	120	4,049	4,049
Insurance (60-0433-25-00)	30,604	34,434	48,904	48,144
Work Comp (60-0433-24-00-00)	6,109	5,241	6,243	6,483
TOTAL PERSONNEL:	**$264,506**	**$252,669**	**$337,123**	**$343,656**

OPERATIONS & MAINTENANCE:				
Meter Sets (New Customers) (60-0438-08-00)	0	0	24,375	32,500
Office Supplies (60-0434-15-00)	700	834	874	1,000
Telecommunications / SCADA (60-0434-19-00)	5,000	5,000	7,400	10,500
Advertising and Publications (60-0434-20-00)	500	500	500	800
Travel-Meetings-Education (60-0434-22-00)	2,350	2,500	3,900	4,025
Dues and Subscriptions (60-0434-23-00)	1,300	1,300	2,200	2,500
Mtnc Equip (computers/copiers) & Software Support (60-0434-25-00)	14,800	14,800	4,300	5,000
Tools & Equipment (60-0434-26-00)	10,000	5,000	5,000	5,000
Miscellaneous Reserve (60-0434-26-01)	10,000	5,550	4,500	4,500
Postage (60-0434-27-00)	100	100	100	100
Liability Insurance (60-0434-41-00)	4,100	4,100	4,100	4,100
Public Drinking Water Fees (60-0434-53-01)	6,000	6,000	6,400	7,200
Permits and Fees (60-0434-53-03)	800	900	1,500	1,500
Water Repair and Maintenance (lines,meters,etc) (60-0434-58-00)	30,000	16,000	16,000	16,000
Water Repair and Maintenance (pumps,wells,chemical) (60-0434-58-01)	0	0	16,000	20,000
Chemicals and Equipment (60-0434-59-00)	5,000	6,500	6,500	6,500
Power (60-0434-60-00)	35,000	35,000	35,000	36,050
Uniforms/Laundry (60-0434-68-00)	1,000	1,000	1,500	1,500
Testing - weekly, monthly, quarterly, annual (60-0435-56-00)	7,000	7,000	7,000	7,500
Total Operations & Maintenance	$133,650	$112,084	$147,149	$166,275

CONTRACTS AND AGREEMENTS:				
Engineering Services (60-0434-42-00)	5,000	24,000	25,000	25,000
Legal Services (60-0434-42-01)	25,000	25,000	25,000	25,000
Misc Legal Services (60-0434-42-02)	0	50,000	50,000	35,000
Contract Services (Repair) (60-0434-43-01)	25,000	25,000	25,000	25,000
Dig Line (60-0434-44-00)	4,500	1,200	1,320	1,320
Auditor Services (60-0434-45-00)	1,200	1,200	1,200	1,200
Billing Services (60-0434-47-00)	12,000	12,000	13,100	15,120
Work Flow Management Software (60-000-00-00)	0	0	1,350	0
Shop Lease (60-0434-50-00)	7,000	7,000	9,700	8,900
Shop Utilities (60-0434-50-01)	0	1,200	1,300	2,000
State Revolving Loan Payment (60-0436-01-00)	182,000	182,000	182,000	212,000
TOTAL CONTRACTS AND AGREEMENTS:	$261,700	$328,600	$334,970	$350,540

VEHICLE OPERATIONS - LEASES:				
Fuel and Lubricants (60-0420-01-00)	15,000	15,000	15,000	15,000
Vehicles Repair and Maintenance (60-0420-03-00) (60-0434-24-00)	1,500	3,000	4,000	7,461
TOTAL VEHICLE OPERATIONS - LEASES:	**$16,500**	**$18,000**	**$19,000**	**$22,461**

FIXED OPERATING COSTS:				
Personnel	$264,506	$252,669	$337,123	$343,656
Operations and Maintenance	$133,650	$112,084	$147,149	$166,275
Contracts and Agreements	$261,700	$328,600	$334,970	$350,540
Vehicle Operations - Leases	$16,500	$18,000	$19,000	$22,461
TOTAL FIXED OPERATING COSTS:	**$676,356**	**$711,353**	**$838,242**	**$882,932**

CAPITAL OUTLAY:				
Equipment - Computers & etc. (60-0438-01-00)	1,300	11,200	4,400	18,000
Meter Replacement Program 100 per year (60-0438-09-00)	0	32,500	32,500	35,100
Capital Construction Projects (60-0438-11-00)	0	0	70,000	100,000
New Floating Feather Loop-Legacy (60-0438-05-00)	0	39,300	0	0
New Linder Loop from Cabra Creet to North Star Charter (60-0438-05-01)	0	100,000	200,000	200,000
Extend Water Lines (60-0438-05-00)	0	0	0	0
WCE Reimbursement, Development Agreement (60-0439-01-00)	0	0	0	0
Well House Construction (60-0434-80-00)	0	5,000	17,500	18,025
Update Water Master Plan (60-0438-10-00)	25,000	40,000	40,000	30,000
Update Water Mapping Records (60-0438-10-01)	0	25,000	0	0
Vehicle, 1 new truck (60-0438-13-00)	35,000	0	30,000	30,000
TOTAL CAPITAL EXPENDITURES:	**$61,300**	**$253,000**	**$394,400**	**$431,125**

TOTAL RESERVE FUNDS:	**$536,326**	**$32,515**	**$20,000**	**$50,000**
TOTAL RESTRICTED FUNDS:	**$121,400**	**$153,200**	**$263,662**	**$211,455**
TOTAL FIXED OPERATING COSTS:	**$676,356**	**$711,353**	**$838,242**	**$882,932**
TOTAL CAPITAL EXPENDITURES:	**$61,300**	**$253,000**	**$394,400**	**$431,125**
TOTAL WATER FUND BUDGET:	**$1,395,382**	**$1,150,068**	**$1,516,304**	**$1,575,512**

APPENDICES

Elements of the 2005 Master Plan and the 2008 Master Plan Update have been modified by this 2015 Water Master Plan Update. Modifications to the respective Appendices are identified below.

2005 Plan Appendices

	Volume 1	**2015 Update**
A	Ownership Documents	Un-changed
B	Operating Contract	Superseded - 2014 Update, Section 3.5
C	System Development Map	Partially Superseded - 2014 Update, Section 6.2
D	Water System Usage	Superseded - 2014 Update, Section 4.3.4
E	Improvement Design Concepts	Constructed Per Plans and Specifications – See Record Drawings
F	Hydraulic Analysis	Superseded - 2014 Update, Section 4.2.4
G	Water Rights Documents	2008 Update
H	2004 Water Quality	Superseded - 2014 Update, Section 8
	Volume 2	
I	Operation and Maintenance	Superseded - 2014 Update, Section 6.2.4
J	Cross Connection Control	Operation by City - 2014 Update, Section 3.2
K	Emergency Response Plan	Operation by City – 2014 Update, Section 3.2
L	Manufacturer's Maintenance Manuals	Un-changed

2008 Plan Appendices

	Volume 1	**2015 Update**
A	Ownership Documents	Un-changed
B	Operating Contract	Superseded - 2014 Update, Section 3.5
C	Agency Certifications	Unchanged
D	Water System Usage	Superseded - 2014 Update, Section 4.3.4
E	Improvement Design Concepts	Constructed Per Plans and Specifications – See Record Drawings
F	Well Data: Well # 4 and #5 Hydraulic Analysis	Unchanged Superseded - 2014 Update, Section 4.2.3
G	Water Rights Documents	2008 Update
H	2008 Water Quality	Superseded - 2014 Update, Section 8
I	Fire Flow Analysis	Superseded - 2014 Update, Section 4.2.3
J	Cross Connection Control	Operation by City - 2014 Update, Section 3.2
K	Emergency Contact List	Operation by City - 2014 Update, Section 3.2
L	Manufacturer's Maintenance Manuals	Un-changed

2015 Plan Update Appendices

M	RAFN Population Analysis
N	Spring Valley Water Facility Plan
O	Spring Valley Water Facility Plan – PUMP #1 Amendment
P	City of Eagle – PUMP #1 Amendment Conditional Approval
Q	Water Model Western Service Area
R	Intertie Agreement – Eagle Water Company
S	Emergency Interconnection Agreement – United Water Idaho
T	Declining Balance Worksheets – Eastern & Western Service Areas
U	Capital Improvement Plan – Water Fund
V	Extension for Proof of Beneficial Use: 63-32089 and 63-32090
W	Western Service Area Monitoring Plan: 63-32089 and 63-32090
X	Second Amended Final Order: 63-32573 Second Amended Final Order
Y	Spring Valley Monitoring Plan: 63-32573
Z	RAFN Application
AA	Sampling History – Western & Eastern Zone
AB	Chlorination System Report, Well #1 and Well #3
AC	Chlorination System Report, Well #4 and Well #5
AD	Sanitary Surveys: PWS #ID4010222 and #ID4010201

EXHIBITS A-L – SUPERSEDED ITEMS

Appendix A	Ownership Documents Legacy and Eaglefield Final Plats and Easement (signed copies at City Hall)
Appendix B	Operating Contract System Inventory Detail Western Area Water Line Map – 2007
Appendix C	Agency and Engineer Certifications
Appendix D	Water System Usage
Appendix E	Improvement Design Concepts
Appendix F	Eaglefield and Legacy Well Data
Appendix G	Water Rights Document Declining Balance Worksheet
Appendix H	Project Certification Letters Laboratory Test Results Coliform Sampling Plan Modeling Results for Western Area Modeling Results for Eastern Area
Appendix I	Operation & Maintenance
Appendix J	Cross Connection Control
Appendix K	Emergency Response Plan
Appendix L	Manufacturers' Maintenance Manuals (on file at City Hall)

EXHIBIT M – RAFN POPULATION ANALYSIS

City of Eagle
Population Analysis for
Reasonably Anticipated Future Needs (RAFN) Application

Presented at the IDWR Water Right Hearing
On October 11, 2011

RAFN POPULATION ANALYSIS

POPULATION GROWTH AND ALLOCATION:

It is important to note that population growth and forecasting is an art but it is an art based upon sound reasoning and assumptions. While IDWR might feel that the city's population and forecasting are high and the use of a linear forecast is too simplified; the City has recently verified its numbers through an independent process conducted by the Community Planning Association of Southwest Idaho (COMAPSS). Every 4 years, COMPASS must establish a regional population total for Ada and Canyon Counties (Regional Control Total) for a 30 year planning horizon (2040). COMPASS' regional control total is federally mandated for jurisdiction over 50,000 in order to receive federal transportation dollars. The number is developed by COMPASS staff and confirmed by COMPASS members including – all cities & counties, ITD, DEQ, ACHD, transit providers, utility providers and Boise State University. COMPASS has been conducting these forecasts for nearly 40 years. Since IDWR questioned the City's growth forecasts and assumption it makes sense to rely on the COMPASS numbers, prove to be the most current and accurate number available from a reliable and credible local source that is mandated to conduct such analysis.

REGIONAL CONTROL TOTAL[1]:

COMPASS reviewed several models for consideration and selection of a 2040 regional control total. The general methods are the following:

> **Econometric:** Forecasts based on future labor force and employment.
> **Trend:** Graphical or mathematical projections based on the curve of historical population growth.
> **Top-Down/Ratio:** Projections based on relationships of population growth in an area to that in other areas (ratio methods).
> **Peer or Analogous Areas**

The following is a brief review of the most common practices.

Econometric

The ability of any area to grow in population depends to a great extent upon its ability to support the population with jobs. Thus, a forecast of the labor force available from an economic study can form the basis for a population forecast. This method can also be a useful check on demographically-based methods.

Idaho Department of Labor

A model is generated for each two digit NAICS (North American Industry Classification System) industry code for each of the six regions in Idaho. Each of these models contains its own set of unique variables that drive the results. Once the models have been generated for each of the six regions the labor economists provide input and anecdotal information surrounding future/potential growth known to be in the pipeline that may affect the forecasts accuracy.

[1] The tables and analysis in this section was provided by COMPASS staff as part of the Demographic Advisory Committee Meeting on June 22 , 2011

Econometric—Woods & Poole
The Woods & Poole forecast is based upon the statistical relationship of economic concepts in the Boise Metropolitan Statistical Area (MSA) to state and national economic concepts. Employment rates are calculated by applying labor force participation rates to the existing working-age population, resulting in a locally supplied labor force. The population model projects net migration from the difference between the labor force supplied by existing population and the required labor force projected by an employment forecast and an unemployment adjustment. The model also uses a cohort-component method; the changes in population are births, deaths, and migration. Births and deaths are projected by applying age, sex-specific fertility rates, and death rates to the base-year population, this is carried forward into the next year.

Advantage of the Econometric method:

- An econometric method is based on the traditional assumption that populations need employment for sustainability. This model is based on logical assumptions and has worked well for most MPOs.

Disadvantage of the Econometric method:

- The relationship between economic expansion and population growth in an area is somewhat like that of the chicken and the egg. While development of an industry normally will create new jobs, an educated workforce can also attract new businesses. Also, people move into an area for a variety of other reasons such as health or retirement and in-migration itself tends to expand certain employment sectors.
- The Idaho Economics forecast is adjusted every year; however the forecast figures assumed in the long-range transportation plan are only adjusted on the four-year cycle for plan updates.

2008-2018 Long-Term Industry Projections

Southwestern Idaho
Includes: Ada, Adams, Boise, Canyon, Elmore, Gem, Owyhee, Payette, Valley and Washington counties

NAICS	NAICS - Industry Classification	2008	2018	2008-2018		COMPASS Extrapolation Employment				
		Employment	Employment	Net Change	Annualized Growth	2020	2025	2030	2035	2040
000000	Total Employment, All Jobs	318,013	376,223	58,210	1.70%	389,840	426,590	469,870	517,620	572,520
00071	Self employed & Unpaid Family	24,159	20,654	(3,505)	-1.56%	20,000	18,490	17,050	15,800	14,610
11	Agriculture, Forestry, Fishing and Hunting	6,175	5,576	(599)	-1.02%	5,400	5,190	4,930	4,690	4,450
21	Mining	271	342	71	2.35%	360	400	450	510	570
22	Utilities	824	980	156	1.75%	1,040	1,110	1,210	1,320	1,440
23	Construction	19,616	20,345	729	0.37%	20,490	20,870	21,260	21,650	22,050
31-33	Manufacturing	30,542	32,933	2,391	0.76%	33,430	34,720	36,060	37,440	38,870
42	Wholesale Trade	12,701	15,006	2,305	1.68%	15,520	16,860	18,330	19,930	21,660
44-45	Retail Trade	35,861	45,094	9,233	2.32%	47,210	53,540	59,360	66,570	74,650
48-49	Transportation and Warehousing	7,494	9,863	2,369	2.78%	10,420	11,550	13,710	15,750	18,050
51	Information	5,748	7,552	1,804	2.77%	7,980	9,140	10,480	12,020	13,770
52	Finance and Insurance	10,379	12,118	1,739	1.73%	12,750	13,890	15,130	16,480	17,950
53	Real Estate and Rental and Leasing	4,018	4,561	543	1.27%	4,680	4,980	5,310	5,660	6,030
54	Professional, Scientific, and Technical Services	13,024	18,956	5,932	3.82%	20,450	24,650	29,740	35,880	43,290
55	Management of Companies and Enterprises	5,491	5,679	188	0.34%	5,720	5,820	5,920	6,020	6,120
56	Administrative and Support and Waste Management and Remediation Services	23,313	29,208	5,895	2.28%	30,560	34,200	38,280	42,850	47,960
61	Educational Services (all ownership)	21,859	27,576	5,717	2.34%	28,890	32,540	36,530	41,020	46,050
62	Health Care and Social Assistance (excluding federal hospitals)	35,341	47,294	11,953	2.95%	50,130	57,990	67,080	77,610	89,780
71	Arts, Entertainment, and Recreation	3,886	5,459	1,573	3.46%	5,840	6,930	8,210	9,730	11,530
72	Accommodation and Food Services	23,291	27,575	4,284	1.70%	28,520	31,050	33,770	36,740	39,960
81	Other Services (except Public Administration)	7,843	9,182	1,339	1.79%	9,400	10,250	11,100	12,010	12,990
90*	Government (all federal, state w/o educ & hospitals, local w/o educ & hospitals)	26,098	29,990	3,892	1.40%	30,850	33,050	35,430	37,980	40,720

*Department assigned code and title. Not a valid NAICS code or title.
Wages for several industries are not available.
Source: Wages – Idaho Department of Labor, Occupational Employment Statistics program
Source: Projections – 2008-2018 Idaho Department of Labor Regional Industry Projections

Idaho Department of Labor

SW Idaho: Ada, Adams, Boise, Canyon, Elmore, Gem, Owyhee, Payette, Valley, and Washington

	2008	2018	2040	GROWTH RATE
Population	674,203	797,706	1,203,080	1.89%
Employment	318,013	376,223	567,400	1.89%
Persons to Jobs Ratio	2.1	2.1	2.1	

Ada and Canyon only

	2008	2018	2040	GROWTH RATE
Population	564,859	668,252	1,007,830	1.89%
Employment	256,405	315,169	475,324	1.89%
Ada/Canyon Percentage of SW Idaho	83.8%	83.8%	83.8%	
Persons to Jobs Ratio	2.1	2.1	2.1	

Notes:

Source: County Estimates ~2008 United States Census Bureau

Source: Projections ~ 2008-2018 Idaho Department of Labor Regional Industry Projections

Calculated from IDOL Forecast using consistent ratios and extrapolting growth rates

Trend

The trend based methods assume that population growth follows statistical "laws" and, therefore, can be expressed in mathematical form. The following are several ways to make a trend-based projection:

- Constant arithmetic population increase: Historic data which plot as a straight line on arithmetic graph paper imply constant arithmetic change in population each year. This growth pattern implies that the population has changed by the same number of people each year.
- Constant rate of population increase: A different historic growth pattern for a city might show a constant rate of change. In this situation, the numerical increase each year is greater than the year before, although the rate of increase is constant.
- Variable rate of population change: Arithmetic plots for some cities have shown that at first the population increased at a low rate, then accelerated for a period of time, and later, as the city matured, the rate of growth decreased.

Advantages of Trend methods:

- Trend based projections using mathematical techniques are relatively easy to make.
- Relying on historical data gives some assurance that the method works for the particular area, or at least, that it has in the past.

Disadvantages:

- A trend-based approach to forecasting fails to recognize that growth in an area, city, or sub-area has limits and does not continue for long periods at an exponential rate. This is due to several constraints, including available land, political pressures, and infrastructure.
- This projection method is not based on the factors and conditions which produced population growth or decline in the area in the past. In view of the changes that have taken place during the past two decades in fertility, mortality, and migration trends, projections of this kind are becoming less reliable. Graphic and mathematical projections are useful, however, as rough checks on projections made by other methods.
- Trend-based forecasts are best suited to areas with relatively constant change per decade in population size and where no marked changes from past trends appear likely. Trend projections,

like all other techniques, are more dependable for short-term projections of 5 to 10 years than for longer projections.

Growth Rate by Decade	2010	2020	2025	2030	2035	2040	Average Annualized Growth Rate
1940-2010	581,288	757,140	864,110	986,200	1,125,530	1,284,550	**2.7%**
1950-2010	581,288	751,750	854,910	972,210	1,105,610	1,257,320	**2.6%**
1960-2010	581,288	761,030	870,780	996,360	1,140,050	1,304,460	**2.8%**
1970-2010	581,288	786,420	914,710	1,063,930	1,237,500	1,439,380	**3.1%**
1980-2010	581,288	763,240	874,570	1,002,150	1,148,330	1,315,830	**2.9%**
1990-2010	581,288	814,800	964,670	1,142,110	1,352,190	1,600,920	**3.6%**
2000-2010	581,288	807,680	952,050	1,122,230	1,322,830	1,559,290	**3.3%**
Average Growth Rate by Decade	581,288	777,437	899,400	1,040,741	1,204,577	1,394,536	**3.0%**

Increase by Decade	2010	2020	2025	2030	2035	2040	Average Annualized Net Net Increase
1940-2010	581,288	651,274	686,267	721,259	756,252	791,245	6,999
1950-2010	581,288	657,462	695,549	733,635	771,722	809,809	7,617
1960-2010	581,288	667,321	710,338	753,354	796,371	839,388	8,603
1970-2010	581,288	683,231	734,202	785,173	836,144	887,116	10,194
1980-2010	581,288	689,453	743,536	797,619	851,701	905,784	10,817
1990-2010	581,288	724,007	795,366	866,725	938,084	1,009,444	14,272
2000-2010	581,288	730,231	804,703	879,174	953,646	1,028,117	14,894
Average Constant	581,288	686,140	738,566	790,991	843,417	895,843	10,485

Top-Down

The economic and social conditions that cause birth rates to rise or decline also tend to accelerate or decelerate internal migration. Population growth in an area or community is usually closely related to economic and population changes in the larger region. Future population changes in those larger areas may have an important influence on growth or decline in the smaller area. Because of this, the rate of population growth in most areas and communities is related to factors and influences affecting population on national or regional scale. The basic procedure for the ratio or top-down method is to compute the ratio between the population of the study area and some larger area. This ratio may simply be between the study area and a larger area, or a series of interrelated ratios may be calculated between pairs of successively smaller geographical areas. For example, the ratio of the United States to Idaho or Idaho to the Treasure Valley.

Advantage of the Top-Down methods:

- Regions are typically highly correlated. One area within an economic or cultural region will not typically outpace the other areas for an extended period of time. By considering the subject area a part of a larger region it is a good check on a population forecast.

- Population projections for the Nation and for States have generally been more accurate than those done for smaller areas and therefore, range for error may be lessened in larger area forecasts.
- Using a larger region may make it easier to analyze the effects of conditions that may change past relationships.

Disadvantage of this method:

- A ratio that has had a particular trend in the past does not guarantee that it will continue to maintain the relationship in the future. Relationships between population growth in one area and that in other areas may suddenly change. Moreover, the economic and social forces that cause births and migration rates to change nationally exert differing effects at different times on particular areas.
- Some areas have shown fairly consistent trends between their population growth and that of their region, state, or the nation while others have shown erratic relationships to population changes in the larger areas.

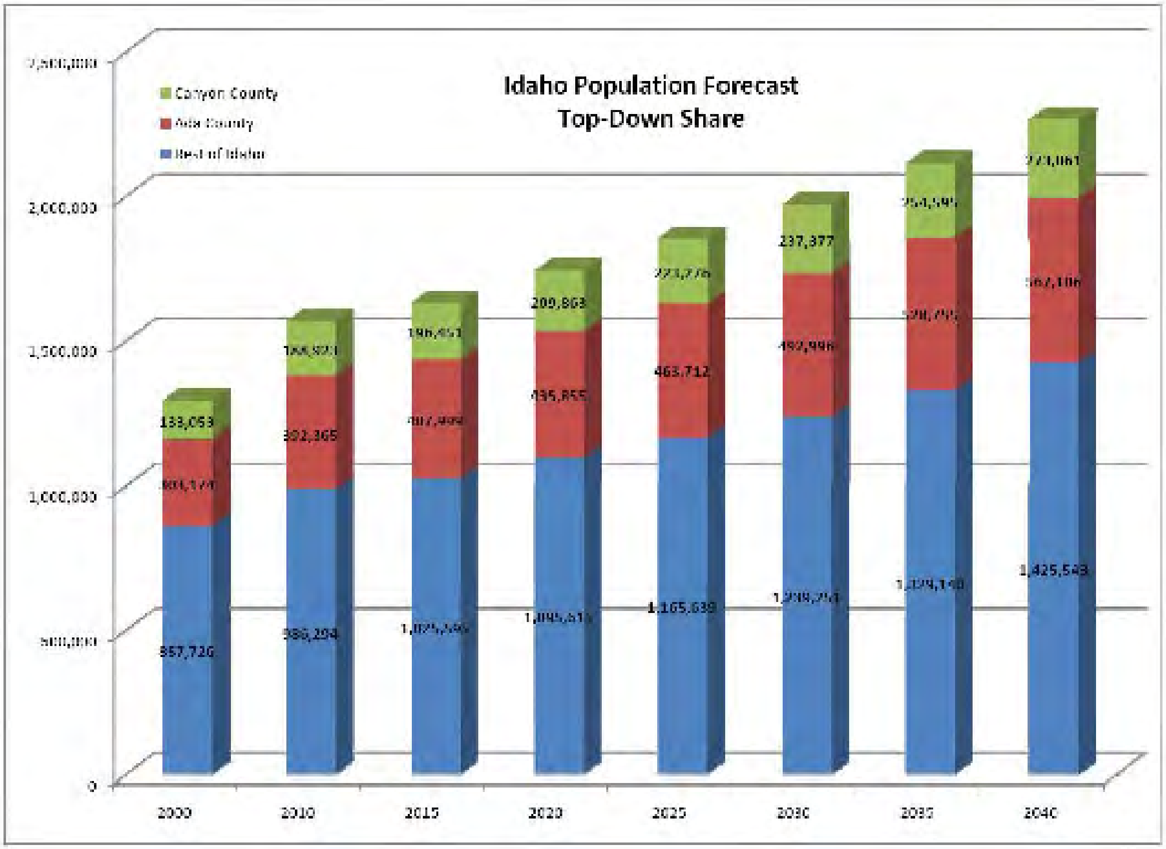
The availability of a reliable forecast for a larger area and comparable historic data for the subareas to be used should be examined before this method is selected. Any errors and assumptions for the larger forecast will be perpetuated into other forecasts.

Table F. Population by Age: 1990 to 2050

[In thousands. As of July 1. Resident population]

Year	Total	Under 5 years	5 to 13 years	14 to 17 years	18 to 24 years	25 to 34 years	35 to 44 years	45 to 64 years	65 years and over	85 years and over	100 years and over
ESTIMATE											
1990	249,402	18,849	31,996	13,311	26,826	43,159	37,700	46,260	31,235	3,057	37
PROJECTIONS											
Lowest Series											
1995	262,738	19,591	34,378	14,773	24,826	40,862	42,514	52,227	33,528	3,633	53
2000	271,237	17,043	35,760	15,632	25,076	36,740	44,364	60,630	34,204	4,142	69
2005	276,940	18,496	34,368	16,687	27,491	35,065	41,385	70,137	34,974	4,885	92
2010	271,489	15,383	31,950	16,319	29,050	36,353	37,049	76,857	37,162	5,005	108
2020	280,007	17,160	30,996	14,331	26,67	40,067	38,640	75,129	47,003	4,967	135
2030	291,070	16,430	31,424	14,631	25,111	36,317	40,222	69,070	61,068	6,772	158
2040	287,085	16,200	30,164	14,405	25,840	35,018	38,460	71,100	58,454	8,250	174
2050	282,524	16,330	30,124	13,925	21,010	35,604	35,155	70,615	55,930	9,642	265
Middle Series											
1995	262,820	19,591	34,378	14,773	24,826	40,863	42,514	52,231	33,543	3,634	54
2000	274,634	18,987	36,043	15,752	26,258	37,233	44,659	60,992	34,709	4,259	72
2005	285,981	19,127	36,050	16,986	28,080	36,308	42,185	71,113	36,166	4,900	101
2010	297,716	20,012	35,605	16,894	30,136	38,292	38,521	78,046	39,408	5,671	131
2020	322,742	21,979	38,060	16,966	29,919	42,934	39,612	79,454	53,220	6,460	214
2030	346,899	23,066	41,589	18,788	31,826	42,744	44,263	75,245	69,379	8,455	324
2040	369,980	24,803	43,953	19,044	34,570	46,912	44,159	81,700	75,233	13,552	447
2050	392,031	27,106	47,084	21,297	36,239	48,365	47,389	85,062	78,859	18,223	834
Highest Series											
1995	263,846	19,681	34,378	14,773	24,826	40,864	42,517	52,250	33,561	3,640	54
2000	278,129	19,956	36,340	15,909	26,657	37,768	45,084	61,348	35,165	4,394	81
2005	296,018	21,350	37,968	17,312	29,084	37,569	43,197	72,116	37,405	5,317	136
2010	314,571	22,880	39,165	17,487	31,240	40,275	40,302	80,756	41,670	6,512	219
2020	357,702	27,273	46,645	19,641	33,087	45,886	42,874	83,738	58,400	8,455	515
2030	405,039	30,818	52,678	23,276	36,868	49,061	48,518	82,294	79,328	12,195	1,074
2040	458,444	35,901	60,448	26,006	44,089	57,362	51,925	90,818	91,928	20,823	1,802
2050	518,903	41,213	70,000	30,005	49,063	64,278	60,324	99,816	105,481	31,093	4,218

Sources: Tables 2 and 3, and PPL-21



	2000	2010	2015	2020	2025	2030	2035	2040	2010-2040 Growth Rate
Idaho	1,293,953	1,567,582	1,630,045	1,741,333	1,852,627	1,969,624	2,112,400	2,265,710	1.4%
Ada County	303,174	392,365	407,999	435,855	463,712	492,996	528,755	567,106	1.2%
Canyon County	133,053	188,923	196,451	209,863	223,276	237,377	254,595	273,061	1.2%
Ada and Canyon counties	436,227	581,288	604,450	645,718	686,988	730,373	783,350	840,167	1.2%
Rest of Idaho	857,726	986,294	1,025,595	1,095,615	1,165,639	1,239,251	1,329,140	1,425,543	1.2%
% of Idaho Total									
Ada	23.4%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	
Canyon	10.3%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%	
Ada and Canyon counties	33.7%	37.1%	37.1%	37.1%	37.1%	37.1%	37.1%	37.1%	

source: United States Census Bureau

Peer/Analogous Area

The comparative or analogy method assumes that if two areas have similar characteristics such as geography, climate, economic potential, culture, natural resources, etc., their growth patterns will be similar. This projection can be done by charting the growth curve of the comparative region as a population forecast for the study location. The assumption is that the part of the curve being projected for the study area will parallel the historic curve for the comparative, developed area (or comparative area).

Advantage of the Peer/Analogous Area method:

- By comparing an area with a very similar region it is possible to make simple projections that are based on historical facts. This can be a good check on the demographic, econometric, or other forecasting methods to compare and determine if there are significant differences in the projected populations. For this reason it can be a helpful tool.
- The comparative or analogy method is valuable in forecasting population for small areas. A good example would be using this method in forecasting growth in out-lying areas of a metropolitan community. Assuming that urban development and population growth will eventually occur in these currently open areas and may follow that of a similar, already developed area. When used in conjunction with such factors as zoning, holding capacity, accessibility, available utilities, this procedure may give a reasonable indication of the development patterns that might occur.

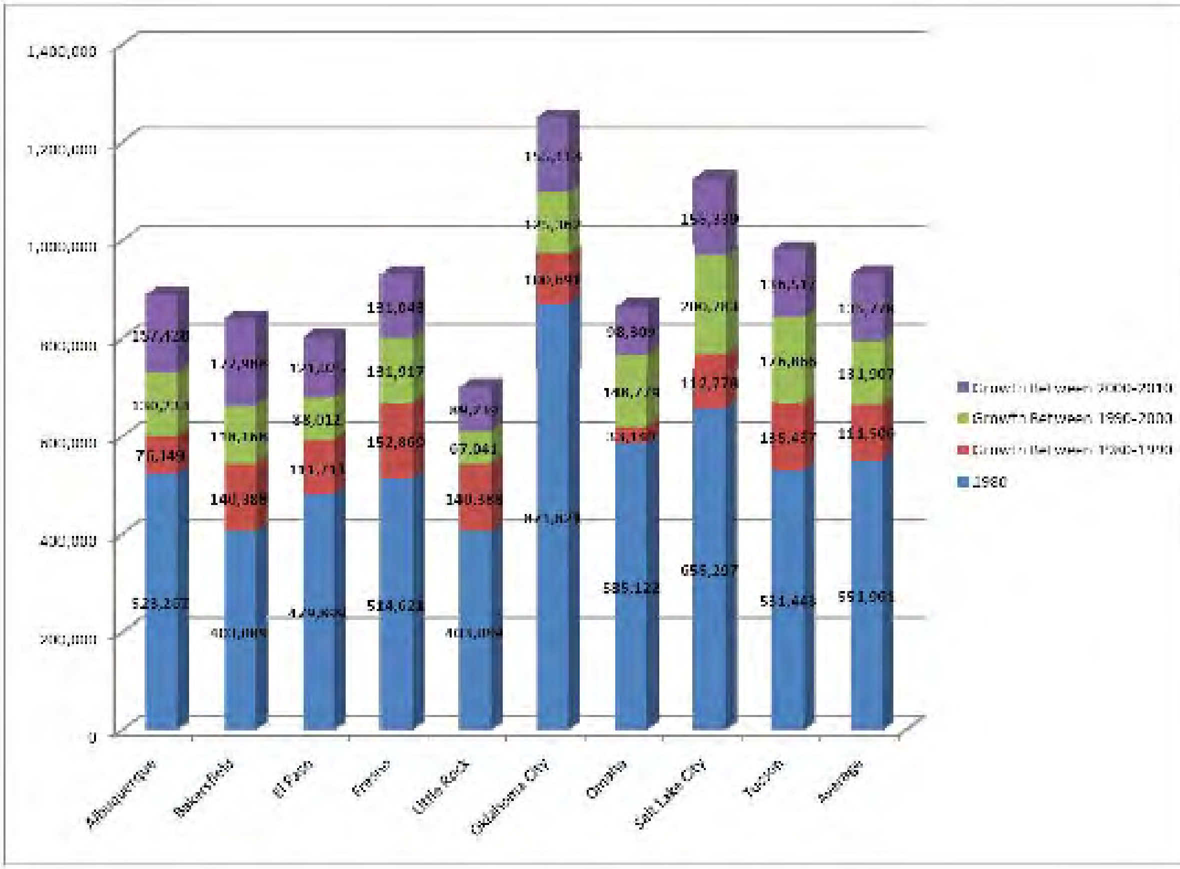
Disadvantage of the Peer/Analogous Area method:

- Finding two urban areas that are sufficiently alike that will permit the assumption that the second area will grow in a similar manner to the first is a challenge. Although, a number of regions with a similar population size, do not have the same cultural, social, demographic, and economic situation like the Treasure Valley.
- Moreover, even if assumed that the two areas were identical, it is still doubtful that these two areas developing at different periods in history would follow the same patterns of growth.

COMPARATIVE/ANALOGOUS AREA FORECAST

	Historical Population Estimates					Comparative MSA Criteria				
MSA	1980	1990	2000	2010	Growth Rate 1980-2010	Population	Growth Rate	West of Mississippi	Isolation	Capitol City
Albuquerque	523,267	599,416	729,649	887,077	1.8%	x	x	x	x	
Bakersfield	403,089	543,477	661,645	839,631	2.6%	x	x	x	x	
El Paso	479,899	591,610	679,622	800,647	1.8%	x	x	x	x	
Fresno	514,621	667,490	799,407	930,450	2.1%	x	x	x	x	
Little Rock	403,089	543,477	610,518	699,757	1.9%	x	x	x	x	x
Oklahoma City	871,821	972,512	1,097,874	1,252,987	1.3%	x	x	x	x	x
Omaha	585,122	618,262	767,041	865,350	1.4%	x	x	x	x	
Salt Lake City	655,297	768,075	968,858	1,124,197	1.9%	x	x	x	x	x
Tucson	531,443	666,880	843,746	980,263	2.1%	x	x	x	x	
Average	551,961	663,467	795,373	931,151	**1.87%**					

	1980	1990	2000	2010	2020	2030	2040	GROWTH RATE
Boise City-Nampa, ID Metro Area	280,035	319,596	464,840	609,533	733,300	882,210	1,061,340	**1.87%**
Ada and Canyon counties	256,792	295,851	432,345	581,288	699,320	841,330	1,012,160	**1.87%**



SUMMARY OF METHODS APPLIED TO ADA/CANYON COUNTY:

Forecasting Method	2040 Population	Growth Rate
Top-Down (Census Forecast for Idaho)	840,167	1.3%
Average Constant Growth by Decade	895,843	1.5%
Econometric—Woods & Poole	979,590	1.8%
Econometric—Idaho Department of Labor	1,011,147	1.9%
Comparative/Analogous Area	1,012,160	1.9%
Average Growth Rate by Decade	1,394,536	3.1%

COMPASS DEMOGRAPHIC ADVISORY COMMITTEE CONCLUSION:

Population forecasts can be developed using several different methods. Unfortunately, the accuracy of any method is typically not known until many years into the future. The COMPASS Demographic Advisory Committee (DAC) is tasked with determining a rational method to forecast population and employment based on available information, local knowledge, and best practices. To that end the DAC recommend the following methodology:

Apply the "Average Constant Growth by Decade" 1.5% annual growth rate for the first decade (2010 to 2019) to best address the current market conditions and the anticipated slow recovery in the housing market. From 2020-2040 apply a 2.1% growth rate. The 2.1% is an average of the Woods & Poole, Idaho Department of Labor, the Comparative/Analogous Area, and the average growth rate by decade. This was done in recognition that market conditions will change over time and in the long term it is better to reflect the long-term historical patterns of the region, since 1940 the region's growth rate has never fallen below 2.6%. It is important to note that the long-term historical growth rate of 2.6% is far from the boom of the 1990's where the regional growth topped out at 3.6%. Applying this forecast methodology to Ada County based on the 2010 US Census population the forecasted population by decade is as follows:

COMPASS- Ada County 2040 Control Total

Year	Ada County Population
2010	392,365
2020	455,413
2030	560,613
2040	690,113

Allocation to the City of Eagle:

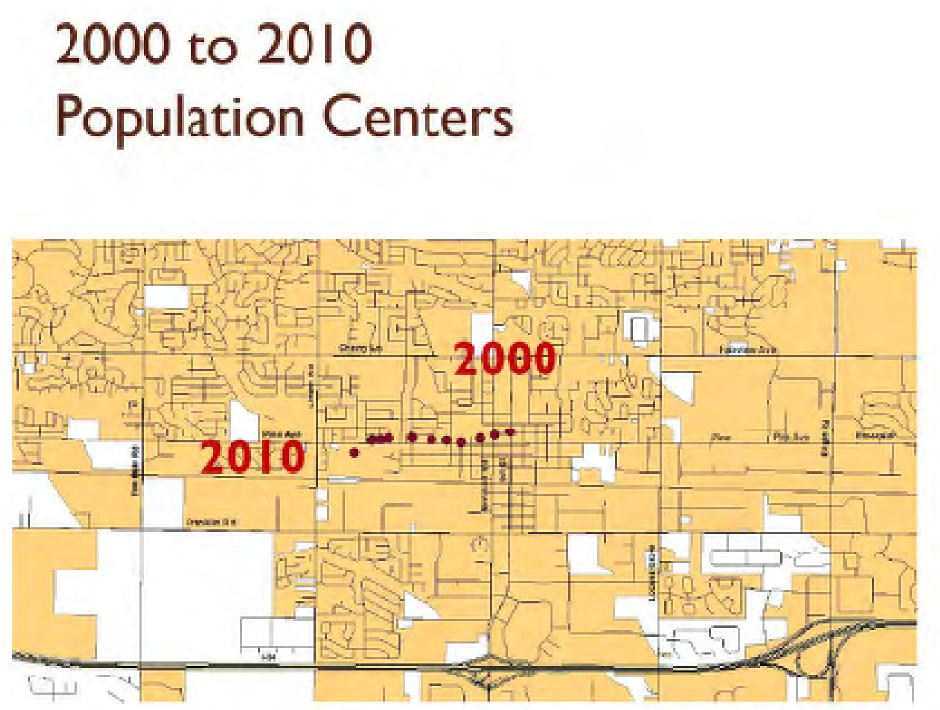
Applying the COMASS growth rate Ada County must plan to accommodate nearly 300,000 people over the next 30 years. How much of that 300,000 will be located within the City of Eagle? To address this question the City of Eagle reviewed the historic share of the region's growth absorbed by the City of Eagle and how it has changed over time. Though this gave great insight as to how the City of Eagle has grown it did not explain where the growth was coming from: 1) Is the City of Eagle's Regional Share of growth increasing (people are consciously choosing Eagle over Boise or other locations) or 2) Was the City's growth the result of increased overall growth in the region (same % of people are coming to Eagle as always)? Without understanding how the regional share of population in other jurisdiction in the County are changing it would be difficult to forecast how growth in the future may be allocated in Ada County. The test was to determine if the City of Eagle has seen significant and/or disproportionate growth over the past decade due to an increase in their regional share of population growth.

Based on historical population shares as reported by COMPASS from 2002 to 2010[2] Boise, Garden City, and Unincorporated Ada County have seen a steady annual decrease in their regional population share where Meridian, Eagle, Kuna, and Star have seen steady annual increase in population share, see table: Historical Regional Share of Ada County Population by Jurisdiction below.

[2] 2002-2010 was used because the City of Star was no incorporated until late 2000 so Star was not counted in the 2000 census. These numbers reflect the downward trend of the market change since 2008 and highlight the impact and adjustment for over estimates by COMPASS that were reconciled in the 2010 US Census.

Holding constant the COMPASS 2040 Regional Control Total and then applying changes in the regional share of the population over the period from 2010 to 2040 all jurisdiction in Ada County see an increase in their overall population but Meridian, Star, Kuna and Eagle see an increase of their regional share while Boise, Garden City and unincorporated Ada county continue to absorb less of the regional share of the population.

This trend is not unheard of in planning. As jurisdictions grow and get larger the percentage of annual growth slows as does the availability of vacant land for development forcing redevelopment to consume a larger amount of the jurisdiction's development applications. Redevelopment is complex and challenging due to the need to assemble land from multiple owners, the cost of working within an existing urban setting, the need to address neighbors concerns about the changing urban fabric, the need to have the buying market shift their perspective on single family home ownership, and the limited availability of funding for projects. As more and more of a jurisdiction's development applications rely on these more complex projects overall population increase slows. Smaller jurisdictions tend to have lager growth boundaries and rely less on "urban style" redevelopment. As housing/family sizes continue to reflect larger families it is anticipated that the market will continue to demand single family detached homes on individual lots. The general western movement of the valley has been tracked by COMPASS over the past decade- more people are moving out of Boise than into it shifting the population center of the valley further and further west.



Historical Regional Share of Ada County Population by Jurisdiction

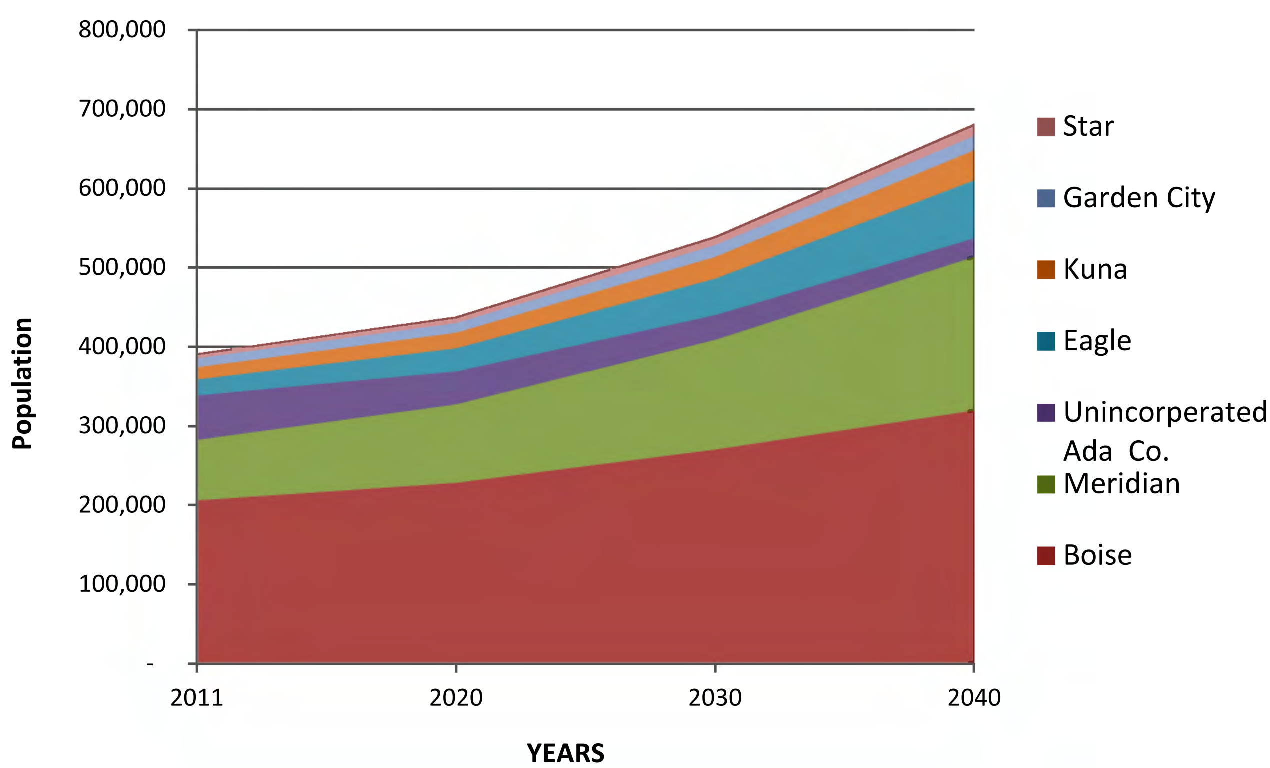
Ada County		Boise		Meridian		Unincorporated Ada		Eagle		Kuna		Garden City		Star	
Year	Ada County Population	Pop	Regional Share	Pop	Regional Share	Pop	Regional Share	Pop	Regional Share	Pop	Regional Share	Pop	Regional Share	Pop	Regional Share
2002	323161	193085	59.75%	39744	12.30%	60510	18.72%	13380	4.14%	7386	2.29%	11124	3.44%	2116	0.65%
2003	333809	195931	58.70%	42481	12.73%	59739	17.90%	14144	4.24%	8649	2.59%	11589	3.47%	2243	0.67%
2004	346212	200062	57.79%	47690	13.77%	61350	17.72%	16418	4.74%	9696	2.80%	11675	3.37%	2552	0.74%
2005	361484	208219	57.60%	56108	15.52%	60830	16.83%	18428	5.10%	10587	2.93%	11914	3.30%	3028	0.84%
2006	383314	211473	55.17%	66565	17.37%	57493	15.00%	20131	5.25%	12647	3.30%	12074	3.15%	4594	1.20%
2007	395974	213503	53.92%	71866	18.15%	55830	14.10%	20951	5.29%	14261	3.60%	12352	3.12%	5548	1.40%
2008	402550	214490	53.28%	73040	18.14%	53200	13.22%	21090	5.24%	14830	3.68%	12580	3.13%	5690	1.41%
2009	408190	215503	52.79%	75290	18.44%	58118	14.24%	21370	5.24%	15900	3.90%	12670	3.10%	6110	1.50%
2010	392365	205671	52.42%	75092	19.14%	58772	14.98%	19908	5.07%	15210	3.88%	10972	2.80%	5793	1.48%
		Annual Change in Regional Share: 0.996		Annual Change in Regional Share: 1.013		Annual Change in Regional Share: 0.9518		Annual Change in Regional Share: 1.0256		Annual Change in Regional Share: 1.0119		Annual Change in Regional Share: 0.098		Annual Change in Regional Share: 1.012	

Extrapolating the shift in regional population share forward within the boundary of the COMPASS 2040 Regional Control Total the region and the City of Eagle population increase as follows is as follows:

Population by Decade

Year	Boise	Meridian	Unincorporated Ada Co.	Eagle	Kuna	Garden City	Star	Total
2011	**206,470**	**76,510**	**56,326**	**20,140**	**15,470**	**10,980**	**5,900**	**391,796**
2020	229,058	98,846	41,531	29,094	19,792	12,403	7,555	**438,279**
2030	**270,892**	**138,455**	**31,195**	46,138	27,423	14,966	10,478	**539,547**
2040	**320,366**	**193,937**	**23,432**	73,165	37,997	18,057	14,533	**681,488**
					Unallocated population			**8,625.28**
								1.25%

Regional Share Analysis of COMPASS 2040



The City of Eagle's population increases from 19,908 in 2010 to 73,165 in 2040 a net population increase of 53,257 over 30 years. It is important to note that the 2040 population does not represent build out of the City Comprehensive Plan; the City's planning area is projected to have a build-out population of approximately 135,506. The forecasted 2040 population is still 62,341 less than build out.

Locating Units within Eagle:

Unlike IDWR's analysis of US Census block data and centroids the City's analysis of future growth allocation was based on a vacant lands analysis, the City's comprehensive plan, and existing service area populations.

The objective of the vacant land analysis is to determine the number of undeveloped acres and the number of potential new residential units available in the Eagle Area based on the adopted Eagle Comprehensive Plan. Regardless of the water service providers' ability to serve, if the comprehensive plan does not allocate growth within and there is not vacant/underdeveloped land no/limited development will occur. Per Idaho Code 67-6509 the comprehensive plan is the City's guide for future development.

For the purpose of this analysis the Eagle Area included all property within the Eagle Comprehensive Plan (city limits + AOI + Foothills). The development potential of the Eagle area was measure by overlaying the Eagle Comprehensive plan land use designations with parcel data to determine which parcels have development potential. Three categories of land were identified:

Substandard/Undevelopable: A parcel of land which dimensional standards are less than what would be allowed by the comprehensive plan or parcels that due to their nature would not be eligible for development under Eagle City Code. These included:

> **Floodway:** All land designated by FEMA Flood Insurance Rate Maps as being in the floodway were removed from the analysis after overlaying the comprehensive plan designations.
>
> **Recreational/ Public Uses**: Uses such as school, parks, golf courses, and open space required as part of an approved subdivision or PUD that are not eligible for residential development. These equivalent residential units were removed from the appropriate land use designation after the preliminary calculations.

Undeveloped/Vacant/ Redevelopable: An undeveloped parcel or a parcel developed at a density lesser than the density allowed within the Eagle Comprehensive Plan.

Developed: A parcel of land with an improved value of $10,000 or more and equal to or less than the size/density allowed in the City's comprehensive plan.

Once each parcel was categorized the City then applied the future land use designation from the City's comprehensive plan to calculate the number of new or additional units that could be located within each of the three water service areas within the Eagle comprehensive planning area. The table below identifies the unit by water service provider:

Build Out based on City Comp Plan & Vacant Lands by Water Service Providers		
Provider	**Additional Planned Units[3]**	**Population[4]**
United Water	1,000[5]	2,820
Eagle Water Co.	1,000	2,820
City of Eagle Water Service Area	38,992	109,958
TOTAL:	**40,992**	**115,598**

Assuming that both the United Water and Eagle Water Company Service areas build out between 2010 and 2040 (this is highly likely due to location and proximity to the existing Eagle City Downtown and availability of services) we can use the existing water service number and add the remaining units to be developed based on the vacant lands analysis and come up with a 2040 service area population.

2040 Non-City Water Service Population			
Provider	**Planned Vacant Land Population**	**Existing 2010 Service Population[6]**	**2040 Service Population**
Eagle Water Co.	2,820	9,716	12,536
United Water	2,820	6,542	9,362
TOTAL:	5,640	16,258	21,898

According to the Eagle comprehensive Plan and Eagle City Code all development in the City of Eagle not in either United Water's certificated area or Eagle Water Company's services area must connect to the City's water system. Calculating the demand for City water is the result of taking the 2010-2040 net increase for the City of Eagle(53,257 persons) and subtracting the non-city water service provider population growth from 2010-2040 (vacant land allocation =5,640) and the IDWR M3 allocation (16,254)[6]. The remaining City Water service area balance is 31,633.

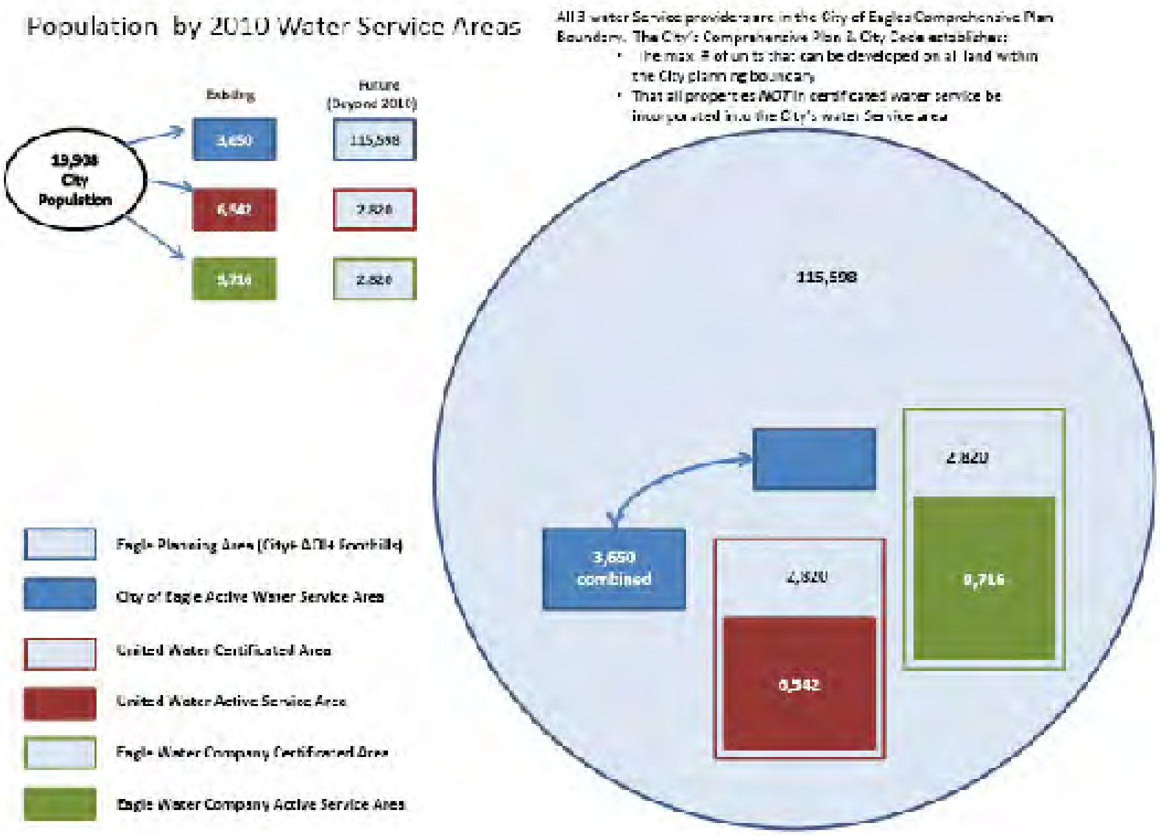
2010-2040 Growth within the City Water Service Area

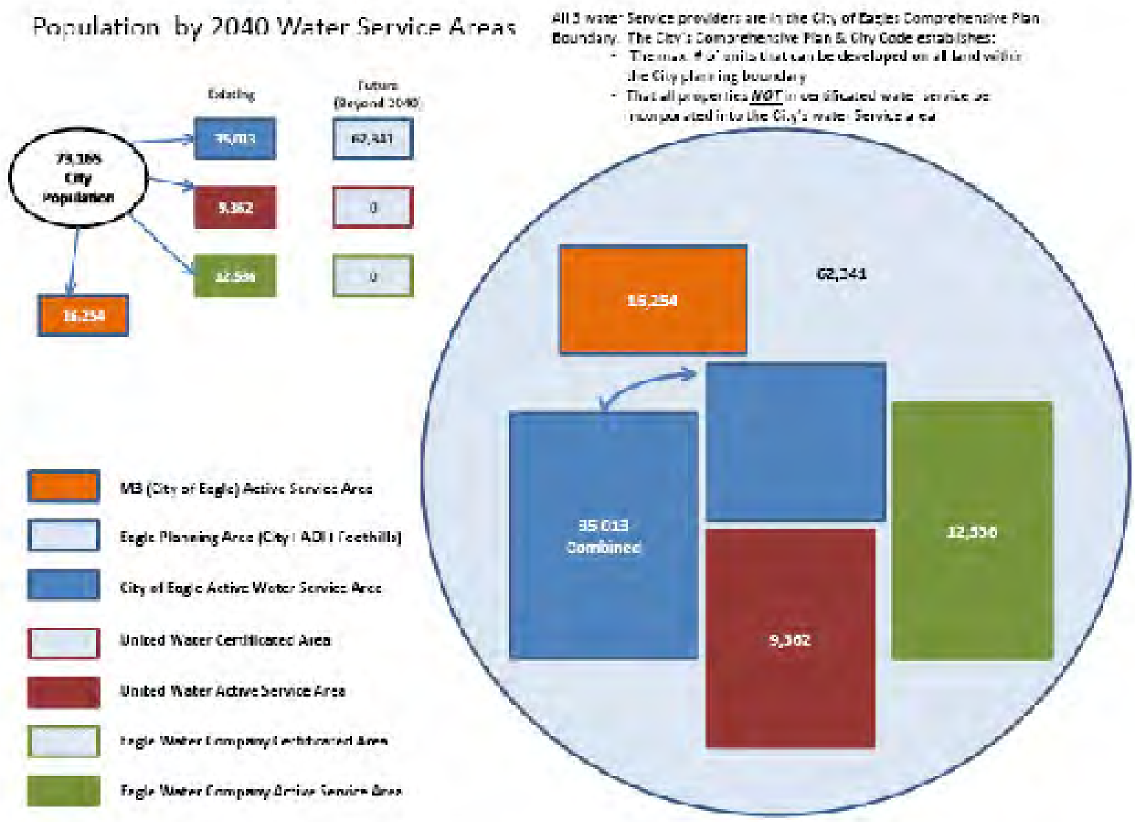
Provider	**2010-2040 Service Population**
2010- 2040 Regional Share for Eagle	53,257
Eagle Water Co. (Vacant Land Analysis)	-2,820
United Water Idaho (Vacant Land Analysis)	-2,820
M3 Water Right Population (IDWR)	-16,254
2010-2040 growth in City Water Service Area	**31,363**

[3] Represents total build out for the City's Comprehensive plan and is not reflective of a specific year.
[4] Based on the 2010 US Census the City used 2.82 persons per household
[5] For mathematical purposes the United Water build out number (828 units) was rounded to 1,000 units or 2,820 persons.
[6] From IDWR

City of Eagle 2040 Water Service Area Population

Provider	Exiting Service Population	2010-40 Service Population	Total 2040 Service Population
City of Eagle	3,650	31,363	**35,013**





Population by 2040 Water Service Areas
All 3 water Service providers are in the City of Eagle's Comprehensive Plan Boundary. The City's Comprehensive Plan & City Code establishes:
- The max # of units that can be developed on all land within the City planning boundary
- That all properties NOT in certificated water service be incorporated into the City's water Service area
Existing
Future (Beyond 2040)
City Population
62,341
0
0
16,254
62,341
16,254
35,013 Combined
9,362
12,556
MB (City of Eagle) Active Service Area
Eagle Planning Area (City + ADI + Foothills)
City of Eagle Active Water Service Area
United Water Certificated Area
United Water Active Service Area
Eagle Water Company Certificated Area
Eagle Water Company Active Service Area

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EXHIBIT N – M3 SPRING VALLEY PLAN

Spring Valley Water Facility Plan

Executive Summary Attached, Cover and 2 pages
IDEQ Approved, January 9, 2013
City of Eagle Approved, August 31, 2012
Due to Document Size – Facility Plan is Included by Reference Only

NOTE:
The Spring Valley Water Facility Plan and the Spring Valley PUMP #1 Amendment, included by reference only, are on file at the City of Eagle and at the Idaho Department of Environmental Quality for viewing.

RECEIVED
JAN 04 2012
DEPARTMENT OF ENVIRONMENTAL QUALITY
BOISE REGIONAL OFFICE

M3 Eagle, L.L.C.

533 East Riverside Drive
Suite 110
Eagle, ID 83616

Spring Valley Water Facility Plan

PROFESSIONAL ENGINEER
REGISTERED
9221
01/03/13
STATE OF IDAHO
J. MATT URANGA

APPROVED
By:
IDAHO DEQ
Boise Regional Office
Date: JAN - 9 - 2013

Engineer:

J-U-B ENGINEERS, Inc.
250 South Beechwood Avenue
Suite 201
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Owner:

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Eagle, ID 83616

Executive Summary

The Spring Valley Water Facility Plan documents the proposed potable water system for Spring Valley, a 6,005-acre master planned community, located near Eagle, Idaho. Currently undeveloped, this property is planned for 7,153 residential units, 245 acres of commercial development, and a minimum of 1,200 acres of open space. The developer intends to construct the project in five phases over a 20-year build-out period. Construction of water infrastructure improvements within these five phases will be further phased in response to demand over time.

Existing site conditions are undeveloped foothills interlaced with trails, dirt roads, and drainage courses. There is approximately 500 feet of elevation gain from southwest to northeast. There is no commercial or industrial development on the existing site. There are few residences, some of which are owned by M3 Eagle, and all of which have a minimum of 10-acre lots with domestic well and septic system.

Source of water for Spring Valley will be taken from the highly productive Pierce Gulch Sand Aquifer. Since March 2006, Hydro Logic, Inc has been conducting hydrogeologic and geophysical investigations for M3 Eagle to determine groundwater availability and potential for aquifer development. Hydro Logic expects properly designed and constructed on-site wells to yield 1,000 gpm to 2,000 gpm of excellent quality water from the underlying aquifer. The number of required wells will be dependent upon the actual production yields, but is anticipated to be between five and ten wells at build-out.

M3 Eagle submitted the Second Amended Application for Water Right Permit to the IDWR on February 1, 2008. The permit application requested authorization to divert 23.18 cfs for municipal purposes. The water demands calculated in the Water Right Permit serves as the basis for all water demands calculated in this Facility Plan. On March 9, 2012, IDWR issued a Second Amended Final Order granting the water right permit for 23.18 cfs to the City of Eagle for the Spring Valley Development (Permit #63-32573).

The Spring Valley potable water system has been sized to accommodate 7,153 residential units, 245 acres of commercial development, 500 hotel rooms, and 5,480 students. The following bullets summarize the build-out water facilities for the M3 Eagle development:

- Pressure Zones: 2800, 2910, 3020, 3130, and 3220
- Pipelines: Nearly 200,000 feet of 10-inch to 20-inch diameter backbone piping.
- Wells: Five (5) to ten (10) wells with yields estimated between 1,000 and 2,000 gpm [(1)]
- Storage: Two (2) storage sites with a total capacity of 3.2 MG
- Pumping Stations: Two (2) pumping station sites (station located at each storage site) with a build-out pumping rates of 3,000 gpm and 3,400 gpm.

- Pressure Reducing Station: Six (6) pressure reducing stations
- Standby Power: Wells and pumping stations will require standby power.

Pressure zones for the project site were established from analyzing differing pressure zone configurations. In Section 2, three alternative pressure zone configurations were examined. The preferred pressure zone configuration was selected based on increased coverage of the lower zone and reduced coverage in the highest zone, which requires a booster pumping station.

The potable water system for Spring Valley was hydraulically modeled with InfoWater by MWH Soft Inc. The two steady-state analyses include a peak hour and a maximum day plus fire flow demand scenario. After running each steady-state model in the iterative process, output was checked with the operational requirements, presented in Section 5, and the system and pipe diameters were adjusted. The model output is located in Appendix C.

The Facility Plan includes the development of three alternative water systems, and proposes a recommendation based on a conceptual life-cycle cost analysis. Detail in the cost estimate was attained through modeling each system alternative. However, only model output from the preferred alternative is presented in this Plan. The life cycle cost estimate for the proposed system is presented in Appendix D. The alternative facility analysis is presented in Appendix E.

The results of the cost analysis for the proposed water system indicate capital costs on the order of $32,000,000. Phase 1 capital cost is $10,325,000.

Initial Phase 1 water facilities will be sized to meet the IDEQ indoor residential demand requirement of 800 gpd/unit on a maximum day. Preliminary Engineering Reports for the initial portions of the Phase 1 infrastructure will document compliance with this requirement. The actual demands will be monitored during these initial construction phases and infrastructure of subsequent phases will be sized based on these monitored demands. The demands used throughout this facility plan are based on the water right permit and are consistent with local and regional comparable water systems.

In accordance with the terms of the Development Agreement between the City of Eagle and M3 Eagle, M3 Eagle plans to construct and convey the water system to the City of Eagle who will become the owner and operator.

EXHIBIT O – M3 SPRING VALLEY PLAN

Spring Valley Water Facility Plan – PUMP #1 Amendment

IDEQ Conditions of Approval Attached, Cover and 2 pages
IDEQ Approved, May 12, 2014
Due to Document Size – Included by Reference Only

NOTE:
The Spring Valley Water Facility Plan and the Spring Valley PUMP #1 Amendment, included by reference only, are on file at the City of Eagle and at the Idaho Department of Environmental Quality for viewing.

M3 Eagle, L.L.C.

533 East Riverside Drive
Suite 110
Eagle, ID 83616

Spring Valley Water Facility Plan

PUMP #1 Amendment

APPROVED
By:
IDAHO DEQ
Boise Regional Office
Date: MAY-12-2014

PROFESSIONAL ENGINEER
REGISTERED
9221
5/8/14
STATE OF IDAHO
J. MATT URANGA

RECEIVED
MAY 09 2014
DEPARTMENT OF
ENVIRONMENTAL QUALITY
BOISE REGIONAL OFFICE

Engineer:

J-U-B ENGINEERS, Inc.
250 South Beechwood Avenue
Suite 201
Boise, ID 83709
www.jub.com

Owner:

M3 Eagle, L.L.C.
533 East Riverside Drive
Suite 110
Eagle, ID 83616

Section 1

Introduction

Project Description

The description of the Spring Valley Development included in the Facility Plan remains accurate and provides a broad description of the development. Planned Unit Master Plan (PUMP) #1 for Spring Valley is a small portion of the overall development and includes approximately 232 acres. PUMP #1 is planned to include 232 single family detached dwellings, a clubhouse and recreation center, and a sales office. No additional commercial development is included in PUMP #1.

PUMP #1 will initially consist of portions of the 2800 and 2910 Pressure Zones as identified and described in the Facility Plan. In the Facility Plan, both of these Zones were to be supplied water from Zone 3020 via pressure reducing valve stations. The Facility Plan contemplated this portion of the development being constructed either after, or simultaneously with Zones 2910 and 3020. Given the current planned phasing for the development, the wells included in Zone 3020 of the Facility Plan will not be available for PUMP #1. Given this situation, modifications to the Facility Plan to include at least two well sources directly connected to PUMP #1 improvements is necessary to meet the requirements of IDAPA. This amendment to the Facility Plan is intended to examine and evaluate the potential impacts to the overall Facility Plan that result from the revised phasing of the development and the current plan to provide water sources connected to the lower pressure zones.

The proposed water system for PUMP #1 includes modifications to the Facility Plan to allow the 2910 Pressure Zone to serve as the receiving zone for most or all of the well source capacity to provide additional system flexibility in regards to well locations, water main sizing, and capacity. This approach also allows for well placement based on actual testing results rather than arbitrary spacing. This change in overall water system approach requires a number of changes in the Facility Plan. Significant modifications include:

- Addition of a 24" transmission line directly connecting PUMP #1 and potential future well sources completed to the southwest of PUMP #1.

- Upsizing of primary transmission mains in the 2910 Pressure Zone to accommodate the export of water from the 2910 Pressure Zones to the future 3020 Pressure Zone.

- Change in system operations that will require water to be lifted from the 2910 Pressure Zone to the 3020 pressure zone. Two conceptual approaches are discussed in this amendment.

    - Replacement of the three primary pressure reducing stations connecting the 2910 and 3020 Pressure Zones with booster pump stations to accommodate export of water from the 2910 Pressure Zone to the upper zones.

    - Provide storage on the 2910 Pressure Zone with an associated booster pump station to lift water to the 3020 storage reservoir.

With these modifications to the Facility Plan, the reliance on well capacity within a limited area in the 3020 Pressure Zone included in the Facility Plan is largely relieved and provides greater flexibility in well source location as well as reduced well density. From an infrastructure standpoint, the modifications are small compared to the changes in overall system operation.

As a result of the changes in system operation that are included in this amendment, the operational schematics of the system included in the Facility Plan will become invalid and will no longer be relevant for the long term planning of the water system for subsequent PUMPs. To address this deficiency and to streamline future reviews by IDEQ and the City of Eagle, a revised Facility Plan will be prepared and submitted concurrently with the PUMP #2 submittal to the City of Eagle. This revised Facility Plan will include the entire development and detail the approach that will be used to provide water service throughout. Information collected from the construction of the initial production wells for the project will also be incorporated in the new Facility Plan and used to estimate future well locations and yields.

This amendment also includes additional refinement of the potable water system demands for PUMP #1 to reflect the approach to irrigation of residential lots and common spaces that is being developed as part of the Irrigation Master Plan that M3 is preparing.

Project Location

PUMP #1 is located in the southwest portion of the development as presented in the Facility Plan.

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

RECEIVED
MAY 14 2014
By________

1445 North Orchard • Boise, Idaho 83706 • (208) 373-0550
www.deq.idaho.gov

C.L. "Butch" Otter, Governor
Curt Fransen, Director

May 12, 2014

Mark Tate
M3 Eagle, LLC
533 E. Riverside Dr. Suite 110
Eagle, ID 83616

RE: Spring Valley (M3) - PUMP 1 Facilty Plan Amendment (Eagle, Ada County)
Public Drinking Water System - Facility Plan

Dear Mr. Tate:

The referenced project appears to meet State of Idaho standards and is approved based on the conditions listed below.

I. PROJECT SPECIFIC CONDITIONS:

A. This approval is for the Public Drinking Water System Facility Plan (FP) addendum only. Please submit a Preliminary Engineering Report (PER) to The Department of Environmental Quality (DEQ) for review and approval prior to preparing and submitting detailed plans and specifications. Detailed plans and specifications cannot be reviewed until the PER is approved; furthermore, no construction can begin until the detailed plans and specifications have been reviewed and approved by DEQ.

B. The referenced FP addendum is part of a project, or will eventually lead to projects, that require the release of sanitary restrictions. In the interest of protecting public health, DEQ Boise Regional Office will not recommend lifting sanitary restrictions until specific conditions are met. For additional information, please find the attachment entitled "Release of Sanitary Restrictions and Project Approval, General Guideline, Idaho DEQ - Boise Regional Office, April 2008." If you have any questions please contact The Boise Regional Office at 373-0550.

Please call me with any questions at 208-373-0184 or contact me via e-mail at kevin.ryan@deg.idaho.gov.

Sincerely,

Kevin Ryan, P.E.
Staff Engineer

Enclosures: One Approved and Stamped Facility Plan
Release of Sanitary Restrictions and Project Approval, General Guideline

cc: Matt Uranga, P.E., J-U-B Engineers, Inc. (w/approved and stamped FP)

PDF: Todd Crutcher, P.E., Boise Regional Office
TRIM Record #2014AGD1655

Release of Sanitary Restrictions and Project Approval
General Guideline
Idaho DEQ - Boise Regional Office
April 2008

In the interest of protecting public health, the Boise Regional Office will not recommend lifting sanitary restrictions for developments unless the following are in place. This list is not all-inclusive, but does cover the general case. Specific cases may involve additional requirements.

Planning and Operational Documents – These items must be approved but they do not directly result in construction or the construction is not required to be completed prior to release of sanitary restrictions.

- Facility Plans for wastewater and drinking water as needed
- PERs for wastewater and drinking water system components as needed
- Technical Financial and Managerial Documentation
- Operation and Maintenance Manual(s)
- Wastewater disposal permits (Subsurface, Reuse, NPDES)
- Approved plans and specs for onsite water and sewer lines

System Components –These items are generally identified in an approved facility plan or may be items not identified in a facility plan, but that are necessary to serve one or more developments that are covered by the facility plan. System components must be constructed, tested and operational.

- Offsite water and sewer mains needed to connect to the municipal system.
- Drinking water wells with full system capacity in place
- Drinking water booster stations.
- Drinking water storage reservoirs constructed
- Drinking water pressure reducing stations
- Drinking water treatment plants or equipment
- Wastewater lift stations and force mains
- Wastewater treatment facilities
- Wastewater disposal facilities
- Any standby power facilities as required by rule

All of the above system components must be at the capacities shown in an approved facilities plan. An example is if a new development needs a lift station, force main and WWTP capacity from a city: All those capacities must be in place prior to lifting restrictions.

Please note:
In the general case, plans and specifications for the system components listed above must be approved by DEQ prior to the approval of plans and specifications for onsite water and sewer mains extension projects that are dependant on the system components that are listed above. However, on a case by case basis (as determined by the Boise Regional Office), and provided that sanitary restrictions remain in force, plans and specifications for water and sewer main extension projects may be approved prior to the approval of plans and specifications for the required system component(s). However, no water mains will be approved until drinking water well quantity and quality is proven and approved by DEQ.

Please contact the Boise Regional Office Engineering Manager at 373-0550 with any questions or for additional information.

EXHIBIT P – M3 SPRING VALLEY
CONDITIONS OF APPROVAL

City of Eagle – PUMP #1 Amendment

City Engineer Recommendation for Approval with Conditions, April 15, 2014,
5 pages

City of Eagle Approved, August 26, 2014

NOTE:
The Spring Valley Water Facility Plan and the Spring Valley PUMP #1 Amendment, included by reference only, are on file at the City of Eagle and at the Idaho Department of Environmental Quality for viewing.

CITY OF EAGLE
660 E. Civic Lane
Eagle, ID 83616

Office of City Engineer

April 15, 2014

Bill Vaughan
Zoning Administrator
City of Eagle
P.O. Box 1520
Eagle, ID 83616

RE: **Spring Valley**
Water Facility Plan – PUMP #1 Amendment (revised 3/19/2014)
HECO Reference No. EG12-0305

Dear Mr. Vaughan:

The City of Eagle has received a revised draft of the *Spring Valley Water Master Facility Plan PUMP #1 Amendment* date stamped by the City on March 19, 2014. The revisions contained within this draft addressed the comments made in our review letter dated January 31, 2014. The comments provided in our January 31, 2014 letter are italicized below in their entirety and remain conditions of this review. All numbering below is consistent with the numbering of the previous correspondence.

For clarity, the following terms will be used throughout the remainder of the document.

WFP – Spring Valley Water Facility Plan (1/3/2013)
Approved by DEQ (1/9/2013) and City of Eagle (8/31/2012)
Amendment #1 – Amendment to the WFP submitted as part of PUMP #1 (11/4/2013, updated 3/19/2014)
PUMP – Planned Unit Master Plan (submittal 12/20/12, updated 1/16/2014)
DEQ – Department of Environmental Quality

1. *Amendment #1, is a PUMP #1 specific update to the approved WFP date stamped by DEQ on January 09, 2013. This amendment proposes several changes to the operational schematic of the overall system. The prior Amendment #1 review letter (7/11/13) discussed the City's concern with being able to develop subsequent phases of Spring Valley in accordance with master planning that was significantly modified by Amendment #1. The applicant, in the introduction to the current draft of Amendment #1, acknowledges "the operational schematics of the system included in the Facility Plan will become invalid and will no longer be relevant for long term planning of the water system." Therefore, the applicant shall provide a completely revised Water Facility Plan at the time of submission of PUMP #2. Until this update has been received and approved, the allowable development under Amendment #1 will be limited to the planning for PUMP #1. The maximum number of units that can be developed under Amendment #1 is 232 single family detached dwellings, a clubhouse, and a sales office.*

The applicant has agreed to comply with this condition and will provide a completely revised Water Facility Plan at the time of submission of PUMP #2.

2. *The WFP approved by the City identifies a reservoir dependent system. The WFP identified 0.8 million gallons (MG) of water storage located in the same pressure zone as the proposed Phase 1 wells. Amendment #1 modifies this plan by not providing storage within Phase 1, but defers storage to the first phase of PUMP #2. In addition, the wells have been relocated to a lower pressure zone, resulting in the requirement for booster pumps to supply water to the future reservoir(s). Based upon discussions with the hydrogeologist and project engineer, this change is based upon two primary factors: 1) The first phase is limited to 232 detached single family dwellings, and 2) the conclusion of the hydraulic study suggest that the wells should be located in a lower pressure zone. We are in agreement with the proposed changes with the following conditions:*
    a. *The City has approved a reservoir based system for the Spring Valley development. Amendment #1 is being recommended for approval without a reservoir in Phase #1 with the project engineer's assurance that this is an initial phase of the overall water schematic which includes water storage. The approved WFP identifies 2 reservoirs located in different pressure zones with a total storage volume of 3.2 MG of water. All future planning for the Spring Valley water system shall be based upon the use of reservoirs for water storage and pressure regulation.*
    b. *Section 5 of Amendment #1 considers two possible options for water provision between the different pressure zones. Alternative A identifies all of the storage in the 3020 pressure zone. Alternative B identifies storage in both the 2910 and 3020 pressure zones. The City will require that the applicant provide adequate supporting data at the time of application for PUMP #2 for the City to determine which alternative will best meet the goals of the City. Operational data collected from the installation of PUMP #1 will be used by the City to review the proposed method of expanding the system when the amended WFP is submitted for review.*
    c. *The modified WFP required at or before the submission of PUMP #2 shall include the planning thresholds for additional reservoirs.*

The applicant has agreed to comply with this condition.

3. *Figure 5.1 of Amendment #1 identifies 86 lots within PUMP #1 will be required to install individual pressure reducing valves (PRV) because the water main pressure exceeds 80 psi. The PRV's shall be located on the user side of the City water meter and be owned and maintained by the individual homeowner. The final location of the PRV shall be approved by the City of Eagle Water Department. At the time of submission of Covenants, Conditions, and Restrictions (CC&R's) for the individual phases, the necessity of pressure reduction shall be clearly shown for the affected lots. The City will require the homeowner to provide verification that the PRV has been installed and all necessary inspections and testing have been completed.*

The applicant has agreed to comply with this condition.

4. *Amendment #1 and the cover letter provided by JUB, dated November 4, 2013, indicates the applicant intends to obtain irrigation and supplemental irrigation water using the City's Water Right No. 63-32573.*

In the JUB letter, under the response to Comment 4.b it is stated, "supplemental irrigation for the land application site will come from groundwater and the City's municipal water for the project will be utilized." It is clarified on page 6 that "supplemental water will not be taken from the potable system." This proposal also indicates that the water will not be provided from the City system, but by a private well owned and operated by the applicant. As proposed, the applicant is planning to apply a portion of the City's water right to an existing private well and construct a water delivery system for non-potable water demands that will be completely separate from the City's water system and under the ownership of the homeowner's association. The details of the delivery and use are not yet determined but will be disclosed in the Irrigation Master Plan (IMP) that the applicant will provide prior to final plat.

This approach by the applicant has been reviewed with the City attorney. There are a number of issues that are both practical and legal that arise from this proposal. This plan is in conflict with the City's position identified within a Memorandum to the City Council dated December 05, 2013, in response to the draft Spring Valley Development Agreement, Section 2.2 Water – M3 General Comment, which states that "City owns water permit no. 63-32573 ... [and] City will own the Water System that delivers water associated with this permit." Without the details of how the proposed separate system is going to work, HEC is unable to comprehensively evaluate the proposal. If there is a short-term need for the applicant to use a private well for irrigation using water from the City's water right, there are some mechanisms that possibly could allow for the use. Ultimately, it would be beneficial to both the City and applicant to have the more thorough plan and additional details that would be provided in the IMP, sooner than later. Lastly, in the JUB letter under Section 4.iv., there is a statement that "compensation [for this irrigation and supplemental irrigation] does not seem applicable." This statement is not consistent with City's plan for water provision to Spring Valley. The City and applicant have had several conversations regarding how water would be supplied to the applicant including discussion of how the delivery would be metered and charges assessed. However, the City is not in a position to provide water at no charge to a private user.

The March 19, 2014 Amendment #1 modifies this approach as follows:

a. **The applicant has elected to manage the land application site in such a manner that supplemental irrigation water will not be utilized.**
b. **All irrigation within PUMP #1 utilizing the City's water right will be metered and billed through the City's water system only. Areas within PUMP #1 that are to be irrigated utilizing other sources of irrigation water including surface water rights and an existing irrigation well (water right #63-10669 owned by the applicant) will be through a separate system owned and maintained by the HOA.**

It should be noted that the existing irrigation well (Kling Well) is in close proximity to the proposed location of the new municipal well. The applicant will be required to demonstrate that the new municipal well will not impact the production from the existing irrigation well. If the irrigation well will be impacted by the new municipal well, the applicant must provide an alternative to the irrigation plan or select a different site for the new municipal well.

5. *Amendment #1 includes limited analysis of the pressure irrigation system for 14.6 acres of common area shown on Figure 4.1 as the "green area." Uses that were identified as "not taken from the potable system" have not been quantified in the Amendment. The applicant has agreed to provide the City with a Pressure Irrigation Master Plan for the entire development prior to submitting final construction*

drawings for Phase 1. This plan shall include preliminary engineering adequate to verify future capacity of constructed components and multi-phase contingent facilities and shall address how irrigation water will be supplied to the entire development through potable water, reuse water, surface water, land application supplemental irrigation, and ponds. The plan shall address timing and benchmarks for the installation of primary improvements.

The applicant has agreed to provide an Irrigation Master Plan for the entire development prior to submitting construction drawings for Phase 1.

6. *Page 5-2 of the Amendment #1 indicates that "isolation valves and blow-off assemblies may be especially important for the initial operation of the system while demands are low." We concur with this statement. Large diameter trunk mains with minimal users will likely require additional flushing to provide fresh water. The applicant's design shall consider flushing strategies that include water disposal. It is recommended that the flushing strategy be incorporated and coordinated with the proposed irrigation and reuse ponds for disposal. The design calculations for the proposed ponds shall identify adequate capacity for flushing. The City shall be provided access in the form of easements and/or license agreement for disposal of flushing water in this system.*

   The applicant has agreed to incorporate flushing strategies and consider the need for pond capacity to accommodate flushing in the design and calculations for the water system and any affected irrigation storage ponds. The design documents, preliminary engineering reports and the Irrigation Master Plan shall include this consideration.

7. *The water demands were developed by the applicant as part of applying for water right, 63-32573, and are based upon the developer requiring individual users employ water conservation measures. Employment of these measures will be the responsibility of the applicant and/or homeowners association. Failure to enforce water conservation may result in a higher per capita water usage than projected and could affect the total number of lots that can be developed under the available water right. Adjustments to the declining balance will be made on an ongoing basis as user data become available. At a minimum, the City will reevaluate actual consumption rates at the time of submitting preliminary/final plats for City approval.*

   The applicant has agreed that they will be required to develop water conservation measures and controls to accommodate the total number of lots planned for the development and that failure to implement sufficient conservation strategies might result in a reduction of the total number of lots that can be supported under water right #63-32573.

8. *A declining balance report identifying the amount of available water and an estimate of the number of developable units shall be provided to the City (Amendment #1, Page 5-9) after the construction of wells and pumping system for PUMP #1. Said report will be updated with each expansion of the system or phase of developed lots.*

   The applicant has agreed to comply with this condition.

Additional comments applicable to the latest updated Amendment #1 are as follows:

9. Condition #3 above shall also apply to all necessary back flow prevention (BFP) devices since residential units are planned to utilize the municipal water system for irrigation purposes.

10. Figure 4.1 shall be updated to address the following comments:

    a. The PUMP #1 boundary for Amendment #1 shall be updated to match the current PUMP #1 boundary. More specifically, portions of SWA-3 are not shown. Even though this area is designated native/undisturbed in the PUMP #1 Landscape Plan, it shall be included within a designated shaded area consistent with the native/undisturbed areas in SWA-5 that are included within the "green" planning area.
    b. The northwest area of SWA-7 (near Tesoro pipeline) shall be included within an irrigation planning area.
    c. There are many locations where the boundary line between the "green" and "red" irrigation planning areas irregularly cross common lots and residential lots. This isn't particularly an issue with residential lots since they are planned to be irrigated through the municipal system, but the boundary within commons lots are not be discernable. The map shall be modified to show boundary lines following lot lines so that any given lot is not divided into more than one irrigation planning area.

11. Figure 5.4 shall be updated to reflect the current PUMP #1 maximum day demands to match the demands presented in Table 4.6.

Amendment #1 is recommended for approval subject to the above conditions and approval by DEQ.

If you have questions or need additional information, please contact our office.

Sincerely,
HOLLADAY ENGINEERING COMPANY

By: Michael W. Davis

Michael W. Davis, P.E.
City Engineer

Cc: Bruce Smith – City Attorney
Scott Wonders – JUB

EXHIBIT Q – WATER MODEL
WESTERN SERVICE AREA

Western System Model
Bentley WaterCAD V8i
July 10, 2015

Modeling Results Introduction

The Western Service Area was modeled using the City's Comprehensive Plan as the basis for land use and unit density and the Idaho Rules for Public Drinking Water Systems for system performance criteria. For base line performance evaluation, the water system was divided into two model runs: existing performance with the current pump configuration and existing performance with booster pump upgrades at Well No. 5, Eaglefield. A third model run included future performance with supply and trunk line improvements.

Trunk lines in the Western Service Area were sized for Peak Hour as well as Max Day plus Fire Flow performance that met the criteria at build-out of the area. Model runs evaluation included Average Day, Max Day, and Peak Hour pressure and flow. This is described in more detail in Chapter 4.

Model output includes numerous Hydrant Tables, Pipe Tables, Pump Tables, PRV Tables, and a Fire Flow Report in table format for each model run. The following table identifies results of base line performance evaluations and model results of future performance with improvements. Output items marked "included" are located in Exhibit Q.

Model Output Included in Exhibit Q									
	Existing, 2652 HGL			Future 2685 HGL			Future Improvements		
Model Output	Ave Day	Max Day	Peak Hour	Ave Day	Max Day	Peak Hour	Ave Day	Max Day	Peak Hour
Junction Table	x	x	Included	x	x	x	x	x	Included
Fire Flow	x	Included	x	x	x	x	x	x	x
Hydrant Table	x	Included	x	x	x	x	x	x	x
Pipe Table	x	x	Included	x	x	x	x	x	Included
Pump Table	x	x	Included	x	x	Included	x	x	x
PRV Table			N/A			N/A	x	x	Included
Tank Table			N/A			N/A	x	x	Included
Improve. Map									Included

"X" indicates modeled output but not included in report

Modeling Criteria Summary

The Idaho Rules for Public Drinking Water Systems requires service pressures generally within the range of 40-80 psi, with pressures above 20 psi during fire flow conditions. Pressures up to 100 psi may be allowable, but require special considerations and customer notifications.

See IDAPA 58.01.08.542.13:

> 13. Minimum Pressure at Building Sites. Any public water system constructed or undergoing material modification where topographical relief may affect water pressure at the customers' premises shall provide the Department with an analysis which demonstrates that the pressure at each designated building site will be at least forty (40) psi, based on dynamic pressure in the main, as set forth in Subsections 552.01.b.i. and 552.01.b.ii., plus a static compensation from the elevation of the main to the elevation of each building site. (5-8-09)

a. If forty (40) psi cannot be provided at each designated building site, the Department may require that reasonable effort be made to provide notification to existing and potential customers of the expected pressure. (5-3-03)
b. The Department will not authorize a service connection at any designated building site where analysis indicates that pressure will be less than twenty (20) psi static pressure (or twenty-six point five (26.5) psi for two (2) story buildings). (5-3-03)

See IDAPA 58.01.08.552.01:

b. Pressure. All public water systems shall meet the following requirements: (4-7-11)
i. Any public water system shall be capable of providing sufficient water during maximum day demand conditions, including fire flow where provided, to maintain a minimum pressure of twenty (20) psi throughout the distribution system, at ground level, as measured at the service connection or along the property line adjacent to the consumer's premises. (4-7-11)
ii. Public Notification. (4-4-13) IDAHO ADMINISTRATIVE CODE IDAPA 58.01.08 Department of Environmental Quality Idaho Rules for Public Drinking Water Systems Section 552 Page 129
(1) During unplanned or emergency situations, when water pressure within the system is known to have fallen below twenty (20) psi, the water supplier must notify the Department, provide public notice to the affected customers within twenty-four (24) hours, and disinfect the system. When sampling and corrective procedures have been conducted and after determination by the Department that the water is safe, the water supplier may re-notify the affected customers that the water is safe for consumption. The water supplier shall notify the affected customers if the water is not safe for consumption. (4-4-13)
(2) During planned maintenance or repair situations, when water pressure within the system is expected to fall below twenty (20) psi, the water supplier must provide public notice to the affected customers prior to the planned maintenance or repair activity and shall ensure that the water is safe for consumption. (4-4-13)
iii. If an initial investigation by the water supplier fails to discover the causes of inadequate or excessive pressure, the Department may require the water supplier to conduct a local pressure monitoring study to diagnose and correct pressure problems. Compliance with these requirements by water systems that do not have a meter vault or other point of access at the service connection or along the property line adjacent to the consumer's premises where pressure in the distribution system can be reliably measured shall be determined by measurements within the consumer's premises, or at another representative location acceptable to the Department. (4-4-13)
iv. Copies of pressure monitoring study reports required under Subsection 552.01.b.iii. detailing study results and any resulting corrective actions planned or performed by the public water system shall be submitted to the Department in accordance with these rules. (4-7-11)
v. The following public water systems or service areas of public water systems shall maintain a minimum pressure of forty (40) psi throughout the distribution system, during peak hour demand conditions, excluding fire flow, measured at the service connection or along the property line adjacent to the consumer's premises. (5-8-09)

(1) Any public water system constructed or substantially modified after July 1, 1985. (5-8-09)
(2) Any new service areas. (5-8-09)
(3) Any public water system that is undergoing material modification where it is feasible to meet the pressure requirements as part of the material modification. (5-8-09)
vi. Any public water system shall keep static pressure within the distribution system below one hundred (100) psi and should ordinarily keep static pressure below eighty (80) psi. Pressures above one hundred (100) psi shall be controlled by pressure reducing valve stations installed in the distribution main. In areas where failure of installed pressure reducing valve stations would result in extremely high pressure, pressure relief valves may be required. The Department may approve the use of pressure reducing devices at individual service connections on a case by case basis, if it can be demonstrated that higher pressures in portions of the distribution system are required for efficient system operation. If system modification will cause pressure to routinely exceed eighty (80) psi, or if a check valve or an individual pressure reducing device is added to the service line, the water system owner shall notify affected customers. Notification may include reasons for the elevated pressure, problems or damage that elevated pressure can inflict on appliances or plumbing systems, and suggested procedures or mitigation efforts affected property owners may initiate to minimize problems or damage. (4-4-13)

The Idaho Rules for Public Drinking Water Systems also establish redundancy requirements for both ground water sources and fire flow capacity.

See IDAPA 58.01.08.501.17:

17. Ground Water Source Redundancy. New community water systems served by ground water shall have a minimum of two (2) sources if they are intended to serve more than twenty-five (25) connections or equivalent dwelling units (EDUs). Under normal operating conditions, with any source out of service, the remaining source(s) shall be capable of providing either the peak hour demand of the system or a minimum of the maximum day demand plus equalization storage. See Subsection 501.18 for general design and redundancy requirements concerning fire flow capacity. (5-8-09)

See IDAPA 58.01.08.501.18:

18. Redundant Fire Flow Capacity. (3-30-07)
a. Public water systems that provide fire flow shall be designed to provide maximum day demand plus fire flow. Fire flow requirements and system adequacy shall be determined by the local fire authority or by a hydraulic analysis by a licensed professional engineer to establish required fire flows in accordance with the International Fire Code as adopted by the State Fire Marshal. Pumping systems supporting fire flow capacity must be IDAHO ADMINISTRATIVE CODE IDAPA 58.01.08 Department of Environmental Quality Idaho Rules for Public Drinking Water Systems Section 501 Page 48 designed so that fire flow may be provided with any pump out of service. (4-4-13)
b. The requirement for redundant pumping capacity specified in Subsection 501.18.a. may be reduced to the extent that fire suppression storage is provided in sufficient quantity to meet some or all of fire flow demands. Where fire suppression storage is not

provided, the requirement for fire flow pumping redundancy may be reduced or eliminated if the following conditions are met: (5-8-09)

i. The local fire authority justifies that the fire flow capacity of the system is acceptable and is compatible with the water demand of existing and planned fire-fighting equipment and fire-fighting practices in the area served by the system. (4-4-13)

ii. In a manner appropriate to the system type and situation, notification is provided to customers that describes the design of the system's fire-fighting capability and explains how it differs from the requirements of Subsection 501.18.a. (4-4-13)

MODEL OUTPUT

EXISTING, 2652 HGL

FlexTable: Junction Table (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-302	2,548.0	Zone - 1	6.80	2,651.9	45.0
J-299	2,540.0	Zone - 1	6.80	2,651.9	48.4
J-406	2,539.0	Zone - 1	6.80	2,651.9	48.9
J-407	2,538.0	Zone - 1	0.00	2,651.9	49.3
J-390	2,536.0	Zone - 1	0.00	2,651.9	50.2
J-303	2,536.0	Zone - 1	0.00	2,651.9	50.2
J-391	2,535.0	Zone - 1	1.70	2,651.9	50.6
J-389	2,535.0	Zone - 1	2.04	2,651.9	50.6
J-387	2,535.0	Zone - 1	2.72	2,651.9	50.6
J-297	2,535.0	Zone - 1	3.40	2,651.9	50.6
J-395	2,532.0	Zone - 1	2.38	2,651.9	51.9
J-232	2,531.4	Zone - 1	1.36	2,652.0	52.2
J-393	2,531.0	Zone - 1	2.04	2,651.9	52.3
J-231	2,531.0	Zone - 1	1.36	2,652.0	52.3
J-233	2,528.1	Zone - 1	1.70	2,652.0	53.6
J-399	2,528.0	Zone - 1	3.74	2,651.9	53.6
J-334	2,528.0	Zone - 1	6.80	2,651.9	53.6
J-234	2,527.6	Zone - 1	2.72	2,652.0	53.8
J-235	2,526.1	Zone - 1	0.68	2,652.0	54.5
J-408	2,526.0	Zone - 1	0.00	2,651.9	54.5
J-397	2,525.0	Zone - 1	3.06	2,651.9	54.9
J-191	2,525.0	Zone - 1	6.80	2,651.9	54.9
J-304	2,524.0	Zone - 1	0.00	2,651.9	55.3
J-323	2,523.0	Zone - 1	3.40	2,652.0	55.8
J-404	2,523.0	Zone - 1	2.72	2,652.0	55.8
J-324	2,522.0	Zone - 1	3.40	2,652.0	56.2
J-322	2,522.0	Zone - 1	3.40	2,652.0	56.2
J-321	2,522.0	Zone - 1	0.00	2,652.0	56.2
J-320	2,522.0	Zone - 1	0.68	2,652.0	56.2
J-243	2,522.0	Zone - 1	1.02	2,652.0	56.2
J-402	2,522.0	Zone - 1	2.72	2,652.0	56.2
J-250	2,522.0	Zone - 1	0.00	2,652.0	56.2
J-315	2,522.0	Zone - 1	1.36	2,652.0	56.2
J-316	2,522.0	Zone - 1	0.68	2,652.0	56.2
J-239	2,521.5	Zone - 1	2.38	2,652.0	56.4
J-236	2,521.5	Zone - 1	0.34	2,652.0	56.4
J-335	2,521.0	Zone - 1	3.74	2,651.9	56.6
J-287	2,521.0	Zone - 1	3.74	2,652.0	56.7
J-247	2,521.0	Zone - 1	2.04	2,652.0	56.7
J-314	2,521.0	Zone - 1	1.70	2,652.0	56.7
J-312	2,521.0	Zone - 1	1.36	2,652.0	56.7
J-313	2,521.0	Zone - 1	1.36	2,652.0	56.7
J-195	2,521.0	Zone - 1	3.40	2,652.0	56.7
J-198	2,521.0	Zone - 1	1.70	2,652.0	56.7
J-112	2,521.0	Zone - 1	2.04	2,652.0	56.7
J-240	2,520.8	Zone - 1	2.38	2,652.0	56.8

FlexTable: Junction Table (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-251	2,520.8	Zone - 1	1.70	2,652.0	56.8
J-249	2,520.8	Zone - 1	0.00	2,652.0	56.8
J-237	2,520.5	Zone - 1	1.36	2,652.0	56.9
J-246	2,520.1	Zone - 1	0.00	2,652.0	57.1
J-292	2,520.0	Zone - 1	3.74	2,651.9	57.1
J-286	2,520.0	Zone - 1	1.36	2,652.0	57.1
J-241	2,520.0	Zone - 1	1.02	2,652.0	57.1
J-242	2,520.0	Zone - 1	1.70	2,652.0	57.1
J-245	2,520.0	Zone - 1	2.38	2,652.0	57.1
J-126	2,520.0	Zone - 1	0.00	2,652.0	57.1
J-127	2,520.0	Zone - 1	0.00	2,652.0	57.1
J-128	2,520.0	Zone - 1	0.00	2,652.0	57.1
J-193	2,520.0	Zone - 1	0.00	2,652.0	57.1
J-72	2,520.0	Zone - 1	1.36	2,652.0	57.1
J-308	2,520.0	Zone - 1	3.40	2,652.0	57.1
J-194	2,520.0	Zone - 1	3.40	2,652.0	57.1
J-238	2,519.5	Zone - 1	2.04	2,652.0	57.3
J-244	2,519.5	Zone - 1	4.76	2,652.0	57.3
J-248	2,519.1	Zone - 1	0.00	2,652.0	57.5
J-252	2,519.0	Zone - 1	2.04	2,652.0	57.5
J-122	2,519.0	Zone - 1	0.00	2,652.0	57.5
J-123	2,519.0	Zone - 1	0.00	2,652.0	57.5
J-124	2,519.0	Zone - 1	0.00	2,652.0	57.5
J-125	2,519.0	Zone - 1	0.00	2,652.0	57.5
J-192	2,519.0	Zone - 1	2.38	2,652.0	57.5
J-113	2,519.0	Zone - 1	0.00	2,652.0	57.5
J-79	2,519.0	Zone - 1	2.38	2,652.0	57.5
J-115	2,518.6	Zone - 1	2.04	2,652.0	57.7
J-120	2,518.5	Zone - 1	2.04	2,652.0	57.8
J-121	2,518.5	Zone - 1	2.04	2,652.0	57.8
J-70	2,518.1	Zone - 1	1.36	2,652.0	57.9
J-336	2,518.0	Zone - 1	3.40	2,651.9	57.9
J-288	2,518.0	Zone - 1	2.04	2,651.9	58.0
J-284	2,518.0	Zone - 1	0.00	2,652.0	58.0
J-285	2,518.0	Zone - 1	1.36	2,652.0	58.0
J-61	2,518.0	Zone - 1	0.68	2,652.0	58.0
J-114	2,518.0	Zone - 1	3.40	2,652.0	58.0
J-117	2,518.0	Zone - 1	1.36	2,652.0	58.0
J-119	2,518.0	Zone - 1	4.08	2,652.0	58.0
J-64	2,518.0	Zone - 1	0.68	2,652.0	58.0
J-111	2,518.0	Zone - 1	3.06	2,652.0	58.0
J-319	2,518.0	Zone - 1	0.00	2,652.0	58.0
J-109	2,518.0	Zone - 1	1.36	2,652.0	58.0
J-65	2,517.8	Zone - 1	1.36	2,652.0	58.1
J-59	2,517.6	Zone - 1	1.36	2,652.0	58.1
J-60	2,517.5	Zone - 1	0.68	2,652.0	58.2

FlexTable: Junction Table (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-71	2,517.5	Zone - 1	1.36	2,652.0	58.2
J-73	2,517.3	Zone - 1	1.36	2,652.0	58.3
J-63	2,517.0	Zone - 1	1.36	2,652.0	58.4
J-118	2,517.0	Zone - 1	3.74	2,652.0	58.4
J-309	2,517.0	Zone - 1	1.70	2,652.0	58.4
J-68	2,517.0	Zone - 1	1.36	2,652.0	58.4
J-69	2,517.0	Zone - 1	1.70	2,652.0	58.4
J-110	2,517.0	Zone - 1	2.72	2,652.0	58.4
J-108	2,517.0	Zone - 1	0.00	2,652.0	58.4
J-318	2,517.0	Zone - 1	0.00	2,652.0	58.4
J-106	2,517.0	Zone - 1	0.34	2,652.0	58.4
J-267	2,516.7	Zone - 1	1.36	2,652.0	58.5
J-62	2,516.6	Zone - 1	1.02	2,652.0	58.6
J-78	2,516.6	Zone - 1	1.70	2,652.0	58.6
J-58	2,516.5	Zone - 1	1.36	2,652.0	58.6
J-310	2,516.5	Zone - 1	0.00	2,652.0	58.6
J-107	2,516.5	Zone - 1	0.34	2,652.0	58.6
J-158	2,516.5	Zone - 1	0.00	2,652.0	58.6
J-254	2,516.4	Zone - 1	1.02	2,652.0	58.7
J-283	2,516.3	Zone - 1	0.00	2,652.0	58.7
J-66	2,516.3	Zone - 1	2.04	2,652.0	58.7
J-80	2,516.3	Zone - 1	2.04	2,652.0	58.7
J-289	2,516.0	Zone - 1	2.38	2,651.9	58.8
J-331	2,516.0	Zone - 1	2.72	2,651.9	58.8
J-105	2,516.0	Zone - 1	3.40	2,652.0	58.8
J-67	2,516.0	Zone - 1	0.68	2,652.0	58.8
J-76	2,516.0	Zone - 1	1.36	2,652.0	58.8
J-317	2,516.0	Zone - 1	0.00	2,652.0	58.8
Well 5 Eaglefield	2,516.0	Zone - 1	0.00	2,652.1	58.9
J-74	2,515.8	Zone - 1	1.02	2,652.0	58.9
J-57	2,515.5	Zone - 1	1.36	2,652.0	59.1
J-56	2,515.5	Zone - 1	1.36	2,652.0	59.1
J-103	2,515.5	Zone - 1	2.72	2,652.0	59.1
J-104	2,515.5	Zone - 1	1.36	2,652.0	59.1
J-77	2,515.5	Zone - 1	3.06	2,652.0	59.1
J-269	2,515.0	Zone - 1	2.72	2,652.0	59.3
J-253	2,515.0	Zone - 1	0.00	2,652.0	59.3
J-81	2,515.0	Zone - 1	1.02	2,652.0	59.3
J-87	2,515.0	Zone - 1	1.70	2,652.0	59.3
J-148	2,515.0	Zone - 1	2.38	2,652.0	59.3
J-82	2,514.4	Zone - 1	0.00	2,652.0	59.6
J-101	2,514.3	Zone - 1	3.06	2,652.0	59.6
J-85	2,514.3	Zone - 1	2.72	2,652.0	59.6
J-378	2,514.0	Zone - 1	4.08	2,651.9	59.7
J-376	2,514.0	Zone - 1	3.40	2,651.9	59.7

FlexTable: Junction Table (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-291	2,514.0	Zone - 1	1.36	2,651.9	59.7
J-290	2,514.0	Zone - 1	1.36	2,651.9	59.7
J-326	2,514.0	Zone - 1	1.70	2,651.9	59.7
J-259	2,514.0	Zone - 1	0.00	2,652.0	59.7
J-258	2,514.0	Zone - 1	0.00	2,652.0	59.7
J-257	2,514.0	Zone - 1	2.04	2,652.0	59.7
J-256	2,514.0	Zone - 1	1.36	2,652.0	59.7
J-266	2,514.0	Zone - 1	1.36	2,652.0	59.7
J-264	2,514.0	Zone - 1	2.72	2,652.0	59.7
J-102	2,514.0	Zone - 1	3.40	2,652.0	59.7
J-88	2,514.0	Zone - 1	2.04	2,652.0	59.7
J-89	2,514.0	Zone - 1	2.38	2,652.0	59.7
J-272	2,513.9	Zone - 1	1.02	2,652.0	59.7
J-255	2,513.5	Zone - 1	2.04	2,652.0	59.9
J-84	2,513.5	Zone - 1	0.95	2,652.0	59.9
J-328	2,513.0	Zone - 1	0.34	2,651.9	60.1
J-327	2,513.0	Zone - 1	0.00	2,651.9	60.1
J-98	2,513.0	Zone - 1	2.04	2,652.0	60.1
J-99	2,513.0	Zone - 1	2.04	2,652.0	60.1
J-262	2,513.0	Zone - 1	1.36	2,652.0	60.1
Well 4 Legacy	2,513.0	Zone - 1	0.00	2,652.0	60.1
J-282	2,512.5	Zone - 1	2.04	2,652.0	60.3
J-278	2,512.5	Zone - 1	2.04	2,652.0	60.3
J-270	2,512.5	Zone - 1	2.72	2,652.0	60.3
J-260	2,512.4	Zone - 1	2.72	2,652.0	60.4
J-276	2,512.3	Zone - 1	4.76	2,652.0	60.4
J-274	2,512.3	Zone - 1	3.40	2,652.0	60.5
J-261	2,512.2	Zone - 1	0.68	2,652.0	60.5
J-279	2,512.1	Zone - 1	2.72	2,652.0	60.5
J-275	2,512.1	Zone - 1	2.38	2,652.0	60.5
J-380	2,512.0	Zone - 1	4.08	2,651.9	60.5
J-382	2,512.0	Zone - 1	3.40	2,651.9	60.5
J-293	2,512.0	Zone - 1	2.04	2,651.9	60.5
J-294	2,512.0	Zone - 1	1.36	2,651.9	60.5
J-100	2,512.0	Zone - 1	0.00	2,652.0	60.6
J-280	2,512.0	Zone - 1	2.72	2,652.0	60.6
J-268	2,512.0	Zone - 1	2.38	2,652.0	60.6
J-273	2,512.0	Zone - 1	1.36	2,652.0	60.6
J-265	2,512.0	Zone - 1	1.02	2,652.0	60.6
J-271	2,511.9	Zone - 1	1.70	2,652.0	60.6
J-281	2,511.5	Zone - 1	0.68	2,652.0	60.8
J-277	2,511.5	Zone - 1	2.72	2,652.0	60.8
J-383	2,511.0	Zone - 1	0.00	2,651.9	61.0
J-385	2,511.0	Zone - 1	4.08	2,651.9	61.0
J-374	2,511.0	Zone - 1	3.06	2,651.9	61.0
J-373	2,511.0	Zone - 1	1.36	2,651.9	61.0

FlexTable: Junction Table (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-333	2,511.0	Zone - 1	1.36	2,651.9	61.0
J-332	2,511.0	Zone - 1	3.06	2,651.9	61.0
J-306	2,510.0	Zone - 1	5.10	2,651.9	61.4
J-97	2,510.0	Zone - 1	2.04	2,652.0	61.4
J-329	2,508.0	Zone - 1	0.00	2,651.9	62.3
J-96	2,508.0	Zone - 1	2.04	2,652.0	62.3
J-330	2,507.0	Zone - 1	6.80	2,651.9	62.7
J-92	2,506.0	Zone - 1	2.04	2,652.0	63.2
J-93	2,506.0	Zone - 1	0.00	2,652.0	63.2
J-94	2,506.0	Zone - 1	2.04	2,652.0	63.2
J-95	2,506.0	Zone - 1	2.04	2,652.0	63.2
J-145	2,506.0	Zone - 1	2.04	2,652.0	63.2

Fire Flow Node FlexTable: Fire Flow Report (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Fire Flow (Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Calculated Zone Lower Limit) (psi)	Junction w/ Minimum Pressure (System)
H-145	1,400.00	20.0	20.0	25.1	J-92
J-94	1,415.27	20.0	20.0	26.2	J-92
J-93	1,454.83	20.0	20.0	21.8	J-92
J-92	1,488.30	20.0	20.0	20.0	J-93
J-145	1,500.00	20.0	20.0	20.0	J-93
H-96	1,512.84	20.0	20.0	25.2	J-96
J-395	1,524.72	20.0	20.0	23.3	H-53
H-52	1,540.00	20.0	20.0	22.7	J-391
J-95	1,540.88	20.0	20.0	20.0	J-93
H-53	1,554.25	20.0	20.0	21.9	J-395
J-324	1,563.85	20.0	20.0	29.5	J-323
J-390	1,573.39	20.0	20.0	22.6	J-389
H-51	1,588.45	20.0	20.0	22.0	J-390
J-391	1,614.06	20.0	20.0	20.2	H-52
H-55	1,615.13	20.0	20.0	22.0	H-52
H-56	1,621.60	20.0	20.0	22.8	H-52
J-393	1,622.66	20.0	20.5	20.0	J-395
J-96	1,625.76	20.0	20.0	20.0	H-96
J-316	1,627.19	20.0	20.0	25.3	J-315
H-54	1,629.89	20.0	20.0	20.8	H-52
J-389	1,639.92	20.0	20.5	20.0	J-390
H-57	1,641.54	20.0	20.0	22.9	J-390
H-97	1,654.88	20.0	20.0	26.0	J-97
J-397	1,656.34	20.0	21.5	20.0	H-52
J-323	1,677.55	20.0	20.0	26.3	J-324
H-234	1,681.83	20.0	20.0	31.8	J-234
J-399	1,689.88	20.0	20.0	20.2	H-52
H-232	1,732.36	20.0	20.0	29.1	J-232
J-387	1,741.36	20.0	20.5	20.0	J-390
J-315	1,772.74	20.0	20.0	20.0	J-316
J-97	1,801.16	20.0	20.0	20.0	H-97
H-101	1,813.85	20.0	20.0	27.4	J-101
J-99	1,820.29	20.0	20.0	25.4	J-98
J-322	1,832.30	20.0	20.4	20.0	J-323
J-297	1,837.41	20.0	20.4	20.0	J-390
J-100	1,844.15	20.0	20.0	23.7	J-99
H-59	1,846.97	20.0	20.0	21.4	J-404
J-404	1,864.29	20.0	20.0	20.0	H-59
H-269	1,864.56	20.0	20.0	31.2	J-269
J-321	1,868.35	20.0	20.4	20.0	J-323
J-231	1,880.02	20.0	20.0	22.4	H-232
J-98	1,887.67	20.0	20.0	20.0	J-99

Fire Flow Node FlexTable: Fire Flow Report (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Fire Flow (Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Calculated Zone Lower Limit) (psi)	Junction w/ Minimum Pressure (System)
H-102	1,902.22	20.0	20.0	29.1	H-101
H-105	1,906.59	20.0	20.0	28.9	J-105
J-101	1,910.75	20.0	20.0	20.0	H-101
J-232	1,911.38	20.0	20.0	20.0	H-232
H-58	1,920.43	20.0	20.0	22.3	J-402
H-239	1,921.05	20.0	20.0	32.6	J-239
J-320	1,925.13	20.0	20.4	20.0	J-323
J-314	1,926.83	20.0	20.4	20.0	J-316
H-128	1,929.05	20.0	20.0	27.9	J-128
J-234	1,930.27	20.0	20.0	20.0	H-234
H-89	1,930.78	20.0	20.0	27.6	J-89
H-60	1,934.53	20.0	20.0	23.0	J-323
J-302	1,937.56	20.0	20.0	24.5	J-299
J-313	1,937.91	20.0	20.0	24.5	J-316
J-402	1,944.28	20.0	20.4	20.0	H-58
H-235	1,950.40	20.0	20.0	26.6	H-232
J-299	1,952.20	20.0	23.5	20.0	J-302
J-406	1,958.46	20.0	23.9	20.0	J-302
H-281	1,962.93	20.0	20.0	28.7	J-282
J-407	1,963.00	20.0	24.4	20.0	J-302
J-303	1,970.38	20.0	25.2	20.0	J-302
J-191	1,983.18	20.0	30.0	20.0	J-302
J-312	1,997.05	20.0	20.4	20.0	J-316
J-233	1,998.45	20.0	21.4	20.0	J-232
H-247	2,004.85	20.0	20.0	31.2	H-232
H-60	2,005.75	20.0	20.0	28.0	J-61
J-243	2,008.24	20.0	20.4	20.0	J-323
J-269	2,009.58	20.0	20.0	20.0	H-269
H-268	2,011.92	20.0	20.0	30.3	J-269
J-102	2,019.23	20.0	20.1	20.0	J-101
J-105	2,021.49	20.0	20.0	20.0	H-105
H-241	2,022.14	20.0	20.0	28.7	J-323
H-59	2,024.09	20.0	20.0	28.9	J-59
H-237	2,025.11	20.0	20.0	27.5	J-232
J-88	2,026.31	20.0	20.1	31.8	J-148
J-89	2,027.57	20.0	20.0	20.0	H-89
H-46	2,028.26	20.0	20.0	25.1	J-380
H-45	2,029.45	20.0	20.0	24.3	J-378
H-270	2,030.81	20.0	20.0	30.3	J-270
J-128	2,032.79	20.0	20.0	20.0	H-128
J-282	2,033.95	20.0	20.0	23.7	J-281
J-335	2,034.88	20.0	20.0	24.1	J-302
H-266	2,038.65	20.0	20.0	28.5	J-267

Fire Flow Node FlexTable: Fire Flow Report (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Fire Flow (Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Calculated Zone Lower Limit) (psi)	Junction w/ Minimum Pressure (System)
J-235	2,042.50	20.0	22.3	20.0	H-232
H-126	2,042.57	20.0	20.0	29.7	J-126
J-408	2,042.60	20.0	29.6	20.1	J-302
H-47	2,043.37	20.0	20.0	25.0	J-380
H-244	2,047.87	20.0	20.0	28.0	H-232
H-148	2,053.18	20.0	20.0	28.6	J-148
J-383	2,053.63	20.0	20.1	23.8	J-382
H-104	2,054.81	20.0	20.0	28.7	J-105
H-44	2,061.15	20.0	20.0	24.5	J-376
H-125	2,063.70	20.0	20.0	28.8	J-125
H-277	2,063.70	20.0	20.0	30.5	J-302
J-61	2,068.14	20.0	20.0	23.6	H-60
H-122	2,072.54	20.0	20.0	29.1	J-122
J-378	2,074.54	20.0	20.0	20.9	H-45
J-281	2,075.56	20.0	20.4	20.0	J-282
J-304	2,079.60	20.0	30.4	20.0	J-302
J-334	2,079.69	20.0	24.5	20.0	J-302
H-50	2,080.02	20.0	21.4	20.0	J-302
H-118	2,080.08	20.0	20.0	28.6	J-118
J-380	2,083.64	20.0	20.0	20.4	H-46
J-267	2,086.42	20.0	20.1	26.2	H-266
H-48	2,088.16	20.0	20.0	24.3	J-382
J-242	2,088.73	20.0	20.0	24.1	J-323
J-336	2,092.88	20.0	20.0	20.4	J-302
J-376	2,094.50	20.0	20.0	21.0	H-45
J-239	2,095.36	20.0	20.1	20.1	H-239
H-114	2,095.89	20.0	20.1	28.2	J-302
J-292	2,097.92	20.0	32.2	20.0	J-302
H-70	2,098.08	20.0	20.1	27.8	J-316
H-120	2,101.30	20.0	20.1	27.8	J-302
J-382	2,102.35	20.0	20.0	20.5	J-383
H-251	2,103.41	20.0	20.1	26.5	J-302
H-73	2,104.54	20.0	20.1	27.6	J-302
J-72	2,106.44	20.0	20.9	20.0	J-316
H-279	2,107.95	20.0	20.1	28.0	J-302
J-85	2,108.73	20.0	20.0	27.5	J-302
J-60	2,112.48	20.0	20.3	20.1	J-61
Well 4 Legacy	2,113.23	20.0	43.3	28.2	J-302
H-113	2,123.62	20.0	20.1	26.5	J-302
J-280	2,125.30	20.0	20.2	20.0	J-282
J-127	2,125.45	20.0	20.1	20.1	H-128
J-236	2,126.07	20.0	24.3	20.0	J-232
J-291	2,127.41	20.0	34.8	20.1	J-302

Fire Flow Node FlexTable: Fire Flow Report (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Fire Flow (Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Calculated Zone Lower Limit) (psi)	Junction w/ Minimum Pressure (System)
J-290	2,129.30	20.0	34.8	20.1	J-302
J-123	2,129.58	20.0	20.1	25.0	J-124
H-158	2,129.68	20.0	20.1	26.2	J-302
J-237	2,134.60	20.0	23.1	20.0	H-232
H-121	2,135.01	20.0	20.1	25.8	J-302
J-271	2,136.19	20.0	20.1	22.5	J-270
J-238	2,137.50	20.0	23.0	20.0	J-232
J-289	2,140.07	20.0	33.8	20.0	J-302
H-49	2,140.52	20.0	20.1	21.7	J-302
J-293	2,142.88	20.0	31.7	20.0	J-302
H-74	2,143.88	20.0	20.1	25.3	J-302
J-241	2,145.46	20.0	20.2	20.0	J-323
J-240	2,145.46	20.0	21.0	20.0	J-323
J-59	2,145.70	20.0	20.1	20.1	H-59
H-69	2,146.67	20.0	20.0	25.1	J-302
J-79	2,149.40	20.0	20.1	24.9	J-302
J-374	2,151.38	20.0	20.9	20.0	H-44
H-198	2,151.61	20.0	20.1	22.1	J-198
H-67	2,151.80	20.0	20.0	24.8	J-302
J-268	2,152.17	20.0	21.3	20.0	H-269
J-294	2,152.97	20.0	29.9	20.0	J-302
J-288	2,153.92	20.0	33.0	20.0	J-302
J-385	2,153.93	20.0	20.0	20.2	H-48
J-266	2,154.34	20.0	21.2	20.0	J-267
H-78	2,155.47	20.0	20.0	24.6	J-302
J-284	2,164.22	20.0	33.0	20.0	J-302
J-244	2,167.08	20.0	21.1	20.0	H-232
J-306	2,167.76	20.0	33.0	20.0	J-302
J-329	2,167.90	20.0	31.7	20.0	J-302
J-373	2,168.17	20.0	23.4	20.0	J-302
J-330	2,168.36	20.0	30.4	20.0	J-302
J-270	2,168.65	20.0	20.1	20.1	H-270
J-148	2,168.88	20.0	20.1	20.1	H-148
J-328	2,168.91	20.0	32.2	20.0	J-302
J-333	2,169.44	20.0	30.9	20.0	J-302
J-327	2,169.75	20.0	32.6	20.0	J-302
J-332	2,170.32	20.0	27.4	20.0	J-302
J-326	2,170.94	20.0	32.8	20.0	J-302
J-331	2,171.52	20.0	20.1	20.0	J-302
J-285	2,171.52	20.0	30.4	20.1	J-302
J-259	2,172.60	20.0	33.8	20.0	J-302
J-246	2,172.70	20.0	24.8	20.0	J-232
J-247	2,172.83	20.0	23.2	20.0	J-232

Fire Flow Node FlexTable: Fire Flow Report (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Fire Flow (Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Calculated Zone Lower Limit) (psi)	Junction w/ Minimum Pressure (System)
J-104	2,173.93	20.0	20.2	20.0	J-105
J-258	2,174.69	20.0	34.8	20.0	J-302
H-77	2,177.32	20.0	20.0	23.3	J-302
J-309	2,177.46	20.0	20.0	21.0	J-308
J-278	2,177.58	20.0	20.0	23.8	J-302
H-272	2,177.88	20.0	20.0	23.9	J-302
J-126	2,179.14	20.0	20.0	20.0	H-126
H-110	2,180.09	20.0	20.0	23.1	J-302
J-198	2,180.72	20.0	20.0	20.0	H-198
H-276	2,180.82	20.0	20.0	23.6	J-302
J-193	2,181.52	20.0	20.0	20.0	H-128
J-286	2,184.27	20.0	25.2	20.0	J-302
J-245	2,186.28	20.0	25.0	20.0	H-232
J-125	2,186.43	20.0	20.0	20.0	H-125
H-57	2,188.59	20.0	20.0	22.4	J-302
J-87	2,189.52	20.0	20.0	20.0	J-148
H-274	2,190.72	20.0	20.0	23.1	J-302
J-308	2,191.14	20.0	20.0	21.3	J-309
J-103	2,192.01	20.0	20.2	20.0	J-105
J-287	2,193.49	20.0	22.4	20.0	J-302
J-118	2,198.80	20.0	20.0	20.0	H-118
J-124	2,198.88	20.0	20.0	20.0	J-123
J-257	2,199.99	20.0	34.8	20.0	J-302
J-122	2,200.13	20.0	20.0	20.0	H-122
J-252	2,201.92	20.0	22.6	20.0	J-302
J-71	2,206.01	20.0	22.0	20.0	J-316
H-80	2,209.39	20.0	20.0	21.3	J-302
J-70	2,209.57	20.0	21.5	20.0	J-316
J-251	2,210.19	20.0	22.9	20.0	J-302
H-64	2,214.66	20.0	20.0	20.9	J-302
J-256	2,217.83	20.0	34.8	20.0	J-302
J-255	2,219.16	20.0	34.2	20.0	J-302
H-255	2,219.75	20.0	22.7	20.0	J-302
J-114	2,220.39	20.0	20.0	20.0	H-114
J-254	2,220.94	20.0	32.2	20.0	J-302
J-58	2,222.06	20.0	20.6	20.0	J-61
J-249	2,222.89	20.0	27.9	20.1	J-302
J-195	2,223.38	20.0	20.0	20.0	H-198
J-277	2,223.70	20.0	20.4	20.0	J-278
J-248	2,223.70	20.0	28.8	20.0	J-302
J-250	2,223.74	20.0	26.8	20.0	J-302
J-253	2,224.94	20.0	31.2	20.1	J-302
H-62	2,225.35	20.0	20.0	20.1	J-302

Fire Flow Node FlexTable: Fire Flow Report (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Fire Flow (Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Calculated Zone Lower Limit) (psi)	Junction w/ Minimum Pressure (System)
J-56	2,225.97	20.0	30.7	20.0	J-302
J-57	2,226.05	20.0	27.2	20.0	J-302
J-283	2,226.25	20.0	30.5	20.0	J-302
J-62	2,227.07	20.0	30.0	20.0	J-302
J-120	2,227.11	20.0	20.0	20.0	H-120
J-63	2,227.40	20.0	29.7	20.0	J-302
J-66	2,228.99	20.0	24.9	20.0	J-302
J-67	2,229.04	20.0	24.7	20.0	J-302
J-64	2,229.09	20.0	28.9	20.0	J-302
J-65	2,229.17	20.0	29.0	20.0	J-302
J-68	2,229.24	20.0	24.8	20.0	J-302
J-69	2,229.31	20.0	24.3	20.0	J-302
J-319	2,229.38	20.0	23.8	20.0	J-302
J-78	2,229.57	20.0	24.5	20.0	J-302
J-318	2,229.74	20.0	26.7	20.0	J-302
J-74	2,229.76	20.0	23.7	20.0	J-302
J-317	2,229.77	20.0	29.6	20.0	J-302
J-73	2,229.80	20.0	20.6	20.0	J-302
J-77	2,230.03	20.0	26.5	20.0	J-302
J-76	2,230.11	20.0	27.0	20.0	J-302
J-81	2,230.25	20.0	29.8	20.0	J-302
J-80	2,230.29	20.0	29.3	20.0	J-302
J-112	2,230.43	20.0	24.1	20.0	J-302
J-121	2,230.56	20.0	22.9	20.0	J-302
J-194	2,230.59	20.0	22.2	20.0	J-302
J-113	2,230.62	20.0	21.8	20.0	J-302
J-192	2,230.65	20.0	21.2	20.0	J-302
J-119	2,230.65	20.0	20.7	20.0	J-302
J-115	2,230.65	20.0	20.2	20.0	J-302
J-117	2,230.66	20.0	20.4	20.0	J-302
J-110	2,230.66	20.0	26.5	20.0	J-302
J-106	2,230.66	20.0	27.9	20.0	J-302
J-108	2,230.67	20.0	27.0	20.0	J-302
J-111	2,230.67	20.0	25.9	20.0	J-302
J-107	2,230.67	20.0	28.6	20.0	J-302
J-109	2,230.67	20.0	26.3	20.0	J-302
J-158	2,230.68	20.0	28.6	20.0	J-302
J-310	2,230.69	20.0	28.6	20.0	J-302
J-82	2,231.16	20.0	29.8	20.0	J-302
J-84	2,231.76	20.0	26.1	20.0	J-302
Well 5 Eaglefield	2,233.59	20.0	28.5	20.0	J-302
J-260	2,235.31	20.0	35.5	20.1	J-302

Fire Flow Node FlexTable: Fire Flow Report (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Fire Flow (Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Calculated Zone Lower Limit) (psi)	Junction w/ Minimum Pressure (System)
J-261	2,237.02	20.0	35.6	20.1	J-302
H-261	2,237.62	20.0	24.3	20.0	J-302
J-265	2,237.88	20.0	22.0	20.0	J-267
J-276	2,238.91	20.0	29.5	20.0	J-302
J-275	2,240.90	20.0	28.0	20.0	J-302
J-274	2,241.01	20.0	28.0	20.0	J-302
J-273	2,241.21	20.0	29.3	20.0	J-302
J-264	2,241.55	20.0	30.1	20.0	J-302
J-279	2,241.81	20.0	20.6	20.0	J-302
J-272	2,242.14	20.0	29.4	20.0	J-302
J-262	2,242.27	20.0	35.2	20.0	J-302

FlexTable: Hydrant Table (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Fire Flow (Available) (gpm)	Include Lateral Loss?	Lateral Length (ft)	Demand (gpm)	Zone	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
H-44	2,061.15	True	20	0.00	Zone - 1	2,514.0	2,651.9	59.7
H-45	2,029.45	True	20	0.00	Zone - 1	2,514.0	2,651.9	59.7
H-46	2,028.26	True	20	0.00	Zone - 1	2,513.0	2,651.9	60.1
H-47	2,043.37	True	20	0.00	Zone - 1	2,512.0	2,651.9	60.5
H-48	2,088.16	True	20	0.00	Zone - 1	2,511.0	2,651.9	61.0
H-49	2,140.52	True	20	0.00	Zone - 1	2,511.0	2,651.9	61.0
H-50	2,080.02	True	20	0.00	Zone - 1	2,526.0	2,651.9	54.5
H-51	1,588.45	True	20	0.00	Zone - 1	2,535.0	2,651.9	50.6
H-52	1,540.00	True	20	0.00	Zone - 1	2,535.0	2,651.9	50.6
H-53	1,554.25	True	20	0.00	Zone - 1	2,531.0	2,651.9	52.3
H-54	1,629.89	True	20	0.00	Zone - 1	2,525.0	2,651.9	54.9
H-55	1,615.13	True	20	0.00	Zone - 1	2,527.0	2,651.9	54.0
H-56	1,621.60	True	20	0.00	Zone - 1	2,530.0	2,651.9	52.7
H-57	2,188.59	False	20	0.00	Zone - 1	2,515.5	2,652.0	59.1
H-57	1,641.54	True	20	0.00	Zone - 1	2,535.0	2,651.9	50.6
H-58	1,920.43	False	20	0.00	Zone - 1	2,523.0	2,652.0	55.8
H-59	2,024.09	False	20	0.00	Zone - 1	2,517.6	2,652.0	58.1
H-59	1,846.97	False	20	0.00	Zone - 1	2,523.0	2,652.0	55.8
H-60	1,934.53	True	20	0.00	Zone - 1	2,522.0	2,652.0	56.2
H-60	2,005.75	False	20	0.00	Zone - 1	2,517.5	2,652.0	58.2
H-62	2,225.35	False	20	0.00	Zone - 1	2,516.6	2,652.0	58.6
H-64	2,214.66	False	20	0.00	Zone - 1	2,518.0	2,652.0	58.0
H-67	2,151.80	False	20	0.00	Zone - 1	2,516.0	2,652.0	58.8
H-69	2,146.67	False	20	0.00	Zone - 1	2,517.0	2,652.0	58.4
H-70	2,098.08	False	20	0.00	Zone - 1	2,518.1	2,652.0	57.9
H-73	2,104.54	False	20	0.00	Zone - 1	2,517.3	2,652.0	58.3
H-74	2,143.88	False	20	0.00	Zone - 1	2,515.8	2,652.0	58.9
H-77	2,177.32	False	20	0.00	Zone - 1	2,515.5	2,652.0	59.1
H-78	2,155.47	False	20	0.00	Zone - 1	2,516.6	2,652.0	58.6
H-80	2,209.39	False	20	0.00	Zone - 1	2,516.3	2,652.0	58.7
H-89	1,930.78	False	20	0.00	Zone - 1	2,514.0	2,652.0	59.7
H-96	1,512.84	False	20	0.00	Zone - 1	2,508.0	2,652.0	62.3
H-97	1,654.88	False	20	0.00	Zone - 1	2,510.0	2,652.0	61.4
H-101	1,813.85	False	20	0.00	Zone - 1	2,514.3	2,652.0	59.6
H-102	1,902.22	False	20	0.00	Zone - 1	2,514.0	2,652.0	59.7
H-104	2,054.81	False	20	0.00	Zone - 1	2,515.5	2,652.0	59.1
H-105	1,906.59	False	20	0.00	Zone - 1	2,516.0	2,652.0	58.8
H-110	2,180.09	False	20	0.00	Zone - 1	2,517.0	2,652.0	58.4
H-113	2,123.62	False	20	0.00	Zone - 1	2,519.0	2,652.0	57.5
H-114	2,095.89	False	20	0.00	Zone - 1	2,518.0	2,652.0	58.0
H-118	2,080.08	False	20	0.00	Zone - 1	2,517.0	2,652.0	58.4
H-120	2,101.30	False	20	0.00	Zone - 1	2,518.5	2,652.0	57.8
H-121	2,135.01	False	20	0.00	Zone - 1	2,518.5	2,652.0	57.8
H-122	2,072.54	False	20	0.00	Zone - 1	2,519.0	2,652.0	57.5
H-125	2,063.70	False	20	0.00	Zone - 1	2,519.0	2,652.0	57.5
H-126	2,042.57	False	20	0.00	Zone - 1	2,520.0	2,652.0	57.1

FlexTable: Hydrant Table (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Fire Flow (Available) (gpm)	Include Lateral Loss?	Lateral Length (ft)	Demand (gpm)	Zone	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)
H-128	1,929.05	False	20	0.00	Zone - 1	2,520.0	2,652.0	57.1
H-145	1,400.00	False	20	0.00	Zone - 1	2,506.0	2,652.0	63.2
H-148	2,053.18	False	20	0.00	Zone - 1	2,515.0	2,652.0	59.3
H-158	2,129.68	False	20	0.00	Zone - 1	2,516.5	2,652.0	58.6
H-198	2,151.61	False	20	0.00	Zone - 1	2,521.0	2,652.0	56.7
H-232	1,732.36	False	20	0.00	Zone - 1	2,531.4	2,652.0	52.2
H-234	1,681.83	False	20	0.00	Zone - 1	2,527.6	2,652.0	53.8
H-235	1,950.40	False	20	0.00	Zone - 1	2,526.1	2,652.0	54.5
H-237	2,025.11	False	20	0.00	Zone - 1	2,520.5	2,652.0	56.9
H-239	1,921.05	False	20	0.00	Zone - 1	2,521.5	2,652.0	56.4
H-241	2,022.14	False	20	0.00	Zone - 1	2,520.0	2,652.0	57.1
H-244	2,047.87	False	20	0.00	Zone - 1	2,519.5	2,652.0	57.3
H-247	2,004.85	False	20	0.00	Zone - 1	2,521.0	2,652.0	56.7
H-251	2,103.41	False	20	0.00	Zone - 1	2,520.8	2,652.0	56.8
H-255	2,219.75	False	20	0.00	Zone - 1	2,513.5	2,652.0	59.9
H-261	2,237.62	False	20	0.00	Zone - 1	2,512.2	2,652.0	60.5
H-266	2,038.65	False	20	0.00	Zone - 1	2,514.0	2,652.0	59.7
H-268	2,011.92	False	20	0.00	Zone - 1	2,512.0	2,652.0	60.6
H-269	1,864.56	False	20	0.00	Zone - 1	2,515.0	2,652.0	59.3
H-270	2,030.81	False	20	0.00	Zone - 1	2,512.5	2,652.0	60.3
H-272	2,177.88	False	20	0.00	Zone - 1	2,514.0	2,652.0	59.7
H-274	2,190.72	False	20	0.00	Zone - 1	2,512.3	2,652.0	60.5
H-276	2,180.82	False	20	0.00	Zone - 1	2,512.3	2,652.0	60.4
H-277	2,063.70	False	20	0.00	Zone - 1	2,511.5	2,652.0	60.8
H-279	2,107.95	False	20	0.00	Zone - 1	2,512.1	2,652.0	60.5
H-281	1,962.93	False	20	0.00	Zone - 1	2,511.5	2,652.0	60.8

FlexTable: Pipe Table (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Length (ft)	Has User Defined Length?	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-2	169	False	J-283	J-56	16.0	PVC	140.0	-108.86	0.17
P-3	115	False	J-56	J-57	8.0	PVC	140.0	5.44	0.03
P-4	212	False	J-57	J-58	8.0	PVC	140.0	4.08	0.03
P-5	197	False	J-58	J-59	8.0	PVC	140.0	1.36	0.01
P-6	281	False	J-58	J-60	8.0	PVC	140.0	1.36	0.01
P-7	128	False	J-60	J-61	8.0	PVC	140.0	0.68	0.00
P-8	344	False	J-56	J-62	16.0	PVC	140.0	-115.66	0.18
P-9	105	False	J-62	J-63	16.0	PVC	140.0	-116.68	0.19
P-10	372	False	J-63	J-64	16.0	PVC	140.0	-118.04	0.19
P-11	28	False	J-64	J-65	16.0	PVC	140.0	-118.73	0.19
P-12	395	False	J-65	J-66	8.0	PVC	140.0	0.51	0.00
P-13	66	False	J-66	J-67	8.0	PVC	140.0	-1.53	0.01
P-14	455	False	J-67	J-68	8.0	PVC	140.0	-2.21	0.01
P-15	39	False	J-68	J-69	8.0	PVC	140.0	4.49	0.03
P-16	537	False	J-69	J-70	8.0	PVC	140.0	2.79	0.02
P-17	28	False	J-70	J-71	8.0	PVC	140.0	1.43	0.01
P-18	254	False	J-71	J-72	8.0	PVC	140.0	7.82	0.05
P-19	412	False	J-71	J-73	8.0	PVC	140.0	-7.75	0.05
P-20	391	False	J-73	J-74	8.0	PVC	140.0	-9.11	0.06
P-21	258	False	J-74	J-76	8.0	PVC	140.0	-10.14	0.06
P-22	67	False	J-76	J-77	8.0	PVC	140.0	7.28	0.05
P-23	410	False	J-77	J-78	8.0	PVC	140.0	4.22	0.03
P-27	266	False	J-80	J-81	16.0	PVC	140.0	-130.56	0.21
P-28	86	False	J-81	J-82	12.0	PVC	140.0	-225.17	0.64
P-29	175	False	Well 5 Eaglefield	J-82	12.0	PVC	140.0	237.35	0.67
P-31	510	False	J-84	J-85	8.0	PVC	140.0	2.72	0.02
P-32	283	False	J-84	J-87	8.0	PVC	140.0	8.50	0.05
P-34	476	False	J-87	J-88	8.0	PVC	140.0	2.04	0.01
P-36	562	False	J-89	J-90	8.0	PVC	140.0	(N/A)	(N/A)
P-37	469	False	J-90	J-91	8.0	PVC	140.0	(N/A)	(N/A)
P-38	159	False	J-90	J-92	8.0	PVC	140.0	(N/A)	(N/A)
P-39	129	False	J-92	J-93	8.0	PVC	140.0	0.00	0.00
P-41	475	False	J-95	J-94	8.0	PVC	140.0	2.04	0.01
P-42	310	False	J-95	J-96	8.0	PVC	140.0	-8.16	0.05
P-43	464	False	J-96	J-97	8.0	PVC	140.0	-10.20	0.07
P-44	355	False	J-97	J-98	8.0	PVC	140.0	-12.24	0.08
P-45	258	False	J-98	J-99	8.0	PVC	140.0	2.04	0.01
P-46	192	False	J-98	J-100	8.0	PVC	140.0	0.00	0.00
P-47	110	False	J-98	J-101	8.0	PVC	140.0	-16.33	0.10
P-48	362	False	J-101	J-102	8.0	PVC	140.0	-19.39	0.12
P-49	506	False	J-102	J-103	8.0	PVC	140.0	-22.79	0.15
P-50	46	False	J-103	J-104	8.0	PVC	140.0	4.76	0.03
P-51	433	False	J-104	J-105	8.0	PVC	140.0	3.40	0.02
P-52	360	False	J-103	J-106	8.0	PVC	140.0	-30.27	0.19
P-54	198	False	J-76	J-107	8.0	PVC	140.0	-18.77	0.12

FlexTable: Pipe Table (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Length (ft)	Has User Defined Length?	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-56	877	False	J-106	J-108	16.0	PVC	140.0	43.87	0.07
P-57	169	False	J-108	J-109	16.0	PVC	140.0	43.87	0.07
P-58	296	False	J-109	J-110	16.0	PVC	140.0	30.89	0.05
P-59	235	False	J-110	J-111	16.0	PVC	140.0	28.17	0.04
P-60	476	False	J-111	J-112	16.0	PVC	140.0	15.64	0.02
P-61	246	False	J-111	J-113	8.0	PVC	140.0	9.47	0.06
P-63	203	False	J-114	J-115	8.0	PVC	140.0	1.03	0.01
P-64	213	False	J-122	J-115	8.0	PVC	140.0	2.65	0.02
P-65	246	False	J-115	J-117	8.0	PVC	140.0	1.64	0.01
P-66	519	False	J-117	J-118	8.0	PVC	140.0	1.30	0.01
P-67	396	False	J-118	J-119	8.0	PVC	140.0	-2.44	0.02
P-68	159	False	J-119	J-120	8.0	PVC	140.0	3.06	0.02
P-69	90	False	J-120	J-117	8.0	PVC	140.0	1.02	0.01
P-70	296	False	J-119	J-121	8.0	PVC	140.0	-9.58	0.06
P-71	187	False	J-121	J-109	8.0	PVC	140.0	-11.62	0.07
P-73	13	False	J-122	J-124	8.0	PVC	140.0	-2.65	0.02
P-74	178	False	J-124	J-123	8.0	PVC	140.0	0.00	0.00
P-75	186	False	J-124	J-125	8.0	PVC	140.0	-2.65	0.02
P-76	289	False	J-125	J-126	8.0	PVC	140.0	-2.65	0.02
P-78	267	False	J-127	J-128	8.0	PVC	140.0	0.00	0.00
P-80	5	True	R-4	PMP-Legacy Well 4 VT	10.0	Steel	100.0	121.01	0.49
P-81	180	True	PMP-Legacy Well 4 VT	Well 4 Legacy	10.0	Steel	100.0	121.01	0.49
P-82	5	True	R-5	PMP-Eaglefield Well 5 VT	10.0	Steel	100.0	0.00	0.00
P-83	90	True	PMP-Eaglefield Well 5 VT	Well 5 Eaglefield	10.0	Steel	100.0	0.00	0.00
P-84	14	True	J-110	H-110	6.0	PVC	140.0	0.00	0.00
P-85	13	False	J-121	H-121	6.0	PVC	140.0	0.00	0.00
P-86	11	False	J-120	H-120	6.0	PVC	140.0	0.00	0.00
P-87	11	False	J-114	H-114	6.0	PVC	140.0	0.00	0.00
P-88	12	False	J-113	H-113	6.0	PVC	140.0	0.00	0.00
P-89	15	False	J-128	H-128	6.0	PVC	140.0	0.00	0.00
P-90	24	False	J-126	H-126	6.0	PVC	140.0	0.00	0.00
P-91	13	False	J-125	H-125	6.0	PVC	140.0	0.00	0.00
P-92	15	False	J-122	H-122	6.0	PVC	140.0	0.00	0.00
P-93	10	False	J-118	H-118	6.0	PVC	140.0	0.00	0.00
P-94	15	False	J-104	H-104	6.0	PVC	140.0	0.00	0.00
P-95	28	False	J-105	H-105	6.0	PVC	140.0	0.00	0.00
P-96	32	False	J-102	H-102	6.0	PVC	140.0	0.00	0.00
P-97	20	False	J-101	H-101	6.0	PVC	140.0	0.00	0.00
P-98	17	False	J-97	H-97	6.0	PVC	140.0	0.00	0.00
P-99	21	False	J-96	H-96	6.0	PVC	140.0	0.00	0.00
P-100	41	False	J-92	J-145	8.0	PVC	140.0	-2.04	0.01

FlexTable: Pipe Table (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Length (ft)	Has User Defined Length?	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-101	142	False	J-145	J-95	8.0	PVC	140.0	-4.08	0.03
P-102	33	False	J-145	H-145	6.0	PVC	140.0	0.00	0.00
P-103	12	False	J-89	H-89	6.0	PVC	140.0	0.00	0.00
P-104	51	False	J-87	J-148	8.0	PVC	140.0	4.76	0.03
P-105	423	False	J-148	J-89	8.0	PVC	140.0	2.38	0.02
P-106	12	False	J-148	H-148	6.0	PVC	140.0	0.00	0.00
P-108	18	False	J-80	H-80	6.0	PVC	140.0	0.00	0.00
P-109	11	False	J-64	H-64	6.0	PVC	140.0	0.00	0.00
P-110	17	False	J-67	H-67	6.0	PVC	140.0	0.00	0.00
P-111	17	False	J-69	H-69	6.0	PVC	140.0	0.00	0.00
P-112	15	False	J-70	H-70	6.0	PVC	140.0	0.00	0.00
P-113	15	False	J-73	H-73	6.0	PVC	140.0	0.00	0.00
P-114	14	False	J-74	H-74	6.0	PVC	140.0	0.00	0.00
P-115	20	False	J-107	J-158	16.0	PVC	140.0	-93.59	0.15
P-116	603	False	J-158	J-81	16.0	PVC	140.0	-93.59	0.15
P-117	64	False	J-158	H-158	6.0	PVC	140.0	0.00	0.00
P-118	15	False	J-77	H-77	6.0	PVC	140.0	0.00	0.00
P-119	13	False	J-78	H-78	6.0	PVC	140.0	0.00	0.00
P-120	12	False	J-62	H-62	6.0	PVC	140.0	0.00	0.00
P-121	12	False	J-57	H-57	6.0	PVC	140.0	0.00	0.00
P-122	18	False	J-59	H-59	6.0	PVC	140.0	0.00	0.00
P-123	12	False	J-60	H-60	6.0	PVC	140.0	0.00	0.00
P-125	25	False	J-281	H-281	6.0	PVC	140.0	0.00	0.00
P-126	22	False	J-279	H-279	6.0	PVC	140.0	0.00	0.00
P-127	45	False	J-272	H-272	6.0	PVC	140.0	0.00	0.00
P-128	30	False	J-270	H-270	6.0	PVC	140.0	0.00	0.00
P-129	58	False	J-269	H-269	6.0	PVC	140.0	0.00	0.00
P-130	45	False	J-268	H-268	6.0	PVC	140.0	0.00	0.00
P-131	23	False	J-266	H-266	6.0	PVC	140.0	0.00	0.00
P-132	43	False	J-277	H-277	6.0	PVC	140.0	0.00	0.00
P-133	25	False	J-274	H-274	6.0	PVC	140.0	0.00	0.00
P-134	43	False	J-276	H-276	6.0	PVC	140.0	0.00	0.00
P-135	21	False	J-261	H-261	6.0	PVC	140.0	0.00	0.00
P-136	24	False	J-255	H-255	6.0	PVC	140.0	0.00	0.00
P-137	22	False	J-251	H-251	6.0	PVC	140.0	0.00	0.00
P-138	75	False	J-247	H-247	6.0	PVC	140.0	0.00	0.00
P-139	35	False	J-237	H-237	6.0	PVC	140.0	0.00	0.00
P-140	23	False	J-235	H-235	6.0	PVC	140.0	0.00	0.00
P-141	94	False	J-234	H-234	6.0	PVC	140.0	0.00	0.00
P-142	50	False	J-232	H-232	6.0	PVC	140.0	0.00	0.00
P-143	66	False	J-239	H-239	6.0	PVC	140.0	0.00	0.00
P-144	19	False	J-241	H-241	6.0	PVC	140.0	0.00	0.00
P-145	21	False	J-244	H-244	6.0	PVC	140.0	0.00	0.00
P-147	1,300	False	J-188	J-189	16.0	PVC	140.0	(N/A)	(N/A)
P-148	3,976	False	J-189	J-190	16.0	PVC	140.0	(N/A)	(N/A)
P-150	1,727	False	J-191	J-250	16.0	PVC	140.0	(N/A)	(N/A)

FlexTable: Pipe Table (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Length (ft)	Has User Defined Length?	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-151	129	False	J-82	J-84	8.0	PVC	140.0	12.17	0.08
P-153	425	False	J-106	J-310	16.0	PVC	140.0	-74.48	0.12
P-154	41	False	J-310	J-107	16.0	PVC	140.0	-74.48	0.12
P-155	76	False	J-113	J-192	8.0	PVC	140.0	9.47	0.06
P-156	448	False	J-192	J-114	8.0	PVC	140.0	4.43	0.03
P-157	59	False	J-126	J-193	8.0	PVC	140.0	-2.65	0.02
P-158	145	False	J-193	J-127	8.0	PVC	140.0	0.00	0.00
P-159	434	False	J-192	J-193	8.0	PVC	140.0	2.65	0.02
P-160	533	False	J-112	J-194	12.0	PVC	140.0	13.60	0.04
P-161	532	False	J-194	J-195	12.0	PVC	140.0	10.20	0.03
P-165	18	False	J-198	H-198	6.0	PVC	140.0	0.00	0.00
P-188	10	True	PMP-Eaglefield Booster 3	Well 5 Eaglefield	6.0	Ductile Iron	130.0	0.00	0.00
P-190	10	True	PMP-Legacy Booster 3	Well 4 Legacy	6.0	Ductile Iron	130.0	0.00	0.00
P-192	10	True	R-4 Artesian	PMP-Legacy Booster 3	6.0	Ductile Iron	130.0	0.00	0.00
P-193	10	True	PMP-Legacy Booster 2	Well 4 Legacy	6.0	Ductile Iron	130.0	0.00	0.00
P-194	10	True	PMP-Legacy Booster 1	Well 4 Legacy	6.0	Ductile Iron	130.0	0.00	0.00
P-195	10	True	R-4 Artesian	PMP-Legacy Booster 2	6.0	Ductile Iron	130.0	0.00	0.00
P-196	10	True	R-4 Artesian	PMP-Legacy Booster 1	6.0	Ductile Iron	130.0	0.00	0.00
P-197	10	True	R-5 Artesian	PMP-Eaglefield Booster 3	6.0	Ductile Iron	130.0	0.00	0.00
P-198	10	True	R-5 Artesian	PMP-Eaglefield Booster 2	6.0	Ductile Iron	130.0	117.19	1.33
P-199	10	True	R-5 Artesian	PMP-Eaglefield Booster 1	6.0	Ductile Iron	130.0	120.15	1.36
P-200	10	True	PMP-Eaglefield Booster 2	Well 5 Eaglefield	6.0	Ductile Iron	130.0	117.19	1.33
P-201	10	True	PMP-Eaglefield Booster 1	Well 5 Eaglefield	6.0	Ductile Iron	130.0	120.15	1.36
P-269	113	False	J-231	J-232	8.0	PVC	140.0	-1.36	0.01
P-270	275	False	J-232	J-233	8.0	PVC	140.0	-2.72	0.02
P-271	283	False	J-233	J-234	8.0	PVC	140.0	2.72	0.02
P-272	127	False	J-233	J-235	8.0	PVC	140.0	-7.14	0.05
P-273	222	False	J-235	J-236	8.0	PVC	140.0	-7.82	0.05
P-274	129	False	J-236	J-237	8.0	PVC	140.0	14.41	0.09
P-275	52	False	J-237	J-238	8.0	PVC	140.0	13.05	0.08

FlexTable: Pipe Table (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Length (ft)	Has User Defined Length?	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-276	188	False	J-238	J-239	8.0	PVC	140.0	2.38	0.02
P-277	393	False	J-238	J-240	8.0	PVC	140.0	8.63	0.06
P-278	40	False	J-240	J-241	8.0	PVC	140.0	2.72	0.02
P-279	158	False	J-241	J-242	8.0	PVC	140.0	1.70	0.01
P-280	381	False	J-240	J-243	8.0	PVC	140.0	17.34	0.11
P-281	321	False	J-240	J-244	8.0	PVC	140.0	-13.82	0.09
P-282	429	False	J-244	J-245	8.0	PVC	140.0	-18.58	0.12
P-283	47	False	J-245	J-246	8.0	PVC	140.0	24.61	0.16
P-284	40	False	J-246	J-247	8.0	PVC	140.0	2.04	0.01
P-285	232	False	J-246	J-236	8.0	PVC	140.0	22.57	0.14
P-286	192	False	J-245	J-248	8.0	PVC	140.0	-45.57	0.29
P-287	444	False	J-248	J-249	16.0	PVC	140.0	26.33	0.04
P-288	417	False	J-249	J-250	16.0	PVC	140.0	0.00	0.00
P-289	570	False	J-249	J-251	8.0	PVC	140.0	26.33	0.17
P-290	437	False	J-251	J-252	8.0	PVC	140.0	24.63	0.16
P-291	1,293	False	J-248	J-253	16.0	PVC	140.0	-71.90	0.11
P-292	839	False	J-253	J-254	12.0	PVC	140.0	36.96	0.10
P-293	295	False	J-254	J-255	12.0	PVC	140.0	35.94	0.10
P-294	293	False	J-255	J-256	12.0	PVC	140.0	33.90	0.10
P-295	301	False	J-256	J-257	12.0	PVC	140.0	106.96	0.30
P-296	530	False	J-257	J-258	12.0	PVC	140.0	104.92	0.30
P-297	338	False	J-258	J-259	12.0	PVC	140.0	53.19	0.15
P-298	343	False	J-256	J-260	12.0	PVC	140.0	-74.42	0.21
P-299	41	False	J-260	J-261	12.0	PVC	140.0	-90.15	0.26
P-300	114	False	J-261	J-262	12.0	PVC	140.0	-90.83	0.26
P-301	135	False	Well 4 Legacy	J-262	12.0	PVC	140.0	121.01	0.34
P-302	280	False	J-262	J-264	8.0	PVC	140.0	28.82	0.18
P-303	298	False	J-264	J-265	8.0	PVC	140.0	8.84	0.06
P-304	209	False	J-265	J-266	8.0	PVC	140.0	2.72	0.02
P-305	185	False	J-266	J-267	8.0	PVC	140.0	1.36	0.01
P-306	240	False	J-265	J-268	8.0	PVC	140.0	5.10	0.03
P-307	416	False	J-268	J-269	8.0	PVC	140.0	2.72	0.02
P-308	531	False	J-264	J-270	8.0	PVC	140.0	4.42	0.03
P-309	97	False	J-270	J-271	8.0	PVC	140.0	1.70	0.01
P-310	70	False	J-264	J-272	8.0	PVC	140.0	12.84	0.08
P-311	133	False	J-272	J-273	8.0	PVC	140.0	11.82	0.08
P-312	345	False	J-273	J-274	8.0	PVC	140.0	2.30	0.01
P-313	46	False	J-274	J-275	8.0	PVC	140.0	-1.10	0.01
P-314	448	False	J-275	J-276	8.0	PVC	140.0	-8.24	0.05
P-315	439	False	J-276	J-260	8.0	PVC	140.0	-13.00	0.08
P-316	296	False	J-275	J-277	8.0	PVC	140.0	4.76	0.03
P-317	116	False	J-277	J-278	8.0	PVC	140.0	2.04	0.01
P-318	278	False	J-273	J-279	8.0	PVC	140.0	8.16	0.05
P-319	315	False	J-279	J-280	8.0	PVC	140.0	5.44	0.03
P-320	143	False	J-280	J-281	8.0	PVC	140.0	2.72	0.02
P-321	127	False	J-281	J-282	8.0	PVC	140.0	2.04	0.01

FlexTable: Pipe Table (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Length (ft)	Has User Defined Length?	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-322	161	False	J-253	J-283	16.0	PVC	140.0	-108.86	0.17
P-323	358	False	J-258	J-284	12.0	PVC	140.0	51.73	0.15
P-324	152	False	J-284	J-285	8.0	PVC	140.0	-16.13	0.10
P-325	393	False	J-285	J-286	8.0	PVC	140.0	-17.49	0.11
P-326	396	False	J-286	J-287	8.0	PVC	140.0	-18.85	0.12
P-327	435	False	J-287	J-252	8.0	PVC	140.0	-22.59	0.14
P-328	234	False	J-284	J-288	12.0	PVC	140.0	67.85	0.19
P-329	354	False	J-288	J-289	12.0	PVC	140.0	65.81	0.19
P-330	303	False	J-289	J-290	12.0	PVC	140.0	63.43	0.18
P-331	56	False	J-290	J-291	12.0	PVC	140.0	62.07	0.18
P-332	474	False	J-291	J-292	12.0	PVC	140.0	65.96	0.19
P-333	328	False	J-291	J-293	8.0	PVC	140.0	-5.25	0.03
P-334	369	False	J-293	J-294	8.0	PVC	140.0	-7.29	0.05
P-343	1,984	False	J-298	J-296	16.0	PVC	140.0	(N/A)	(N/A)
P-347	1,040	False	J-188	J-300	16.0	PVC	140.0	(N/A)	(N/A)
P-348	936	False	J-300	J-298	16.0	PVC	140.0	(N/A)	(N/A)
P-349	1,166	False	J-299	J-301	8.0	PVC	140.0	(N/A)	(N/A)
P-350	1,222	False	J-299	J-302	16.0	PVC	140.0	6.80	0.01
P-351	1,177	False	J-302	J-296	16.0	PVC	140.0	(N/A)	(N/A)
P-352	1,024	False	J-191	J-303	16.0	PVC	140.0	20.40	0.03
P-354	306	False	J-292	J-304	12.0	PVC	140.0	55.08	0.16
P-357	855	False	J-190	J-305	16.0	PVC	140.0	(N/A)	(N/A)
P-358	1,358	False	J-305	J-295	16.0	PVC	140.0	(N/A)	(N/A)
P-361	692	False	J-306	J-294	8.0	PVC	140.0	8.65	0.06
P-363	420	False	J-307	J-295	12.0	PVC	140.0	(N/A)	(N/A)
P-364	104	False	J-195	J-198	8.0	PVC	140.0	1.70	0.01
P-365	667	False	J-195	J-308	12.0	PVC	140.0	5.10	0.01
P-366	576	False	J-308	J-309	12.0	PVC	140.0	1.70	0.00
P-367	319	False	J-72	J-312	8.0	PVC	140.0	6.46	0.04
P-368	212	False	J-312	J-313	8.0	PVC	140.0	1.36	0.01
P-369	231	False	J-312	J-314	8.0	PVC	140.0	3.74	0.02
P-370	474	False	J-314	J-315	8.0	PVC	140.0	2.04	0.01
P-371	311	False	J-315	J-316	8.0	PVC	140.0	0.68	0.00
P-372	248	False	J-65	J-317	16.0	PVC	140.0	-120.60	0.19
P-373	228	False	J-317	J-80	16.0	PVC	140.0	-128.52	0.21
P-374	342	False	J-78	J-318	8.0	PVC	140.0	2.52	0.02
P-376	278	False	J-317	J-318	8.0	PVC	140.0	7.92	0.05
P-377	179	False	J-68	J-319	8.0	PVC	140.0	-8.06	0.05
P-378	307	False	J-319	J-79	8.0	PVC	140.0	2.38	0.02
P-379	484	False	J-318	J-319	8.0	PVC	140.0	10.44	0.07
P-381	201	False	J-320	J-321	8.0	PVC	140.0	10.20	0.07
P-382	136	False	J-321	J-322	8.0	PVC	140.0	10.20	0.07
P-383	326	False	J-322	J-323	8.0	PVC	140.0	3.40	0.02
P-384	626	False	J-322	J-324	8.0	PVC	140.0	3.40	0.02
P-389	428	False	J-259	J-326	12.0	PVC	140.0	53.19	0.15
P-391	324	False	J-326	J-327	12.0	PVC	140.0	48.77	0.14

FlexTable: Pipe Table (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Length (ft)	Has User Defined Length?	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-393	250	False	J-327	J-328	12.0	PVC	140.0	45.71	0.13
P-394	318	False	J-328	J-306	12.0	PVC	140.0	44.01	0.12
P-395	529	False	J-306	J-329	12.0	PVC	140.0	30.26	0.09
P-397	416	False	J-329	J-330	12.0	PVC	140.0	6.80	0.02
P-398	2,029	False	J-330	J-307	12.0	PVC	140.0	(N/A)	(N/A)
P-399	405	False	J-326	J-331	8.0	PVC	140.0	2.72	0.02
P-400	209	False	J-327	J-332	8.0	PVC	140.0	3.06	0.02
P-401	74	False	J-328	J-333	8.0	PVC	140.0	1.36	0.01
P-402	1,116	False	J-304	J-334	12.0	PVC	140.0	6.80	0.02
P-403	2,305	False	J-334	J-305	12.0	PVC	140.0	(N/A)	(N/A)
P-404	611	False	J-292	J-335	8.0	PVC	140.0	3.74	0.02
P-405	492	False	J-292	J-336	8.0	PVC	140.0	3.40	0.02
P-406	213	False	Well 6	J-295	12.0	PVC	140.0	(N/A)	(N/A)
P-407	90	True	PMP-Well 6 VT	Well 6	10.0	Steel	100.0	(N/A)	(N/A)
P-408	5	True	R-6	PMP-Well 6 VT	10.0	Steel	100.0	(N/A)	(N/A)
P-410	2,147	False	J-334	J-340	12.0	PVC	140.0	(N/A)	(N/A)
P-411	2,683	False	J-340	J-300	12.0	PVC	140.0	(N/A)	(N/A)
P-412	2,638	False	J-296	J-341	12.0	PVC	140.0	(N/A)	(N/A)
P-413	2,615	False	J-341	J-342	12.0	PVC	140.0	(N/A)	(N/A)
P-414	2,305	False	J-296	J-343	12.0	PVC	140.0	(N/A)	(N/A)
P-415	2,770	False	J-343	J-344	12.0	PVC	140.0	(N/A)	(N/A)
P-416	723	False	J-344	J-345	12.0	PVC	140.0	(N/A)	(N/A)
P-417	2,628	False	J-341	J-344	12.0	PVC	140.0	(N/A)	(N/A)
P-418	3,618	False	T-1 West Res.	J-365	20.0	PVC	140.0	(N/A)	(N/A)
P-419	2,643	False	J-365	J-188	20.0	PVC	140.0	(N/A)	(N/A)
P-420	5,824	False	J-365	J-347	12.0	PVC	140.0	(N/A)	(N/A)
P-421	2,379	False	J-347	J-348	12.0	PVC	140.0	(N/A)	(N/A)
P-422	3,922	False	J-348	J-189	12.0	PVC	140.0	(N/A)	(N/A)
P-423	3,968	False	J-190	J-349	12.0	PVC	140.0	(N/A)	(N/A)
P-424	4,035	False	J-349	J-348	12.0	PVC	140.0	(N/A)	(N/A)
P-425	2,447	False	J-309	J-350	12.0	PVC	140.0	(N/A)	(N/A)
P-426	303	False	J-350	J-351	12.0	PVC	140.0	(N/A)	(N/A)
P-427	5,225	False	J-350	J-352	12.0	PVC	140.0	(N/A)	(N/A)
P-428	870	False	J-352	J-353	12.0	PVC	140.0	(N/A)	(N/A)
P-429	133	False	J-352	J-354	12.0	PVC	140.0	(N/A)	(N/A)
P-430	3,768	False	J-354	J-355	12.0	PVC	140.0	(N/A)	(N/A)
P-431	275	False	J-355	J-307	12.0	PVC	140.0	(N/A)	(N/A)
P-432	1,364	False	J-349	PRV-4	12.0	PVC	140.0	(N/A)	(N/A)
P-433	1,511	False	PRV-4	J-357	12.0	PVC	140.0	(N/A)	(N/A)
P-435	3,745	False	J-357	J-358	12.0	PVC	140.0	(N/A)	(N/A)
P-436	3,802	False	J-358	PRV-2	12.0	PVC	140.0	(N/A)	(N/A)
P-437	184	False	PRV-2	J-354	12.0	PVC	140.0	(N/A)	(N/A)
P-438	196	False	J-353	PRV-1	12.0	PVC	140.0	(N/A)	(N/A)
P-439	84	False	PRV-1	J-361	12.0	PVC	140.0	(N/A)	(N/A)

FlexTable: Pipe Table (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Length (ft)	Has User Defined Length?	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-440	3,785	False	J-357	PRV-3	12.0	PVC	140.0	(N/A)	(N/A)
P-441	190	False	PRV-3	J-355	12.0	PVC	140.0	(N/A)	(N/A)
P-442	162	False	J-365	PMP-Zone 2 Booster	12.0	PVC	140.0	(N/A)	(N/A)
P-444	913	False	J-362	J-363	12.0	PVC	140.0	(N/A)	(N/A)
P-445	3,334	False	J-363	J-364	12.0	PVC	140.0	(N/A)	(N/A)
P-446	27	False	PMP-Zone 2 Booster	J-365	12.0	PVC	140.0	(N/A)	(N/A)
P-447	479	False	J-365	J-362	12.0	PVC	140.0	(N/A)	(N/A)
P-448	1,303	False	J-362	J-366	12.0	PVC	140.0	(N/A)	(N/A)
P-449	1,795	False	J-366	J-367	12.0	PVC	140.0	(N/A)	(N/A)
P-450	1,973	False	J-367	J-368	12.0	PVC	140.0	(N/A)	(N/A)
P-451	2,648	False	J-368	J-369	12.0	PVC	140.0	(N/A)	(N/A)
P-452	1,028	False	J-369	J-370	12.0	PVC	140.0	(N/A)	(N/A)
P-454	59	False	J-370	PRV-6	12.0	PVC	140.0	(N/A)	(N/A)
P-455	61	False	PRV-6	J-345	12.0	PVC	140.0	(N/A)	(N/A)
P-456	1,327	False	J-366	J-371	12.0	PVC	140.0	(N/A)	(N/A)
P-457	1,262	False	J-371	J-372	12.0	PVC	140.0	(N/A)	(N/A)
P-459	28	False	J-372	PRV-5	12.0	PVC	140.0	(N/A)	(N/A)
P-460	24	False	PRV-5	J-298	12.0	PVC	140.0	(N/A)	(N/A)
P-461	238	False	J-329	J-373	8.0	PVC	140.0	23.46	0.15
P-462	198	False	J-373	J-374	8.0	PVC	140.0	10.93	0.07
P-463	228	False	J-374	H-44	8.0	PVC	140.0	7.87	0.05
P-464	188	False	H-44	J-376	8.0	PVC	140.0	7.87	0.05
P-465	260	False	J-376	H-45	8.0	PVC	140.0	4.47	0.03
P-466	98	False	H-45	J-378	8.0	PVC	140.0	4.47	0.03
P-467	296	False	J-378	H-46	8.0	PVC	140.0	0.39	0.00
P-468	121	False	H-46	J-380	8.0	PVC	140.0	0.39	0.00
P-469	243	False	J-380	H-47	8.0	PVC	140.0	-3.69	0.02
P-470	156	False	H-47	J-382	8.0	PVC	140.0	-3.69	0.02
P-471	160	False	J-382	J-383	8.0	PVC	140.0	0.00	0.00
P-472	307	False	J-382	H-48	8.0	PVC	140.0	-7.09	0.05
P-473	88	False	H-48	J-385	8.0	PVC	140.0	-7.09	0.05
P-474	204	False	J-385	H-49	8.0	PVC	140.0	-11.17	0.07
P-475	49	False	H-49	J-373	8.0	PVC	140.0	-11.17	0.07
P-476	152	False	J-304	H-50	8.0	PVC	140.0	21.08	0.13
P-477	769	False	H-50	J-297	8.0	PVC	140.0	21.08	0.13
P-478	212	False	J-297	J-387	8.0	PVC	140.0	17.68	0.11
P-479	281	False	J-387	H-51	8.0	PVC	140.0	8.12	0.05
P-480	36	False	H-51	J-389	8.0	PVC	140.0	8.12	0.05
P-481	138	False	J-389	J-390	8.0	PVC	140.0	0.00	0.00
P-482	246	False	J-389	J-391	8.0	PVC	140.0	6.08	0.04
P-483	70	False	J-391	H-52	8.0	PVC	140.0	4.38	0.03
P-484	253	False	H-52	J-393	8.0	PVC	140.0	4.38	0.03
P-485	36	False	J-393	H-53	8.0	PVC	140.0	2.38	0.02
P-486	190	False	H-53	J-395	8.0	PVC	140.0	2.38	0.02

FlexTable: Pipe Table (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Length (ft)	Has User Defined Length?	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-487	285	False	J-393	H-54	8.0	PVC	140.0	-0.05	0.00
P-488	43	False	H-54	J-397	8.0	PVC	140.0	-0.05	0.00
P-489	284	False	J-397	H-55	8.0	PVC	140.0	-3.11	0.02
P-490	233	False	H-55	J-399	8.0	PVC	140.0	-3.11	0.02
P-491	209	False	J-399	H-56	8.0	PVC	140.0	-6.85	0.04
P-492	370	False	H-56	H-57	8.0	PVC	140.0	-6.85	0.04
P-493	73	False	H-57	J-387	8.0	PVC	140.0	-6.85	0.04
P-494	205	False	J-243	J-402	8.0	PVC	140.0	2.72	0.02
P-495	20	False	J-402	H-58	6.0	PVC	140.0	0.00	0.00
P-496	216	False	J-320	J-404	8.0	PVC	140.0	2.72	0.02
P-497	16	False	J-404	H-59	6.0	PVC	140.0	0.00	0.00
P-498	107	False	J-243	H-60	8.0	PVC	140.0	13.60	0.09
P-499	160	False	H-60	J-320	8.0	PVC	140.0	13.60	0.09
P-501	523	False	J-406	J-299	16.0	PVC	140.0	13.60	0.02
P-502	561	False	J-303	J-407	16.0	PVC	140.0	20.40	0.03
P-503	377	False	J-407	J-406	16.0	PVC	140.0	20.40	0.03
P-504	1,126	False	J-191	J-408	12.0	PVC	140.0	-27.20	0.08
P-505	643	False	J-408	J-304	12.0	PVC	140.0	-27.20	0.08
P-506	552	False	J-408	J-409	8.0	PVC	140.0	(N/A)	(N/A)
P-507	680	False	J-409	J-410	8.0	PVC	140.0	(N/A)	(N/A)
P-508	419	False	J-410	J-411	8.0	PVC	140.0	(N/A)	(N/A)
P-509	284	False	J-411	J-412	8.0	PVC	140.0	(N/A)	(N/A)
P-511	365	False	J-412	J-413	8.0	PVC	140.0	(N/A)	(N/A)
P-512	208	False	J-413	J-407	8.0	PVC	140.0	(N/A)	(N/A)
P-513	565	False	J-413	J-414	8.0	PVC	140.0	(N/A)	(N/A)
P-514	211	False	J-414	J-303	8.0	PVC	140.0	(N/A)	(N/A)
P-515	664	False	J-414	J-415	8.0	PVC	140.0	(N/A)	(N/A)
P-516	698	False	J-415	J-416	8.0	PVC	140.0	(N/A)	(N/A)
P-517	292	False	J-416	J-414	8.0	PVC	140.0	(N/A)	(N/A)
P-518	637	False	J-416	J-411	8.0	PVC	140.0	(N/A)	(N/A)
P-519	772	False	J-416	J-409	8.0	PVC	140.0	(N/A)	(N/A)

FlexTable: Pump Table (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Pump Definition	Status (Initial)	Flow (Total) (gpm)	Pump Head (ft)	Pressure (Discharge) (psi)	Elevation (ft)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)
PMP-Eaglefield Booster 1	Pump Definition - Eaglefield Booster 1	On	120.15	136.08	58.9	2,516.0	2,516.0	2,652.1
PMP-Eaglefield Booster 2	Pump Definition - Eaglefield Booster 2	On	117.19	136.08	58.9	2,516.0	2,516.0	2,652.1
PMP-Eaglefield Booster 3	Pump Definition - Eaglefield Booster 3	Off	0.00	0.00	58.9	2,516.0	2,516.0	2,652.1
PMP-Eaglefield Well 5 VT	Pump Definition - Well 5 Vertical Turbine	Off	0.00	0.00	58.9	2,516.0	2,498.0	2,652.1
PMP-Legacy Booster 1	Pump Definition - Legacy Booster 1	Off	0.00	0.00	60.1	2,513.0	2,513.0	2,652.0
PMP-Legacy Booster 2	Pump Definition - Legacy Booster 2	Off	0.00	0.00	60.1	2,513.0	2,513.0	2,652.0
PMP-Legacy Booster 3	Pump Definition - Legacy Booster 3	Off	0.00	0.00	60.1	2,513.0	2,513.0	2,652.0
PMP-Legacy Well 4 VT	Pump Definition - Well 4 Vertical Turbine	On	121.01	157.04	60.2	2,513.0	2,495.0	2,652.0
PMP-Well 6 VT	Pump Definition - Well 6 Vertical Turbine	On	(N/A)	(N/A)	(N/A)	2,502.0	(N/A)	(N/A)
PMP-Zone 2 Booster	Pump Definition - Zone 2 Booster	On	(N/A)	(N/A)	(N/A)	2,580.0	(N/A)	(N/A)

MODEL OUTPUT

NEW 2685 HGL

FlexTable: Pump Table (Western System - Existing System.wtg)

Current Time: 0.000 hours

Label	Pump Definition	Status (Initial)	Flow (Total) (gpm)	Pump Head (ft)	Pressure (Discharge) (psi)	Elevation (ft)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)
PMP-Eaglefield Booster 1	Pump Definition - New Eaglefield Booster 1	On	113.17	168.96	73.1	2,516.0	2,516.0	2,684.9
PMP-Eaglefield Booster 2	Pump Definition - New Eaglefield Booster 2	On	173.62	168.99	73.1	2,516.0	2,516.0	2,685.0
PMP-Eaglefield Booster 3	Pump Definition - New Eaglefield Booster 3	Off	0.00	0.00	73.1	2,516.0	2,516.0	2,684.9
PMP-Eaglefield Well 5 VT	Pump Definition - Well 5 Vertical Turbine	Off	0.00	0.00	73.1	2,516.0	2,498.0	2,684.9
PMP-Legacy Booster 1	Pump Definition - Legacy Booster 1	Off	0.00	0.00	74.4	2,513.0	2,513.0	2,685.0
PMP-Legacy Booster 2	Pump Definition - Legacy Booster 2	Off	0.00	0.00	74.4	2,513.0	2,513.0	2,685.0
PMP-Legacy Booster 3	Pump Definition - Legacy Booster 3	Off	0.00	0.00	74.4	2,513.0	2,513.0	2,685.0
PMP-Legacy Well 4 VT	Pump Definition - Well 4 Vertical Turbine	On	325.34	190.23	74.5	2,513.0	2,495.0	2,685.2
PMP-Well 6 VT	Pump Definition - Well 6 Vertical Turbine	On	(N/A)	(N/A)	(N/A)	2,502.0	(N/A)	(N/A)
PMP-Zone 2 Booster	Pump Definition - Zone 2 Booster	On	(N/A)	(N/A)	(N/A)	2,580.0	(N/A)	(N/A)

MODEL OUTPUT

FUTURE IMPROVEMENTS

FlexTable: Junction Table (Western System - Future Improvements.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-300	2,582.0	Zone - 1	11.62	2,684.9	44.5
J-361	2,502.0	Zone - 0	11.62	2,605.0	44.6
J-345	2,580.0	Zone - 1	11.62	2,684.9	45.4
J-343	2,580.0	Zone - 1	11.62	2,684.9	45.4
J-298	2,580.0	Zone - 1	11.62	2,684.9	45.4
J-347	2,580.0	Zone - 1	11.62	2,684.9	45.4
J-365	2,580.0	Zone - 1	11.62	2,685.0	45.4
J-342	2,577.0	Zone - 1	11.62	2,684.9	46.7
J-188	2,576.0	Zone - 1	11.62	2,684.9	47.1
J-358	2,493.0	Zone - 0	11.62	2,605.0	48.5
J-357	2,491.0	Zone - 0	11.62	2,605.0	49.3
J-341	2,566.0	Zone - 1	11.62	2,684.9	51.4
J-344	2,566.0	Zone - 1	11.62	2,684.9	51.4
J-189	2,565.0	Zone - 1	11.62	2,684.9	51.9
J-348	2,562.0	Zone - 1	11.62	2,684.9	53.2
J-296	2,560.0	Zone - 1	11.62	2,684.9	54.0
J-340	2,550.0	Zone - 1	11.62	2,684.9	58.4
J-302	2,548.0	Zone - 1	11.62	2,684.9	59.2
J-417	2,545.0	Zone - 1	11.62	2,684.9	60.5
J-301	2,542.0	Zone - 1	11.62	2,684.9	61.8
J-299	2,540.0	Zone - 1	11.62	2,684.9	62.7
J-406	2,539.0	Zone - 1	11.62	2,684.9	63.1
J-412	2,538.0	Zone - 1	8.71	2,684.9	63.6
J-407	2,538.0	Zone - 1	0.00	2,684.9	63.6
J-413	2,537.0	Zone - 1	8.71	2,684.9	64.0
J-390	2,536.0	Zone - 1	0.00	2,684.9	64.4
J-303	2,536.0	Zone - 1	0.00	2,684.9	64.4
J-391	2,535.0	Zone - 1	2.90	2,684.9	64.9
J-389	2,535.0	Zone - 1	3.48	2,684.9	64.9
J-387	2,535.0	Zone - 1	4.65	2,684.9	64.9
J-297	2,535.0	Zone - 1	5.81	2,684.9	64.9
J-410	2,535.0	Zone - 1	8.71	2,684.9	64.9
J-411	2,535.0	Zone - 1	8.71	2,684.9	64.9
J-367	2,615.0	Zone - 2	11.62	2,764.9	64.9
J-414	2,533.0	Zone - 1	8.71	2,684.9	65.7
J-409	2,533.0	Zone - 1	8.71	2,684.9	65.7
J-395	2,532.0	Zone - 1	4.07	2,684.9	66.2
J-416	2,532.0	Zone - 1	8.71	2,684.9	66.2
J-232	2,531.4	Zone - 1	2.32	2,684.9	66.4
J-393	2,531.0	Zone - 1	3.48	2,684.9	66.6
J-231	2,531.0	Zone - 1	2.32	2,684.9	66.6
J-364	2,610.0	Zone - 2	11.62	2,765.0	67.1
J-233	2,528.1	Zone - 1	2.90	2,684.9	67.8
J-399	2,528.0	Zone - 1	6.39	2,684.9	67.9

FlexTable: Junction Table (Western System - Future Improvements.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-334	2,528.0	Zone - 1	11.62	2,684.9	67.9
J-234	2,527.6	Zone - 1	4.65	2,684.9	68.1
J-190	2,527.0	Zone - 1	11.62	2,685.0	68.3
J-235	2,526.1	Zone - 1	1.16	2,684.9	68.7
J-415	2,526.0	Zone - 1	8.71	2,684.9	68.8
J-408	2,526.0	Zone - 1	0.00	2,684.9	68.8
J-397	2,525.0	Zone - 1	5.23	2,684.9	69.2
J-191	2,525.0	Zone - 1	11.62	2,684.9	69.2
J-366	2,605.0	Zone - 2	11.62	2,765.0	69.2
J-304	2,524.0	Zone - 1	0.00	2,684.9	69.6
J-323	2,523.0	Zone - 1	5.81	2,684.9	70.0
J-404	2,523.0	Zone - 1	4.65	2,684.9	70.0
J-324	2,522.0	Zone - 1	5.81	2,684.9	70.5
J-322	2,522.0	Zone - 1	5.81	2,684.9	70.5
J-321	2,522.0	Zone - 1	0.00	2,684.9	70.5
J-320	2,522.0	Zone - 1	1.16	2,684.9	70.5
J-402	2,522.0	Zone - 1	4.65	2,684.9	70.5
J-243	2,522.0	Zone - 1	1.74	2,684.9	70.5
J-250	2,522.0	Zone - 1	0.00	2,685.0	70.5
J-315	2,522.0	Zone - 1	2.32	2,685.1	70.5
J-316	2,522.0	Zone - 1	1.16	2,685.1	70.5
J-239	2,521.5	Zone - 1	4.07	2,684.9	70.7
J-236	2,521.5	Zone - 1	0.58	2,684.9	70.7
J-247	2,521.0	Zone - 1	3.48	2,684.9	70.9
J-335	2,521.0	Zone - 1	6.39	2,684.9	70.9
J-287	2,521.0	Zone - 1	6.39	2,685.0	70.9
J-198	2,521.0	Zone - 1	2.90	2,685.0	71.0
J-195	2,521.0	Zone - 1	5.81	2,685.0	71.0
J-112	2,521.0	Zone - 1	3.48	2,685.1	71.0
J-314	2,521.0	Zone - 1	2.90	2,685.1	71.0
J-312	2,521.0	Zone - 1	2.32	2,685.1	71.0
J-313	2,521.0	Zone - 1	2.32	2,685.1	71.0
J-240	2,520.8	Zone - 1	4.07	2,684.9	71.0
J-251	2,520.8	Zone - 1	2.90	2,685.0	71.0
J-249	2,520.8	Zone - 1	0.00	2,685.0	71.0
J-237	2,520.5	Zone - 1	2.32	2,684.9	71.1
J-246	2,520.1	Zone - 1	0.00	2,684.9	71.3
J-242	2,520.0	Zone - 1	2.90	2,684.9	71.4
J-241	2,520.0	Zone - 1	1.74	2,684.9	71.4
J-369	2,600.0	Zone - 2	11.62	2,764.9	71.4
J-368	2,600.0	Zone - 2	11.62	2,764.9	71.4
J-245	2,520.0	Zone - 1	4.07	2,684.9	71.4
J-292	2,520.0	Zone - 1	6.39	2,684.9	71.4
J-286	2,520.0	Zone - 1	2.32	2,685.0	71.4

FlexTable: Junction Table (Western System - Future Improvements.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-363	2,600.0	Zone - 2	11.62	2,765.0	71.4
J-308	2,520.0	Zone - 1	5.81	2,685.0	71.4
J-194	2,520.0	Zone - 1	5.81	2,685.0	71.4
J-126	2,520.0	Zone - 1	0.00	2,685.1	71.4
J-127	2,520.0	Zone - 1	0.00	2,685.1	71.4
J-128	2,520.0	Zone - 1	0.00	2,685.1	71.4
J-193	2,520.0	Zone - 1	0.00	2,685.1	71.4
J-72	2,520.0	Zone - 1	2.32	2,685.1	71.4
J-238	2,519.5	Zone - 1	3.48	2,684.9	71.6
J-244	2,519.5	Zone - 1	8.13	2,684.9	71.6
J-248	2,519.1	Zone - 1	0.00	2,685.0	71.8
J-252	2,519.0	Zone - 1	3.48	2,685.0	71.8
J-122	2,519.0	Zone - 1	0.00	2,685.1	71.8
J-123	2,519.0	Zone - 1	0.00	2,685.1	71.8
J-124	2,519.0	Zone - 1	0.00	2,685.1	71.8
J-125	2,519.0	Zone - 1	0.00	2,685.1	71.8
J-192	2,519.0	Zone - 1	4.07	2,685.1	71.8
J-113	2,519.0	Zone - 1	0.00	2,685.1	71.8
J-79	2,519.0	Zone - 1	4.07	2,685.1	71.8
J-115	2,518.6	Zone - 1	3.48	2,685.1	72.0
J-120	2,518.5	Zone - 1	3.48	2,685.1	72.1
J-121	2,518.5	Zone - 1	3.48	2,685.1	72.1
J-336	2,518.0	Zone - 1	5.81	2,684.9	72.2
J-288	2,518.0	Zone - 1	3.48	2,684.9	72.2
J-284	2,518.0	Zone - 1	0.00	2,685.0	72.2
J-285	2,518.0	Zone - 1	2.32	2,685.0	72.2
J-70	2,518.1	Zone - 1	2.32	2,685.1	72.2
J-61	2,518.0	Zone - 1	1.16	2,685.0	72.3
J-114	2,518.0	Zone - 1	5.81	2,685.1	72.3
J-117	2,518.0	Zone - 1	2.32	2,685.1	72.3
J-119	2,518.0	Zone - 1	6.97	2,685.1	72.3
J-111	2,518.0	Zone - 1	5.23	2,685.1	72.3
J-64	2,518.0	Zone - 1	1.16	2,685.1	72.3
J-109	2,518.0	Zone - 1	2.32	2,685.1	72.3
J-319	2,518.0	Zone - 1	0.00	2,685.1	72.3
J-65	2,517.8	Zone - 1	2.32	2,685.1	72.4
J-59	2,517.6	Zone - 1	2.32	2,685.0	72.4
J-60	2,517.5	Zone - 1	1.16	2,685.0	72.5
J-71	2,517.5	Zone - 1	2.32	2,685.1	72.5
J-73	2,517.3	Zone - 1	2.32	2,685.1	72.6
J-371	2,597.0	Zone - 2	11.62	2,764.9	72.7
J-309	2,517.0	Zone - 1	2.90	2,685.0	72.7
J-63	2,517.0	Zone - 1	2.32	2,685.0	72.7
J-118	2,517.0	Zone - 1	6.39	2,685.1	72.7

FlexTable: Junction Table (Western System - Future Improvements.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-110	2,517.0	Zone - 1	4.65	2,685.1	72.7
J-108	2,517.0	Zone - 1	0.00	2,685.1	72.7
J-68	2,517.0	Zone - 1	2.32	2,685.1	72.7
J-69	2,517.0	Zone - 1	2.90	2,685.1	72.7
J-318	2,517.0	Zone - 1	0.00	2,685.1	72.7
J-106	2,517.0	Zone - 1	0.58	2,685.1	72.7
J-267	2,516.7	Zone - 1	2.32	2,685.0	72.8
J-62	2,516.6	Zone - 1	1.74	2,685.0	72.9
J-78	2,516.6	Zone - 1	2.90	2,685.1	72.9
J-58	2,516.5	Zone - 1	2.32	2,685.0	72.9
J-310	2,516.5	Zone - 1	0.00	2,685.1	72.9
J-107	2,516.5	Zone - 1	0.58	2,685.1	72.9
J-158	2,516.5	Zone - 1	0.00	2,685.1	72.9
J-254	2,516.4	Zone - 1	1.74	2,685.0	72.9
J-283	2,516.3	Zone - 1	0.00	2,685.0	73.0
J-66	2,516.3	Zone - 1	3.48	2,685.1	73.0
J-80	2,516.3	Zone - 1	3.48	2,685.1	73.0
J-289	2,516.0	Zone - 1	4.07	2,684.9	73.1
J-331	2,516.0	Zone - 1	4.65	2,684.9	73.1
J-67	2,516.0	Zone - 1	1.16	2,685.1	73.1
J-105	2,516.0	Zone - 1	5.81	2,685.1	73.1
J-317	2,516.0	Zone - 1	0.00	2,685.1	73.2
J-76	2,516.0	Zone - 1	2.32	2,685.1	73.2
J-74	2,515.8	Zone - 1	1.74	2,685.1	73.2
Well 5 Eaglefield	2,516.0	Zone - 1	0.00	2,685.3	73.2
J-57	2,515.5	Zone - 1	2.32	2,685.0	73.3
J-56	2,515.5	Zone - 1	2.32	2,685.0	73.3
J-104	2,515.5	Zone - 1	2.32	2,685.1	73.4
J-103	2,515.5	Zone - 1	4.65	2,685.1	73.4
J-77	2,515.5	Zone - 1	5.23	2,685.1	73.4
J-269	2,515.0	Zone - 1	4.65	2,685.0	73.5
J-253	2,515.0	Zone - 1	0.00	2,685.0	73.6
J-81	2,515.0	Zone - 1	1.74	2,685.1	73.6
J-148	2,515.0	Zone - 1	4.07	2,685.1	73.6
J-87	2,515.0	Zone - 1	2.90	2,685.1	73.6
J-101	2,514.3	Zone - 1	5.23	2,685.1	73.9
J-82	2,514.4	Zone - 1	0.00	2,685.2	73.9
J-85	2,514.3	Zone - 1	4.65	2,685.1	73.9
J-378	2,514.0	Zone - 1	6.97	2,684.9	74.0
J-376	2,514.0	Zone - 1	5.81	2,684.9	74.0
J-291	2,514.0	Zone - 1	2.32	2,684.9	74.0
J-290	2,514.0	Zone - 1	2.32	2,684.9	74.0
J-326	2,514.0	Zone - 1	2.90	2,685.0	74.0

FlexTable: Junction Table (Western System - Future Improvements.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-259	2,514.0	Zone - 1	0.00	2,685.0	74.0
J-258	2,514.0	Zone - 1	0.00	2,685.0	74.0
J-257	2,514.0	Zone - 1	3.48	2,685.0	74.0
J-266	2,514.0	Zone - 1	2.32	2,685.0	74.0
J-264	2,514.0	Zone - 1	4.65	2,685.0	74.0
J-256	2,514.0	Zone - 1	2.32	2,685.0	74.0
J-102	2,514.0	Zone - 1	5.81	2,685.1	74.0
J-272	2,513.9	Zone - 1	1.74	2,685.0	74.0
J-89	2,514.0	Zone - 1	4.07	2,685.1	74.0
J-88	2,514.0	Zone - 1	3.48	2,685.1	74.0
J-255	2,513.5	Zone - 1	3.48	2,685.0	74.2
J-84	2,513.5	Zone - 1	1.63	2,685.1	74.3
J-328	2,513.0	Zone - 1	0.58	2,684.9	74.4
J-327	2,513.0	Zone - 1	0.00	2,684.9	74.4
J-351	2,513.0	Zone - 1	11.62	2,685.0	74.4
J-350	2,513.0	Zone - 1	11.62	2,685.0	74.4
J-262	2,513.0	Zone - 1	2.32	2,685.0	74.4
Well 4 Legacy	2,513.0	Zone - 1	0.00	2,685.0	74.4
J-98	2,513.0	Zone - 1	3.48	2,685.1	74.4
J-99	2,513.0	Zone - 1	3.48	2,685.1	74.4
J-282	2,512.5	Zone - 1	3.48	2,685.0	74.6
J-278	2,512.5	Zone - 1	3.48	2,685.0	74.6
J-270	2,512.5	Zone - 1	4.65	2,685.0	74.6
J-260	2,512.4	Zone - 1	4.65	2,685.0	74.7
J-276	2,512.3	Zone - 1	8.13	2,685.0	74.7
J-274	2,512.3	Zone - 1	5.81	2,685.0	74.7
J-261	2,512.2	Zone - 1	1.16	2,685.0	74.8
J-279	2,512.1	Zone - 1	4.65	2,685.0	74.8
J-275	2,512.1	Zone - 1	4.07	2,685.0	74.8
J-380	2,512.0	Zone - 1	6.97	2,684.9	74.8
J-382	2,512.0	Zone - 1	5.81	2,684.9	74.8
J-293	2,512.0	Zone - 1	3.48	2,684.9	74.8
J-294	2,512.0	Zone - 1	2.32	2,684.9	74.8
J-349	2,512.0	Zone - 1	11.62	2,684.9	74.8
J-280	2,512.0	Zone - 1	4.65	2,685.0	74.8
J-268	2,512.0	Zone - 1	4.07	2,685.0	74.8
J-265	2,512.0	Zone - 1	1.74	2,685.0	74.8
J-273	2,512.0	Zone - 1	2.32	2,685.0	74.8
J-100	2,512.0	Zone - 1	0.00	2,685.1	74.9
J-271	2,511.9	Zone - 1	2.90	2,685.0	74.9
J-281	2,511.5	Zone - 1	1.16	2,685.0	75.1
J-277	2,511.5	Zone - 1	4.65	2,685.0	75.1
J-383	2,511.0	Zone - 1	0.00	2,684.9	75.3
J-385	2,511.0	Zone - 1	6.97	2,684.9	75.3

FlexTable: Junction Table (Western System - Future Improvements.wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-374	2,511.0	Zone - 1	5.23	2,684.9	75.3
J-373	2,511.0	Zone - 1	2.32	2,684.9	75.3
J-333	2,511.0	Zone - 1	2.32	2,684.9	75.3
J-332	2,511.0	Zone - 1	5.23	2,684.9	75.3
J-306	2,510.0	Zone - 1	8.71	2,684.9	75.7
J-305	2,510.0	Zone - 1	11.62	2,685.0	75.7
J-362	2,590.0	Zone - 2	11.62	2,765.0	75.7
J-97	2,510.0	Zone - 1	3.48	2,685.1	75.7
J-91	2,510.0	Zone - 1	5.81	2,685.1	75.7
J-329	2,508.0	Zone - 1	0.00	2,684.9	76.6
J-96	2,508.0	Zone - 1	3.48	2,685.1	76.6
J-90	2,508.0	Zone - 1	5.81	2,685.1	76.6
J-330	2,507.0	Zone - 1	11.62	2,684.9	77.0
J-94	2,506.0	Zone - 1	3.48	2,685.1	77.5
J-95	2,506.0	Zone - 1	3.48	2,685.1	77.5
J-145	2,506.0	Zone - 1	3.48	2,685.1	77.5
J-92	2,506.0	Zone - 1	3.48	2,685.1	77.5
J-93	2,506.0	Zone - 1	0.00	2,685.1	77.5
J-353	2,503.0	Zone - 1	11.62	2,685.0	78.7
J-352	2,503.0	Zone - 1	11.62	2,685.0	78.7
J-354	2,503.0	Zone - 1	11.62	2,685.0	78.7
J-295	2,502.0	Zone - 1	11.62	2,685.0	79.2
Well 6	2,502.0	Zone - 1	0.00	2,685.0	79.2
J-355	2,501.0	Zone - 1	11.62	2,685.0	79.6
J-307	2,501.0	Zone - 1	11.62	2,685.0	79.6
J-370	2,580.0	Zone - 2	11.62	2,764.9	80.0
J-372	2,580.0	Zone - 2	11.62	2,764.9	80.0
J-365	2,580.0	Zone - 2	0.00	2,765.0	80.0

FlexTable: Pipe Table (Western System - Future Improvements.wtg)

Current Time: 0.000 hours

Label	Length (ft)	Has User Defined Length?	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-2	169	False	J-283	J-56	16.0	PVC	140.0	-267.01	0.43
P-3	115	False	J-56	J-57	8.0	PVC	140.0	9.29	0.06
P-4	212	False	J-57	J-58	8.0	PVC	140.0	6.97	0.04
P-5	197	False	J-58	J-59	8.0	PVC	140.0	2.32	0.01
P-6	281	False	J-58	J-60	8.0	PVC	140.0	2.32	0.01
P-7	128	False	J-60	J-61	8.0	PVC	140.0	1.16	0.01
P-8	344	False	J-56	J-62	16.0	PVC	140.0	-278.63	0.44
P-9	105	False	J-62	J-63	16.0	PVC	140.0	-280.37	0.45
P-10	372	False	J-63	J-64	16.0	PVC	140.0	-282.69	0.45
P-11	28	False	J-64	J-65	16.0	PVC	140.0	-283.86	0.45
P-12	395	False	J-65	J-66	8.0	PVC	140.0	-7.53	0.05
P-13	66	False	J-66	J-67	8.0	PVC	140.0	-11.01	0.07
P-14	455	False	J-67	J-68	8.0	PVC	140.0	-12.17	0.08
P-15	39	False	J-68	J-69	8.0	PVC	140.0	3.39	0.02
P-16	537	False	J-69	J-70	8.0	PVC	140.0	0.49	0.00
P-17	28	False	J-70	J-71	8.0	PVC	140.0	-1.84	0.01
P-18	254	False	J-71	J-72	8.0	PVC	140.0	13.36	0.09
P-19	412	False	J-71	J-73	8.0	PVC	140.0	-17.52	0.11
P-20	391	False	J-73	J-74	8.0	PVC	140.0	-19.84	0.13
P-21	258	False	J-74	J-76	8.0	PVC	140.0	-21.59	0.14
P-22	67	False	J-76	J-77	8.0	PVC	140.0	17.07	0.11
P-23	410	False	J-77	J-78	8.0	PVC	140.0	11.85	0.08
P-27	266	False	J-80	J-81	16.0	PVC	140.0	-295.15	0.47
P-28	86	False	J-81	J-82	12.0	PVC	140.0	-498.66	1.41
P-29	175	False	Well 5 Eaglefield	J-82	12.0	PVC	140.0	558.81	1.59
P-31	510	False	J-84	J-85	8.0	PVC	140.0	4.65	0.03
P-32	283	False	J-84	J-87	8.0	PVC	140.0	53.88	0.34
P-34	476	False	J-87	J-88	8.0	PVC	140.0	3.48	0.02
P-36	562	False	J-89	J-90	8.0	PVC	140.0	39.35	0.25
P-37	469	False	J-90	J-91	8.0	PVC	140.0	5.81	0.04
P-38	159	False	J-90	J-92	8.0	PVC	140.0	27.74	0.18
P-39	129	False	J-92	J-93	8.0	PVC	140.0	0.00	0.00
P-41	475	False	J-95	J-94	8.0	PVC	140.0	3.48	0.02
P-42	310	False	J-95	J-96	8.0	PVC	140.0	13.80	0.09
P-43	464	False	J-96	J-97	8.0	PVC	140.0	10.31	0.07
P-44	355	False	J-97	J-98	8.0	PVC	140.0	6.82	0.04
P-45	258	False	J-98	J-99	8.0	PVC	140.0	3.48	0.02
P-46	192	False	J-98	J-100	8.0	PVC	140.0	0.00	0.00
P-47	110	False	J-98	J-101	8.0	PVC	140.0	-0.15	0.00
P-48	362	False	J-101	J-102	8.0	PVC	140.0	-5.38	0.03
P-49	506	False	J-102	J-103	8.0	PVC	140.0	-11.18	0.07
P-50	46	False	J-103	J-104	8.0	PVC	140.0	8.14	0.05
P-51	433	False	J-104	J-105	8.0	PVC	140.0	5.81	0.04
P-52	360	False	J-103	J-106	8.0	PVC	140.0	-23.97	0.15
P-54	198	False	J-76	J-107	8.0	PVC	140.0	-40.98	0.26

FlexTable: Pipe Table (Western System - Future Improvements.wtg)

Current Time: 0.000 hours

Label	Length (ft)	Has User Defined Length?	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-56	877	False	J-106	J-108	16.0	PVC	140.0	135.65	0.22
P-57	169	False	J-108	J-109	16.0	PVC	140.0	135.65	0.22
P-58	296	False	J-109	J-110	16.0	PVC	140.0	109.79	0.18
P-59	235	False	J-110	J-111	16.0	PVC	140.0	105.15	0.17
P-60	476	False	J-111	J-112	16.0	PVC	140.0	87.43	0.14
P-61	246	False	J-111	J-113	8.0	PVC	140.0	12.49	0.08
P-63	203	False	J-114	J-115	8.0	PVC	140.0	-0.51	0.00
P-64	213	False	J-122	J-115	8.0	PVC	140.0	3.11	0.02
P-65	246	False	J-115	J-117	8.0	PVC	140.0	-0.88	0.01
P-66	519	False	J-117	J-118	8.0	PVC	140.0	1.04	0.01
P-67	396	False	J-118	J-119	8.0	PVC	140.0	-5.36	0.03
P-68	159	False	J-119	J-120	8.0	PVC	140.0	7.72	0.05
P-69	90	False	J-120	J-117	8.0	PVC	140.0	4.24	0.03
P-70	296	False	J-119	J-121	8.0	PVC	140.0	-20.05	0.13
P-71	187	False	J-121	J-109	8.0	PVC	140.0	-23.53	0.15
P-73	13	False	J-122	J-124	8.0	PVC	140.0	-3.11	0.02
P-74	178	False	J-124	J-123	8.0	PVC	140.0	0.00	0.00
P-75	186	False	J-124	J-125	8.0	PVC	140.0	-3.11	0.02
P-76	289	False	J-125	J-126	8.0	PVC	140.0	-3.11	0.02
P-78	267	False	J-127	J-128	8.0	PVC	140.0	0.00	0.00
P-80	5	True	R-4	PMP-Legacy Well 4 VT	10.0	Steel	100.0	136.45	0.56
P-81	180	True	PMP-Legacy Well 4 VT	Well 4 Legacy	10.0	Steel	100.0	136.45	0.56
P-82	5	True	R-5	PMP-Eaglefield Well 5 VT	10.0	Steel	100.0	0.00	0.00
P-83	90	True	PMP-Eaglefield Well 5 VT	Well 5 Eaglefield	10.0	Steel	100.0	0.00	0.00
P-84	14	True	J-110	H-110	6.0	PVC	140.0	0.00	0.00
P-85	13	False	J-121	H-121	6.0	PVC	140.0	0.00	0.00
P-86	11	False	J-120	H-120	6.0	PVC	140.0	0.00	0.00
P-87	11	False	J-114	H-114	6.0	PVC	140.0	0.00	0.00
P-88	12	False	J-113	H-113	6.0	PVC	140.0	0.00	0.00
P-89	15	False	J-128	H-128	6.0	PVC	140.0	0.00	0.00
P-90	24	False	J-126	H-126	6.0	PVC	140.0	0.00	0.00
P-91	13	False	J-125	H-125	6.0	PVC	140.0	0.00	0.00
P-92	15	False	J-122	H-122	6.0	PVC	140.0	0.00	0.00
P-93	10	False	J-118	H-118	6.0	PVC	140.0	0.00	0.00
P-94	15	False	J-104	H-104	6.0	PVC	140.0	0.00	0.00
P-95	28	False	J-105	H-105	6.0	PVC	140.0	0.00	0.00
P-96	32	False	J-102	H-102	6.0	PVC	140.0	0.00	0.00
P-97	20	False	J-101	H-101	6.0	PVC	140.0	0.00	0.00
P-98	17	False	J-97	H-97	6.0	PVC	140.0	0.00	0.00
P-99	21	False	J-96	H-96	6.0	PVC	140.0	0.00	0.00
P-100	41	False	J-92	J-145	8.0	PVC	140.0	24.25	0.15

FlexTable: Pipe Table (Western System - Future Improvements.wtg)

Current Time: 0.000 hours

Label	Length (ft)	Has User Defined Length?	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-101	142	False	J-145	J-95	8.0	PVC	140.0	20.77	0.13
P-102	33	False	J-145	H-145	6.0	PVC	140.0	0.00	0.00
P-103	7	False	J-89	H-89	6.0	PVC	140.0	0.00	0.00
P-104	51	False	J-87	J-148	8.0	PVC	140.0	47.49	0.30
P-105	423	False	J-148	J-89	8.0	PVC	140.0	43.42	0.28
P-106	12	False	J-148	H-148	6.0	PVC	140.0	0.00	0.00
P-108	18	False	J-80	H-80	6.0	PVC	140.0	0.00	0.00
P-109	11	False	J-64	H-64	6.0	PVC	140.0	0.00	0.00
P-110	17	False	J-67	H-67	6.0	PVC	140.0	0.00	0.00
P-111	17	False	J-69	H-69	6.0	PVC	140.0	0.00	0.00
P-112	15	False	J-70	H-70	6.0	PVC	140.0	0.00	0.00
P-113	15	False	J-73	H-73	6.0	PVC	140.0	0.00	0.00
P-114	14	False	J-74	H-74	6.0	PVC	140.0	0.00	0.00
P-115	20	False	J-107	J-158	16.0	PVC	140.0	-201.76	0.32
P-116	603	False	J-158	J-81	16.0	PVC	140.0	-201.76	0.32
P-117	64	False	J-158	H-158	6.0	PVC	140.0	0.00	0.00
P-118	15	False	J-77	H-77	6.0	PVC	140.0	0.00	0.00
P-119	13	False	J-78	H-78	6.0	PVC	140.0	0.00	0.00
P-120	12	False	J-62	H-62	6.0	PVC	140.0	0.00	0.00
P-121	12	False	J-57	H-57	6.0	PVC	140.0	0.00	0.00
P-122	18	False	J-59	H-59	6.0	PVC	140.0	0.00	0.00
P-123	12	False	J-60	H-60	6.0	PVC	140.0	0.00	0.00
P-125	25	False	J-281	H-281	6.0	PVC	140.0	0.00	0.00
P-126	22	False	J-279	H-279	6.0	PVC	140.0	0.00	0.00
P-127	45	False	J-272	H-272	6.0	PVC	140.0	0.00	0.00
P-128	30	False	J-270	H-270	6.0	PVC	140.0	0.00	0.00
P-129	58	False	J-269	H-269	6.0	PVC	140.0	0.00	0.00
P-130	45	False	J-268	H-268	6.0	PVC	140.0	0.00	0.00
P-131	23	False	J-266	H-266	6.0	PVC	140.0	0.00	0.00
P-132	43	False	J-277	H-277	6.0	PVC	140.0	0.00	0.00
P-133	25	False	J-274	H-274	6.0	PVC	140.0	0.00	0.00
P-134	43	False	J-276	H-276	6.0	PVC	140.0	0.00	0.00
P-135	21	False	J-261	H-261	6.0	PVC	140.0	0.00	0.00
P-136	24	False	J-255	H-255	6.0	PVC	140.0	0.00	0.00
P-137	22	False	J-251	H-251	6.0	PVC	140.0	0.00	0.00
P-138	75	False	J-247	H-247	6.0	PVC	140.0	0.00	0.00
P-139	35	False	J-237	H-237	6.0	PVC	140.0	0.00	0.00
P-140	23	False	J-235	H-235	6.0	PVC	140.0	0.00	0.00
P-141	94	False	J-234	H-234	6.0	PVC	140.0	0.00	0.00
P-142	50	False	J-232	H-232	6.0	PVC	140.0	0.00	0.00
P-143	66	False	J-239	H-239	6.0	PVC	140.0	0.00	0.00
P-144	19	False	J-241	H-241	6.0	PVC	140.0	0.00	0.00
P-145	21	False	J-244	H-244	6.0	PVC	140.0	0.00	0.00
P-147	1,300	False	J-188	J-189	16.0	PVC	140.0	-16.46	0.03
P-148	3,976	False	J-189	J-190	16.0	PVC	140.0	-37.25	0.06
P-150	1,727	False	J-191	J-250	16.0	PVC	140.0	-115.20	0.18

FlexTable: Pipe Table (Western System - Future Improvements.wtg)

Current Time: 0.000 hours

Label	Length (ft)	Has User Defined Length?	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-151	129	False	J-82	J-84	8.0	PVC	140.0	60.15	0.38
P-153	425	False	J-106	J-310	16.0	PVC	140.0	-160.20	0.26
P-154	41	False	J-310	J-107	16.0	PVC	140.0	-160.20	0.26
P-155	76	False	J-113	J-192	8.0	PVC	140.0	12.48	0.08
P-156	448	False	J-192	J-114	8.0	PVC	140.0	5.30	0.03
P-157	59	False	J-126	J-193	8.0	PVC	140.0	-3.12	0.02
P-158	145	False	J-193	J-127	8.0	PVC	140.0	0.00	0.00
P-159	434	False	J-192	J-193	8.0	PVC	140.0	3.12	0.02
P-160	533	False	J-112	J-194	12.0	PVC	140.0	83.95	0.24
P-161	532	False	J-194	J-195	12.0	PVC	140.0	78.14	0.22
P-165	18	False	J-198	H-198	6.0	PVC	140.0	0.00	0.00
P-188	10	True	PMP-Eaglefield Booster 3	Well 5 Eaglefield	6.0	Ductile Iron	130.0	272.76	3.10
P-190	10	True	PMP-Legacy Booster 3	Well 4 Legacy	6.0	Ductile Iron	130.0	0.00	0.00
P-192	10	True	R-4 Artesian	PMP-Legacy Booster 3	6.0	Ductile Iron	130.0	0.00	0.00
P-193	10	True	PMP-Legacy Booster 2	Well 4 Legacy	6.0	Ductile Iron	130.0	0.00	0.00
P-194	10	True	PMP-Legacy Booster 1	Well 4 Legacy	6.0	Ductile Iron	130.0	0.00	0.00
P-195	10	True	R-4 Artesian	PMP-Legacy Booster 2	6.0	Ductile Iron	130.0	0.00	0.00
P-196	10	True	R-4 Artesian	PMP-Legacy Booster 1	6.0	Ductile Iron	130.0	0.00	0.00
P-197	10	True	R-5 Artesian	PMP-Eaglefield Booster 3	6.0	Ductile Iron	130.0	272.76	3.10
P-198	10	True	R-5 Artesian	PMP-Eaglefield Booster 2	6.0	Ductile Iron	130.0	173.17	1.97
P-199	10	True	R-5 Artesian	PMP-Eaglefield Booster 1	6.0	Ductile Iron	130.0	112.87	1.28
P-200	10	True	PMP-Eaglefield Booster 2	Well 5 Eaglefield	6.0	Ductile Iron	130.0	173.17	1.97
P-201	10	True	PMP-Eaglefield Booster 1	Well 5 Eaglefield	6.0	Ductile Iron	130.0	112.87	1.28
P-269	113	False	J-231	J-232	8.0	PVC	140.0	-2.32	0.01
P-270	275	False	J-232	J-233	8.0	PVC	140.0	-4.65	0.03
P-271	283	False	J-233	J-234	8.0	PVC	140.0	4.65	0.03
P-272	127	False	J-233	J-235	8.0	PVC	140.0	-12.20	0.08
P-273	222	False	J-235	J-236	8.0	PVC	140.0	-13.36	0.09
P-274	129	False	J-236	J-237	8.0	PVC	140.0	24.61	0.16
P-275	52	False	J-237	J-238	8.0	PVC	140.0	22.29	0.14

FlexTable: Pipe Table (Western System - Future Improvements.wtg)

Current Time: 0.000 hours

Label	Length (ft)	Has User Defined Length?	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-276	188	False	J-238	J-239	8.0	PVC	140.0	4.07	0.03
P-277	393	False	J-238	J-240	8.0	PVC	140.0	14.74	0.09
P-278	40	False	J-240	J-241	8.0	PVC	140.0	4.65	0.03
P-279	158	False	J-241	J-242	8.0	PVC	140.0	2.90	0.02
P-280	381	False	J-240	J-243	8.0	PVC	140.0	29.62	0.19
P-281	321	False	J-240	J-244	8.0	PVC	140.0	-23.60	0.15
P-282	429	False	J-244	J-245	8.0	PVC	140.0	-31.73	0.20
P-283	47	False	J-245	J-246	8.0	PVC	140.0	42.04	0.27
P-284	40	False	J-246	J-247	8.0	PVC	140.0	3.49	0.02
P-285	232	False	J-246	J-236	8.0	PVC	140.0	38.55	0.25
P-286	192	False	J-245	J-248	8.0	PVC	140.0	-77.84	0.50
P-287	444	False	J-248	J-249	16.0	PVC	140.0	129.53	0.21
P-288	417	False	J-249	J-250	16.0	PVC	140.0	115.20	0.18
P-289	570	False	J-249	J-251	8.0	PVC	140.0	14.33	0.09
P-290	437	False	J-251	J-252	8.0	PVC	140.0	11.42	0.07
P-291	1,293	False	J-248	J-253	16.0	PVC	140.0	-207.37	0.33
P-292	839	False	J-253	J-254	12.0	PVC	140.0	59.65	0.17
P-293	295	False	J-254	J-255	12.0	PVC	140.0	57.90	0.16
P-294	293	False	J-255	J-256	12.0	PVC	140.0	54.42	0.15
P-295	301	False	J-256	J-257	12.0	PVC	140.0	108.97	0.31
P-296	530	False	J-257	J-258	12.0	PVC	140.0	105.49	0.30
P-297	338	False	J-258	J-259	12.0	PVC	140.0	45.19	0.13
P-298	343	False	J-256	J-260	12.0	PVC	140.0	-56.88	0.16
P-299	41	False	J-260	J-261	12.0	PVC	140.0	-87.60	0.25
P-300	114	False	J-261	J-262	12.0	PVC	140.0	-88.76	0.25
P-301	135	False	Well 4 Legacy	J-262	12.0	PVC	140.0	136.45	0.39
P-302	280	False	J-262	J-264	8.0	PVC	140.0	45.37	0.29
P-303	298	False	J-264	J-265	8.0	PVC	140.0	15.10	0.10
P-304	209	False	J-265	J-266	8.0	PVC	140.0	4.65	0.03
P-305	185	False	J-266	J-267	8.0	PVC	140.0	2.32	0.01
P-306	240	False	J-265	J-268	8.0	PVC	140.0	8.71	0.06
P-307	416	False	J-268	J-269	8.0	PVC	140.0	4.65	0.03
P-308	531	False	J-264	J-270	8.0	PVC	140.0	7.55	0.05
P-309	97	False	J-270	J-271	8.0	PVC	140.0	2.90	0.02
P-310	70	False	J-264	J-272	8.0	PVC	140.0	18.07	0.12
P-311	133	False	J-272	J-273	8.0	PVC	140.0	16.33	0.10
P-312	345	False	J-273	J-274	8.0	PVC	140.0	0.07	0.00
P-313	46	False	J-274	J-275	8.0	PVC	140.0	-5.74	0.04
P-314	448	False	J-275	J-276	8.0	PVC	140.0	-17.94	0.11
P-315	439	False	J-276	J-260	8.0	PVC	140.0	-26.07	0.17
P-316	296	False	J-275	J-277	8.0	PVC	140.0	8.13	0.05
P-317	116	False	J-277	J-278	8.0	PVC	140.0	3.48	0.02
P-318	278	False	J-273	J-279	8.0	PVC	140.0	13.94	0.09
P-319	315	False	J-279	J-280	8.0	PVC	140.0	9.29	0.06
P-320	143	False	J-280	J-281	8.0	PVC	140.0	4.65	0.03
P-321	127	False	J-281	J-282	8.0	PVC	140.0	3.48	0.02

FlexTable: Pipe Table (Western System - Future Improvements.wtg)

Current Time: 0.000 hours

Label	Length (ft)	Has User Defined Length?	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-322	161	False	J-253	J-283	16.0	PVC	140.0	-267.01	0.43
P-323	358	False	J-258	J-284	12.0	PVC	140.0	60.30	0.17
P-324	152	False	J-284	J-285	8.0	PVC	140.0	3.10	0.02
P-325	393	False	J-285	J-286	8.0	PVC	140.0	0.77	0.00
P-326	396	False	J-286	J-287	8.0	PVC	140.0	-1.55	0.01
P-327	435	False	J-287	J-252	8.0	PVC	140.0	-7.94	0.05
P-328	234	False	J-284	J-288	12.0	PVC	140.0	57.20	0.16
P-329	354	False	J-288	J-289	12.0	PVC	140.0	53.72	0.15
P-330	303	False	J-289	J-290	12.0	PVC	140.0	49.65	0.14
P-331	56	False	J-290	J-291	12.0	PVC	140.0	47.33	0.13
P-332	474	False	J-291	J-292	12.0	PVC	140.0	50.89	0.14
P-333	328	False	J-291	J-293	8.0	PVC	140.0	-5.88	0.04
P-334	369	False	J-293	J-294	8.0	PVC	140.0	-9.37	0.06
P-343	1,984	False	J-298	J-296	16.0	PVC	140.0	74.31	0.12
P-347	1,040	False	J-188	J-300	16.0	PVC	140.0	99.90	0.16
P-348	936	False	J-300	J-298	16.0	PVC	140.0	85.93	0.14
P-349	1,166	False	J-299	J-301	8.0	PVC	140.0	11.62	0.07
P-350	1,222	False	J-299	J-302	16.0	PVC	140.0	18.61	0.03
P-351	1,177	False	J-302	J-296	16.0	PVC	140.0	7.00	0.01
P-352	1,024	False	J-191	J-303	16.0	PVC	140.0	96.89	0.15
P-354	306	False	J-292	J-304	12.0	PVC	140.0	32.30	0.09
P-357	855	False	J-190	J-305	16.0	PVC	140.0	-69.36	0.11
P-358	1,358	False	J-305	J-295	16.0	PVC	140.0	-125.14	0.20
P-361	692	False	J-306	J-294	8.0	PVC	140.0	11.69	0.07
P-363	420	False	J-307	J-295	12.0	PVC	140.0	-86.01	0.24
P-364	104	False	J-195	J-198	8.0	PVC	140.0	2.91	0.02
P-365	667	False	J-195	J-308	12.0	PVC	140.0	69.43	0.20
P-366	576	False	J-308	J-309	12.0	PVC	140.0	63.62	0.18
P-367	319	False	J-72	J-312	8.0	PVC	140.0	11.04	0.07
P-368	212	False	J-312	J-313	8.0	PVC	140.0	2.32	0.01
P-369	231	False	J-312	J-314	8.0	PVC	140.0	6.39	0.04
P-370	474	False	J-314	J-315	8.0	PVC	140.0	3.48	0.02
P-371	311	False	J-315	J-316	8.0	PVC	140.0	1.16	0.01
P-372	248	False	J-65	J-317	16.0	PVC	140.0	-278.65	0.44
P-373	228	False	J-317	J-80	16.0	PVC	140.0	-291.66	0.47
P-374	342	False	J-78	J-318	8.0	PVC	140.0	8.94	0.06
P-376	278	False	J-317	J-318	8.0	PVC	140.0	13.01	0.08
P-377	179	False	J-68	J-319	8.0	PVC	140.0	-17.89	0.11
P-378	307	False	J-319	J-79	8.0	PVC	140.0	4.07	0.03
P-379	484	False	J-318	J-319	8.0	PVC	140.0	21.95	0.14
P-381	201	False	J-320	J-321	8.0	PVC	140.0	17.42	0.11
P-382	136	False	J-321	J-322	8.0	PVC	140.0	17.42	0.11
P-383	326	False	J-322	J-323	8.0	PVC	140.0	5.81	0.04
P-384	626	False	J-322	J-324	8.0	PVC	140.0	5.81	0.04
P-389	428	False	J-259	J-326	12.0	PVC	140.0	45.19	0.13
P-391	324	False	J-326	J-327	12.0	PVC	140.0	37.64	0.11

FlexTable: Pipe Table (Western System - Future Improvements.wtg)

Current Time: 0.000 hours

Label	Length (ft)	Has User Defined Length?	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-393	250	False	J-327	J-328	12.0	PVC	140.0	32.41	0.09
P-394	318	False	J-328	J-306	12.0	PVC	140.0	29.50	0.08
P-395	529	False	J-306	J-329	12.0	PVC	140.0	9.10	0.03
P-397	416	False	J-329	J-330	12.0	PVC	140.0	-30.98	0.09
P-398	2,029	False	J-330	J-307	12.0	PVC	140.0	-42.59	0.12
P-399	405	False	J-326	J-331	8.0	PVC	140.0	4.65	0.03
P-400	209	False	J-327	J-332	8.0	PVC	140.0	5.23	0.03
P-401	74	False	J-328	J-333	8.0	PVC	140.0	2.32	0.01
P-402	1,116	False	J-304	J-334	12.0	PVC	140.0	-23.28	0.07
P-403	2,305	False	J-334	J-305	12.0	PVC	140.0	-44.17	0.13
P-404	611	False	J-292	J-335	8.0	PVC	140.0	6.39	0.04
P-405	492	False	J-292	J-336	8.0	PVC	140.0	5.81	0.04
P-406	213	False	Well 6	J-295	12.0	PVC	140.0	222.76	0.63
P-407	90	True	PMP-Well 6 VT	Well 6	10.0	Steel	100.0	222.76	0.91
P-408	5	True	R-6	PMP-Well 6 VT	10.0	Steel	100.0	222.76	0.91
P-410	2,147	False	J-334	J-340	12.0	PVC	140.0	9.27	0.03
P-411	2,683	False	J-340	J-300	12.0	PVC	140.0	-2.35	0.01
P-412	2,638	False	J-296	J-341	12.0	PVC	140.0	37.48	0.11
P-413	2,615	False	J-341	J-342	12.0	PVC	140.0	11.62	0.03
P-414	2,305	False	J-296	J-343	12.0	PVC	140.0	32.22	0.09
P-415	2,770	False	J-343	J-344	12.0	PVC	140.0	20.60	0.06
P-416	723	False	J-344	J-345	12.0	PVC	140.0	11.62	0.03
P-417	2,628	False	J-341	J-344	12.0	PVC	140.0	2.63	0.01
P-418	3,618	False	T-1 West Res.	J-365	20.0	PVC	140.0	240.05	0.25
P-419	2,643	False	J-365	J-188	20.0	PVC	140.0	95.05	0.10
P-420	5,824	False	J-365	J-347	12.0	PVC	140.0	17.22	0.05
P-421	2,379	False	J-347	J-348	12.0	PVC	140.0	5.60	0.02
P-422	3,922	False	J-348	J-189	12.0	PVC	140.0	-9.17	0.03
P-423	3,968	False	J-190	J-349	12.0	PVC	140.0	20.49	0.06
P-424	4,035	False	J-349	J-348	12.0	PVC	140.0	-3.15	0.01
P-425	2,447	False	J-309	J-350	12.0	PVC	140.0	60.71	0.17
P-426	303	False	J-350	J-351	12.0	PVC	140.0	11.62	0.03
P-427	5,225	False	J-350	J-352	12.0	PVC	140.0	37.48	0.11
P-428	870	False	J-352	J-353	12.0	PVC	140.0	23.23	0.07
P-429	133	False	J-352	J-354	12.0	PVC	140.0	2.63	0.01
P-430	3,768	False	J-354	J-355	12.0	PVC	140.0	-15.28	0.04
P-431	275	False	J-355	J-307	12.0	PVC	140.0	-31.80	0.09
P-432	1,364	False	J-349	PRV-4	12.0	PVC	140.0	12.03	0.03
P-433	1,511	False	PRV-4	J-357	12.0	PVC	140.0	12.03	0.03
P-435	3,745	False	J-357	J-358	12.0	PVC	140.0	5.32	0.02
P-436	3,802	False	J-358	PRV-2	12.0	PVC	140.0	-6.30	0.02
P-437	184	False	PRV-2	J-354	12.0	PVC	140.0	-6.30	0.02
P-438	196	False	J-353	PRV-1	12.0	PVC	140.0	11.62	0.03
P-439	84	False	PRV-1	J-361	12.0	PVC	140.0	11.62	0.03

FlexTable: Pipe Table (Western System - Future Improvements.wtg)

Current Time: 0.000 hours

Label	Length (ft)	Has User Defined Length?	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-440	3,785	False	J-357	PRV-3	12.0	PVC	140.0	-4.90	0.01
P-441	190	False	PRV-3	J-355	12.0	PVC	140.0	-4.90	0.01
P-442	162	False	J-365	PMP-Zone 2 Booster 2	12.0	PVC	140.0	116.16	0.33
P-444	913	False	J-362	J-363	12.0	PVC	140.0	23.23	0.07
P-445	3,334	False	J-363	J-364	12.0	PVC	140.0	11.62	0.03
P-446	27	False	PMP-Zone 2 Booster 2	J-365	12.0	PVC	140.0	116.16	0.33
P-447	479	False	J-365	J-362	12.0	PVC	140.0	116.16	0.33
P-448	1,303	False	J-362	J-366	12.0	PVC	140.0	81.31	0.23
P-449	1,795	False	J-366	J-367	12.0	PVC	140.0	46.46	0.13
P-450	1,973	False	J-367	J-368	12.0	PVC	140.0	34.85	0.10
P-451	2,648	False	J-368	J-369	12.0	PVC	140.0	23.23	0.07
P-452	1,028	False	J-369	J-370	12.0	PVC	140.0	11.61	0.03
P-454	59	False	J-370	PRV-6	12.0	PVC	140.0	0.00	0.00
P-455	61	False	PRV-6	J-345	12.0	PVC	140.0	0.00	0.00
P-456	1,327	False	J-366	J-371	12.0	PVC	140.0	23.23	0.07
P-457	1,262	False	J-371	J-372	12.0	PVC	140.0	11.62	0.03
P-459	28	False	J-372	PRV-5	12.0	PVC	140.0	0.00	0.00
P-460	24	False	PRV-5	J-298	12.0	PVC	140.0	0.00	0.00
P-461	238	False	J-329	J-373	8.0	PVC	140.0	40.08	0.26
P-462	198	False	J-373	J-374	8.0	PVC	140.0	18.67	0.12
P-463	228	False	J-374	H-44	8.0	PVC	140.0	13.45	0.09
P-464	188	False	H-44	J-376	8.0	PVC	140.0	13.45	0.09
P-465	260	False	J-376	H-45	8.0	PVC	140.0	7.64	0.05
P-466	98	False	H-45	J-378	8.0	PVC	140.0	7.64	0.05
P-467	296	False	J-378	H-46	8.0	PVC	140.0	0.67	0.00
P-468	121	False	H-46	J-380	8.0	PVC	140.0	0.67	0.00
P-469	243	False	J-380	H-47	8.0	PVC	140.0	-6.30	0.04
P-470	156	False	H-47	J-382	8.0	PVC	140.0	-6.30	0.04
P-471	160	False	J-382	J-383	8.0	PVC	140.0	0.00	0.00
P-472	307	False	J-382	H-48	8.0	PVC	140.0	-12.11	0.08
P-473	88	False	H-48	J-385	8.0	PVC	140.0	-12.11	0.08
P-474	204	False	J-385	H-49	8.0	PVC	140.0	-19.08	0.12
P-475	49	False	H-49	J-373	8.0	PVC	140.0	-19.08	0.12
P-476	152	False	J-304	H-50	8.0	PVC	140.0	36.01	0.23
P-477	769	False	H-50	J-297	8.0	PVC	140.0	36.01	0.23
P-478	212	False	J-297	J-387	8.0	PVC	140.0	30.21	0.19
P-479	281	False	J-387	H-51	8.0	PVC	140.0	13.86	0.09
P-480	36	False	H-51	J-389	8.0	PVC	140.0	13.86	0.09
P-481	138	False	J-389	J-390	8.0	PVC	140.0	0.00	0.00
P-482	246	False	J-389	J-391	8.0	PVC	140.0	10.37	0.07
P-483	70	False	J-391	H-52	8.0	PVC	140.0	7.47	0.05
P-484	253	False	H-52	J-393	8.0	PVC	140.0	7.47	0.05
P-485	36	False	J-393	H-53	8.0	PVC	140.0	4.07	0.03
P-486	190	False	H-53	J-395	8.0	PVC	140.0	4.07	0.03

FlexTable: Pipe Table (Western System - Future Improvements.wtg)

Current Time: 0.000 hours

Label	Length (ft)	Has User Defined Length?	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-487	285	False	J-393	H-54	8.0	PVC	140.0	-0.08	0.00
P-488	43	False	H-54	J-397	8.0	PVC	140.0	-0.08	0.00
P-489	284	False	J-397	H-55	8.0	PVC	140.0	-5.31	0.03
P-490	233	False	H-55	J-399	8.0	PVC	140.0	-5.31	0.03
P-491	209	False	J-399	H-56	8.0	PVC	140.0	-11.70	0.07
P-492	370	False	H-56	H-57	8.0	PVC	140.0	-11.70	0.07
P-493	73	False	H-57	J-387	8.0	PVC	140.0	-11.70	0.07
P-494	205	False	J-243	J-402	8.0	PVC	140.0	4.65	0.03
P-495	20	False	J-402	H-58	6.0	PVC	140.0	0.00	0.00
P-496	216	False	J-320	J-404	8.0	PVC	140.0	4.65	0.03
P-497	16	False	J-404	H-59	6.0	PVC	140.0	0.00	0.00
P-498	107	False	J-243	H-60	8.0	PVC	140.0	23.23	0.15
P-499	160	False	H-60	J-320	8.0	PVC	140.0	23.23	0.15
P-501	523	False	J-406	J-299	16.0	PVC	140.0	41.85	0.07
P-502	561	False	J-303	J-407	16.0	PVC	140.0	70.70	0.11
P-503	377	False	J-407	J-406	16.0	PVC	140.0	53.46	0.09
P-504	1,126	False	J-191	J-408	12.0	PVC	140.0	6.70	0.02
P-505	643	False	J-408	J-304	12.0	PVC	140.0	-19.57	0.06
P-506	552	False	J-408	J-409	8.0	PVC	140.0	26.27	0.17
P-507	680	False	J-409	J-410	8.0	PVC	140.0	9.94	0.06
P-508	419	False	J-410	J-411	8.0	PVC	140.0	1.23	0.01
P-509	284	False	J-411	J-412	8.0	PVC	140.0	-1.93	0.01
P-511	365	False	J-412	J-413	8.0	PVC	140.0	-10.64	0.07
P-512	208	False	J-413	J-407	8.0	PVC	140.0	-17.23	0.11
P-513	565	False	J-413	J-414	8.0	PVC	140.0	-2.12	0.01
P-514	211	False	J-414	J-303	8.0	PVC	140.0	-26.19	0.17
P-515	664	False	J-414	J-415	8.0	PVC	140.0	6.37	0.04
P-516	698	False	J-415	J-416	8.0	PVC	140.0	-2.35	0.01
P-517	292	False	J-416	J-414	8.0	PVC	140.0	-9.00	0.06
P-518	637	False	J-416	J-411	8.0	PVC	140.0	5.56	0.04
P-519	772	False	J-416	J-409	8.0	PVC	140.0	-7.62	0.05
P-520	31	False	J-298	PMP-Zone 2 Booster 1	12.0	PVC	140.0	0.00	0.00
P-521	32	False	PMP-Zone 2 Booster 1	J-372	12.0	PVC	140.0	0.00	0.00
P-522	2,674	False	J-341	J-417	12.0	PVC	140.0	11.62	0.03

FlexTable: PRV Table (Western System - Future Improvements.wtg)

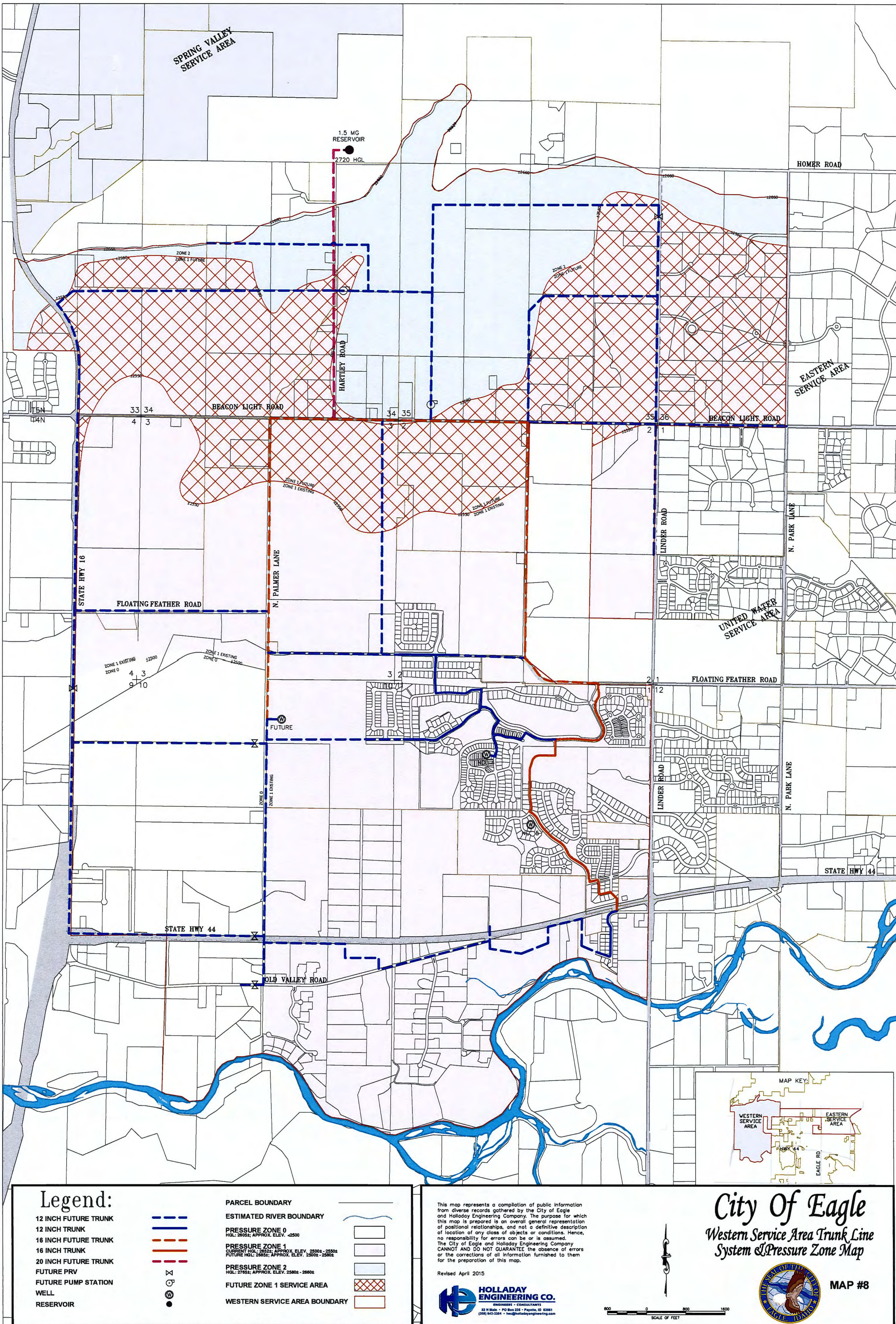
Current Time: 0.000 hours

Label	Elevation (ft)	Diameter (Valve) (in)	Pressure Setting (Initial) (psi)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)	Pressure (From) (psi)	Pressure (To) (psi)
PRV-1	2,502.0	8.0	44.6	11.62	2,685.0	2,605.0	79.9	79.2	44.6
PRV-2	2,502.0	8.0	44.6	6.30	2,685.0	2,605.0	79.9	79.2	44.6
PRV-3	2,501.0	8.0	45.0	4.90	2,685.0	2,605.0	79.9	79.6	45.0
PRV-4	2,500.0	8.0	45.4	12.03	2,684.9	2,605.0	79.9	80.0	45.4
PRV-6	2,580.0	8.0	45.4	0.00	2,764.9	2,684.9	0.0	80.0	45.4
PRV-5	2,580.0	8.0	45.4	0.00	2,764.9	2,684.9	0.0	80.0	45.4

FlexTable: Tank Table (Western System - Future Improvements.wtg)

Current Time: 0.000 hours

Label	Zone	Elevation (Base) (ft)	Elevation (Minimum) (ft)	Elevation (Initial) (ft)	Elevation (Maximum) (ft)	Diameter (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
T-1 West Res.	Zone - 1	2,664.0	2,665.0	2,685.0	2,685.5	112.00	240.05	2,685.0


SPRING VALLEY SERVICE AREA
1.5 MG RESERVOIR
2720 HGL
HOMER ROAD
HARTLEY ROAD
BEACON LIGHT ROAD
EASTERN SERVICE AREA
T5N
T4N
33 34
4 3
34 35
3 2
35 36
2 1
STATE HWY 16
N. PALMER LANE
LINDER ROAD
N. PARK LANE
FLOATING FEATHER ROAD
UNITED WATER SERVICE AREA
FUTURE
STATE HWY 44
OLD VALLEY ROAD
MAP KEY:
WESTERN SERVICE AREA
EASTERN SERVICE AREA
HWY 44
EAGLE RD
Legend:
12 INCH FUTURE TRUNK
12 INCH TRUNK
16 INCH FUTURE TRUNK
16 INCH TRUNK
20 INCH FUTURE TRUNK
FUTURE PRV
FUTURE PUMP STATION
WELL
RESERVOIR
PARCEL BOUNDARY
ESTIMATED RIVER BOUNDARY
PRESSURE ZONE 0
HGL: 2605±; APPROX. ELEV. <2500
PRESSURE ZONE 1
CURRENT HGL: 2652±; APPROX. ELEV. 2500± - 2550±
FUTURE HGL: 2685±; APPROX. ELEV. 2500± - 2580±
PRESSURE ZONE 2
HGL: 2765±; APPROX. ELEV. 2580± - 2660±
FUTURE ZONE 1 SERVICE AREA
WESTERN SERVICE AREA BOUNDARY
This map represents a compilation of public information from diverse records gathered by the City of Eagle and Holladay Engineering Company. The purpose for which this map is prepared is an overall general representation of positional relationships, and not a definitive description of location of any class of objects or conditions. Hence, no responsibility for errors can be or is assumed. The City of Eagle and Holladay Engineering Company CANNOT AND DO NOT GUARANTEE the absence of errors or the corrections of all information furnished to them for the preparation of this map.
Revised April 2015
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800 0 800 1600
SCALE OF FEET
City Of Eagle
Western Service Area Trunk Line System & Pressure Zone Map
THE SEAL OF THE CITY OF EAGLE, IDAHO
MAP #8
G:\MAPS\EG\EG_WATER_PRESSURE_ZONE.dwg

EXHIBIT R – INTERTIE AGREEMENT

City of Eagle
Intertie Agreement with Eagle Water Company
July 12, 2008

INTERTIE AGREEMENT

This Intertie Agreement ("**Agreement**"), dated as of July 12, 2008, is between Eagle Water Company, Inc., an Idaho corporation ("**EWC**") and the City of Eagle, Idaho, an Idaho municipal corporation ("**City**").

Recitals

A. City recently constructed and owns an approximate one million gallon water storage tank (the "**Storage Tank**").

B. EWC owns and conducts a water utility supply and distribution business ("**Water System**") in and around Eagle, Idaho. EWC has water distribution lines in the vicinity of the Storage Tank and desires to temporarily connect such distribution lines to the Storage Tank in order to satisfy certain regulatory requirements for fire protection service to its customers.

C. EWC intends to use the Intertie as a temporary measure until it completes a new well and DEQ determines the Intertie is no longer needed to meet regulatory requirements.

The parties agree as follows:

Agreement

1. **Water Storage Connection.** City hereby agrees that immediately upon the execution of this Agreement, City will allow EWC to construct, at EWC's sole expense, a connection and two manually-controlled gate valves with a meter spool for a future meter ("**Intertie**") between EWC's existing main distribution lines and the Storage Tank based upon engineering plans previously submitted by the City to and approved by the Idaho Department of Environmental Quality ("DEQ"). City shall have the right to approve the location and manner of constructing such Intertie and shall do so no later than 24 hours after EWC identifies its preferred location for the intertie. EWC shall ensure that all work is performed in a workmanlike manner and in compliance with all applicable codes and regulations. City makes no representations or warranties, express or implied, concerning the Intertie or any benefits to be derived by EWC therefrom. The City shall own the Intertie infrastructure save and except for the 12-inch Intertie tee and the attached 12-inch gate valve.

2. **Limitations On Use**. The parties agree that the sole purpose of the Intertie is to provide redundant fire flow protection capacity to EWC and is not intended to be a source of water for EWC's normal operating requirements.

3. **Payment**. In consideration of the City entering into this Agreement and allowing EWC to connect to the Storage Tank, EWC agrees to compensate the City as follows:

3.1. **Lease of Water Rights**. EWC agrees to grant the City the permanent Right of First Refusal to lease up to ten (10) cubic feet of water per second of certain municipal water rights currently owned by EWC, provided such water rights are not necessary to maintain the integrity of EWC's Water System, including compliance with all regulatory requirements and EWC engineering plans. This Right of First Refusal shall be permanent and shall survive any termination or other modification of this Agreement, save and except for a termination by the City other than for a non-cured default by EWC per Section 7, below.

3.2. **Cash Payment.** In addition, EWC shall pay City a fee for the connection to the Storage Tank of $10,000.00 per month commencing on the date the interconnection is completed and approved by the Idaho Department of Environmental Quality (DEQ).

4. **Duration.** This Agreement shall commence upon acceptance by the City of Eagle and completion of the Intertie that is the subject of this Agreement ("Commencement"), and the Intertie Lease shall continue month–to-month so long as the Intertie connection is needed by EWC in its sole discretion. If the Intertie continues past 18 months from the Commencement date, the Intertie Lease Cash Payment shall increase five percent (5%) and every 18 months thereafter. The parties may mutually agree, in writing, to extend or modify this Agreement.

5. **Moratorium**. At EWC's reasonable request, City agrees to cooperate with EWC to assist EWC in its efforts to satisfy the conditions set forth in the current DEQ Consent Order establishing a moratorium on new connections in EWC's service territory and to cause the moratorium to be terminated. This Section 5 shall not require City to expend any funds or take any actions that it is not lawfully permitted to take. EWC shall reimburse the City for any costs incurred by the City related to this Section 5, provided the same have been pre-approved by EWC in writing.

6. **Right of First Refusal**. If EWC determines to sell or convey all or any part of its Water System, which shall be deemed to include, but not be limited to, water rights, wells and other infrastructure, and receives a bona fide offer for this Water System, before making any agreement to sell all or any portion of the Water System, EWC shall give notice to City stating EWC's desire to sell and the amount and terms of such offer in detail. City shall have the exclusive right for 30 days after receiving such notice to provide Notice of Intent to Purchase the Water System or portion thereof to which such bona fide offer refers at the amount of said offer; provided, that if the third party offer is for a consideration other than cash, the City shall have the right to pay the fair market value of such consideration in cash. Upon delivery of the Notice of Intent to Purchase, the City shall hold a revenue bond election for the purpose of securing voter approval of the purchase at the next available election date and/or utilize City funds directly available in a capital account, enterprise fund, general fund, or other readily available City fund or account to complete the purchase. For the purpose of this Section 6, "Next Available Election Date" shall mean the earliest possible election date based on the time required by law for legal notice of such an election and for the conduct of any required public hearings. If the bond is approved at said election, the City shall proceed in good faith to secure bonds to pay the purchase price ("Finance") as expeditiously as possible. Closing of the transaction between the City and EWC that is the subject of this Section 6 shall not extend more than 180 days from the date of the revenue bond election, or if the election is challenged in a legal proceeding, the

Closing shall occur no more than 90 days after final resolution of any such legal challenge. In the event that a revenue bond election is not required because the City has the necessary funds directly available in a capital account, enterprise fund, general fund, or other readily available City fund or account to finance the transaction in lieu of holding a revenue bond election, then the Closing of the transaction between the City and EWC that is the subject of this Section 6 shall occur no later than 60 days after the City provides EWC with its Notice of Intent to Purchase. For purposes of this Section 6, this Right of First Refusal applies solely to an "EWC Change of Control Transaction", which means one or a series of transactions in which (i) all or substantially all of EWC's Water System is sold to a third party, or (ii) there is a stock sale, merger, consolidation or similar transaction as a result of which said third party owns a majority of the outstanding voting and outstanding capital stock of EWC or any successor owner of EWC. This Right of First Refusal shall be permanent and shall survive any termination or other modification of this Agreement, save and except for a termination by the City other than for a non-cured default by EWC per Section 7, below.

7. **Termination**. EWC or the City shall have the right to terminate the Intertie connection upon 30 days prior written notice to the other party. In the event the City terminates the Intertie connection for any reason other than a non-cured default by EWC under Section 10 of this Agreement, then the Rights of First Refusal in Sections 3 and 6 of this Agreement shall likewise terminate.

8. **Authority**. Each individual executing this Agreement below on behalf of a party represents and warrants to the other party that the execution, delivery and performance of this Agreement has been duly authorized by all necessary corporate or municipal action by such party, that such individual is duly authorized to execute and deliver this Agreement on behalf of such party, and that this Agreement is a legal and valid obligation of such party, enforceable against such party in accordance with its terms.

9. **Force Majeure**. Except for obligations to make payment, nonperformance of either party shall be excused to the extent that performance is rendered impossible by strike, fire, flood, governmental acts, orders or restrictions, or any other reason where failure to perform is beyond the control and not caused by the negligence of the non-performing party.

10. **Default and Remedies.**

10.1. **Default.** Each of the following events shall constitute an event of default:

10.1.1. EWC fails to make, on or before the date which it is due, any payment to be made to the City pursuant to the provisions of this Agreement; or

10.1.2. Either party materially breaches this Agreement.

10.2. **Re medies.** If any default shall occur, the non-defaulting party shall give the defaulting party notice of default. Such default must be cured within fifteen (15) days of the Notice of Default unless such default is curable but cannot be reasonably cured within ten (10) days after giving the Notice of Default and the defaulting party commences within such ten (10) day period to cure such default and prosecutes the same to conclusion with reasonable diligence.

The foregoing remedy shall be in addition to and shall not exclude any other remedy available to the parties under applicable law.

11. **Attorneys Fees**. In the event an arbitration, suit or action is brought by any party under this Agreement to enforce any of its terms, or in any appeal therefrom, it is agreed that the prevailing party shall be entitled to reasonable attorney fees to be fixed by the arbitrator, or court of applicable jurisdiction.

12. **Notices.** All notices or other communications required or permitted hereunder, including notices to Mortgagees, shall, unless otherwise provided herein, be in writing, shall be personally delivered, delivered by reputable overnight courier, or sent by registered or certified mail, return receipt requested, and postage prepaid, addressed to the parties at the following addresses:

if to the City: City of Eagle
Office of the City Clerk
660 East Civic Lane
Eagle, ID 83616

If to Eagle Water: Eagle Water Company, Inc.
172 West State Street
Eagle, ID 83616

With a copy to: Molly O'Leary
Richardson & O'Leary, PLLC
P.O. Box 7218
Boise, Idaho 83707

Notices personally delivered shall be deemed given the day so delivered. Notices given by overnight courier shall be deemed given on the first business day following the mailing date. Notices mailed as provided herein shall be deemed given on the third business day following the mailing date. Notice of change of address shall be given by written notice in a manner detailed in this Section 12.

13. **Governing Law**. The parties intend that this contract shall be governed by and construed in accordance with the laws of the State of Idaho, without regard to choice of law rules.

14. **Counterparts**. This Agreement may be signed in counterparts, each of which shall constitute part of the original document.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first written above.

EWC:

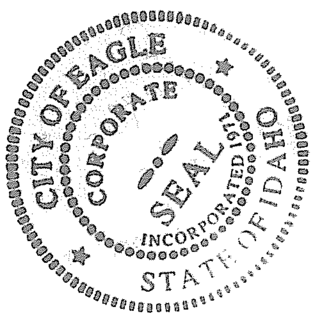
EAGLE WATER COMPANY,
an Idaho corporation

By: ______________________
Robert V. DeShazo, Jr., President

City:

CITY OF EAGLE, IDAHO
an Idaho municipal corporation

By: ______________________
Phil Bandy, Mayor



ATTEST:

By: Sharon K Bergmann
Sharon K. Bergmann, City Clerk

EXHIBIT S – EMERGENCY INTERCONNECTION AGREEMENT

City of Eagle
Emergency Interconnection Agreement with United Water Idaho
December 22, 2010

EMERGENCY INTERCONNECTION AGREEMENT

THIS AGREEMENT, made as of the 22nd day of DECEMBER, 2010, is by and between the CITY OF EAGLE ("Eagle"), a municipal corporation organized under the laws of the State of Idaho with its principal office located at 660 East Civic Lane, Eagle, Idaho 83616, and UNITED WATER IDAHO INC. ("United Water"), a corporation organized under the laws of the State of Idaho with its principal office located at 8248 West victory Road, Boise, Idaho 83709,

WITNESSETH:

WHEREAS, Eagle owns and operates a municipal water utility system furnishing water service to the public in parts of the City of Eagle; and

WHEREAS, United Water owns and operates a public water utility system and furnishes water service to the public in Boise and surrounding areas, including parts of the City of Eagle; and

WHEREAS, Eagle owns an existing pressure regulating valve (PRV) interconnection and vault configured to enable water supply to be made available to Eagle's system from United Water's system under certain circumstances; and

WHEREAS, United Water and Eagle now desire to improve and utilize the existing interconnection between United Water's and Eagle's water systems ("Interconnection") to provide an emergency source of water supply for each party on the terms and conditions set forth herein;

WHEREAS, the parties wish to set forth their agreement for the modification and financing of the Interconnection and all associated improvements by which each party will deliver water to the other at the specific metered interconnection and their agreement as to delivery, receipt and payment for water delivered through the Interconnection;

NOW, THEREFORE, in consideration of these premises and of the mutual promises and undertakings hereinafter set forth, the parties hereto, intending to be legally bound hereby, agree as follows:

ARTICLE I

The Interconnection

1.1 Interconnection. The Interconnection covered by this Agreement is shown on Exhibit A, which is attached to this Agreement and expressly made a part hereof. The Interconnection currently exists and shall serve for the delivery of water supply both from Eagle to United Water, and from United Water to Eagle. The Interconnection currently has a PRV controlling the flow of water across the interconnection from United Water to Eagle. The Interconnection will be modified as discussed in Section 1.3 below to enable water flow to occur in both directions.

1.2 Applicability of Agreement. The terms of this Agreement shall apply only to the aforementioned existing Interconnection. Provision of water through any new interconnections that may be constructed in the future between the parties' systems shall be subject to a separate agreement.

1.3 Construction and Maintenance of the Interconnection.

(a) The parties agree that the existing Interconnection requires certain modifications, including additional piping, valves, vault modifications, metering, and controls, in order to enable the two-way flow of water, and are willing to share the cost of the said modifications in accordance with the plans and estimate attached as Exhibit B.

(b) United Water shall design, construct, build and install the modifications in accordance with the plans attached as Exhibit B. United Water shall supply or arrange for the provision and/or performance of all required services, goods, materials, engineering and construction (collectively, the "Work") needed to complete the modifications in a sound and workmanlike fashion. For purposes of this Article I, the "Work" shall be deemed to include and comprise the completed design, engineering and construction required by this Agreement.

(c) Each party shall maintain the valves and other appurtenances on its side of the system at the point of connection. All valves on the Interconnection shall be set to normally remain closed and shall be used only as set forth herein.

1.4 Designs and Specifications. United Water shall supply to Eagle all designs, specifications, drawings, schedules, blueprints, and engineering for the Work for approval prior to finalization, which approval shall not be unreasonably withheld.

1.5 Supervision of the Work. Except as otherwise provided herein, United Water shall have the right and obligation to supervise and control the Work including, but not limited to, the determination of construction means, methods, techniques, sequences and procedures; monitoring and enforcement of compliance with the project documents; approval and acceptance of the Work; and the review, approval and processing of applications for payment to contractors and materialmen engaged on the Work. Neither party under this Agreement is in any respect acting under the Agreement as agent, employee or representative of the other party to this Agreement and is, in all respects, an independent contractor hereunder.

1.6 Access to and Acceptance of the Work. Each party shall, at all times, be allowed reasonable access to, and opportunity to inspect the Work, and, before providing emergency water supply under this Agreement, have the right to finally accept the Work as sufficient for purposes of delivery of emergency water supply in a reasonable manner, consistent with its water system operations.

1.7 Permits and Licenses. United Water shall obtain any permits, licenses or other authorizations required under any federal, state or local law, statute, rule, regulation, ordinance or other authority for the Work.

1.8 Ownership and Maintenance of the Interconnection. Eagle shall retain ownership of the Interconnection vault and shall maintain responsibility for the electrical utility service costs of the Interconnection. Each party shall have all right, title and interest thereto, and shall own the piping, valves, meters and appurtenances on its own portions of the Interconnection as identified on Exhibit B, and shall be responsible for maintaining same. Maintenance and replacement costs of the Interconnection items that are to be co-owned by the parties, such as the meter, data logger, and vault hatch, etc. shall be shared equally by the parties.

ARTICLE II

Supplies

2.1 Sale and Purchase of Emergency Water Supply (Supplies). In accordance with this Article II, each party shall deliver and sell, and the other party shall receive and purchase the Supplies through the Interconnection from time to time during the term of this Agreement. The sale and purchase of Supplies shall only occur as the result of a scheduled or unexpected event, temporary in nature.

2.2 Notice of Intent to Receive and Purchase Supplies through the Interconnection. Because the Interconnection is controlled by PRV's, a pressure drop caused by a scheduled or unexpected event will initiate Interconnection activation. As soon as either party is aware of the Interconnection activation, that party is obligated to notify the other party immediately. The receiving party shall then notify the supplying party within four (4) hours as to the nature and expected duration of the emergency, and with regard to the anticipated volumes of water required. Notices pursuant to this paragraph may be verbal, but shall be confirmed within two (2) business days in writing, which may be transmitted by facsimile or email.

2.3 Supply. Availability of supply by a supplying party is dependent upon that party's ability to supply water at and during the time of the request by the requesting party.

2.4 Meter Readings and Tests. Eagle and United Water shall each have the right to access the meter at the Interconnection and to conduct a test of meter accuracy. All costs associated with each party's exercise of this right shall be the responsibility of such party. The parties agree to share equally any and all costs for repairing, recalibrating or replacing the meter if it is found to register inaccurately beyond the American Water Works Association (AWWA) Standards of tolerance. If the meter is found to register inaccurately beyond a range of tolerance in accordance with AWWA Standards, an adjustment shall be made to the bills rendered for service through the Interconnection for the period of time elapsed since the last previous meter test, but no longer than one year from the current test. The adjustment to the bill will be based upon the product of total consumption recorded by the meter since the last meter test, or one year prior, and one-half the percentage variance in the accuracy of the meter as determined upon its being tested.

2.5 Charges and Billing Procedures. For billing purposes, the Interconnection meter shall be read by the supplying party in accordance with its regular meter reading schedule. Each party shall bill the other in arrears for volumes delivered to the other through the Interconnection for the period. The rate for service supplied under this Agreement by United Water shall be the Volume Charge set forth in United Water's Schedule 1, General Metered Service, as the same now exists or may hereafter be amended. The rate for service supplied under this Agreement by Eagle shall be the Consumption Rate set forth in City of Eagle Resolution 08-33 as the same now exists or may hereafter be amended. No "customer", "service", "fixed", "franchise" or "IDEQ" fees or charges of any type shall be applicable for billing purposes by either party. Upon receipt of a bill for Supplies, the receiving party shall make payment in full to the providing party within thirty (30) days of the date of the bill.

2.6 Water Quality, Quantity, and Pressure.

(a) Each party shall use its best efforts to ensure that the Supplies furnished hereunder shall be potable and in compliance with all applicable federal and State of Idaho laws and regulations in effect at the time the Supplies are delivered to the other party (collectively, the "Water Quality Laws"). Neither party shall be responsible for the quality of water beyond the point of delivery to the other party's system.

(b) The maximum instantaneous and the maximum daily Supplies available for use by a receiving party through the Interconnection are as established below:

	Maximum Instantaneous Supply	**Maximum Daily Supply**
Eagle supply to United Water	825 GPM	1.100 MGD
United Water supply to Eagle	1,500 GPM	1.440 MGD

(c) Unless auxiliary pumps are authorized by the supplying party, system pressures available are subject to existing hydraulic conditions at the time of use and are subject to change without notification to or by either party.

ARTICLE III

Miscellaneous

3.1 Commencement and Term; Effective Date.

(a) The term of this Agreement shall commence on the date of execution hereof and shall run for a period of five (5) years. This Agreement shall renew automatically from year to year thereafter, unless either party gives notice to the other eighteen (18) months in advance of its intent to terminate.

(b) Notwithstanding the foregoing, the obligations to provide Supplies under this Agreement shall not become effective unless and until this Agreement is approved by the State of Idaho Public Utilities Commission ("Commission"). Immediately following execution of this Agreement, the parties shall prepare a joint application to the Commission for approval of this Agreement. Each party agrees to use reasonable best efforts to obtain approval, and each party shall take no action inconsistent with obtaining approval of this Agreement by the Commission.

3.2 Force Majeure. If the ability of either party to deliver the Supplies is interrupted or impaired, in whole or in part, due to failure of equipment or facilities, leaks, required repairs to facilities, strikes, Acts of God, or other extraordinary circumstances, occurrences or conditions beyond the parties' control, including action by governmental bodies and authorities, then during the period of such interruption or impairment, the delivery and purchase obligations described herein shall be suspended proportionately. Each party specifically acknowledges, understands and agrees that the obligations of the other party to deliver the Supplies requires only the exercise of ordinary and reasonable care under the circumstances to maintain the Supplies and have such available for delivery hereunder, and that the party delivering Supplies through the Interconnection shall not be liable to the other party for any interruption of, or curtailment in the Supplies caused by circumstances beyond its control.

3.3 Condition Subsequent. Each party's respective rights and obligations hereunder are conditioned upon and subject to the receipt of: (a) all necessary, final and appealable zoning, subdivision and land development approvals; and (b) any and all permits and licenses required by federal, state and local governments or agencies thereof to permit the construction and operation of a particular Interconnection. The parties shall use their best efforts to apply for and obtain all necessary approvals, permits and licenses at the earliest time practicable under the circumstances.

3.4 Indemnity.

(a) United Water agrees to indemnify, defend and hold harmless Eagle and its respective successors and assigns, from and against any and all claims, demands, causes of actions, suits, judgments, debts, liabilities, losses, damages, and expenses (including reasonable fees and disbursements of legal counsel) of any kind whatsoever ("Losses") that may be sustained or suffered by Eagle and are caused by any material misrepresentation, breach or non-performance by United Water with respect to any representations, warranties, undertakings, agreements, covenants or obligations of United Water contained in this Agreement.

(b) Eagle agrees to indemnify, defend and hold harmless United Water and its respective successors and assigns, from and against any and all claims, demands, causes of actions, suits, judgments, debts, liabilities, losses, damages, and expenses (including reasonable fees and disbursements of legal counsel) of any kind whatsoever ("Losses") that may be sustained or suffered by United Water and are caused by any material misrepresentation, breach or non-performance by Eagle with respect to any representations, warranties, undertakings, agreements, covenants or obligations of Eagle contained in this Agreement.

3.5 Successors and Assigns; No Third-Party Beneficiaries. This Agreement shall be binding upon and shall inure to the benefit of the parties' respective successors and permitted assigns. This Agreement is deemed to be for the benefit of the parties hereto, and no entity not a party to this Agreement, including without limitation industries or persons supplied by either party, shall acquire any right or claims by reason of this Agreement.

3.6 Authority and Binding Effect. Eagle and United Water each represent, warrant and affirm to the other: (a) their authority and power to enter into this Agreement and to make, perform and carry into effect their respective commitments, obligations and undertakings as set forth herein; (b) their authority to enter into and perform each of the transactions contemplated hereby; (c) that all consents and authorizations requisite to their execution of this Agreement and performance hereunder have been obtained; (d) that this Agreement, the transactions contemplated hereby and the parties' performance hereunder will not violate any federal, state or local law, statute, regulation, rule, ordinance, tariff term or other similar authority application to either of them; and (e) when executed, the Agreement shall constitute a valid and binding obligation, enforceable by each party against the other in accordance with its terms.

3.7 Consent to Assignment. The parties' respective rights and obligations hereunder shall not be assignable or delegable whether by sale, assignment, merger or otherwise without the prior written consent of the other except if another entity purchases all or substantially all of the assets of either party, in which case assignment shall be effective upon notice to the other party.

3.8 Amendment. This Agreement may be amended only by written instrument, signed by the party to be bound.

3.9 Entire Agreement. This Agreement embodies the entire agreement between the two parties with reference to the subject matter hereof, and there are no agreements, understandings, conditions, warranties or representations, oral or written, expressed or implied, with reference to the subject matter hereof that are not merged in this Agreement or superseded hereby.

3.10 Terms Severable. Should any term of this Agreement be held invalid or unenforceable, such determination shall not render the remaining terms of this Agreement invalid or unenforceable unless to do so would cause the Agreement to fail of an essential purpose.

3.11 Notices. Any notices required or permitted to be given hereunder shall be in writing, shall be effective upon receipt (unless otherwise provided herein), and shall be delivered by facsimile transmission or by United Water States mail, first-class postage prepaid, addressed to the parties as follows:

If to United Water:

General Manager
8248 West Victory Road
P.O. box 190420
Boise, ID 83719-0420
Phone: 208-362-7327
Fax: 208-362-7069
Email: greg.wyatt@unitedwater.com

with a copy to:

United Water Water Management & Services
200 Old Hook Road
Harrington Park, NJ 07640
Attention: Legal Department
telecopy (201) 767-7018

If to Eagle:

Public Works Director
660 E. Civic Lane
P.O. Box 1520
Eagle, ID 83616

3.12 Titles. The titles appearing herein have been inserted for convenience of reference only and shall not be deemed a part thereof or considered in construing the parties' rights and obligations hereunder.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed and delivered, and their respective corporate seals to be hereunto affixed by their duly authorized officers, as of the day and year first written above.

CITY OF EAGLE

JAMES. D. REYNOLDS, MAYOR
CITY OF EAGLE, ID

UNITED WATER IDAHO INC.

By: ____________________

Name: Gregory P. Wyatt

Title: Vice President

Attest: Sharon K Bergmann
City Clerk/Treasurer

(CITY SEAL)

CITY OF EAGLE
CORPORATE
SEAL
INCORPORATED 1971
STATE OF IDAHO

State of Idaho

County of Ada

Subscribed and sworn before me this 22nd day of December, 2010
by Gregory P. Wyatt.

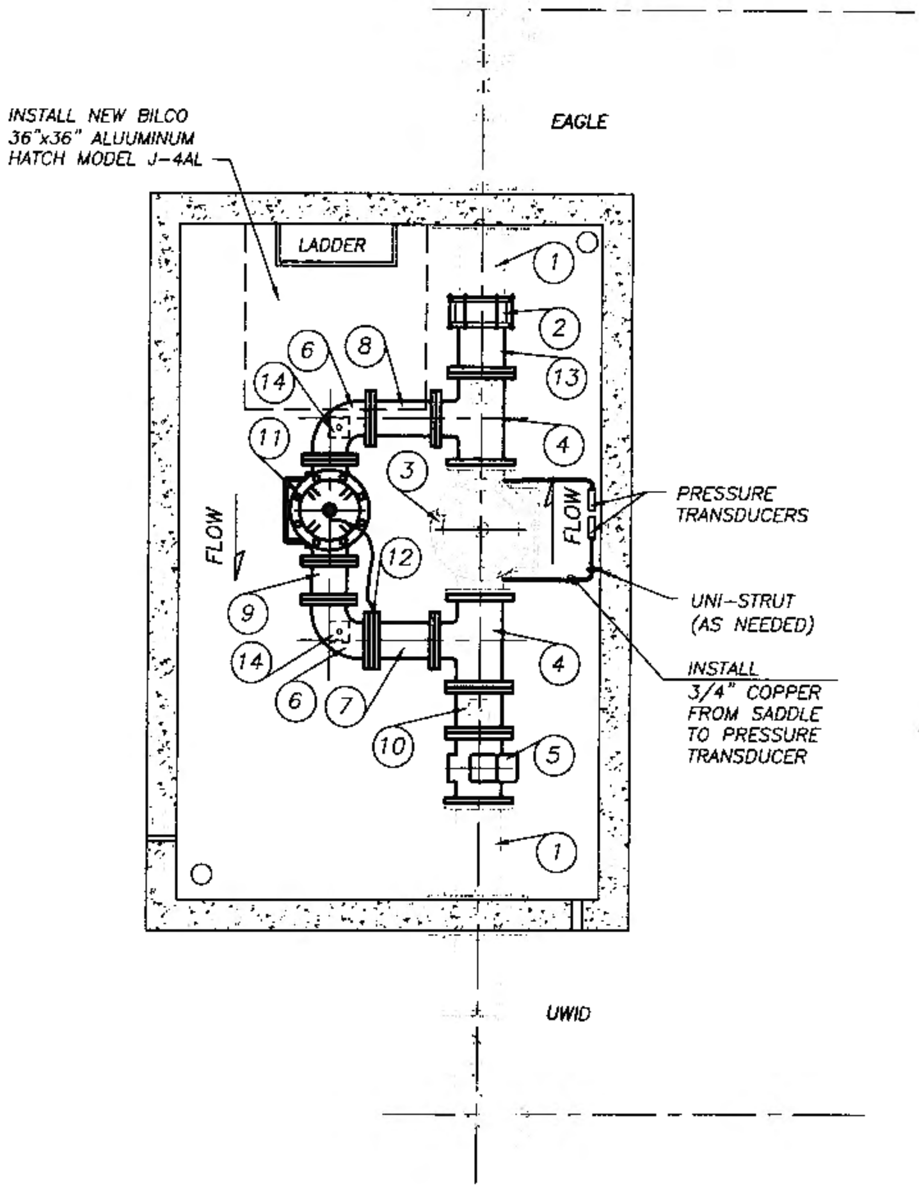
S
E
A
L

NANCY L. ORCUTT
NOTARY
PUBLIC
STATE OF IDAHO

Nancy L. Orcutt
Notary Public
My Commission Expires on: June 12, 2010

EAGLE INTERTIE PRELIMINARY ASSUMPTION OF PROBABLE COST

DESCRIPTION	UNITS	COST	TOTAL	Cost Allocation United	Eagle
PIPING MODIFICATIONS LABOR	48	$50	$2,400	$2,400	
PIPING MATERIAL	1	$897	$897	$897	
6" CLA-VAL PRV Combo (RATE OF FLOW)	1	$4,582	$4,582	$4,582	
8" FLOW METER	1	$2,200	$2,200	$1,100	$1,100
BILCO HATCH	1	$3,000	$3,000	$1,500	$1,500
TELMETRY LABOR	15	$55	$825	$413	$412
DATA LOGGER	1	$2,500	$2,500	$1,250	$1,250
TRANSDUCER	2	$500	$1,000	$500	$500
SUB TOTAL			**$17,404**	**$12,642**	**$4,762**
10% Omissions & Contingency			$1,740	$1,264	$476
6% state tax on materials			$851	$590	$261
Total			**$19,995**	**$14,496**	**$5,499**



GENERAL NOTES

NO.	DESCRIPTION	QUANT.
1	EX. 8" DI	2
2	8" COUPLING	1
3	EX. 8" CAL-VAL 90-01	1
4	8"x6" FLG TEE	2
5	8" ELECTROMAGNETIC FLOW METER ENDRESS & HAUSER MODEL #53W1F-ULOB1RK5BAA2, 5' CABLE (UWID ORDER)	1
6	6" FLG 90° BEND	2
7	6" DI SPOOL FLGxFLG (12" LONG)	1
8	6" DI SPOOL FLGxFLG (13" LONG)	1
9	6" DI SPOOL FLGxFLG (7-1/2" LONG)	1
10	6" DI SPOOL FLGxFLG (9" LONG)	1
11	6" RATE OF FLOW CONTROLLER CLA-VAL #G49-01BCDS COMBO RATE OF FLOW & PRV	1
12	ORFICE PLATE	1
13	8" DI SPOOL FLGxPE (12" LONG, FIELD VERIFY)	1
14	ADJUSTABLE PIPE SUPPORT	4

UnitedWater.

UNITED WATER IDAHO
8248 W. VICTORY ROAD
BOISE, IDAHO 83707

TRAIL CREEK PRV
PIPING MODIFICATION PLAN

Design/Drawn By: DLS	Map No.: 0504-4	Tax Code:
Scale: 1/2"-1'		Sewer Dist:
Date: SEPT. 2010	Revisions:	Twn,Rge,Sec.
CEA No.:		Sheet 1 of 1

EXHIBIT T – DECLINING BALANCE WORKSHEETS
EASTERN & WESTERN SERVICE AREAS

City of Eagle
Revised January 24, 2015

Declining Balance Worksheet, 2014 Update **EASTERN SERVICE AREA**

A. Basis for Table

252.00	Ave. gallons per day per EDU
428.40	Max day @1.7 factor
728.28	Peak hour @ 1.7 factor
0.00000155	conversion gpd to cfs
0.00039060	Ave. cfs per day per EDU
0.00066402	Max day, cfs
0.00112883	Peak hour, cfs

Diversion Rate - Domestic, cfs	Equivalent Dwelling Units, EDU (1)	Average Day Flow, cfs (2)	Max Day Flow Demand, cfs	Peak Hour Demand, cfs	Required Fire Flow Well Source	Percent of Volume Limit, 1,450 AF
3.25	5	0.00195	0.00332	0.00564	0.00000	0.0010
3.25	10	0.00390	0.00664	0.01129	0.00000	0.0019
3.25	15	0.00585	0.00996	0.01693	0.00000	0.0029
3.25	20	0.00780	0.01328	0.02258	0.00000	0.0039
3.25	25	0.00975	0.01660	0.02822	0.00000	0.0049
3.25	50	0.01950	0.03320	0.05644	0.00000	0.0097
3.25	75	0.02924	0.04980	0.08466	0.00000	0.0146
3.25	100	0.03899	0.06640	0.11288	0.00000	0.0195
3.25	200	0.07798	0.13280	0.22577	0.00000	0.0389
3.25	300	0.11697	0.19921	0.33865	0.00000	0.0584
3.25	400	0.15596	0.26561	0.45153	0.00000	0.0779
3.25	500	0.19495	0.33201	0.56442	0.00000	0.0973
3.25	600	0.23394	0.39841	0.67730	0.00000	0.1168
3.25	700	0.27293	0.46481	0.79018	0.00000	0.1363
3.25	800	0.31192	0.53122	0.90306	0.00000	0.1557
3.25	900	0.35091	0.59762	1.01595	0.00000	0.1752
3.25	1,000	0.38990	0.66402	1.12883	0.00000	0.1947
3.25	1,100	0.42889	0.73042	1.24171	0.00000	0.2141
3.25	1,200	0.46788	0.79682	1.35460	0.00000	0.2336
3.25	1,300	0.50687	0.86323	1.46748	0.00000	0.2531
3.25	1,400	0.54586	0.92963	1.58036	0.00000	0.2725
3.25	1,500	0.58485	0.99603	1.69325	0.00000	0.2920
3.25	1,600	0.62384	1.06243	1.80613	0.00000	0.3115
3.25	1,700	0.66283	1.12883	1.91901	0.00000	0.3309
3.25	1,800	0.70182	1.19524	2.03189	0.00000	0.3504
3.25	1,900	0.74081	1.26164	2.14478	0.00000	0.3699
3.25	2,000	0.77980	1.32804	2.25766	0.00000	0.3893
3.25	2,100	0.81879	1.39444	2.37054	0.00000	0.4088
3.25	2,200	0.85778	1.46084	2.48343	0.00000	0.4283
3.25	2,300	0.89677	1.52725	2.59631	0.00000	0.4477
3.25	2,400	0.93576	1.59365	2.70919	0.00000	0.4672
3.25	2,500	0.97475	1.66005	2.82208	0.00000	0.4867
3.25	2,600	1.01374	1.72645	2.93496	0.00000	0.5061
3.25	2,700	1.05273	1.79285	3.04784	0.00000	0.5256
3.25	2,800	1.09172	1.85926	3.16072	0.00000	0.5451
3.25	2,900	1.13071	1.92566	3.27361	0.00000	0.5645
3.25	3,000	1.16970	1.99206	3.38649	0.00000	0.5840
3.25	3,100	1.20869	2.05846	3.49937	0.00000	0.6035
3.25	3,200	1.24768	2.12486	3.61226	0.00000	0.6230
3.25	3,300	1.28667	2.19127	3.72514	0.00000	0.6424
3.25	3,400	1.32566	2.25767	3.83802	0.00000	0.6619
3.25	3,500	1.36465	2.32407	3.95091	0.00000	0.6814
3.25	3,600	1.40364	2.39047	4.06379	0.00000	0.7008
3.25	3,700	1.44263	2.45687	4.17667	0.00000	0.7203
3.25	3,800	1.48162	2.52328	4.28955	0.00000	0.7398
3.25	3,900	1.52061	2.58968	4.40244	0.00000	0.7592
3.25	4,000	1.55960	2.65608	4.51532	0.00000	0.7787
3.25	4,100	1.59859	2.72248	4.62820	0.00000	0.7982
3.25	4,200	1.63758	2.78888	4.74109	0.00000	0.8176
3.25	4,300	1.67657	2.85529	4.85397	0.00000	0.8371
3.25	4,400	1.71556	2.92169	4.96685	0.00000	0.8566
3.25	4,500	1.75455	2.98809	5.07974	0.00000	0.8760

Diversion Rate - Domestic, cfs	Equivalent Dwelling Units, EDU (1)	Average Day Flow, cfs (2)	Max Day Flow Demand, cfs	Peak Hour Demand, cfs	Required Fire Flow Well Source	Percent of Volume Limit, 1,450 AF
3.25	4,600	1.79354	3.05449	5.19262	0.00000	0.8955
3.25	4,700	1.83253	3.12089	5.30550	0.00000	0.9150
3.25	4,800	1.87152	3.18730	5.41838	0.00000	0.9344
3.25	4,900	1.91051	3.25370	5.53127	0.00000	0.9539
3.25	5,000	1.94950	3.32010	5.64415	0.00000	0.9734
3.25	5,100	1.98849	3.38650	5.75703	0.00000	0.9928
3.25	5,200	2.02748	3.45290	5.86992	0.00000	1.0123
3.25	5,300	2.06647	3.51931	5.98280	0.00000	1.0318
3.25	5,400	2.10546	3.58571	6.09568	0.00000	1.0512
3.25	5,500	2.14445	3.65211	6.20857	0.00000	1.0707
3.25	5,600	2.18344	3.71851	6.32145	0.00000	1.0902
3.25	5,700	2.22243	3.78491	6.43433	0.00000	1.1096
3.25	5,800	2.26142	3.85132	6.54721	0.00000	1.1291
3.25	5,900	2.30041	3.91772	6.66010	0.00000	1.1486
3.25	6,000	2.33940	3.98412	6.77298	0.00000	1.1680
3.25	6,100	2.37839	4.05052	6.88586	0.00000	1.1875
3.25	6,200	2.41738	4.11692	6.99875	0.00000	1.2070
3.25	6,300	2.45637	4.18333	7.11163	0.00000	1.2264
3.25	6,400	2.49536	4.24973	7.22451	0.00000	1.2459
3.25	6,500	2.53435	4.31613	7.33740	0.00000	1.2654
3.25	6,600	2.57334	4.38253	7.45028	0.00000	1.2848
3.25	6,700	2.61233	4.44893	7.56316	0.00000	1.3043
3.25	6,800	2.65132	4.51534	7.67604	0.00000	1.3238
3.25	6,900	2.69031	4.58174	7.78893	0.00000	1.3432
3.25	7,000	2.72930	4.64814	7.90181	0.00000	1.3627
3.25	7,100	2.76829	4.71454	8.01469	0.00000	1.3822
3.25	7,200	2.80728	4.78094	8.12758	0.00000	1.4016
3.25	7,300	2.84627	4.84735	8.24046	0.00000	1.4211
3.25	7,400	2.88526	4.91375	8.35334	0.00000	1.4406
3.25	7,500	2.92425	4.98015	8.46623	0.00000	1.4600
3.25	7,600	2.96324	5.04655	8.57911	0.00000	1.4795
3.25	7,700	3.00223	5.11295	8.69199	0.00000	1.4990
3.25	7,800	3.04122	5.17936	8.80487	0.00000	1.5184
3.25	7,900	3.08021	5.24576	8.91776	0.00000	1.5379
3.25	8,000	3.11920	5.31216	9.03064	0.00000	1.5574
3.25	8,100	3.15819	5.37856	9.14352	0.00000	1.5768
3.25	8,200	3.19718	5.44496	9.25641	0.00000	1.5963
3.25	8,300	3.23617	5.51137	9.36929	0.00000	1.6158
3.25	8,400	3.27516	5.57777	9.48217	0.00000	1.6352
3.25	8,500	3.31415	5.64417	9.59506	0.00000	1.6547

Water Right Withdrawal Rate 3.25 cfs

Maximum Withdrawal, 1,450 AF

Notes:

1. Equivalient Dwelling Unit (1 EDU = 3.13 people per 2010 Census)
2. Flow requirement of source water supply with no storage in system, based on 1-hr. peak system demand of 728.3 gal/EDU, max. day demand of 428.4 gpd/EDU and mean annual day demand of 252 gpd/EDU.
3. Fire flow: 1500 gpm
4. Flow demand based on water use records, Eastern Service Area, 2009 - 2013.

Declining Balance Worksheet, 2014 Update **WESTERN SERVICE AREA**

A. Revised worksheet based on test results of 24-hour pump tests performed between June 3 and June 11, 2008, Eagle Well #4 and #5.
B. Revised worksheet based on five years of flow data from the Eastern Service Area, 2009 - 2013.
C. Revised to remove anticipated contribution of Well #6, identified in 2008 Plan.
D. Basis for Table

252	Ave. gallons per day per EDU
428.4	Max day @1.7 factor
728.28	Peak hour @ 1.7 factor
0.00000155	conversion gpd to cfs
0.00039060	Ave. cfs per day per EDU
0.00066402	Max day, cfs
0.00112883	Peak hour, cfs

Diversion Rate - Domestic, cfs	Equivalent Dwelling Units, EDU (1)	Average Day Flow, cfs (2)	Max Day Flow Demand, cfs	Peak Hour Demand, cfs	Max Day Plus Fire, cfs (3)	Max Day Plus Fire, gpm
2.23	5	0.00195	0.00332	0.00564	3.34532	1,501.48
2.23	10	0.00391	0.00664	0.01129	3.34864	1,502.97
2.23	15	0.00586	0.00996	0.01693	3.35196	1,504.46
2.23	20	0.00781	0.01328	0.02258	3.35528	1,505.95
2.23	25	0.00977	0.01660	0.02822	3.35860	1,507.44
2.23	50	0.01953	0.03320	0.05644	3.37520	1,514.89
2.23	75	0.02930	0.04980	0.08466	3.39180	1,522.35
2.23	100	0.03906	0.06640	0.11288	3.40840	1,529.80
2.23	150	0.05859	0.09960	0.16933	3.44160	1,544.70
2.23	200	0.07812	0.13280	0.22577	3.47480	1,559.60
2.23	250	0.09765	0.16601	0.28221	3.50801	1,574.50
2.23	300	0.11718	0.19921	0.33865	3.54121	1,589.40
2.23	350	0.13671	0.23241	0.39509	3.57441	1,604.30
2.23	400	0.15624	0.26561	0.45153	3.60761	1,619.21
2.23	450	0.17577	0.29881	0.50798	3.64081	1,634.11
2.23	500	0.19530	0.33201	0.56442	3.67401	1,649.01
2.23	550	0.21483	0.36521	0.62086	3.70721	1,663.91
2.23	600	0.23436	0.39841	0.67730	3.74041	1,678.81
2.23	650	0.25389	0.43161	0.73374	3.77361	1,693.71
2.23	700	0.27342	0.46481	0.79018	3.80681	1,708.62
2.23	750	0.29295	0.49802	0.84663	3.84002	1,723.52
2.23	800	0.31248	0.53122	0.90307	3.87322	1,738.42
2.23	850	0.33201	0.56442	0.95951	3.90642	1,753.32
2.23	900	0.35154	0.59762	1.01595	3.93962	1,768.22
2.23	950	0.37107	0.63082	1.07239	3.97282	1,783.12
2.23	1,000	0.39060	0.66402	1.12883	4.00602	1,798.03
2.23	1,100	0.42966	0.73042	1.24172	4.07242	1,827.83
2.23	1,200	0.46872	0.79682	1.35460	4.13882	1,857.63
2.23	1,300	0.50778	0.86323	1.46748	4.20523	1,887.44
2.23	1,400	0.54684	0.92963	1.58037	4.27163	1,917.24
2.23	1,500	0.58590	0.99603	1.69325	4.33803	1,947.04
2.23	1,600	0.62496	1.06243	1.80613	4.40443	1,976.85
2.23	1,700	0.66402	1.12883	1.91902	4.47083	2,006.65
2.23	1,800	0.70308	1.19524	2.03190	4.53724	2,036.45
2.23	1,900	0.74214	1.26164	2.14478	4.60364	2,066.26
2.23	2,000	0.78120	1.32804	2.25767	4.67004	2,096.06
2.23	2,100	0.82026	1.39444	2.37055	4.73644	2,125.86
2.23	2,200	0.85932	1.46084	2.48343	4.80284	2,155.67
2.23	2,300	0.89838	1.52725	2.59632	4.86925	2,185.47
2.23	2,400	0.93744	1.59365	2.70920	4.93565	2,215.27
2.23	2,500	0.97650	1.66005	2.82209	5.00205	2,245.08
2.23	2,600	1.01556	1.72645	2.93497	5.06845	2,274.88
2.23	2,700	1.05462	1.79285	3.04785	5.13485	2,304.68
2.23	2,800	1.09368	1.85926	3.16074	5.20126	2,334.48
2.23	2,900	1.13274	1.92566	3.27362	5.26766	2,364.29
2.23	3,000	1.17180	1.99206	3.38650	5.33406	2,394.09
2.23	3,100	1.21086	2.05846	3.49939	5.40046	2,423.89
2.23	3,200	1.24992	2.12486	3.61227	5.46686	2,453.70
2.23	3,300	1.28898	2.19127	3.72515	5.53327	2,483.50
2.23	3,400	1.32804	2.25767	3.83804	5.59967	2,513.30
2.23	3,500	1.36710	2.32407	3.95092	5.66607	2,543.11

Water Right
63-32089, 63-32090:
2.23 cfs Municipal
6.68 cfs Fire Protection

Rated System Capacity based on Aug. 8, 2008 Flow Test Report, 2,300 gpm
IDRPDWS 58.01.08.510.6.a

Notes:
1. Equivalient Dwelling Unit (1 EDU = 3.13 people per 2010 Census)
2. Flow requirement of source water supply with no storage in system, based on 1-hr. peak system demand of 728.3 gal/EDU, max. day demand of 428.4 gal/EDU and annual average day demand of 252 gal/EDU.
3. Fire flow: 1500 gpm
4. Flow demands based on water use records from 2009 through 2013.

EXHIBIT U – CAPITAL IMPROVEMENT PLAN

City of Eagle
Water Fund
Water Department Budget: 2015-16

Capital Improvements for 2015 through 2025

Project priorities below are established by operator preference and may be subject to change when system modeling is completed.

1 Floating Feather Snoqualmie Intertie	Project Lineal Feet			1690
	Unit	Cost/Unit		Cost
12-inch PVC Pipe	LF	$ 38	$	64,220
12-inch Gate Valve	EA	$ 2,500	$	7,500
Fire Hydrant with Valve	EA	$ 3,800	$	7,600
Fittings @ $4.00/LF	LF	$ 4	$	6,760
Asphalt Removal & Repair	LF	$ 27	$	45,630
Erosion Control, Traffic Control	EA	$ 10,000	$	10,000
Curb, Gutter, Landscaping, Cleanup	LF	$ 20	$	33,800
Construction Subtotal			$	175,510
Mobilization		10.00%	$	17,551
Surveying		2.00%	$	3,510
Admin/Engineering		20.00%	$	35,102
Permit, License Agreement, Legal		2.00%	$	3,510
Est. Markup location, site, traffic		5.00%	$	8,776
			$	243,959

Note: The values represent Class 3 estimates as defined by the AACE Cost Estimate Classification System and are suitable for budget development only. These values have not been based on field surveys, permit or license conditions, or preliminary design and are subject to revision.

2 Cabra Creek Intertie	Project Lineal Feet			720
	Unit	Cost/Unit		Cost
8-inch PVC Pipe	LF	$ 30	$	21,600
8-inch Gate Valve	EA	$ 1,500	$	4,500
Fittings @ $3.00/LF	LF	$ 3	$	2,160
Cased Crossing	EA	$ 130,000	$	130,000
Asphalt Removal & Repair	LF	$ 27	$	19,440
Erosion Control, Traffic Control	EA	$ 10,000	$	10,000
Curb, Gutter, Landscaping, Cleanup	LF	$ 20	$	14,400
Construction Subtotal			$	202,100
Mobilization		10.00%	$	20,210
Surveying		2.00%	$	4,042
Admin/Engineering		20.00%	$	40,420
Permit, License Agreement, Legal		2.00%	$	4,042
Est. Markup location, site, traffic		12.00%	$	24,252
			$	295,066
Alternative Loop to North FH		470		
8-inch PVC Pipe	LF	$ 30	$	14,100
Fittings @ $3.00/LF	LF	$ 3	$	1,410
Asphalt Removal and Repair	LF	$ 27	$	12,690
			$	28,200

3 Water Shop and Storage				
Land Acquisition, 4 acres	EA	$ 200,000	$	200,000
Screening, Landscaping, Fencing	EA	$ 100,000	$	100,000

Utilities, Base, Aggregate Surfacing	EA	$ 80,000	$ 80,000
Building (2,100 sq.ft. @ $170/sq.ft.)	EA	$ 360,000	$ 360,000
Street, Parking Improvements	EA	$ 100,000	$ 100,000
			$ 840,000

4 Hwy 55 Extension to Beacon Light	Unit	Unit Price	Sta. 0+00 - Sta. 9+60	Sta. 9+60 - Sta. 17+00	Sta. 17+00 - Sta. 28+00	Sta. 28+00 - Sta. 29+50	Sta. 29+50 - Sta. 37+00	
	Project Lineal Feet		960	740	1100	150	750	
	Unit	Cost/Unit			Cost			
16-inch PVC Pipe	LF	$ 44	$ 42,240	$ 32,560	$ 48,400	$ 6,600	$ 33,000	
16-inch Gate Valve	EA	$ 3,000	$ 6,000	$ 6,000	$ 6,000	$ 3,000	$ 6,000	
Fire Hydrant with Valve	EA	$ 3,800	$ 3,800	$ 3,800	$ 3,800	$ -	$ 3,800	
Fittings @ $5.00/LF	LF	$ 5	$ 4,800	$ 3,700	$ 5,500	$ 750	$ 3,750	
Cased Crossing	EA	$ 60,000				$ 60,000		
Asphalt Removal & Repair	LF	$ 27	$ 25,920	$ 19,980	$ 29,700	$ 4,050	$ 20,250	
Erosion Control, Traffic Control	EA	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	
Curb, Gutter, Landscaping, Cleanup	LF	$ 20	$ 19,200	$ 14,800	$ 22,000	$ 3,000	$ 15,000	
Construction Subtotal			$ 111,960	$ 90,840	$ 125,400	$ 87,400	$ 91,800	
Mobilization		10.00%	$ 11,196	$ 9,084	$ 12,540	$ 8,740	$ 9,180	
Surveying		2.00%	$ 2,239	$ 1,817	$ 2,508	$ 1,748	$ 1,836	
Admin/Engineering		20.00%	$ 22,392	$ 18,168	$ 25,080	$ 17,480	$ 18,360	
Permit, License Agreement, Legal		2.00%	$ 2,239	$ 1,817	$ 2,508	$ 1,748	$ 1,836	
Est. Markup location, site, traffic		10.00%	$ 11,196	$ 9,084	$ 12,540	$ 8,740	$ 9,180	
			$ 161,222	$ 130,810	$ 180,576	$ 125,856	$ 132,192	$ 730,656

5 Beacon Light to Vizcya Subdivision	Unit	Unit Price	Sta. 0+00 - Sta. 11+50	Sta. 11+50 - Sta. 20+00	Sta. 20+00 - Sta. 38+00	Sta. 38+00 - Sta. 48+00	
	Project Lineal Feet		1150	850	1800	1000	
	Unit	Cost/Unit		Cost			
12-inch PVC Pipe	LF	$ 38	$ 43,700	$ 32,300	$ 68,400	$ 38,000	
12-inch Gate Valve	EA	$ 2,500	$ 5,000	$ 5,000	$ 5,000	$ 5,000	
Fire Hydrant with Valve	EA	$ 2,750	$ 2,750	$ 2,750	$ 2,750	$ 2,750	
Fittings @ $4.00/LF	LF	$ 4	$ 4,600	$ 3,400	$ 7,200	$ 4,000	
Dry Creek Crossing	EA	$ 60,000	$ 60,000	$ -		$ -	
Pressure Reducing Valve/Vault	EA	$ 80,000		$ 80,000			
Asphalt Removal & Repair	LF	$ 27	$ 31,050	$ 22,950	$ 48,600	$ 27,000	
Erosion Control, Traffic Control	EA	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	
Curb, Gutter, Landscaping, Cleanup	LF	$ 20	$ 23,000	$ 17,000	$ 36,000	$ 20,000	
Construction Subtotal			$ 180,100	$ 173,400	$ 177,950	$ 106,750	
Mobilization		10.00%	$ 18,010	$ 17,340	$ 17,795	$ 10,675	
Surveying		2.00%	$ 3,602	$ 3,468	$ 3,559	$ 2,135	
Admin/Engineering		20.00%	$ 36,020	$ 34,680	$ 35,590	$ 21,350	
Permit, License Agreement, Legal		2.00%	$ 3,602	$ 3,468	$ 3,559	$ 2,135	
Est. Markup location, site, traffic		15.00%	$ 27,015	$ 26,010	$ 26,693	$ 16,013	
			$ 268,349	$ 258,366	$ 265,146	$ 159,058	$ 950,918

Note: Projects are broken into segments for illustration of smaller increments. There is the potential for cost savings due to economies of scale if segments are combined.

EXHIBIT V – EXTENSION FOR PROOF OF BENEFICIAL USE

Extension of Time
Permits No. 63-32089 and 63-32090

Idaho Department of Water Resources, March 11, 2013

Withdrawal of Protests
April 14, 2015

State of Idaho
DEPARTMENT OF WATER RESOURCES
322 East Front Street • P.O. Box 83720 • Boise, Idaho 83720-0098
Phone: (208) 287-4800 • Fax: (208) 287-6700 • Website: www.idwr.idaho.gov

C.L. "BUTCH" OTTER
Governor

GARY SPACKMAN
Director

March 11, 2013

CITY OF EAGLE
PO BOX 1520
EAGLE ID 83616

RE: Permit Nos. 63-32089 & 63-32090

Dear Permit Holder:

Enclosed are copies of the approved requests for extension of time submitted in connection with the above referenced permits which extends the time within which to submit proofs of beneficial use to November 12, 2015. Please note that the department granted these extensions due to circumstances beyond your control, which kept you from completion of developing the permits.

Please note that the department has granted this period of your extensions based on the actual time these permits were subject to Department and judicial review during the last development period, according to Section 42-204(1), Idaho Code.

It is important that you work diligently toward the completion of the development. You may apply for one additional extension for up to five more years under due diligence on or before the new proof due date of November 12, 2015.

Please be advised that Section 42-248, Idaho Code, requires you or the owner of these water rights to maintain current ownership and address records on file with the Department. Please contact any office of the Department for the proper form to file a change of ownership of a water right and/or a change in the address of the owner.

If you have any questions regarding this matter, please feel free to contact the department.

Sincerely,

Darla Block

Darla Block
Technical Records Specialist

cc: HOLLADAY ENGINEERING CO
SPF WATER ENGINEERING

SPF WATER
ENGINEERING

RECEIVED
FEB 14 2013
DEPARTMENT OF
WATER RESOURCES

February 13, 2013

Darla Block
IDWR State Office
PO Box 83720
Boise, ID 83720-0098

Subject: ***Extensions of Time; Permits 63-32089 and 63-32090***

Dear Darla,

Enclosed on behalf of the City of Eagle are Requests for Extension of Time for permits 63-32089 and 63-32090. The proof due dates for both permits is March 1, 2013.

Check No. 7461 is enclosed for the $100 filing fee.

Please let me know if there are any questions. Thanks Darla.

Sincerely,

Lori Graves

Lori Graves
Water Rights Specialist

Cc: Mike Echeita, City of Eagle Public Works
Bruce Smith

Enclosures

SPF file number: 307.0040

RECEIVED

FEB 14 2013

DEPARTMENT OF WATER RESOURCES

Form No. 204 Rev. 10/12

$50 fee
Receipted by HP
Receipt No. C096552
Date 2-14-13

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

REQUEST FOR EXTENSION OF TIME

To provide additional time in which to submit proof of beneficial use for a water right permit

The Idaho Department of Water Resources will consider this form a request that the permit holder(s) be granted an additional period of time under the provisions of Section 42-204, Idaho Code, in which to complete development of a water right and file proof of beneficial use of water. There is a **FILING FEE of $50.00** to be included with this form when filed with IDWR.

Permit no. 63-32090 Date proof is due 3/1/2013

Name(s) of permit holder(s) City of Eagle

Mailing address PO Box 1520 City Eagle State ID Zip 83616

Telephone no. 208-939-6813 Email

Describe what work has been completed toward the development of this water right:
If no work has been completed, show "none".

In accordance with the Department's Final Order for Permits 63-32089 and 63-32090, a ground water monitoring plan was prepared and submitted to the Department June 26, 2012 and was recently approved August 22, 2012. Two municipal wells have been drilled (with pumps and pump houses and infra-structure connecting the wells to the City of Eagle municipal water system.

Costing in excess of $1 million

The permit holder(s) has been unable to complete the remainder of the work for the following reasons:

See attached explanation

Permit holder(s) request an extension to November 12, 20 20.

Signature *(If other than permit holder, Power of Attorney must be supplied)* Date 2-8-13

ACTION OF THE DEPARTMENT OF WATER RESOURCES

The Department has reviewed the explanation for delay and concludes the reason(s) for delay meets the requirements for approval of the Request for Extension of Time as provided by section 42-204 and/or 42-218, Idaho Code.

IT IS HEREBY ORDERED that the above request for extension of time be. **APPROVED** and the time within which to submit proof of beneficial use is extended to **November 12, 2015.**

Signed this 14th day of March, 20 13

Jeff Peppersack, Chief
Water Allocation Bureau

Explanation for Extension of Time:

Proof of beneficial use for permits 63-32089 and 63-32090 are currently due March 1, 2013, which is based on five years from the date of a Final Order regarding both permits issued by the Department February 26, 2008. Normally, an additional 5 years is proposed for extensions, however these two permits have been subject to Department and judicial review since the Final Order was issued. As provided in Idaho Code 42-204, subsection 5, these review periods were not something the applicant had control of and consequently, this time should be credited towards the permits' future development time allowances.

The following is a chronology of the Department and judicial review periods:

IDWR Final Order Issued	2/26/08
Eagle Petition to Reconsider Final Order	3/11/08
Order on Reconsideration of Final Order	7/03/08
Review Days	115
Petition for Review by District Court	8/11/08
District Court Decision	8/18/09
Review Days	373
Supreme Court Appeal	9/28/09
Supreme Court Decision	2/07/11
Review Days	498

Total Requested Credit Days: 115 + 373 + 498 = 986 days (2 years + 256 days)

Total Requested Extension Request: 5 years + 2 years + 56 days = 7 years + 56 days

RECEIVED

FEB 14 2013

DEPARTMENT OF WATER RESOURCES

Form No. 204 Rev. 10/12

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

$50 fee
Receipted by HP
Receipt No. C096552
Date 2-14-13

REQUEST FOR EXTENSION OF TIME

To provide additional time in which to submit proof of beneficial use for a water right permit

The Idaho Department of Water Resources will consider this form a request that the permit holder(s) be granted an additional period of time under the provisions of Section 42-204, Idaho Code, in which to complete development of a water right and file proof of beneficial use of water. There is a **FILING FEE of $50.00** to be included with this form when filed with IDWR.

Permit no. 63-32089 Date proof is due 3/1/2013

Name(s) of permit holder(s) City of Eagle

Mailing address PO Box 1520 City Eagle State ID Zip 83616

Telephone no. 208-939-6813 Email

Describe what work has been completed toward the development of this water right:
If no work has been completed, show "none".

In accordance with the Department's Final Order for Permits 63-32089 and 63-32090, a ground water monitoring plan was prepared and submitted to the Department June 26, 2012 and was recently approved August 22, 2012. Two municipal wells have been drilled (with pumps and pump houses) and infra-structure connecting the wells to the City of Eagle municipal water system.

Costing in excess of $1 million

The permit holder(s) has been unable to complete the remainder of the work for the following reasons:

See attached explanation

Permit holder(s) request an extension to November 12, 20 20.

Signature (*If other than permit holder, Power of Attorney must be supplied*) Date 2-8-13

ACTION OF THE DEPARTMENT OF WATER RESOURCES

The Department has reviewed the explanation for delay and concludes the reason(s) for delay meets the requirements for approval of the Request for Extension of Time as provided by section 42-204 and/or 42-218, Idaho Code.

IT IS HEREBY ORDERED that the above request for extension of time be **APPROVED** and the time within which to submit proof of beneficial use is extended to **November 12, 2015.**

Signed this 11th day of March, 2013

Jeff Peppersack, Chief
Water Allocation Bureau

Explanation for Extension of Time:

Proof of beneficial use for permits 63-32089 and 63-32090 are currently due March 1, 2013, which is based on five years from the date of a Final Order regarding both permits issued by the Department February 26, 2008. Normally, an additional 5 years is proposed for extensions, however these two permits have been subject to Department and judicial review since the Final Order was issued. As provided in Idaho Code 42-204, subsection 5, these review periods were not something the applicant had control of and consequently, this time should be credited towards the permits' future development time allowances.

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Review Days	373
Supreme Court Appeal	9/28/09
Supreme Court Decision	2/07/11
Review Days	498

Total Requested Credit Days: 115 + 373 + 498 = 986 days (2 years + 256 days)

Total Requested Extension Request: 5 years + 2 years + 56 days = 7 years + 56 days

State of Idaho
DEPARTMENT OF WATER RESOURCES

Western Region, 2735 Airport Way • Boise, Idaho 83705-5082
Phone: (208) 334-2190 • Fax: (208) 334-2348 • Web Site: www.idwr.idaho.gov

C. L. "BUTCH" OTTER
Governor

GARY SPACKMAN
Director

April 14, 2015

CITY OF EAGLE
PO BOX 1520
EAGLE, ID 83616

BRUCE M SMITH
MOORE SMITH BUXTON & TURCKE
950 W BANNOCK ST STE 520
BOISE, ID 83702

RE: Withdrawal of Protest against Application for Permit No's. 63-33876 and 63-33878.

Dear Applicants:

The Department of Water Resources has received a conditional withdrawal of protest against the above referenced application. Withdrawals have been received from the following Protestant:

1) UNITED WATER IDAHO INC

The application does not have any remaining protests; therefore, the Department will take the steps necessary to bring the application to a final resolution. Correspondence will continue to be sent to United Water and its attorneys Givens Pursley LLP.

Please contact this office if you have any questions regarding this procedure. Information about water rights and other matters administered by this agency is also available on the Internet at www.idwr.idaho.gov.

Sincerely,

David Brinner For:

Jeff Peppersack
Interim Manager, Western Region

Enclosures: Copy of the conditional withdrawal.

Cc: ROGER DITTUS, UNITED WATER IDAHO INC
MICHAEL P LAWRENCE, GIVENS PURSLEY LLP
KYLE RADEK, CITY OF MERIDIAN
CHARLES L HONSINGER, HONSINGER LAW PLLC

RECEIVED
APR 01 2015
DEPARTMENT OF WATER RESOURCES

Michael P. Lawrence [ISB No. 7288]
GIVENS PURSLEY LLP
601 W. Bannock St.
P.O. Box 2720
Boise, Idaho 83701-2720
Office: 208-388-1200
Fax: 208-388-1300
www.givenspursley.com
Attorneys for United Water Idaho Inc.

Bruce M. Smith [ISB No. 3425]
Moore Smith Buxton & Turcke, Chtd.
950 W. Bannock, Ste. 520
Boise, ID 83702
Office: 208-331-1800
Fax: 208-331-1202
www.msbtlaw.com
Attorneys for City of Eagle

RECEIVED
APR 02 2015
WATER RESOURCES WESTERN REGION

BEFORE THE DEPARTMENT OF WATER RESOURCES

FOR THE STATE OF IDAHO

IN THE MATTER OF APPLICATION FOR PERMIT NOS. 63-33876 AND 63-33878 IN THE NAME OF THE CITY OF EAGLE	STIPULATION AND AGREEMENT FOR WITHDRAWAL OF PROTEST

Protestant United Water Idaho Inc. ("United Water") through its attorneys Givens Pursley LLP, and Applicant City of Eagle ("City") through its attorneys Moore Smith Buxton & Turcke, Chtd., hereby stipulate and agree to United Water's withdrawal with prejudice of its protest filed in the above-captioned matters ("Applications") on the following terms and conditions:

1. The Applications are hereby amended to remove proposed points of diversion located in Section 5 and in Section 17, T04N, R01E, B.M.;
2. The Applications are hereby amended to exclude from the proposed place of use and the City's Municipal Service Area all areas within United Water's "2012 Planning Area Boundary" set forth in Exhibit A attached hereto and incorporated by reference;
3. Any permits or licenses issued under the Applications shall exclude the proposed points of diversion and place of use described above; and
4. City shall provide United Water with written notice prior to increasing the rate of water diverted from City's existing well located in the SWSW of Section 4, T04N, R01E, B.M.,

above 3.25 cubic feet per second, which is the maximum combined diversion rate authorized under City's existing water right nos. 63-11413, 63-12017, and 63-12448, and City shall maintain records of the volumes and rates of water produced from the well after any such increase and shall make such records available to United Water upon request.

The parties agree that diversion and use of water in connection with any permit or license issued under the Applications shall be subject to this Stipulation, which shall be binding upon the parties hereto, and their heirs, successors, and assigns.

With respect to the above-captioned matters, each party shall bear its own costs, expenses, and attorney fees.

Respectfully submitted this 30th day of March, 2015.

GIVENS PURSLEY LLP

By ______________________
Michael P. Lawrence
Attorneys for United Water Idaho Inc.

MOORE SMITH BUXTON & TURCKE, CHTD.

By ______________________
Bruce M. Smith
Attorneys for City of Eagle

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 31 day of March, 2015, the foregoing was filed, served, and copied as follows:

DOCUMENT FILED:

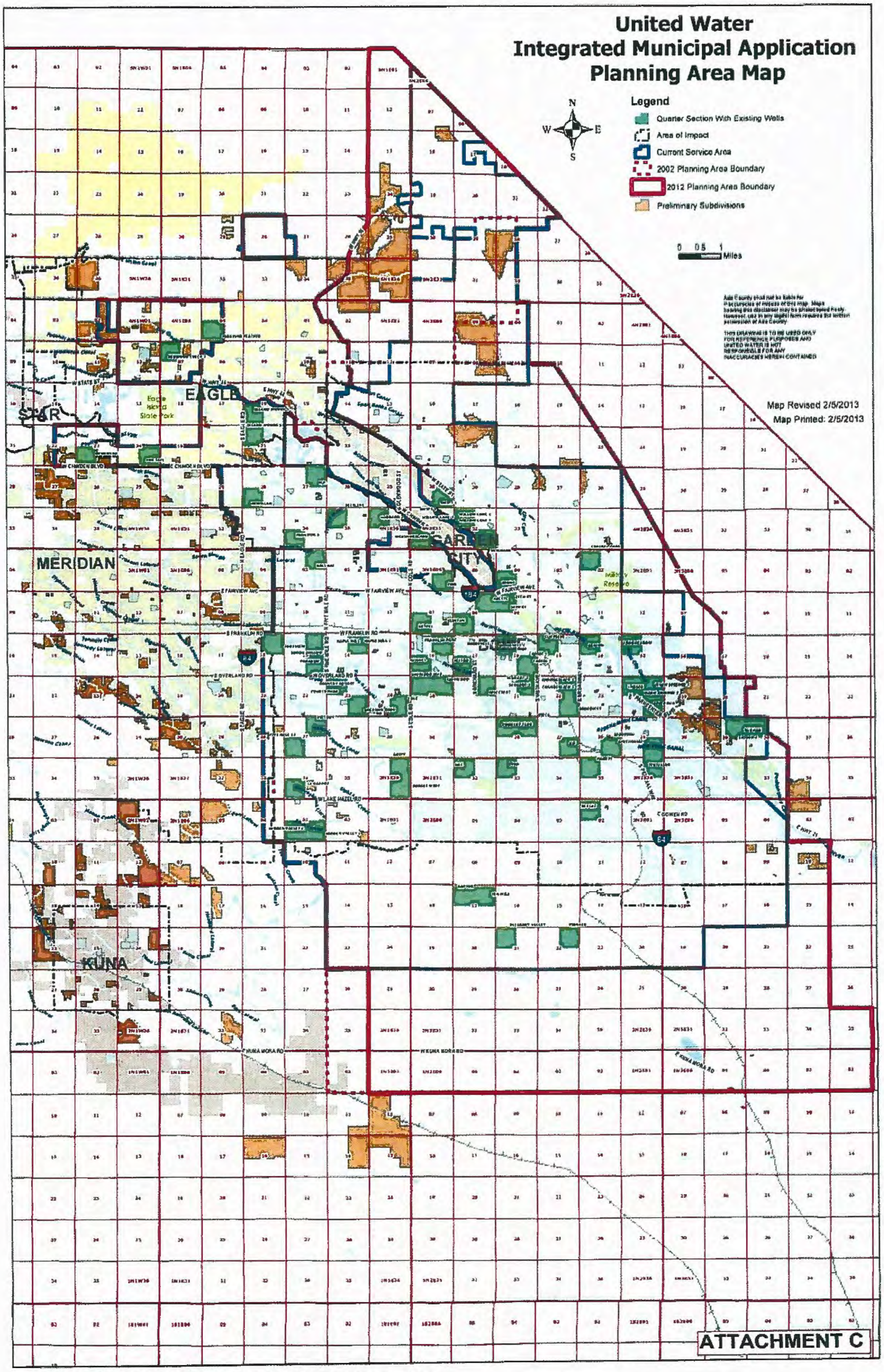
Idaho Department of Water Resources 322 East Front Street P.O. Box 83720 Boise, ID 83720-0098	☒ ☐ ☐ ☐ ☐	U. S. Mail Hand Delivered Overnight Mail Facsimile E-mail

SERVICE COPIES TO:

Michael P. Lawrence 601 W. Bannock St. P.O. Box 2720 Boise, Idaho 83701-2720 Fax: 208-388-1300 *Attorney for United Water Idaho Inc.*	☒ ☐ ☐ ☐ ☐	U. S. Mail Hand Delivered Overnight Mail Facsimile E-mail

Bruce M. Smith

EXHIBIT A



STIPULATION AND AGREEMENT FOR WITHDRAWAL OF PROTEST - 4

EXHIBIT W – WESTERN SERVICE AREA MONITORING PLAN

Monitoring, Recording, and Reporting Plan
Permits 63-32089 and 63-32090

Submitted by City of Eagle, August 2, 1012
Approved by Idaho Department of Water Resources, August 31, 2012

T-Dennis

RECEIVED

AUG 0 2 2012

DEPARTMENT OF
WATER RESOURCES

Monitoring, Recording, and Reporting Plan
Permits 63-32089 and 63-32090

Submitted by

City of Eagle, Idaho

Michael Echeita, Director of Public Works
City of Eagle

Prepared by

SPF Water Engineering, LLC
300 East Mallard, Suite 350
Boise, Idaho 83706
(208) 383-4140

PROFESSIONAL ENGINEER REGISTERED 9011 STATE OF IDAHO CHRISTIAN R. PETRICH

REGISTERED PROFESSIONAL GEOLOGIST CHRISTIAN R. PETRICH 1088 STATE OF IDAHO

6/26/12

June 26, 2012

SPF WATER ENGINEERING

State of Idaho
DEPARTMENT OF WATER RESOURCES
322 East Front Street • P.O. Box 83720 • Boise, Idaho 83720-0098
Phone: (208) 287-4800 • Fax: (208) 287-6700 • Web Site: www.idwr.idaho.gov

C.L. "BUTCH" OTTER
Governor
GARY SPACKMAN
Director

August 31, 2012

CITY OF EAGLE
PO BOX 1520
EAGLE ID 83616

RE: *Monitoring, Recording, and Reporting Plan* for Water Right Permits 63-32089 & 63-32090

Dear Permit Holder:

The Department of Water Resources has reviewed and approved the *Monitoring, Recording, and Reporting Plan* prepared by SPF Water Engineering, LLC, for Water Right Permits 63-32089 and 63-32090, which were issued to the City of Eagle in 2008. A copy of the Department's review memo is enclosed. The Department looks forward to working closely with the City of Eagle to implement the plan.

If you have any questions, please call me at 208-287-4947, or email me at shelley.keen@idwr.idaho.gov.

Sincerely,

Shelley W. Keen

Shelley W. Keen, Manager
Water Rights Section

cc: Sean Vincent, IDWR Hydrology Section
Christian R. Petrich, SPF Water Engineering LLC

U:\NAMELTRS\Start.doc

Monitoring, Recording, and Reporting Plan
Permits 63-32089 and 63-32090

Submitted by

City of Eagle, Idaho

Michael Echeita, Director of Public Works
City of Eagle

Prepared by

SPF Water Engineering, LLC
300 East Mallard, Suite 350
Boise, Idaho 83706
(208) 383-4140

PROFESSIONAL ENGINEER
REGISTERED
9011
STATE OF IDAHO
CHRISTIAN R. PETRICH

REGISTERED PROFESSIONAL GEOLOGIST
CHRISTIAN
R.
PETRICH
1066
STATE OF IDAHO

6/26/12

June 26, 2012

SPF WATER
ENGINEERING

1. INTRODUCTION

This document outlines a monitoring plan for Permits 63-32089 and 63-32090. This document provides background information on these permits, outlines monitoring requirements, and lists specific monitoring and reporting components. This document also provides conceptual monitoring well designs.

1.1. Permits 63-32089 and 63-32090

A final order in the matter of Applications to Appropriate Water Nos. 63-32089 and 63-32090, issued on February 26, 2008, authorized the beneficial uses and flow rates listed in Table 1. Points of diversion (Figure 1) consist of a well located in the NWSE of Section 11, T4N R1W (City of Eagle Production Well No. 4, formally known as the Eaglefield Well) and in the SENW of Section 11, T4N R1W (City of Eagle Production Well No. 3, formerly known as the Legacy Well). Open intervals for these wells are 345-425 feet and 282-352 feet below ground surface, respectively.

Permit 63-32089	
Municipal	2.23 cfs
Fire Protection	1.77 cfs
Permit 63-32090	
Fire Protection	4.91 cfs
Total	**8.91 cfs**

Table 1: Beneficial uses and flow rates authorized under Permits 63-32089 and 63-32090.

1.2. Monitoring Requirements under Permits 63-32089 and 63-32090

The final IDWR order for Permits 63-32089 and 63-32090 lists the following monitoring requirements:

> Prior to diversion of water under this right, the right holder shall construct/identify four observation wells for future monitoring. Three wells shall be located in close proximity to one or both of the production wells. One of the wells shall be completed in the shallow aquifer, one in the immediate aquifer, and one in the deep aquifer. A fourth observation well shall be located at a more remote distance from the production wells. The completion interval for the fourth well shall be in the deep aquifer. The location and design of the observation wells must be approved by the Department prior to construction or designation of the observation wells. Each observation well must be constructed so that ground water in the well is derived only from one aquifer zone, and must also be constructed so that water levels in each well can be easily measured.

Furthermore, the order requires that

> Prior to diversion of water under this right, the right holder shall develop and the Department must approve a monitoring, recording, and reporting plan for the observation wells.

2. MONITORING PLAN

This monitoring plan includes collecting discharge measurements from the City of Eagle Production Wells No. 3 and No. 4, constructing a shallow monitoring well, constructing an intermediate-depth monitoring well, constructing a deep monitoring well, and measuring water levels in these wells on a periodic basis. Specifically, the monitoring plan consists of the following:

1. The City of Eagle shall record volumetric discharge readings from existing flow meters installed in the No. 3 and No. 4 wells. City of Eagle personnel currently record volume readings on a daily basis.
2. The City of Eagle shall report production from the City of Eagle Wells No. 3 and No. 4 to IDWR on an annual basis.
3. The City of Eagle shall calibrate existing flow meters in Wells No. 3 and No. 4 within the first year of monitoring. Results from meter calibration will be reported to IDWR following the calibration.
4. The City of Eagle shall construct three new wells dedicated for monitoring purposes in the SWNW of Section 11, T4N R1W (Figure 1). These wells will be approximately 1,200 feet southwest of the City of Eagle No. 3 well and approximately 1,800 feet northwest of the City of Eagle No. 4 well. The wells will include the following
   a. A shallow well approximately 55 feet in depth;
   b. An intermediate-depth well approximately 150 feet in depth;
   c. A deep well extending to a sand zone approximately 350 feet below ground surface (the well will extend at least 300 feet below ground surface but no more than 400 feet).

   Conceptual designs for these wells are provided in Figures 2, 3, and 4. Final designs will be based on lithology observed during drilling and geophysical log results.
5. IDWR shall continue to monitor water levels from the existing North Ada County Monitoring Well No. 3 (owned, maintained, and monitored by IDWR). This well, which is located at the corner of Highway 16 and Floating Feather Road, meets the criteria for a deep well "located at a more remote distance from the production wells."

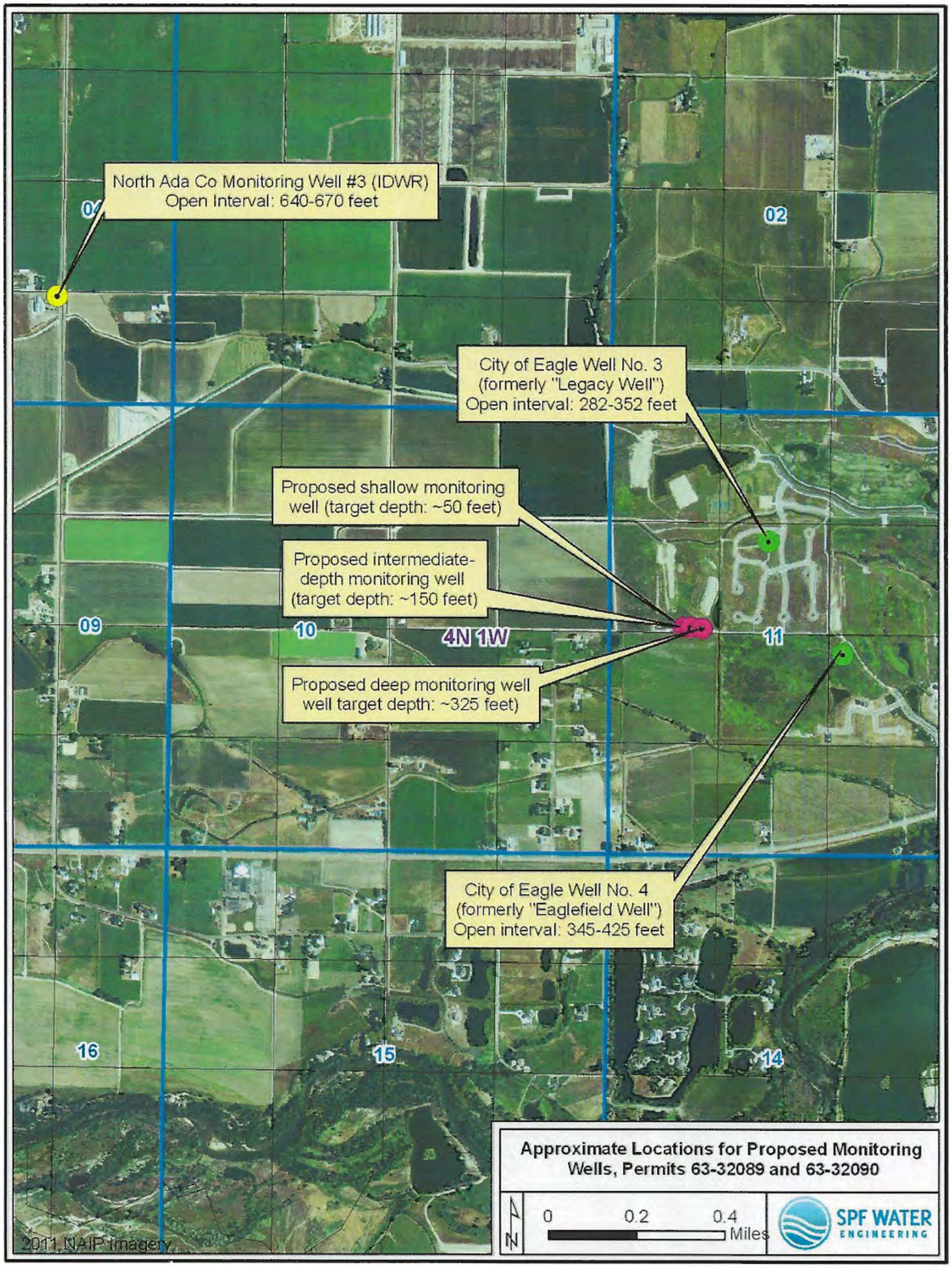
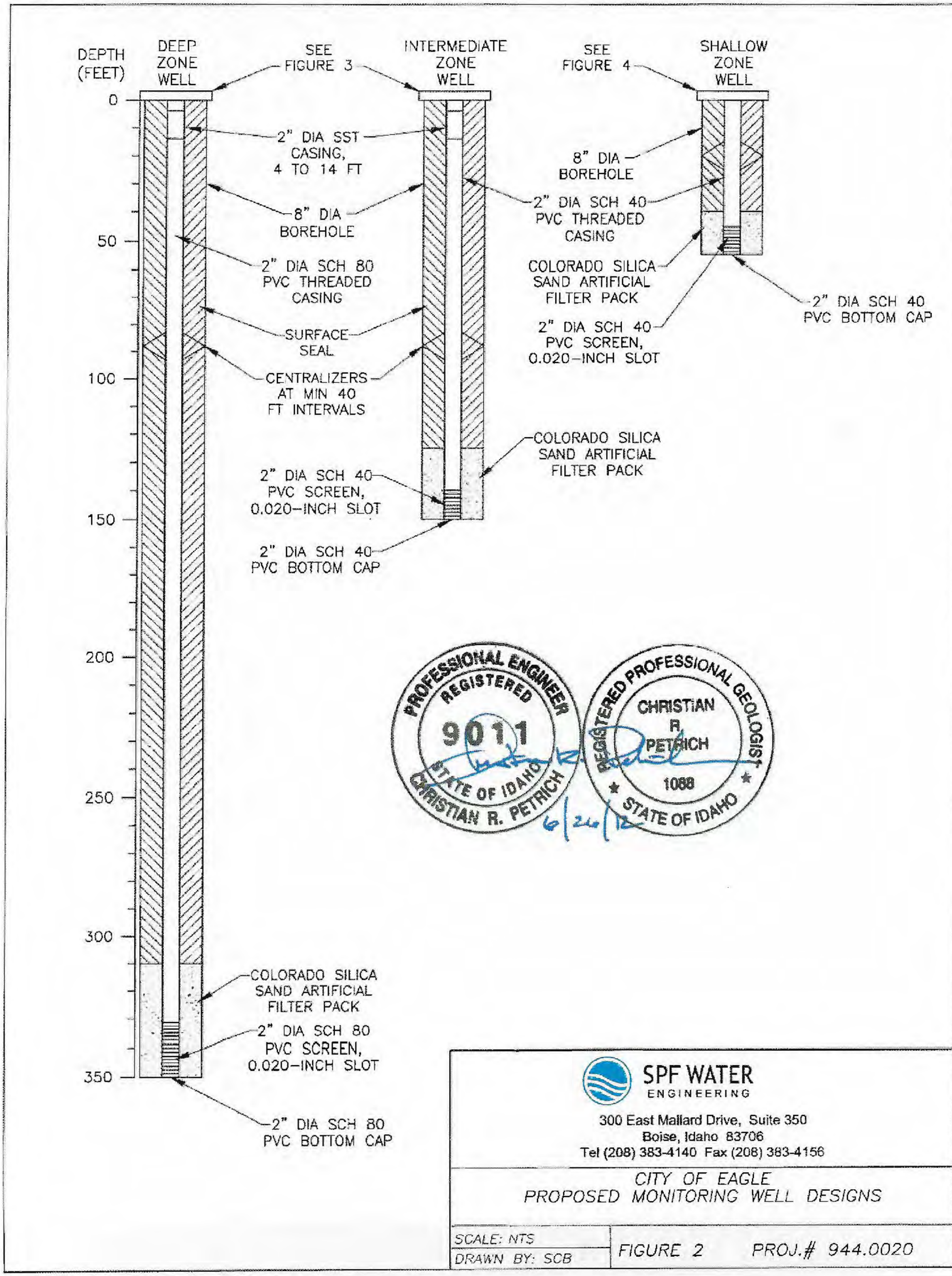


Figure 1. Proposed monitoring wells for Permits 63-32089 and 63-32090.

6. Our understanding is that IDWR will provide, install, and maintain pressure transducers and dataloggers in the three monitoring wells constructed by the City of Eagle[1]. Furthermore, it is our understanding that IDWR will download data from dataloggers in these City of Eagle monitoring wells on a quarterly basis along with other IDWR monitoring wells in this area (including the North Ada County Monitoring Well No. 3 referenced above). IDWR will manually measure depths to water and/or artesian pressure on a quarterly basis at the time of downloading datalogger data for calibration purposes. Cloud Berry LLC and the City of Eagle will provide IDWR access to the monitoring well site area for collecting water-level measurements from these three monitoring wells.

---

[1] Dennis Owsley, personal communication, April 23, 2012.


DEPTH (FEET)
0
50
100
150
200
250
300
350
DEEP ZONE WELL
SEE FIGURE 3
INTERMEDIATE ZONE WELL
SEE FIGURE 4
SHALLOW ZONE WELL
2" DIA SST CASING, 4 TO 14 FT
8" DIA BOREHOLE
2" DIA SCH 80 PVC THREADED CASING
SURFACE SEAL
CENTRALIZERS AT MIN 40 FT INTERVALS
2" DIA SCH 40 PVC SCREEN, 0.020-INCH SLOT
2" DIA SCH 40 PVC BOTTOM CAP
COLORADO SILICA SAND ARTIFICIAL FILTER PACK
2" DIA SCH 80 PVC SCREEN, 0.020-INCH SLOT
2" DIA SCH 80 PVC BOTTOM CAP
8" DIA BOREHOLE
2" DIA SCH 40 PVC THREADED CASING
COLORADO SILICA SAND ARTIFICIAL FILTER PACK
2" DIA SCH 40 PVC SCREEN, 0.020-INCH SLOT
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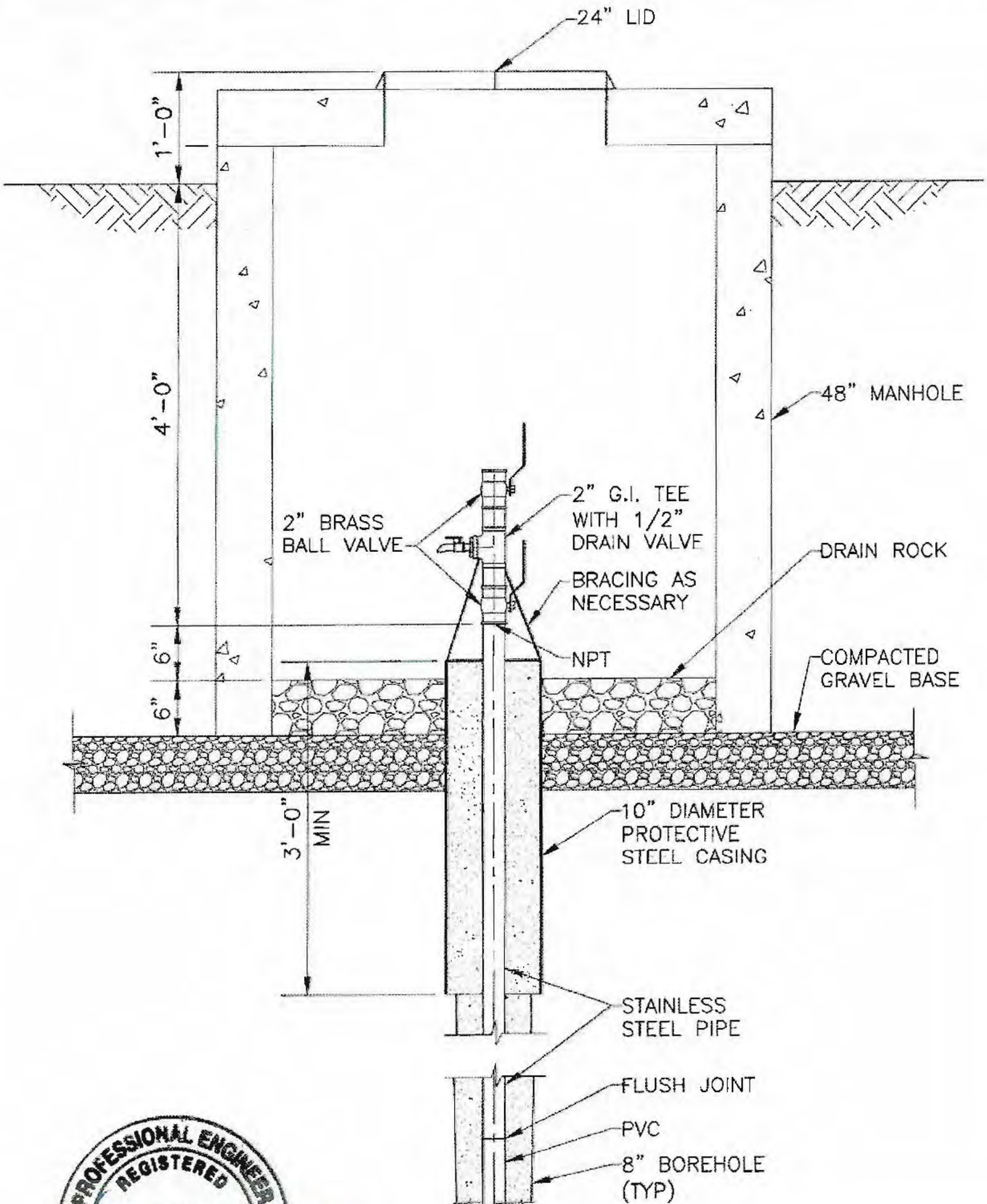
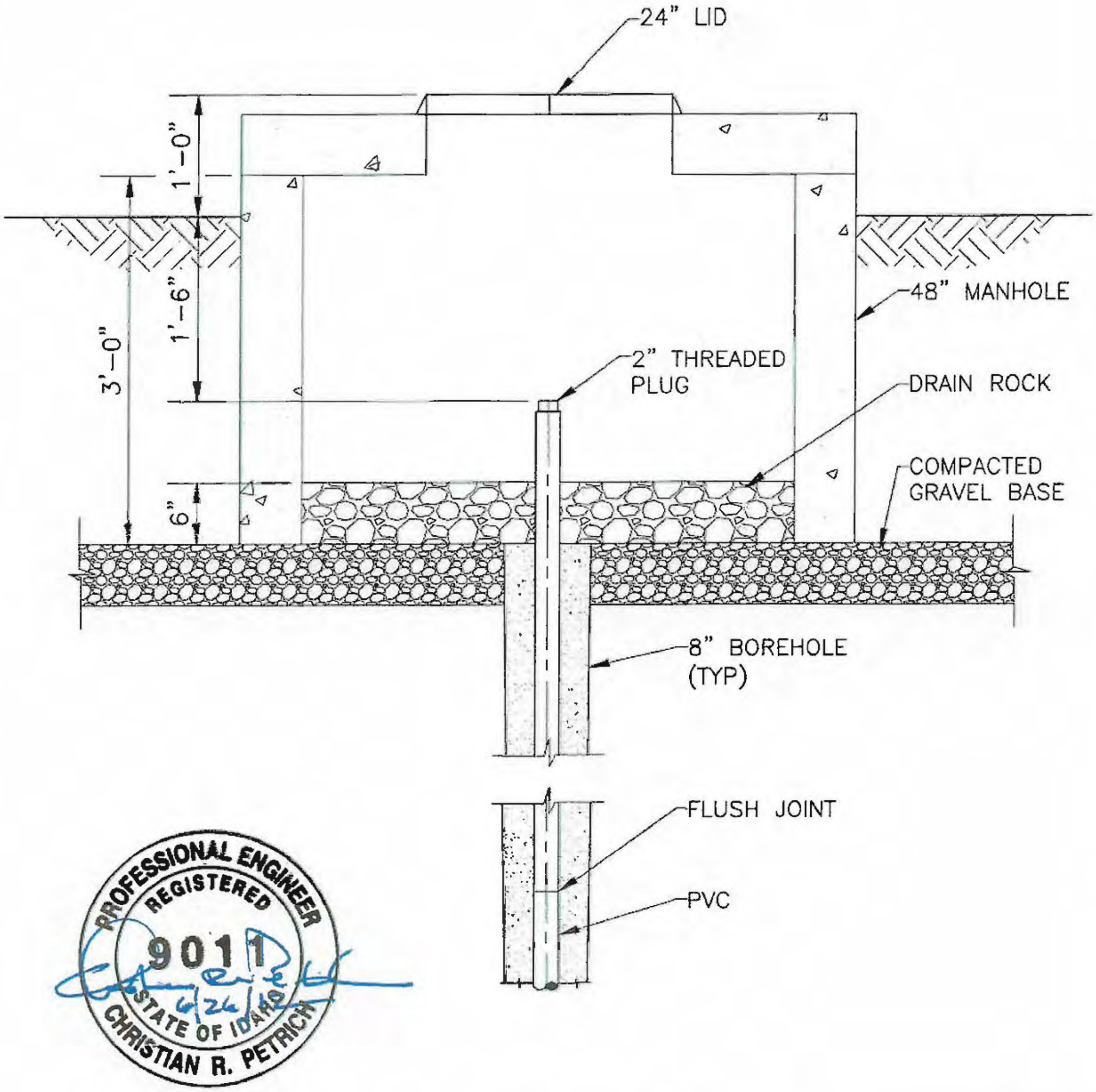
REGISTERED PROFESSIONAL GEOLOGIST
CHRISTIAN R. PETRICH
1088
STATE OF IDAHO
SPF WATER ENGINEERING
300 East Mallard Drive, Suite 350
Boise, Idaho 83706
Tel (208) 383-4140 Fax (208) 383-4156
CITY OF EAGLE
PROPOSED MONITORING WELL DESIGNS
SCALE: NTS
DRAWN BY: SCB
FIGURE 2
PROJ.# 944.0020



SPF WATER ENGINEERING
300 East Mallard Drive, Suite 350
Boise, Idaho 83706
Tel (208) 383-4140 Fax (208) 383-4156

CITY OF EAGLE
WELL HEAD COMPLETION FOR DEEP AND INTERMEDIATE ZONE MONITORING WELLS

SCALE: NTS DRAWN BY: SCB	FIGURE 3	PROJ.# 944.0020



SPF WATER
ENGINEERING

300 East Mallard Drive, Suite 350
Boise, Idaho 83706
Tel (208) 383-4140 Fax (208) 383-4156

CITY OF EAGLE
WELL HEAD COMPLETION FOR
SHALLOW ZONE MONITORING WELL

SCALE: NTS	FIGURE 4	PROJ.# 944.0020
DRAWN BY: SCB		

EXHIBIT X – SECOND AMENDED FINAL ORDER

Water Right Application for Permit No. 63-32573
City of Eagle

Second Amended Final Order
March 9, 2012

BEFORE THE DEPARTMENT OF WATER RESOURCES

FOR THE STATE OF IDAHO

IN THE MATTER OF APPLICATION FOR PERMIT NO. 63-32573, IN THE NAME OF THE CITY OF EAGLE[1]	)))	**SECOND AMENDED FINAL ORDER**

THIS SECOND AMENDED FINAL ORDER SUPERSEDES AND REPLACES THE AMENDED FINAL ORDER DATED JANUARY 25, 2010.

Background

On November 21, 2006, M3 Eagle, LLC ("M3 Eagle" or "M3") filed with the Idaho Department of Water Resources ("Department" or "IDWR") an application to appropriate water seeking to appropriate 42.5 cubic feet per second ("cfs") from ground water for municipal purposes. On August 27, 2007, M3 Eagle filed an amended application to appropriate water. The amended application sought to appropriate 27.47 cfs from ground water for municipal purposes. On April 22, 2008, M3 Eagle filed a second amended application to appropriate water. The second amended application seeks to appropriate 23.18 cfs of ground water for municipal purposes. In addition, the application seeks a diversion to storage rate of 2.93 cfs and a diversion from storage of 1,660 acre-feet of water. The application also states that 1,836 acre-feet of water will be stored in ponds on the proposed development.

The applications to appropriate water were assigned water right no. 63-32573. Notice of the second amended application was published statewide on May 1 and 8, 2008. A large number of individuals and entities filed protests against the application.

Many of the protestants agreed to be represented at the hearing by spokespersons. The following protestants identified David Head, John Thornton, or Ann Ritter, officers in the North Ada County Groundwater Users Association ("NACGUA"), as spokespersons to speak for them in the above contested case and during the hearing for the contested case: John L. Thornton, Linda D. Burke, John Franden, Craig Tarbet, Sherri Randall, Charles Watkins, Robert H. West, Stephen Dick, Bruce Van Camp, Loring Evans, Thomas Ritter, Lorn H. Adkins, Daniel J. Glivar, Richard Lagerstrom, Vince Iazzetta, Dale Gaston, Marion D. Groothuis, Vincent J. Minkiewicz, Carol Jean Thompson and/or John Petrovsky, Barb Jekel, Robert Lyons, G. E. McDonald, George W. Keyes, Eric C. Leigh, Shelby Conrad, Morgan Masner, Jim Banducci, Jr., Steven C. Purvis, Robert S. Niccolls, Jr., David Collett, Walter H. Meyer, Jr., Michael McMurray, Lyle Jordan, Ronald R. Rapp, Bruce Richardson, and Barrett D. Jones.

[1] The original caption was changed to reflect that an assignment of water right application and permit no. 63-32573 to the City of Eagle was filed with IDWR on June 13, 2011.

The following protestants identified Bill Lawton as the spokesperson in the above contested case and during the hearing for the contested case: Robert L. Wood, M. Howard Goldman, and Timothy R. Milburn.

During prehearing procedures, some protestants were dismissed for failure to appear and participate. In a Default Order dated October 7, 2008, protestants Jonathan Seel, Jon Busack, Yvonne Morton, Cal Gothberg, and Brent Watson were dismissed as parties for failure to appear at the time and place set for prehearing conference.

In a Default Order dated May 14, 2009, protestants Bill Lawton, Robert L. Wood, M. Howard Goldman, and Timothy R. Milburn were dismissed as parties for failure to appear at the time and place set for hearing. The Default Order also informed the protestants Bill Lawton, Robert L. Wood, M. Howard Goldman, and Timothy R. Milburn that they could appear and testify as public witnesses.

The remaining active protestants were: David Head, John Thornton, or Ann Ritter as spokespersons for members of NACGUA, Alan Smith as spokesperson for Alan Smith and Eagle Pines Water Association, and Norman Edwards appearing individually.

Beginning in April 2009 and ending in July 2009, the interim director conducted a hearing regarding the protests. The following parties appeared at the hearing:

Jeffrey C. Fereday and Michael P. Lawrence, attorneys at law, appeared for M3 Eagle, John Thornton and David Head appeared on behalf of NACGUA and as spokespersons for multiple protestants, Alan Smith appeared on behalf of himself and Eagle Pines Water Association, and Norman L. Edwards represented himself.

Following the presentation of testimony, the parties submitted briefs and response briefs. The submittals were complete on October 4, 2009.

On December 21, 2009, the interim director issued a final order.

On January 4, 2010, Eagle Pines Water Association and NACGUA filed a petition for clarification and reconsideration. On January 4, 2010, M3 Eagle filed a petition for reconsideration and a motion to reopen the record. The Interim Director denied the relief requested in both petitions in the Amended Final Order issued on January 25, 2010.

The Amended Final Order held that M3 Eagle did not qualify as a municipal provider under I.C. § 42-202B and was not eligible to hold a water right permit for reasonably anticipated future needs ("RAFN"). The Amended Final Order further held that M3 Eagle should be issued a permit limited to 3.28 cfs, the amount of water that could be applied to beneficial use within the 5 year period for developing a standard, non-RAFN water right.

On February 19, 2010, M3 Eagle filed a petition for judicial review with the Fourth District Court in Ada County appealing the agency decision. Shortly after the Department filed the agency transcript and record with the Fourth District Court, M3 Eagle and the Department filed a joint motion to suspend proceedings to provide time to discuss settlement alternatives that involved assignment of the water permit to the City of Eagle. M3 Eagle and the Department entered into a Settlement Agreement on January 19, 2011, which anticipated assignment of application for permit no. 63-32573 to the City of Eagle, a qualifying municipal provider. M3 Eagle assigned application for permit no. 63-32573 to the City of Eagle on June 13, 2011. On the same date, M3 Eagle and the Department entered into a Stipulation which provided for the dismissal of the judicial review case and remand back to the Department to accept additional evidence pertaining to the reasonably anticipated future water needs of the City of Eagle.

On June 30, 2011, the Fourth District Court issued an Amended Order dismissing the judicial review case and remanding the contested matter back with instructions for the Department to hold a remand hearing limited to taking evidence of population projections and planning data from the city and evidence of the annexation of the M3 Eagle development lands into the city.

The Department held the prehearing conference for the remand hearing on September 7, 2011 at the State Office in Boise. The Department held the remand hearing on October 18 and October 19, 2011 and the parties had the opportunity to introduce new evidence about the City of Eagle's reasonably anticipated future water needs and to cross-examine Department staff about its analysis of the city's future water needs. Protestants Eagle Pines Water Association, NACGUA, Alan Smith and Norman Edwards appeared at the remand hearing. Bruce Smith appeared on behalf of the applicant City of Eagle and Jeffrey Fereday and Michael Lawrence appeared on behalf of M3 Eagle at the remand hearing.

City of Eagle's Objection and Motion to Strike

The June 12, 2011 Stipulation anticipated that the city would provide certain types of planning information required to process a reasonably anticipated future needs ("RAFN") water right under Idaho law. The city supplied planning information prior to the remand hearing enabling the Department to evaluate the city's future need for water over the planning horizon. The city's population projection included a 4% growth rate and did not exclude the population served by the other water service providers in the city. Department staff reviewed the planning information and prepared a staff report evaluating the city's planning information. Although Department staff did not concur with the city's growth rate and the inclusion of the population served by the other water service providers in the city, Department staff concluded that the city had a future need for all of the 23.18 cfs of water sought under application 63-32573 over the planning horizon. The staff report was introduced into evidence during the remand proceeding and was marked as Exhibit R100.

At the remand hearing on October 18, 2011, the city introduced into evidence a revised *Reasonably Anticipated Future Needs Water Right Analysis* ("*Revised RAFN Water Right Analysis*") supporting a greater future need for water than what had been previously submitted by the city and reviewed by the Department. The Prehearing Order dated September 8, 2011 required that the parties exchange all exhibits and expert reports intended to be offered into evidence and relied upon at the hearing by October 14, 2011. Because the city's revised materials were not submitted until the day of the remand hearing, thus eliminating any prior

Department staff review, the Director declines to consider the *Revised RAFN Water Right Analysis.*

On October 19, 2011, at the end of the remand hearing, the city filed a motion to strike parts of the Department's staff report. *Objection and Motion to Strike June 1, 2011 Revised October 4, 2011 RAFN as Amended October 17, 2011 Evaluation for the City of Eagle in Connection with the Application for Permit 63-32573* ("Motion to Strike"). The city subsequently filed a *Closing Statement of the City of Eagle* on November 23, 2011, which reiterated the arguments made in the Motion to Strike.

The Hearing Officer has reviewed the city's arguments and finds that the Motion to Strike should be denied.

The city raises a number of arguments in its Motion to Strike and in its closing argument. The consistent theme advanced by the city's arguments is that the Department is required to defer to and unconditionally accept the city's determinations regarding population projections and planning data. The city challenges the authority of the Department to critically review its RAFN application and determine any result other than what the city submits. The city maintains that the Department does not possess the authority under I.C. § 42-202B to consider any information or make any finding that is different from the city's conclusions and to do so would be arbitrary, irreparably flawed and contrary to the Local Land Use Planning Act I.C. § 67-6502 et seq.

Although the Director disagrees with the city's interpretation and believes the Department does possesses the authority under I.C. § 42-202B to review and to independently determine the reasonableness of RAFN information submitted by a city, he declines to address those arguments in this proceeding. Because the earlier planning information submitted by the city was sufficient for the Department to conclude that the city has a future need for all the water under application 63-32573 over its planning horizon, there is no need to evaluate the revised planning information or address the city's arguments. The Motion to Strike should be denied as the Department staff evaluation concludes that the city has demonstrated a need under I.C. § 42-202B for all the water applied for under the present application before the Department. Whether the Department staff evaluation or the city's evaluation is used does not matter in the end because the conclusion is the same: the city needs the maximum amount of water available under this permit. The city is not entitled to any additional relief to establish RAFN water rights in future yet unfiled water right applications. The city will have an opportunity to submit its revised planning information and resurrect any legal argument made herein or make additional arguments if necessary in a subsequent proceeding should it file for an additional water right in the future.

FINDINGS OF FACT

1. Application to appropriate water no. 63-32573, originally filed by M3 Eagle and subsequently assigned to the City of Eagle, proposes the following:

Flow Rate:	23.18 cubic feet per second ("cfs") 2.93 cfs diversion to municipal storage 1,836 acre-feet stored in ponds on the proposed development. 1,660 acre-feet diversion from storage
Source of Water:	Ground water
Period of Use:	Year-round
Priority Date:	November 21, 2006
Place of Use:	Municipal within the boundaries of the M3 Eagle development
Volume:	6,535 acre-feet
Points of Diversion:	
Township 5 North, Range 1 West, Section 13,	SENW
Section 15 (Potential Municipal)	SWSW
Section 21 (Potential Municipal)	SESE
Section 22 (Potential Municipal)	NENE, NESE
Section 23	NESW, SESW
Section 23 (Potential Municipal)	SWNE, NENW, NESW, SESW, NESE
Section 24	NWNE, NENW
Section 24 (Potential Municipal)	NESW
Section 27 (Potential Municipal)	NENE, SENW
Section 28	SWSE, SESE(2)
Section 28 (Potential Municipal)	SWNE, SESE
Section 33	NENE, NWNE(2)
Section 33 (Potential Municipal)	NWNE
Township 5 North, Range 1 East, Section 19	SWNE

2. At the time the original hearing record was closed, the M3 Eagle lands had not been annexed and therefore were not a part of city. Those lands were subsequently annexed into the city under Ordinance 634 on November 30, 2009. Evidence of the annexation was introduced into the record at the remand hearing.

3. The development is proposed for approximately 6,000 acres of real estate located approximately five to ten miles northwest of the city center of Eagle, Idaho. The M3 Eagle property is located within the City of Eagle in the foothills of northwest Ada County. The parcel of property is approximately seven miles long in an east – west direction and approximately four miles wide in a north – south direction. Portions of the drainages of Big Gulch and Little Gulch are within the proposed M3 Eagle development. The parcel is bounded by Willow Creek Road on the east, Highway 16 on the west, BLM property on the south, and additional undeveloped land to the north.

4. The property is presently raw land and has been used in the past for dry grazing. There is no concentrated residential development on the property. The property lies within the City of Eagle water service area although there is no municipal system currently providing municipal water to any users within the property boundaries.

5. The BLM property located south of the M3 Eagle property is an approximate one mile wide buffer zone between the M3 Eagle property and scattered residential/ranchette development and agricultural lands at the base of the foothills as they transition south into the Boise River Valley. Any water lines from the City of Eagle and its integrated system are located several miles from the proposed development.

6. On December 27, 2007, M3 Eagle and the City of Eagle executed a Preannexation and Development Agreement. The agreement contemplated that the water system within the M3 Eagle development will be constructed at the developer's expense, conveyed to the City of Eagle, and become part of the city's municipal water system. M3 Eagle assigned permit no. 63-32573 to the city on June 13, 2011 and has continued to participate in this matter as an interested party.

7. The place of use will be developed as a planned unit development/planned community with homes, schools, and a commercial district within the development. Presently, 7,153 dwelling units are planned for the community. At build-out, M3 Eagle projects a population within the development of approximately 21,000 people. In addition, M3 Eagle plans to develop 245 acres of commercial, office, and mixed use.

8. Within the development, M3 Eagle projects the construction of three elementary schools, one middle school, and one high school. In addition there will be one or more golf courses.

9. Approximately twenty to forty percent of the development will be open space.

10. The city annexed the proposed place of use for permit no. 63-32573 by ordinance 634 dated November 30, 2009. The city's service area as described in its Water Service Planning Area map corresponds to its corporate limits. The water service planning area for the city is consistent with the updated comprehensive land use plan.

11. The city proposed a 30 year planning horizon which is consistent with the timeframes used by other planning entities in Idaho and is a reasonable length of time for a municipality to hold water rights to satisfy its reasonably anticipated future water needs.

12. The projected water demand calculations submitted by the city are reasonable. The city's methodology used to establish a proposed demand per household with a 1.7 peaking factor is consistent with water usage calculations for other similar urban areas.

13. The population projections submitted by the city are reasonable and establish that there will be enough people within the City of Eagle's service area to use the entire amount of water applied for under permit no. 63-32573 within the 30 year planning horizon.

14. The Director finds that the population projections for the M3 Eagle proposed planned unit development over the 30 year planning horizon are reasonable.

15. The jobs data on pages 2 through 5 of Exhibit R-8, submitted by M3 Eagle, is too short in duration to be helpful by itself. For instance, the vertical axis for the graphs is titled "Annual Percent Change" for employment numbers in Idaho. The direction of job growth, or "annual percent change" only recently switched from negative to positive sometime in 2011. In two of the graphs, the direction of the line drawn between the most recently plotted points was either negative or flat.

16. However, other updated economic and population forecast reports are helpful. They show that Idaho is still expected to grow, albeit at a slower, more modest rate than before the economic downturn. Idaho's population is expected to increase at a rate faster than the state's natural rate of population growth, indicating an ongoing net in-migration of population into Idaho. Ex. R-8, at 6. The population and household forecast compiled by the Community Planning Association of Southwest Idaho (COMPASS) predicts modest growth. The COMPASS March 2011 Community Choices forecast, predicts a slower growth rate than experienced in recent years, but still predicts that population in Ada and Canyon Counties will surpass 1.05 million with 388.4 thousand households by 2035. *Id.* at 7. This computes to an annual average population growth of 2.4 percent per year in Ada and Canyon Counties over the 2010-2035 period. Although the planning horizon extends through the year 2040, the COMPASS forecast is still helpful to show that the expected future growth trend is positive. COMPASS's 2.4 percent predicted growth rate is a region-wide average; some areas will grow faster than 2.4 percent, others will grow more slowly.

17. The M3 development has a greater opportunity for growth because it is a planned unit community and can offer a wider range of products and amenities than a smaller development within the city limits. Ex. R-8 at 9. The proposed development is located in an area of expected higher growth (west Ada County) and will also have access to increased transportation opportunities. *Id.* at 9-15.

18. Despite the large number of proposed points of diversion identified in the application, the total number of points of diversion estimated by M3 Eagle will probably be between five and seven wells. M3 Eagle applied for a larger number of proposed points of diversion to allow flexibility in location and to allow additional wells to be drilled depending on the productivity of wells as they are completed.

19. Testimony at the hearing established that state of the art conservation measures will be employed through system design, monitoring, and reuse of waste water for ponds and irrigation. M3 Eagle plans to install an independent waste water treatment facility and will treat the water to drinking water quality standards.

20. The proposed points of diversion for the M3 Eagle development are located in an area of complex hydrogeology. Significant testing and analysis by M3 Eagle established that the

water underlying the M3 Eagle property is located in a sand aquifer characterized by M3 Eagle as the Pierce Gulch Sand Aquifer ("PGSA").

21. The PGSA is the target aquifer proposed to supply the water sought in the M3 Eagle Application. The PGSA lies beneath the southwestern portion of the M3 Eagle planned community property and has been identified in municipal wells in Eagle, Garden City, Meridian, Star, and the foothills north of Eagle. Ex. 12 at ii and Ex. 45 at 27. The PGSA comprises a 150- to 360 foot thick sequence of stratified sand layers with interbedded thin and locally discontinuous layers of silt and clay. Ex. 2 at 3 and Ex. 44 at 4.

22. The PGSA is overlain by a sequence of fine to coarse-grained alluvial sediments. M3 Eagle's expert witnesses referred to these sediments as the unnamed shallow alluvial aquifer. Ex. 44 at 7.

23. Beneath the southern portion of the M3 Eagle property, a sequence of lower-permeability sediments consisting mostly of clay and silt separates the unnamed shallow alluvial aquifer from the PGSA andconfines the PGSA below the unnamed shallow alluvial aquifer. Ex. 44 at 7 and Ex. 16 at 16. Elsewhere, available geologic and geophysical data do not establish a distinct separation between the unnamed shallow alluvial aquifer and the PGSA at some locations. Ex. 45 at 6. Hydraulic communication between the unnamed shallow alluvial aquifer and the PGSA is spatially variable because the presence and thickness of the confining layer is spatially variable. Ex. 50 at 4.

24. The majority of the more than 1,600 domestic wells in the vicinity of the M3 Eagle project area are completed in the unnamed shallow alluvial aquifer that overlies the PGSA. Ex. 2 at 10 and Figure 11, Ex. 12 at 239, and Ex. 33D at 24.

25. The hydrogeologic setting is relatively complex (Ex. 19E at 6, Ex. 19H at 23, and Ex. 19D at 71) and the PGSA is heterogeneous. Ex. 12 at 210-211.

26. The hydrologic impact of faults at the northern margin of the Boise basin near M3 Eagle contributes to hydrogeologic complexity. Ex. 33G at 2, Ex. 67 at 32, Ex. 44 at 42, Ex. 33D at 16, and Ex. 12 at 212.

27. Wells 03N01E01DAA2 (east of Meridian), 04N01E04DCC1 (north of Eagle), 04N01W31AA1 (south of Star), all in the PGSA, were identified in the TVHP as having long-term water level declines of less than 10 feet. Ex. 33D at 50, 133, 136. Well 04N01E35CCA1 (west of Garden City) in the unnamed shallow alluvial aquifer was identified in the TVHP as having long-term water level declines of less than 10 feet. Ex. 33D at 50, 133.

28. Although the monitoring records for M3 Eagle Test Well #2, M3 Eagle Test Well #3, M3 Eagle Test Well #4 and SVR Well #9 are brief, the hydrographs for these 4 wells located in the PGSA show a declining water level trend of approximately 0.3 to 0.6 feet per year. Ex. 44 at 128.

29. Water levels in 14 wells in North Ada County completed in different hydrostratigraphic units that comprise the PGSA and unnamed shallow alluvial aquifer that are

monitored by the Department have been declining at an average rate of 0.27 feet per year since 1996. Ex. 906 at 4.

30. The hydrograph for the United Water Idaho Redwood Creek production well (SE ¼ of the NW ¼ of Section 7 in Township 04N Range 01E) which is completed into the PGSA in west Eagle depicts fairly constant water levels throughout the 14-year period of production. This well has historically produced 10 million to 100 million gallons per year. Figure 15 of Ex. 45.

31. The hydrograph for the United Water Idaho Floating Feather production well which is completed into the PGSA in northwest Eagle (SE ¼ of the SW ¼ of Section 5 in Township 04N Range 01E) has remained constant throughout the 13-year period of production. This well has historically produced 250 million to 650 million gallons per year. Figure 15 of Ex. 45.

32. Hydrographs for the United Water Idaho State and Linder monitoring wells which are completed into the PGSA (NE ¼ of the SE ¼ of Section 11 in Township 04N Range 01W) depict relatively stable water levels in the PGSA between Star and Eagle over the past 10 years. Ex. 28.

33. Aquifer testing and water supply well production data demonstrate that the PGSA is highly productive. For example, the SVR#7 test well on the M3 property was pumped at a constant rate of approximately 900 gal/min for approximately 9 days. Moreover, the SVR#7 test data support the determination that a properly designed well could produce more than 2,000 gal/min from the PGSA on M3 Eagle property. Ex. 44 at i. Elsewhere, the PGSA yields more than 1,000 gal/min to municipal supply wells (e.g., the City of Eagle Eaglefield #2 and United Water of Idaho Floating Feather supply wells). Ex. 12 at Table i-1.

34. The volume limit sought by the M3 Eagle application (6,542 acre-ft/yr equating to an average constant diversion rate of 9.03 cfs) represents a roughly 6% increase in the estimated rate of withdrawal in 1996 from the intermediate and deep aquifer systems described in the Treasure Valley Hydrologic Project (TVHP) ground water flow model as layers 2, 3, and 4. Ex. 33B at 68.

35. The completion intervals for existing municipal wells in the Eagle area correspond to the bottom of layer 2 and the top of layer 3 in the 4-layer TVHP model. *See* Ex. 33B at 16-19 for discussion of TVHP model layers. Data provided by M3 Eagle suggests that M3 Eagle also proposes production from layers 2 and 3.

36. The 1996 water budget developed for the TVHP model concluded that more than 99% of the more than 1 million acre-feet of inflow to the Treasure Valley Aquifer system was received by the uppermost aquifer (layer 1). Ex. 331 at 6-2 Table 8 and Ex. 33B at 56. Of that amount, the TVHP model estimated approximately 77% of the water received by the uppermost aquifer was discharged through surface water features, 9% was pumped from the uppermost aquifer, and 10% was pumped from deeper aquifers represented in the model by layers 2, 3, and 4. Ex. 33B at 68.

37. The TVHP study concluded that recharge to the deeper, regional aquifer system in the Treasure Valley is limited, but generally has been sufficient for current rates of withdrawal. Ex. 33A at 19.

38. Nonetheless, a 6% increase in the total withdrawal from the PGSA is not insignificant. Diversion of 23.18 cfs of water could stress the aquifer. The Director shouldexercise caution when allocating a significant quantity of water for an extended development into the future. As a result, the Director will require an extensive ground water monitoring program as discussed in Finding of Fact 53 below.

39. The TVHP model was applied to evaluate the impacts of increased groundwater withdrawals associated with unprocessed applications for non-supplemental water rights that were filed between July 1987 and May 2002. Ex. 33C at 1. A predictive analysis was conducted in which the increase in withdrawals by these proposed rights was simulated with several, well-calibrated (i.e. calibrated to water level data), and equally valid versions of the TVHP model. The "minimum impact" was the well-calibrated version of the model that predicted the least water level impacts. The "maximum impact" was the well-calibrated version of the model that predicted the greatest water level impacts. The following are based upon the predictive simulations in Ex. 33C:

a. Layer 1 (shallow aquifer) The simulated pumping, which included a 29,292 acre-ft/yr (40.4 cfs) increase in withdrawals from layer 1, resulted in an average ground water decline in layer 1 at steady state from 0 feet for the minimum impact calibration to 3.9 feet for the maximum impact calibration.

b. Layer 2 (intermediate aquifer) The simulated pumping, which included a 6,712 acre-ft/yr (9.3 cfs) increase in withdrawals from layer 2, resulted in an average ground water decline in layer 2 at steady state from 14 feet for the minimum impact calibration to 26 feet for the maximum impact calibration.

c. Layer 3 (deep aquifer) The simulated pumping, which included a 2,371 acre-ft/yr (3.3 cfs) increase in withdrawals from layer 3, resulted in an average ground water decline in layer 3 at steady state ranging from 18 feet for the minimum impact calibration to 46 feet for the maximum impact calibration.

40. The range of average predicted water level declines that resulted from the TVHP model predictive analysis is a reflection of model input uncertainty. Ex. 33C at 31.

41. The TVHP model's predicted impacts of increased pumping were smallest in the uppermost model layer, which corresponds roughly with the uppermost 200 feet of aquifer system. The TVHP study concluded that most of the simulated withdrawals represented water that otherwise would have discharged to drains. Ex. 33A at 22.

42. The TVHP model's predictive analysis concludes that, due in large part to the hydrologic functioning of drains, increased pumping from the shallow and deep aquifers is expected to have limited impact on water levels in the uppermost aquifer system (layer 1) at a regional scale. Ex. 33C at 34.

43. Notwithstanding the TVHP model's predicted limited impact, water levels and rates of extraction in the PGSA should be monitored to evaluate possible localized impacts and to monitor the actual effect of pumping, if any, on water levels in the uppermost aquifer in the North Ada County area.

44. M3 Eagle constructed a numerical ground water model ("M3 Model") to simulate the effects of withdrawals from the M3 Eagle development at full build-out. The area within the model, defined as the model domain, encompasses 520 square miles. Ex. 16 at 16.

45. Concerns about the calibration of the M3 Model and inconsistencies with the conceptual model cause the Department to question the outputs of the model. Ex. 47 at 10, 13. Ex.50 at 13, 14. Ex. 902 at 58, 60-65, 69, 87 and 92. Ex. 904 at 33-34. The Director does not rely upon the conclusions of the M3 Model's simulations.

46. Although the Director does not rely on the M3 Model, the other aquifer test, geologic data, and water level measurement information provided by M3 Eagle in the record supports a determination that the PGSA is productive, extensive, and has additional water available for appropriation.

47. An image well analysis is a standard methodology used by hydrologists to determine impacts from pumping on water levels. M3 Eagle's consultants conducted an image well analysis to predict water level declines that would result from ground water development in the PGSA at full build out for both "best-case" and "worst-case" conditions. Ex 2. at 8. The predicted water level declines in the PGSA in that analysis are on the order of 10 to 12 feet along the boundary of the M3 Eagle property for the best-case and 20 to 24 feet for the worst-case conditions. Ex. 2 at Figures 9 and 10.

48. Department staff conducted their own independent drawdown analysis. Based on their analysis, Department staff concluded that the results of the M3 Eagle analyses were reasonable assuming a laterally extensive aquifer. Ex. 50 at 21. The Department's drawdown estimates were most similar to those for M3 Eagle's "worst-case" image well analysis conditions. Ex. 2 at Figure 10. Both simulations predicted approximately 8 feet of drawdown in the PGSA at the intersection of Floating Feather and Highway 16, a location chosen because it is easily identifiable and situated several miles south of the M3 Eagle pumping center.

49. Almost every appropriation of ground water will result in a decline of the aquifer from which water is being pumped. Some decline in the aquifer is expected and reasonable. Based upon the evidence presented in this proceeding, the Director concludes that even under the worst-case conditions described in M3 Eagle's image well analysis, the anticipated decline from pumping at full build out is unlikely to have a negative impact to other wells located in the PGSA and is not cause to conclude that there is not water available in the amount required for the appropriation.

50. The TVHP model suggests that water level declines in the wells located in the unnamed shallow alluvial aquifer (where most of the Protestants' wells are located) are expected to be much less than the drawdown in the PGSA. Because of this, and because drawdown decreases with the increasing distance from the M3 Eagle pumping center, it is unlikely that

pumping by M3 in the PGSA will have a negative impact on water levels in the unnamed shallow alluvial aquifer.

51. Although the pumping rate of water from proposed M3 Eagle wells will vary because of seasonal irrigation demand, the available water in the PGSA is sufficient for the purpose it was sought to be appropriated in the M3 Eagle application.

52. The PGSA contains water available for appropriation for the following reasons: (1) water levels in the M3 Eagle wells and the other nearby wells pumping water from the PGSA are relatively stable; (2) the conclusion of the TVHP that there has been sufficient ground water in the deeper aquifers for current rates of withdrawal of water; (3) the aquifer testing provided by M3 Eagle and testimony establish that the PGSA is productive; and (4) M3 Eagle's image well analysis and the Department's image well analysis confirm that the expected drawdown is not significant.

53. The Director recognizes that even despite existing information and analysis, there is a possibility that the diversion of water may negatively impact other water users. Consequently, the Director will require M3 Eagle and the city to comply with an extensive ground water monitoring program. Department staff approved the monitoring plan dated March 17, 2011 submitted by M3 Eagle. The purpose of the monitoring plan is to track ground water withdrawals from the M3 Eagle development and report the findings to the Department annually. The monitoring plan requires the applicant continuously monitor six wells and submit the data on a semi-annual basis. An interpretative report on production and drawdown will be filed annually.

54. The Development Agreement between M3 Eagle and the city requires M3 Eagle to pay for the costs of the planned unit development, including construction of the water system. M3 Eagle owns the property planned for development without encumbrances. M3 Eagle is able to take advantage of the Community Infrastructure District Act, Idaho Code § 50-3101 *et seq.*, for infrastructure development and can sell tax exempt bonds for financing. Expert witnesses testified that the possibility of obtaining such financing is good.

CONCLUSIONS OF LAW

1. Idaho Code § 42-203A(5) states in pertinent part:

> In all applications whether protested or not protested, where the proposed use is such (a) that it will reduce the quantity of water under existing water rights, or (b) that the water supply itself is insufficient for the purpose for which it is sought to be appropriated, or (c) where it appears to the satisfaction of the director that such application is not made in good faith, is made for delay or speculative purposes, or (d) that the applicant has not sufficient financial resources with which to complete the work involved therein, or (e) that it will conflict with the local public interest as defined in section 42-202B, Idaho Code, or (f) that it is contrary to conservation of water resources within the state of Idaho, or (g) that it will adversely affect the local economy of the watershed or local area within which the source of water for the proposed use originates, in the case where the place of use

> is outside of the watershed or local area where the source of water originates; the director of the department of water resources may reject such application and refuse issuance of a permit therefore, or may partially approve and grant a permit for a smaller quantity of water than applied for, or may grant a permit upon conditions.

2. The applicant bears the ultimate burden of proof regarding all the factors set forth in Idaho Code § 42-203A.

3. Idaho Code § 42-202B(5) defines the term municipal provider:

> (5) "Municipal Provider" means:
> (a) A municipality that provides water for municipal purposes to its residents and other users within its service area;
> (b) Any corporation or association holding a franchise to supply water for municipal purposes, or a political subdivision of the state of Idaho authorized to supply water for municipal purposes, and which does supply water, for municipal purposes to users within its service area; or
> (c) A corporation or association which supplies water for municipal purposes through a water system regulated by the state of Idaho as a "public water supply" as described in section 39-103(12), Idaho Code.

4. Idaho Code § 42-202B(6) defines how a water right can be used for municipal purposes:

> (6) "Municipal purposes" refers to water for residential, commercial, industrial, irrigation of parks and open space, and related purposes, excluding use of water from geothermal sources for heating, which a municipal provider is entitled or obligated to supply to all those users within a service area, including those located outside the boundaries of a municipality served by a municipal provider.

5. The City of Eagle is a municipal corporation under Idaho Code § 50-102 that provides water for municipal purposes to its residents within its service area and meets the qualification as a municipal provider under Idaho Code § 42-202B(5).

6. Idaho Code § 42-202(2) states:

> (2) An application proposing an appropriation of water by a municipal provider for reasonably anticipated future needs shall be accompanied by sufficient information and documentation to establish that the applicant qualifies as a municipal provider and that the reasonably anticipated future needs, the service area and the planning horizon are consistent with the definitions and requirements specified in this chapter. The service area need not be described by legal description nor by description of every intended use in detail, but the area must be described with sufficient

information to identify the general location where the water under the water right is to be used and the types and quantity of uses that generally will be made.

7. Idaho Code § 42-202B(7) defines the term planning horizon:

> (7) "Planning horizon" refers to the length of time that the department determines is reasonable for a municipal provider to hold water rights to meet reasonably anticipated future needs. The length of the planning horizon may vary according to the needs of the particular municipal provider.

8. Idaho Code § 42-202B(8) defines the term reasonably anticipated future needs:

> (8) "Reasonably anticipated future needs" refers to future uses of water by a municipal provider for municipal purposes within a service area which, on the basis of population and other planning data, are reasonably expected to be required within the planning horizon of each municipality within the service area not inconsistent with comprehensive land use plans approved by each municipality.

9. Idaho Code § 42-202B(9) defines the term service area:

> (9) "Service Area" means that area within which a municipal provider is or becomes entitled or obligated to provide water for municipal purposes. For a municipality, the service area shall correspond to its corporate limits, or other recognized boundaries, including changes therein after the permit or license is issued. The service area for a municipality may also include areas outside its corporate limits, or other recognized boundaries, that are within the municipality's established planning area if the constructed delivery system for the area shares a common water distribution system with lands located within the corporate limits. For a municipal provider that is not a municipality, the service area shall correspond to the area that it is authorized or obligated to serve, including changes therein after the permit or license is issued.

10. The City of Eagle qualifies as a municipal provider and has submitted evidence of a reasonable future need over a reasonable planning horizon for its service area that is not inconsistent with the city's comprehensive land use plan.

11. It is in the public interest to grant a water right to the city for 23.18 cfs for anticipated future needs from the PGSA over its 30 year planning horizon to provide for the orderly expansion of the city's existing municipal water systems to serve the M3 Eagle planned development.

12. Based on the evidence submitted, the City of Eagle should be granted a permit for 23.18 cfs for its reasonably anticipated future needs to serve the M3 Eagle planned development over the next 30 years subject to conditions to protect existing senior water users.

13. Based on evidence available to the Director at this time, the water supply is sufficient to provide an appropriation of 23.18 cfs.

14. Based on evidence available to the Director at this time, an appropriation of 23.18 cfs with an annual volume limitation of 6,535 acre-feet from the PGSA will not injure other water rights. The Department should include a condition of approval in the permit that requires the permitee to operate an approved monitoring plan to determine if ground water pumping is causing material injury to senior water rights.

15. Consistent with Idaho Code § 42-204, the Director should include a condition of approval requiring proof to be submitted within 5 years. However, because the approval is for a reasonably anticipated future needs water permit over a 30 year planning horizon, it will be difficult to evaluate the extent of beneficial use for licensing purposes after only 5 years. Requiring the permit holder to exercise the option to extend the time in which to submit proof of beneficial use will allow the Director to lengthen the time for the Department's review of the water development. The Director should include a condition of approval that requires the filing of an application for extension of time for filing proof of beneficial use.

16. The city shall ensure that the developer employ measures of conservation consistent with those measures identified in the M3 Eagle Master Potable Water & Wastewater Study to conserve the waters of the state of Idaho. An appropriation of 23.18 cfs is in the public interest.

17. The application is made in good faith, and the application is not filed in bad faith or for speculative purposes.

18. M3 Eagle has demonstrated sufficient financial resources to develop the planned unit development.

ORDER

Based upon a review of the record and pleadings of the parties relating to this issue and consistent with the forgoing discussion and analysis,

IT IS HEREBY ORDERED that the City of Eagle's motion to strike is **DENIED**.

IT IS FURTHER ORDERED that application to appropriate water no. 63-32573 is **APPROVED** for the appropriation of the following quantities:

Flow rate:	23.18 cfs
Flow rate diverted to storage:	2.93 cfs
Total flow rate:	23.18 cfs

Annual volume diverted:	6,535	acre-feet
Annual volume diverted from storage:	1,660	acre-feet
Volume of storage:	1,836	acre-feet
Total annual volume authorized	6,535	acre-feet

IT IS FURTHER ORDERED that a map depicting the place of use boundary for this water right at the time of this approval will be attached to the permit approval document for illustration purposes.

IT IS FURTHER ORDERED that permit no. 63-32573 is subject to the following conditions:

This right authorizes a peak diversion rate of 23.18 cfs with an annual diversion volume limit of 6,535 acre-feet of water for reasonably anticipated future needs for a 30 year planning horizon within the service area pursuant to Chapter 2, Title 42, Idaho Code.

The full system capacity necessary to provide water for the reasonably anticipated future needs authorized under this right must be constructed by the end of the designated planning horizon.

I.C. § 42-204 requires that project construction commence within one year from the date of permit issuance and shall proceed diligently to completion unless it can be shown to the satisfaction of the Director of the Department of Water Resources that delays were due to circumstances over which the permit holder had no control. Water right holder has improved, developed, and installed a pump, electrical wiring and transformer, and a measuring tube in the SVR7 well (located at NE¼SW¼, Section 23, Township 5 North, Range 1 West), and has improved, developed, and installed well casing in the Kling Irrigation well (located at SE¼SE¼, Section 28, Township 5 North, Range 1 West). Both of these wells are authorized points of diversion for this permit. Accordingly, the requirement concerning commencement of construction has been met.

Right holder shall comply with the drilling permit requirements of Section 42-235, Idaho Code and applicable Well Construction Rules of the Department.

The place of use is generally located within Sections 7, 15, 17, 18, 19, 20, 21, 22, Township 5 North, Range 1 East, and Sections 10, 11, 12, 13, 14, 15, 21, 23, 24, 26, 27, 28, and 33, Township 5 North, Range 1 West.

The right holder shall not provide water diverted under this right for the irrigation of land having appurtenant surface water rights as a primary source of irrigation water except when the surface water rights are not available for use. This condition applies to all land with appurtenant surface water rights, including land converted from irrigated agricultural use to other land uses but still requiring water to irrigate lawns and landscaping.

A proof of beneficial use statement shall be due on or before March 9, 2017. If proof is submitted on or before March 9, 2017, the permit holder shall, at the same time, submit a request for a five year extension of time pursuant to Idaho Code § 42-204(5). Based upon the information provided, the Director will decide whether it is appropriate to grant the extension. Nothing in this condition prevents the permit holder from submitting a request for extension of time to submit proof of beneficial use prior to the filing of proof.

In connection with the proof statement submitted for this permit, the permit holder shall submit a report showing the total annual volume, the maximum daily volume, and the maximum instantaneous rate of flow diverted from the points of diversion authorized for this permit during the authorized development period for the permit. For development both inside and outside of the M3 Eagle development boundaries, the report shall also show the extent to which the full system capacity necessary to provide water for reasonably anticipated future needs has been constructed and the extent to which planning, design, and investment have occurred for any unconstructed portion of the system capacity necessary to divert and use water for reasonably anticipated future needs. The Department will evaluate such proof statement and report consistent with IDWR Application Processing Memorandum No. 63 (June 15, 1999) unless legally obligated to do otherwise.

In accordance with Idaho Code § 42-217, in connection with proof of beneficial use for this permit, the right holder shall also submit a revised estimate of the reasonably anticipated future needs, a revised description of the service area, and a revised planning horizon, together with appropriate supporting documentation.

The right holder shall comply with all aspects of the approved Monitoring Plan dated March 17, 2011. A copy of the monitoring plan is attached hereto as Attachment A and incorporated herein by this reference.

This right does not grant any right-of-way or easement across the land of another.

The Director retains jurisdiction to require the right holder to provide purchased or leased natural flow or stored water to offset depletion of Lower Snake River flows if needed for salmon migration purposes. The amount of water required to be released into the Snake River or a tributary, if needed for this purpose, will be determined by the Director based upon the reduction in flow caused by the use of water pursuant to this permit.

If, during the established planning horizon, the Department determines, based on credible evidence from the monitoring, the monitoring report or otherwise, that there is a substantial likelihood that diversion and use of groundwater under the permit is causing material injury to any senior water rights, the Department may issue an order to the water right holder to show cause, after notice and hearing, as to why the water right holder should not reduce existing diversions under the permit, forego additional diversions, or provide adequate mitigation to remedy any such material injury. Any senior water user alleging material injury may petition the Department to commence a show cause hearing and the Department shall conduct a hearing. Any such hearing shall be held according to the Department's rules governing contested cases and its conjunctive management rules and a final decision shall be made on the record according to the evidence. Nothing in this paragraph shall create any evidentiary presumption, establish or change any burden of proof or obligation to come forward with evidence, or otherwise modify the rights of any water right holder under Idaho law.

In exercising its continuing authority under this Order, the Department shall take into consideration all monitoring data, hydrogeologic evidence, and other information pertaining to the question whether water right holder's ground water pumping under this permit is causing material injury to any of protestants' senior water rights.

In accordance with Idaho Code § 42-226, Idaho Code §§ 42-237a through 237h, and Idaho Code § 42-607, and the Department's Rules, IDAPA 37.03.011 (as these may be amended from time to time), water diversion and use under this permit shall be subject to curtailment when and to the extent the Department determines such diversion and use is causing material injury to senior water rights and is not mitigated.

DATED this 9th day of March, 2012.

Gary Spackman

GARY SPACKMAN
Interim Director

EXHIBIT Y – SPRING VALLEY MONITORING PLAN

Monitoring, Recording, and Reporting Plan
Permit 63-32573

Submitted by City of Eagle, August 2, 1012
Approved by Idaho Department of Water Resources, August 31, 2012

Hydro Logic, Inc.
1002 W. Franklin Street, Boise, ID 83702 (208) 342-8369, Fax (208) 342-3100, hli@hydrologicinc.net

TECHNICAL MEMORANDUM

REGISTERED PROFESSIONAL GEOLOGIST
EDWARD SQUIRES
968
STATE OF IDAHO

TO: Bill Brownlee/ M3 Eagle, LLC, / Eagle, Idaho

FROM: Ed Squires/ Hydro Logic, Inc. / Boise, Idaho

DATE: March 17, 2011

SUBJECT: M3 Eagle, LLC Ground Water-Level/Production Monitoring Plan

OVERVIEW

M3 Eagle, LLC (M3) was granted water right Permit No. 63-32573 on January 25, 2010 for municipal purposes at an instantaneous flow-rate of 3.28 cubic feet per second[1]. Two of the conditions of approval for the water right No. 63-32573 are related to monitoring of ground water production and water levels from a series of existing and to-be-constructed wells for the M3 development. Specifically these conditions state:

> *"Prior to the diversion and use of water under this approval, the right holder shall install and maintain acceptable measuring device(s), including data logger(s), at the authorized point(s) of diversion, in accordance with Department specifications."*

> *"Prior to the diversion of water in connection with this water right, the right holder shall provide the Department with a plan for monitoring ground water levels in the vicinity of the place of use for this water right. The monitoring should occur in parallel with development and production and should include identification of non-producing wells and timelines for measuring and reporting. The right holder shall not divert water in connection with this right until the monitoring plan is approved by the Department. Failure to comply with the monitoring plan once it is accepted shall be cause for the Department to cancel or revoke this right."*

In compliance with these conditions, and to monitor its own effects from pumping, M3 contracted with Hydro Logic, Inc. (HLI) to develop and formalize a water level/water production monitoring and reporting plan. Seven zones within five long-term designated (non-producing) wells have been identified for water level monitoring (Figures 1 and 2). From previous aquifer testing results, it can be shown that the seven-zone network will be a good indication of groundwater levels on and around the M3 property. In addition to the seven-zone, five-well monitoring network, ground water levels and pumped ground water volume will be monitored in all water supply production wells as they are constructed and brought into production. The details of the monitoring plan, including the protocols, instrumentation, types of measurements, proposed timelines for measuring, and reporting requirements are presented below:

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[1] The permitted quantity is subject to change pending the outcome of a judicial review action filed by M3 in Ada County District Court entitled *M3 Eagle v. Idaho Department of Water Resources*, Case No. CV OC 1003180.

WELLS TO BE MONITORED

The following wells have been selected for initial on-going monitoring at the locations shown on Figures 1 and 2: TW#1- Zones 3 and 5, TW#2- Zone 1, TW #3-Zone 4, TW#4-Zones 2 and 4, SVR#7 and SVR#9. Four of these (TW#1, TW#2, TW#3, and TW#4) are existing long-term designated monitoring wells constructed by M3 specifically for monitoring. One additional non-producing well proposed for monitoring is SVR#9; an existing well drilled on the property prior to the time it was purchased by M3. Two producing wells for water right No. 63-32573 are currently in existence: SVR#7 and Kling Irrigation wells. These supply wells and all other supply wells to be constructed and/or used under water right No. 63-32573, shall be equipped for monitoring water levels and water production volume as detailed below.

M3 shall grant IDWR reasonable access to these wells for purposes of monitoring and analyzing ground water. If M3 constructs an additional monitoring well on its property, such well shall be subject to monitoring and reporting requirements in this Monitoring Plan.

MONITORING RESPONSIBILITY

M3, as the current water right holder, has the primary responsibility for its ground water monitoring and reporting obligations to IDWR. Currently, M3 has charged Ed Squires of HLI with operating its monitoring network and to interpret and report its findings[2]. HLI can be contacted at:

Hydro Logic, Inc.
1002 W. Franklin Street
Boise, Idaho 83702
(208) 342-8369 office
ed@hydrologicinc.net e-mail

MONITORING INSTRUMENTS AND EQUIPMENT

All ground water level measurements will be obtained from a combination of electronic pressure-transducer/digital data-loggers calibrated to, and verified with, periodic manual measurements using chalked-steel tapes and non-stretch electric well sounders. The digital water level measurements[3] are taken with *Solinst Gold Levelogger®* (or equivalent) non-vented data-loggers suspended within dedicated monitoring tubes using stainless steel and/or Kevlar® braided cable. A digital barometric data-logger, such as a *Solinst Barologger®* (or equivalent), installed inside of a well located on M3 property, will be used to record changing atmospheric pressure and to compensate the pressure readings of the unvented data loggers by subtracting the component of water level fluctuations caused solely by changes in barometric pressure. Manual

[2] Hydro Logic, Inc. is currently contracted to conduct M3's monitoring but this function shall be accomplished by whatever consultant is hired by M3, by M3 itself, or by M3's successors.

[3] The pressure-transducer/data-logger measures the weight of the water column over the instrument (plus barometric pressure). The weight of the water column is converted to feet of water over the pressure-transducer by the software of the instrument. To convert these pressures to depth-to-water, the thickness of the water column over the transducer must first be subtracted. The hand-measured depth-to-water is then added to the corresponding data-point and used to calibrate the digital data.

water level measurements, using chalked-steel tapes, such as *Lufkin*® brand spring steel tapes, and/or non-stretch electric water level tapes, such as manufactured by *Testwell Instruments*® will be used to convert the water level pressures to depth-to-water measurements. All hand measurements will be recorded and reported to 0.01 foot.

MEASUREMENT INTERVALS

All electronic data loggers will measure and record water levels at 12-hour intervals.[4] Manual on-site measurements will be taken at a minimum of six times per year: a minimum of three during the seasonal high water-level period (January through early March) and a minimum of three during the seasonal low water-level period (September through October).

WATER LEVEL PROCESSING AND ANALYSIS

Each data logger will be removed from the well and connected to a portable computer (PC) for data uploading. The data from the digital instrument (time and pressure) will be transferred to the PC, brought back to the office and then processed using *MS Excel*®. Raw data logger readings first will be converted to pressure above the data logger by subtracting the simultaneously-measured atmospheric pressure (*Barologger*® or equivalent) data. All the digitally-measured water levels will be converted to depth-to-water measurements using the manually-measured water level recorded prior to removal of the data logger. The Barometric Efficiency (BE) effects of the aquifer[5] will also be removed using the method outlined in the Ground Water Manual (US Department of the Interior, 1981).

The following equation is the accepted industry standard for aquifer BE corrections and will be used in the interpretive reports:

$$WL_{aquifer} = WL_{well} + [(P_t - P_{ave}) * BE]$$

$WL_{aquifer}$	=	corrected depth-to-water in the aquifer, in feet
WL_{well}	=	depth-to-water in the well calibrated to the manual measurement, in feet
P_{ave}	=	mean atmospheric pressure for the year, in feet of water
P_t	=	atmospheric pressure at the time of each measurement, in feet of water
BE	=	dimensionless scaling factor of Barometric Efficiency (varies 0 to 1.0)

The BE correction factor applied to each well will be calculated from water levels and atmospheric pressure data recorded during periods when no pumping is occurring in the vicinity of the M3 property and seasonal water-level-trend effects are relatively small. The BE correction

[4] For long-term monitoring, and to ensure longer battery life and manageable data file size, two daily measurements (noon and midnight) are considered optimal.

[5] Barometric Efficiency ("BE") of an aquifer describes how changes in barometric pressure affect water levels (or pressures) in the *aquifer* compared with how the same change in barometric pressure affect water levels in a *well* open to the atmosphere. In an aquifer with a BE of 50 percent, a barometrically-caused change in *well* water level of 1 foot, results in a change in *aquifer* water level (or pressure) of 0.5 feet. Well water level data are corrected for BE to indicate what the water levels in the aquifer would be, were there no well (open to the atmosphere) completed in the aquifer. Calculation of BE is somewhat subjective to the assumptions and interpretation of the analyst. Therefore, it is an interpretation rather than data and the calculation of BE will be included in the interpretive Monitoring Reports of this monitoring plan.

factor used in interpretive reports will be based on the best available data from the monitoring. If better data become available and a better BE correction factor becomes available, then the improved value and its derivation shall be discussed in the monitoring interpretive report ("Monitoring Report" described in "Interpretation and Reporting" section). The raw data to be processed and analyzed will be submitted to IDWR twice per year as described below in the Interpretation and Reporting section of this report.

Individual well head equipment and measurement protocols are listed, by well, in the tables below. Photos of the six wellheads and reference measurement point distances above ground level are shown in Figure 3.

WELL HEAD CONFIGURATIONS AND FIELD-MONITORING PROTOCOL

1. **Well TW #1 - Zone 3** (Figure 4).

   a. <u>Flow-Meter:</u>
      i. This is a dedicated monitoring well and will not be pumped except for short-term, low-volume water sampling purposes.

   b. <u>Monitoring Tube Well:</u>
      i. A designated 2-inch diameter, schedule 80 PVC plastic monitoring tube well is installed within the steel wellhead enclosure.
      ii. The monitoring tube well is open to the PGSA through a 0.020-inch cut slot well screen installed over the depth interval 395-to-425 feet below ground level (bgl).
      iii. The well screen is enveloped with a graded (#8-#16) sand filter over the interval 305-to-425 feet bgl.
      iv. The monitoring tube is completed in the upper PGSA.
      v. The borehole of TW #1 is sealed both above and below Zone 3 with pressure-grouted, high-solids, bentonite grout.
      vi. TW #1 is protected by a locking, bullet resistant, steel well head enclosure.

   c. <u>Digital Data Acquisition:</u>
      i. A Model # 3001 LT F65 "Levelogger" ® data-logger/pressure-transducer, produced by Solinst Canada, or equivalent, will be suspended within the well on a $^{1}/_{16}$-inch diameter braided stainless steel or *Kevlar*® cable.
      ii. The instrument will record a combination of pressure of water over the transducer and atmospheric pressure along with time of measurement. Measurement accuracy of the instrument will be 0.05 percent of full scale (65 feet), or about 0.03 feet.
      iii. The serial number of the installed instrument will be recorded on the raw data files. If a replacement data logger is required, a description of the new data logger, its serial number, its range and accuracy will be noted in the raw data files. An explanation for any instrument replacements will be included in the next interpretative report prepared after replacement.

d. Measuring Datum:
   i. Measuring point is the top of the steel well head enclosure which is 3.2 feet above ground level (Figure 3).
   ii. The surveyed (survey-grade GPS) measuring point datum is 2,606.39 feet above mean sea level.

e. Barometric Efficiency:
   i. The barometric efficiency (BE) of this well will be calculated from the best available data as described above and reported in the interpretive reports.
   ii. The annual mean of the recorded fluctuations of the variations in atmospheric pressure, as measured by the M3 site barometer, will be calculated from the monitored data.

f. Monitoring Protocol:
   i. With each site visit, the locking steel well head enclosure will be opened and any tampering or damage to the casing noted along with weather conditions (temperature, precipitation or any other factors that might affect data reading or reporting).
   ii. The lower 5 feet of the clean chalked-steel water level tape will be sterilized in a chlorine bleach solution.
   iii. The depth-to-water will be measured to the nearest 0.01 ft using a hand-held chalked-steel tape measure (with readings to 0.01 ft). A chalk block is rubbed on both sides of the lower five to ten feet of the tape. The depth-to-water is measured to the inside lip of the open well head enclosure (Figure 3). The tape is lowered to a depth that is about 3 feet more than the last recorded water level. The length of the tape relative to the measuring point is recorded as the "held" portion of the tape. The tape is withdrawn from the well and the length of the wetted chalk at the bottom of the tape is recorded as the "cut" portion of the tape. The total depth-to-water from the measuring point is calculated by subtracting the value recorded as "cut" from the value recorded as "held." The total depth-to-water from the measuring point and the time of measurement will be recorded.
   iv. The depth-to-water measurement is repeated one or more times to verify its accuracy and repeatability.
   v. The data logger is then removed with the cable carefully wound up and the entire assembly (data logger, cable, and cap to the 2-inch PVC monitoring tube) is placed on a clean plastic tarp to maintain cleanliness of the logger assembly while the data is uploaded to the PC[6].
   vi. The data-logger is connected to a portable PC. Using the appropriate software and peripherals, the data from the data logger are transferred to the PC.
   vii. The data logger is reset (memory cleared) if and only if a previous upload of data has been duplicated and therefore verified.

[6] In the event vented pressure-transducer/data-loggers are used for monitoring, the instruments would not have to be removed from the well. Rather, the instruments could be downloaded directly to the PC via the vent/data cable at the well head.

viii. The battery life of the data-loggers will be taken into account and replaced before the expected lifetime of the instrument's to avoid problems.
ix. The data logger is returned to the monitoring tube well and the depth-to-water re-measured as per step iii, above.
x. The steel well head security enclosure is closed, locked, and the lock closure double-checked.

2. **Well TW #1 - Zone 5** (Figure 4).

a. Flow-Meter:
i. This is a dedicated monitoring well and will not be pumped except for short-term, low-volume water sampling purposes.

b. Monitoring Tube Well:
i. A designated 2-inch diameter, schedule 80 PVC plastic monitoring tube well is installed within the steel wellhead enclosure.
ii. The monitoring tube well is open to the alluvial sand aquifer overlying the PGSA through a 0.020-inch cut slot well screen installed over the depth interval 97-to-137 feet below ground level (bgl).
iii. The well screen is enveloped with a graded (#8-#16) sand filter over the interval 67-to-144 feet bgl.
iv. The monitoring tube well is completed into the alluvial sand aquifer overlying the PGSA.
v. The borehole of TW #1 is sealed both above and below Zone 5 with pressure-grouted, high-solids, bentonite grout.
vi. TW #1 is protected by a locking, bullet resistant, steel well head enclosure.

c. Digital Data Acquisition:
i. A Model # 3001 LT F65 "*Levelogger*" ® data-logger/pressure-transducer, produced by Solinst Canada (or equivalent), will be suspended within the well on a $^{1}/_{16}$-inch diameter braided stainless steel or *Kevlar*® cable.
ii. This instrument records a combination of pressure of water over the transducer and atmospheric pressure along with the time of measurement. Measurement accuracy of the instrument is 0.05 percent of full scale (65 feet), or about 0.03 feet.
iii. The serial number of the installed instrument will be recorded on the raw data files. If a replacement data logger is required, a description of the new data logger, its serial number, its range and accuracy will be noted in the raw data files. An explanation for any instrument replacements will be included in the next interpretative report prepared after replacement.

d. Measuring Datum:
i. Measuring point is the top of the steel well head enclosure which is 3.2 feet above ground level (Figure 3).
ii. The surveyed (survey-grade GPS) measuring point datum is 2,606.39 feet above mean sea level.

e. Barometric Efficiency:

   i. The barometric efficiency (BE) of this well will be calculated from the best available data as described above and reported in the interpretive reports.
   ii. The annual mean of the recorded fluctuations of the variations in atmospheric pressure, as measured by the M3 site barometer, will be calculated from the monitored data.

f. Monitoring Protocol:

   i. With each site visit, the locking steel well head enclosure will be opened and any tampering or damage to the casing noted along with weather conditions (temperature, precipitation or any other factors that might affect data reading or reporting).
   ii. The lower 5 feet of the clean chalked-steel water level tape will be sterilized in a chlorine bleach solution.
   iii. The depth-to-water will be measured to the nearest 0.01 ft using a hand-held chalked-steel tape measure (with readings to 0.01 ft). A chalk block is rubbed on both sides of the lower five to ten feet of the tape. The depth-to-water is measured to the inside lip of the open well head enclosure (Figure 3). The tape is lowered to a depth that is about 3 feet more than the last recorded water level. The length of the tape relative to the measuring point is recorded as the "held" portion of the tape. The tape is withdrawn from the well and the length of the chalk wetted at the bottom of the tape is recorded as the "cut" portion of the tape. The total depth-to-water from the measuring point is calculated by subtracting the value recorded as "cut" from the value recorded as "held." The total depth-to-water from the measuring point and the time of measurement will be recorded.
   iv. The depth-to-water measurement is repeated one or more times to verify its accuracy and repeatability.
   v. The data logger is then removed with the cable carefully wound up and the entire assembly (data logger, cable, and cap to the 2-inch PVC monitoring tube) is placed on a clean plastic tarp to maintain cleanliness of the logger assembly while the data is uploaded to the PC.
   vi. The data-logger is connected to a portable PC. Using the appropriate software and peripherals, the data from the data logger are transferred to the PC.
   vii. The data logger is reset (memory cleared) if and only if a previous upload of data has been duplicated and therefore verified.
   viii. The battery life of the data-loggers will be taken into account and replaced before the expected lifetime of the instrument's to avoid problems.
   ix. The data logger is returned to the monitoring tube and the depth-to-water re-measured as per step iii, above.
   x. The steel well head security enclosure is closed, locked, and the lock closure double-checked.

3. **Well TW #2 - Zone 1** (Figure 5).

a. Flow-Meter:
   i. This is a dedicated monitoring well and will not be pumped except for short-term, low-volume water sampling purposes.

b. Monitoring Tube Well:
   i. A designated 2-inch diameter, schedule 80 PVC plastic monitoring tube well is installed within the steel wellhead enclosure.
   ii. The monitoring tube well is open to the PGSA through a 0.020-inch cut slot well screen installed over the depth interval 270-to-320 feet bgl.
   iii. The well screen is enveloped with a graded (#6-#12) sand filter over the interval 259-to-334 feet bgl.
   iv. The monitoring tube is completed in the lower PGSA.
   v. The borehole of TW #2 is sealed both above and below Zone 1 with pressure-grouted, high-solids, bentonite grout.
   vi. TW #2 is protected by a locking, bullet resistant, steel well head enclosure.

c. Digital Data Acquisition:
   i. A Model # 3001 LT F65 "*Levelogger*" ® data-logger/pressure-transducer, produced by Solinst Canada (or equivalent), will be suspended within the well on a $^{1}/_{16}$-inch diameter braided stainless steel or *Kevlar*® cable.
   ii. This instrument records a combination of pressure of water over the transducer and atmospheric pressure along with time of measurement. Measurement accuracy of the instrument is 0.05 percent of full scale (65 feet), or about 0.03 feet.
   iii. The serial number of the installed instrument will be recorded on the raw data files. If a replacement data logger is required, a description of the new data logger, its serial number, its range and accuracy will be noted in the raw data files. An explanation for any instrument replacements will be included in the next interpretative report prepared after replacement.

d. Measuring Datum:
   i. Measuring point is the top of the steel well head enclosure which is 3.2 feet above ground level (Figure 3).
   ii. The surveyed (survey-grade GPS) measuring point datum is 2,766.01 feet above mean sea level.

e. Barometric Efficiency:
   i. The barometric efficiency (BE) of this well will be calculated from the best available data as described above and reported in the interpretive reports.
   ii. The annual mean of the recorded fluctuations of the in atmospheric pressure, as measured by the M3 site barometer, will be calculated from the monitored data.

f. Monitoring Protocol:

   i. With each site visit, the locking steel well head enclosure is opened and any tampering or damage to the casing is noted along with weather conditions (temperature, precipitation or any other factors that might affect data reading or reporting).
   ii. The lower 5 feet of the clean chalked-steel water level tape is sterilized in a chlorine bleach solution.
   iii. The depth-to-water is measured to the nearest 0.01 ft using a hand-held chalked-steel tape measure (with readings to 0.01 ft). A chalk block is rubbed on both sides of the lower five to ten feet of the tape. The depth-to-water is measured to the inside lip of the open well head enclosure (Figure 3). The tape is lowered to a depth that is about 3 feet more than the last recorded water level. The length of the tape relative to the measuring point is recorded as the “held” portion of the tape. The tape is withdrawn from the well and the length of the chalk wetted at the bottom of the tape is recorded as the “cut” portion of the tape. The total depth-to-water from the measuring point is calculated by subtracting the value recorded as “cut” from the value recorded as “held.” The total depth-to-water from the measuring point and the time of measurement are recorded.
   iv. The depth-to-water measurement is repeated one or more times to verify its accuracy and repeatability.
   v. The data logger is then removed with the cable carefully wound up and the entire assembly (data logger, cable and cap to the 2-inch PVC monitoring tube) is placed on a clean plastic tarp to maintain cleanliness of the logger assembly while the data is uploaded to the PC.
   vi. The data-logger is connected to a portable PC. Using the appropriate software and peripherals, the data from the data logger are transferred to the PC.
   vii. The data logger is reset (memory cleared) if and only if a previous upload of data has been duplicated and therefore verified.
   viii. The battery life of the data-loggers will be taken into account and replaced before the expected lifetime of the instrument’s to avoid problems.
   ix. The data logger is returned to the monitoring tube and the depth-to-water re-measured as per step iii, above.
   x. The steel well head security enclosure is closed, locked, and the lock double-checked.

4. **Well TW #3 - Zone 4** (Figure 6).

   a. Flow-Meter:
      i. This is a dedicated monitoring well and will not be pumped except for short-term, low-volume water sampling purposes.

   b. Monitoring Tube Well:
      i. A designated 2-inch diameter, schedule 80 PVC plastic monitoring tube well is installed within the steel wellhead enclosure.

ii. The monitoring tube well is open to the PGSA through a 0.020-inch cut slot well screen installed over the depth interval 334-to-354 feet bgl.
iii. The well screen is enveloped with a graded (#8-#16) sand filter over the interval 303-to-355 feet bgl.
iv. The monitoring tube well is completed in the upper PGSA.
v. The borehole of TW #3 is sealed both above and below Zone 4 with pressure-grouted, high-solids, bentonite grout.
vi. TW #3 is protected by a locking, bullet resistant, steel well head enclosure.

c. Digital Data Acquisition:
   i. A Model # 3001 LT F65 "*Levelogger*" ® data-logger/pressure-transducer, produced by Solinst Canada (or equivalent), will be suspended within the well on a $^{1}/_{16}$-inch diameter braided stainless steel or Kevlar® cable.
   ii. This instrument records a combination of pressure of water over the transducer and atmospheric pressure along with the time of measurement. Measurement accuracy of the instrument is 0.05 percent of full scale (65 feet), or about 0.03 feet.
   iii. The serial number of the installed instrument will be recorded on the raw data files. If a replacement data logger is required, a description of the new data logger, its serial number, its range and accuracy will be noted in the raw data files. An explanation for any instrument replacements will be included in the next interpretative report prepared after replacement.

d. Measuring Datum:
   i. Measuring point is the top of the steel well head enclosure which is 3.5 feet above ground level (Figure 3).
   ii. The surveyed (survey-grade GPS) measuring point datum is 2,786.63 feet above mean sea level.

e. Barometric Efficiency:
   i. The barometric efficiency (BE) of this well will be calculated from the best available data as described above and reported in the interpretive reports.
   ii. The annual mean of the recorded fluctuations of the variations in atmospheric pressure, as measured by the M3 site barometer, will be calculated from the monitored data.

f. Monitoring Protocol:
   i. With each site visit, the locking steel well head enclosure is opened and any tampering or damage to the casing is noted along with weather conditions (temperature, precipitation or any other factors that might affect data reading or reporting).
   ii. The lower 5 feet of the clean chalked-steel water level tape is sterilized in a chlorine bleach solution.
   iii. The depth-to-water is measured to the nearest 0.01 ft using a hand-held chalked-steel tape measure (with readings to 0.01 ft). A chalk block is rubbed on both sides of the lower five to ten feet of the tape. The depth-to-

water is measured to the inside lip of the open well head enclosure (Figure 3). The tape is lowered to a depth that is about 3 feet more than the last recorded water level. The length of the tape relative to the measuring point is recorded as the "held" portion of the tape. The tape is withdrawn from the well and the length of the chalk wetted at the bottom of the tape is recorded as the "cut" portion of the tape. The total depth-to-water from the measuring point is calculated by subtracting the value recorded as "cut" from the value recorded as "held." The total depth-to-water from the measuring point and the time of measurement are recorded.

iv. The depth-to-water measurement is repeated one or more times to verify its accuracy and repeatability.
v. The data logger is then removed with the cable carefully wound up and the entire assembly (data logger, cable and cap to the 2-inch PVC monitoring tube) is placed on a clean plastic tarp to maintain cleanliness of the logger assembly while the data is uploaded to the PC.
vi. The data-logger is connected to a portable PC. Using the appropriate software, the data from the data logger are transferred to the PC.
vii. The data logger is reset (memory cleared) if and only if a previous upload of data has been duplicated and therefore verified.
viii. The battery life of the data-loggers will be taken into account and replaced before the expected lifetime of the instrument's to avoid problems.
ix. The data logger is returned to the monitoring tube and the depth-to-water re-measured as per step iii, above.
x. The steel well head security enclosure is closed and locked with the lock double-checked.

5. **Well TW #4 - Zone 2** (Figure 7).

a. Flow-Meter:
   i. This is a dedicated monitoring well and will not be pumped except for short-term, low-volume water sampling purposes.

b. Monitoring Tube Well:
   i. A designated 2-inch diameter, schedule 80 PVC plastic monitoring tube well is installed within the steel wellhead enclosure.
   ii. The monitoring tube well is open to the PGSA through a 0.020-inch cut slot well screen installed over the depth interval 326-to-556 feet bgl.
   iii. The well screen is enveloped with a graded (#8-#16) sand filter over the interval 298-to-564 feet bgl.
   iv. The monitoring tube well is fully penetrating and open to the full thickness of the PGSA.
   v. The borehole of TW #4 is sealed both above and below Zone 2 with pressure-grouted, high-solids, bentonite grout.
   vi. TW #4 is protected by a locking, bullet resistant, steel well head enclosure.

c. Digital Data Acquisition:

   i. A Model # 3001 LT F65 "*Levelogger*" ® data-logger/pressure-transducer, produced by Solinst Canada (or equivalent), will be suspended within the well on a $^{1}/_{16}$-inch diameter braided stainless steel or *Kevlar*® cable.
   ii. This instrument records pressure of water over the transducer and time of measurement. Measurement accuracy of the instrument is 0.05 percent of full scale (65 feet), or about 0.03 feet.
   iii. The serial number of the installed instrument will be recorded on the raw data files. If a replacement data logger is required, a description of the new data logger, its serial number, its range and accuracy will be noted in the raw data files. An explanation for any instrument replacements will be included in the next interpretative report prepared after replacement.

d. Measuring Datum:

   i. Measuring point is the top of the steel well head enclosure which is 4.15 feet above ground level (Figure 3).
   ii. The measuring point datum is about 2,675 (+/- 15 feet) (Google Earth) feet above mean sea level.

e. Barometric Efficiency:

   i. The barometric efficiency (BE) of this well will be calculated from the best available data as described above and reported in the interpretive reports.
   ii. The annual mean of the recorded fluctuations of the variations in atmospheric pressure, as measured by the M3 site barometer, will be calculated from the monitored data.

f. Monitoring Protocol:

   i. With each site visit, the locking steel well head enclosure is opened and any tampering or damage to the casing is noted along with weather conditions (temperature, precipitation or any other factors that might affect data reading or reporting).
   ii. The lower 5 feet of the clean chalked-steel water level tape is sterilized in a chlorine bleach solution.
   iii. The depth-to-water is measured to the nearest 0.01 ft using a hand-held chalked-steel tape measure (with readings to 0.01 ft). A chalk block is rubbed on both sides of the lower five to ten feet of the tape. The depth-to-water is measured to the inside lip of the open well head enclosure (Figure 3). The tape is lowered to a depth that is about 3 feet more than the last recorded water level. The length of the tape relative to the measuring point is recorded as the "held" portion of the tape. The tape is withdrawn from the well and the length of the chalk wetted at the bottom of the tape is recorded as the "cut" portion of the tape. The total depth-to-water from the measuring point is calculated by subtracting the value recorded as "removed" from the value recorded as "held." The total depth-to-water from the measuring point and the time of measurement are recorded.

iv. The depth-to-water measurement is repeated one or more times to verify its accuracy and repeatability.
v. The data logger is then removed with the cable carefully wound up and the entire assembly (data logger, cable and cap to the 2-inch PVC monitoring tube) is placed on a clean plastic tarp to maintain cleanliness of the logger assembly while the data is uploaded to the PC.
vi. The data-logger is connected to a portable PC. Using the appropriate software, the data from the data logger are transferred to the PC.
vii. The data logger is reset (memory cleared) if and only if a previous upload of data has been duplicated and therefore verified.
viii. The battery life of the data-loggers will be taken into account and replaced before the expected lifetime of the instrument's to avoid problems.
ix. The data logger is returned to the monitoring tube well and the depth-to-water re-measured as per step iii, above.
x. The steel well head security enclosure is closed and locked.

6. **Well TW #4 - Zone 3** (Figure 7).

a. Flow-Meter:
i. This is a dedicated monitoring well and will not be pumped except for short-term, low-volume water sampling purposes.

b. Monitoring Tube Well:
i. A designated 2-inch diameter, schedule 80 PVC plastic monitoring tube well is installed within the steel wellhead enclosure.
ii. The monitoring tube well is open to the unnamed alluvial sand aquifer through a 0.020-inch cut slot well screen installed over the depth interval 181-to-201 feet bgl.
iii. The well screen is enveloped with a graded (#8-#16) sand filter over the interval 166-to-211 feet bgl.
iv. The monitoring tube is fully penetrating and open to the full thickness of the unnamed alluvial sand aquifer.
v. The borehole of TW #4 is sealed both above and below Zone 3 with pressure-grouted, high-solids, bentonite grout.
vi. TW #4 is protected by a locking, bullet resistant, steel well head enclosure.

c. Digital Data Acquisition:
i. A Model # 3001 LT F65 "*Levelogger*" ® data-logger/pressure-transducer, produced by Solinst Canada (or equivalent), will be suspended within the well on a $^{1}/_{16}$-inch diameter braided stainless steel or *Kevlar*® cable.
ii. This instrument records pressure of water over the transducer along with the time of measurement. Measurement accuracy of the instrument is 0.05 percent of full scale (65 feet), or about 0.03 feet.
iii. The serial number of the installed instrument will be recorded on the raw data files. If a replacement data logger is required, a description of the new data logger, its serial number, its range and accuracy will be noted in

the raw data files. An explanation for any instrument replacements will be included in the next interpretative report prepared after replacement.

d. <u>Measuring Datum:</u>
   i. Measuring point is the top of the steel well head enclosure which is 4.15 feet above ground level (Figure 3).
   ii. The measuring point datum is about 2,675 (+/- 15 feet) (Google Earth) feet above mean sea level.

e. <u>Barometric Efficiency:</u>
   i. The barometric efficiency (BE) of this well will be calculated from the best available data as described above and reported in the interpretive reports.
   ii. The annual mean of the recorded fluctuations of the variations in atmospheric pressure, as measured by the M3 site barometer, will be calculated from the monitored data.

f. <u>Monitoring Protocol:</u>
   i. With each site visit, the locking steel well head enclosure is opened and any tampering or damage to the casing is noted along with weather conditions (temperature, precipitation or any other factors that might affect data reading or reporting).
   ii. The lower 5 feet of the clean chalked-steel water level tape is sterilized in a chlorine bleach solution.
   iii. The depth-to-water is measured to the nearest 0.01 ft using a hand-held chalked-steel tape measure (with readings to 0.01 ft). A chalk block is rubbed on both sides of the lower five to ten feet of the tape. The depth-to-water is measured to the inside lip of the open well head enclosure (Figure 3). The tape is lowered to a depth that is about 3 feet more than the last recorded water level. The length of the tape relative to the measuring point is recorded as the "held" portion of the tape. The tape is withdrawn from the well and the length of the chalk wetted at the bottom of the tape is recorded as the "cut" portion of the tape. The total depth-to-water from the measuring point is calculated by subtracting the value recorded as "cut" from the value recorded as "held." The total depth-to-water from the measuring point and the time of measurement are recorded.
   iv. The depth-to-water measurement is repeated one or more times to verify its accuracy and repeatability.
   v. The data logger is then removed with the cable carefully wound up and the entire assembly (data logger, cable and cap to the 2-inch PVC monitoring tube) is placed on a clean plastic tarp to maintain cleanliness of the logger assembly while the data is uploaded to the PC.
   vi. The data-logger is connected to a portable PC. Using the appropriate software, the data from the data logger are transferred to the PC.
   vii. The data logger is reset (memory cleared) if and only if a previous upload of data has been duplicated and therefore verified.
   viii. The battery life of the data-loggers will be taken into account and replaced before the expected lifetime of the instrument's to avoid problems.

ix. The data logger is returned to the monitoring tube and the depth-to-water re-measured as per step iii, above.
x. The steel well head security enclosure is closed and locked.

7. **Well SVR #9** (Figure 8).

a. Flow-Meter:
   i. This is a dedicated monitoring well and will not be pumped except for the possibility of periodic short-term, low-volume water sampling purposes.

b. Monitoring Tube:
   i. The well has no designated monitoring tube within the 8-inch diameter steel well casing.
   ii. The well is open to the PGSA through a wire-wound, stainless steel well screen with 0.030-inch openings over the interval 235-to-263 feet bgl.
   iii. The well screen is enveloped within a graded (#8-#12) sand filter.
   iv. The well is completed in the middle portion of the Pierce Gulch Sand but near the top of the PGSA (the saturated portion of the sand).
   v. The borehole of SVR #9 is sealed both above and below the well screen and filter-pack portion of the borehole with pressure-grouted, high-solids, bentonite grout.
   vi. SVR #9 is protected by a locking, bullet resistant, steel well head enclosure.

c. Digital Data Acquisition:
   i. A Model # 3001 LT F65 "*Levelogger*" ® data-logger/pressure-transducer, produced by Solinst Canada (or equivalent), will be suspended within the well on a $^{1}/_{16}$-inch diameter braided stainless steel or *Kevlar*® cable.
   ii. This instrument records a combination of pressure of water and atmospheric pressures over the transducer along with the time of measurement. Measurement accuracy of the instrument is 0.05 percent of full scale (65 feet), or about 0.03 feet.
   iii. The serial number of the installed instrument will be recorded on the raw data files. If a replacement data logger is required, a description of the new data logger, its serial number, its range and accuracy will be noted in the raw data files. An explanation for any instrument replacements will be included in the next interpretative report prepared after replacement.

d. Measuring Datum:
   i. Measuring point is the inside edge of the open steel well head security enclosure which is 1.8 feet above ground level (Figure 3).
   ii. The surveyed (survey-grade GPS) measuring point datum is 2,753.06 feet above mean sea level.

e. Barometric Efficiency:
   i. The barometric efficiency (BE) of this well will be calculated from the best available data as described above and reported in the interpretive reports.

ii. The annual mean of the recorded fluctuations of the variations in atmospheric pressure, as measured by the M3 site barometer, will be calculated from the monitored data.

f. Monitoring Protocol:

i. With each site visit, the locking steel well head enclosure is opened and any tampering or damage to the casing is noted along with weather conditions (temperature, precipitation or any other factors that might affect data reading or reporting).

ii. The lower 5 feet of the clean chalked-steel water level tape is sterilized in a chlorine bleach solution.

iii. The depth-to-water is measured to the nearest 0.01 ft using a hand-held chalked-steel tape measure (with readings to 0.01 ft). A chalk block is rubbed on both sides of the lower five to ten feet of the tape. The depth-to-water is measured to the inside lip of the open well head enclosure (Figure 3). The tape is lowered to a depth that is about 3 feet more than the last recorded water level. The length of the tape relative to the measuring point is recorded as the “held” portion of the tape. The tape is withdrawn from the well and the length of the chalk wetted at the bottom of the tape is recorded as the “cut” portion of the tape. The total depth-to-water from the measuring point is calculated by subtracting the value recorded as “cut” from the value recorded as “held.” The total depth-to-water from the measuring point and the time of measurement are recorded.

iv. The depth-to-water measurement is repeated one or more times to verify its accuracy and repeatability.

v. The data logger is then removed with the cable carefully wound up and the entire assembly (data logger and cable) is placed on a clean plastic tarp to maintain cleanliness of the logger assembly while the data is uploaded to the PC.

vi. The data-logger is connected to a portable PC. Using the appropriate software and peripherals, the data from the data logger are transferred to the PC.

vii. The data logger is reset (memory cleared) if and only if a previous upload of data has been duplicated and therefore verified.

viii. The battery life of the data-loggers will be taken into account and replaced before the expected lifetime of the instrument’s to avoid problems.

ix. The data logger is returned to depth inside of the casing and the depth-to-water re-measured as per step iii, above.

x. The steel well head security enclosure is closed, locked, and the lock double-checked.

8. **Well SVR #7** (Figure 9).

a. Flow-Meter:

i. This well has not yet been connected to any water system and no well head plumbing, controls, electrical power, or distribution water system has been constructed.

ii. All M3 water supply wells will be equipped with high-quality electromagnetic induction flow-meters manufactured by national suppliers prior to being brought on line.
iii. All flow-meters will either be new, factory-calibrated meters or, for used and/or aging meters, the meter will be calibrated every five years in the installed state. The rated flow range of the installed pumping plant and will indicate instantaneous flow and total volume pumped.

b. Measurements (when SVR #7 is on line and actively pumping):
   i. Water system personnel from M3 or its successor will visit all pumping wells at least one time per week.
   ii. Flow-meter totalizer readings, instantaneous flow rate readings, depth to water, and date and time of measurement will be manually recorded on a pump-house chart.

c. Monitoring Tubes:
   i. Two designated 1-inch diameter, plastic monitoring tubes will be installed with and attached to, the pump column with the lower end just above the pump bowl assembly.
   ii. The well is open to the PGSA through combined intake section consisting of a louvered "shutter screen" open to the aquifer from 279-to-339 feet below ground level and a cut-slot well screen with $^{1}/_{8}$-inch openings from 339-to-349 feet bgl.
   iii. The well screen is enveloped inside of a $^{5}/_{16}$-minus, crushed and washed basalt rock-chip-gravel pack over the interval 242-to-380 feet bgl.
   iv. The well is completed in the middle section of the PGSA.
   v. The borehole of SVR #7 is sealed both above and below the screened section with pressure-grouted, high-solids, bentonite grout.
   vi. SVR #7 is currently protected by a locking, bullet resistant, steel well head enclosure. When a distribution system is constructed, a well house may be built and the existing steel well head modified.
   vii. Any changes in grade and/or well head elevation will be carefully documented to maintain a consistent measuring datum.

d. Digital Data Acquisition:
   i. As long as this well is used solely for monitoring purposes, a Model # 3001 LT F65 "*Levelogger*" ® data-logger/pressure- transducer, produced by Solinst Canada (or equivalent), will be suspended within the well on a $^{1}/_{16}$-inch diameter braided stainless steel or *Kevlar*® cable.
   ii. This instrument records a combination of pressure of water and atmospheric pressure over the transducer along with the time of measurement. Measurement accuracy of the instrument is 0.05 percent of full scale (65 feet), or about 0.03 feet.
   iii. The serial number of the installed instrument will be recorded on the raw data files. If a replacement data logger is required, a description of the new data logger, its serial number, its range and accuracy will be noted in the raw data files. An explanation for any instrument replacements will be included in the next interpretative report prepared after replacement.

iv. When SVR#7 is equipped and used as a water supply well, it will be similarly equipped with the same monitoring devices used to monitor all other production wells depending on the equipment specified for the water system.

e. Measuring Datum:
   i. Measuring point is inside upper edge of the open steel well head enclosure which is currently 5.5 feet above the ground level (Figure 3).
   ii. The surveyed (survey-grade GPS) measuring point datum is 2,709.84 feet above mean sea level.

f. Barometric Efficiency:
   i. The barometric efficiency (BE) of this well will be calculated from the best available data as described above and reported in the interpretive reports.
   ii. The annual mean of the recorded fluctuations of the variations in atmospheric pressure, as measured by the M3 site barometer, will be calculated from the monitored data.

g. Monitoring Protocol:
   i. With each site visit, the locking steel well head enclosure is opened and any tampering or damage to the casing is noted along with weather conditions (temperature, precipitation or any other factors that might affect data reading or reporting).
   ii. The lower 5 feet of the clean chalked-steel water level tape is sterilized in a chlorine bleach solution.
   iii. The depth-to-water is measured to the nearest 0.01 ft using a hand-held chalked-steel tape measure (with readings to 0.01 ft). A chalk block is rubbed on both sides of the lower five to ten feet of the tape. The depth-to-water is measured to the inside lip of the open well head enclosure (Figure 3). The tape is lowered to a depth that is about 3 feet more than the last recorded water level. The length of the tape relative to the measuring point is recorded as the "held" portion of the tape. The tape is withdrawn from the well and the length of the chalk wetted at the bottom of the tape is recorded as the "cut" portion of the tape. The total depth-to-water from the measuring point is calculated by subtracting the value recorded as "cut" from the value recorded as "held." The total depth-to-water from the measuring point and the time of measurement are recorded.
   iv. The depth-to-water measurement is repeated one or more times to verify its accuracy and repeatability.
   v. When SVR#7 well is brought into production, a chalked steel tape may not be an accurate means of measuring pumping and non-pumping water levels. In this case, and as will be the case with all pumping production wells, a non-stretch electric well sounding tape (such as manufactured by *Testwell Instruments*® shall be used to measure water levels to that same accuracy as specified for chalked steel tape measurements.
   vi. The data logger is then removed with the cable carefully wound up and the entire assembly (data logger, cable and cap to the 2-inch PVC monitoring

tube) is placed on a clean plastic tarp to maintain cleanliness of the logger assembly while the data is uploaded to the PC.

vii. The data-logger is connected to a portable PC. Using the appropriate software and peripherals, the data from the data logger are transferred to the PC.

viii. The data logger is reset (memory cleared) if and only if a previous upload of data has been duplicated and therefore verified.

ix. The battery life of the data-loggers will be taken into account and replaced before the expected lifetime of the instrument's to avoid problems.

x. The data logger is returned to the monitoring tube and the depth-to-water re-measured as per step iii, above.

xi. The steel well head security enclosure is closed and locked with the lock double-checked.

MONITORING EQUIPMENT, INSTRUMENTS, AND CALIBRATION

1) Measuring Instruments.

a. Water-level sounding tapes.

i. *Steel tapes.* Spring-steel tapes, such as manufactured by *Lufkin*®, specifically constructed for chalked water level measurements, incremented in one-foot intervals with the lowermost 20-feet of the tape embossed in 1/100th of a foot increments will be used to measure water levels. Recognizing that steel tapes stretch also (that is why Lufkin supplies a ruler with each steel tape), we did not compensate for these very small changes which we assumed to be constant once the tape is extended.

ii. *Monitoring tubes:* All wells will be equipped with designated monitoring tubes for measuring water levels without becoming entangled with the pump column or submersible power cables and to avoid "casing suck" whereby the tape can temporarily stick to the wetted steel casing.

iii. *Electric Water Level Sounding Tapes:* For pumping wells, and for any well unable to be measured by the chalked steel tape method, non-stretch electric water level sounders such as manufactured by *Testwell Instruments*® will be used to measure water levels to 0.01/ft.

b. Electronic data loggers:

i. Electronic data loggers installed in the designated (non-pumping) test wells require no periodic calibration or maintenance. If a data logger appears to be failing, it is returned to the manufacturer for repair, data recovery and/or replacement.

ii. All water supply production wells will be equipped with digital electronic equipment to measure and record system pressure, water-level, instantaneous flow, pumped volume, etc. as all high-quality municipal systems are required to do. These are generally standardized monitoring packages that are identical for each well and which report back to a centralized data recording system. The exact manufacturer and/or type of remote sensing and data-transmission system that will be used is not currently designed or known but shall be from a nationally recognized manufacturer with a proven track record.

iii. All pressure-transducer/data-logging instruments will be housed inside of designated monitoring tubes within the well. Tube of sufficient rigidity and diameter will be used to ensure continued insertion and removal of the instruments to/from the well.

2) Permanently Installed Flow Meters.

a. Flow-Meter Type.
   i. All M3 water production wells will be equipped with high-quality electromagnetic induction flow-meters manufactured by national suppliers prior to being brought on line. The precise equipment will be chosen according to cost, performance, and reliability.

b. Flow Range
   i. All flow-meters will be within the calibrated and rated flow range of the installed pumping plant and will indicate instantaneous flow and total volume pumped.

c. Flow Meter Calibration.
   i. All new high-quality flow-meters are factory-calibrated within close tolerances. Periodically, at approximately five-year intervals, flow-meter calibrations will be checked by means of pumped filling of tanks of known volume, by pumping tests using a circular orifice weir, or using another calibrated flow-meter.

ADDITIONAL WATER LEVEL DATA

After a new Supply Well has been constructed, it will be pump-tested following protocols established by IDEQ for Public Drinking Water Systems. The data from these tests will be submitted in electronic format to IDWR as part of the raw monitoring data collected for that year. These data will be analyzed, interpreted, and reported by the groundwater consultant preparing the interpretive monitoring reports (described below).

INTERPRETATION AND REPORTING

Semi-Annual Data Submittals*:* The raw electronic and hand-measured water level data, including data corrected for fluctuations in atmospheric pressure, for each well will be submitted to IDWR twice per year – once on or before December 31st (for data collected from June 1st-to-November 30th) and once on or before June 30th (for data collected from December 1st-to May 31st).[7] These data will be submitted to IDWR on compact disc in MS Excel®, non-encrypted format with column headings included at the beginning of the file, posted above each recorded data type. For pumping wells, the raw data submittal will include field and digitally-acquired

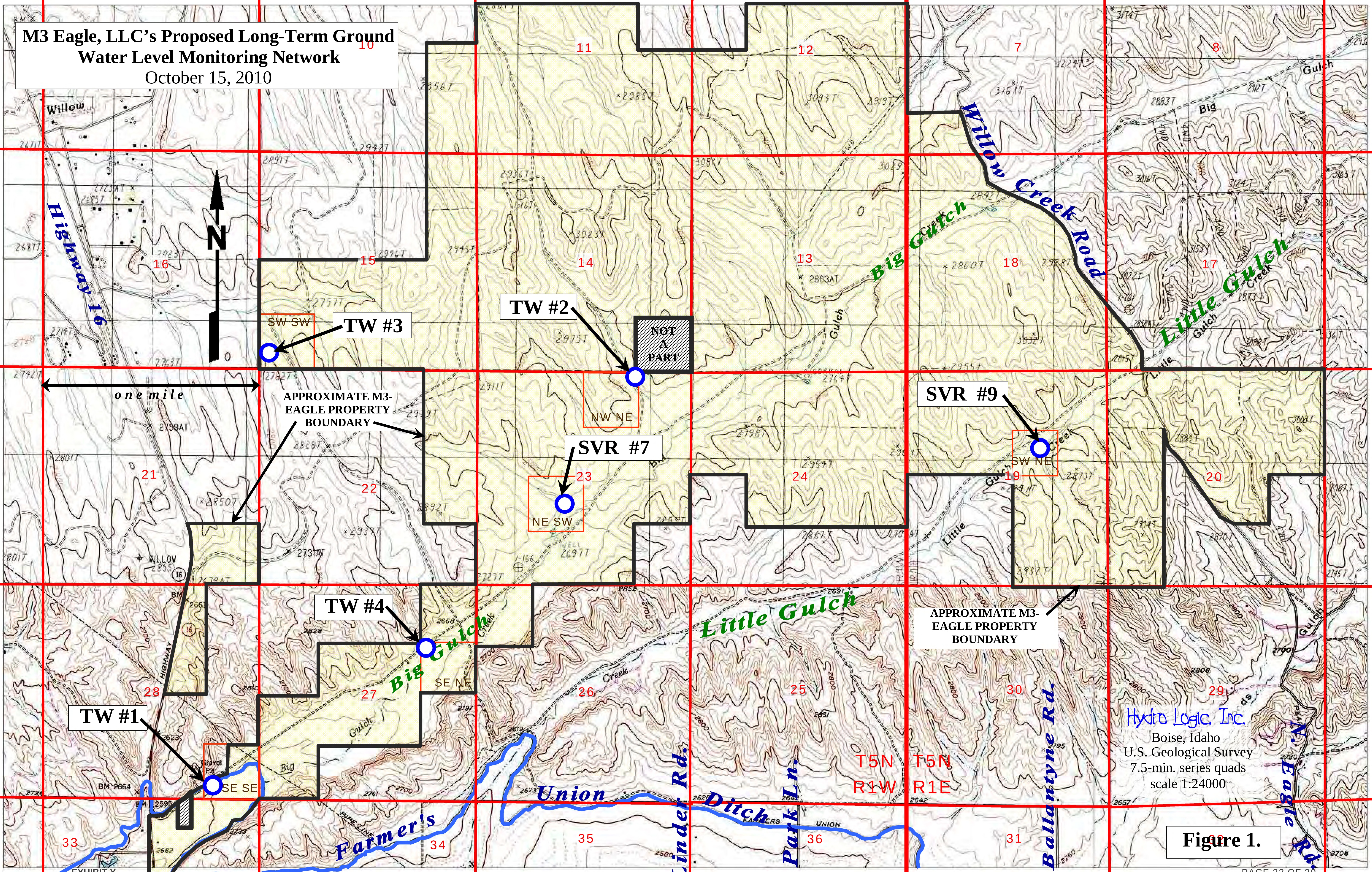
[7] The June 1-to-November 30 and December 1-to-May 31) monitoring periods are intended to ensure that the highest and lowest water levels of the year are measured and recorded. (The lowest levels have been shown to occur in September-October, while the highest levels occur during January-March.)

pumping and non-pumping water levels and pump house production data for all M3 water supply wells.

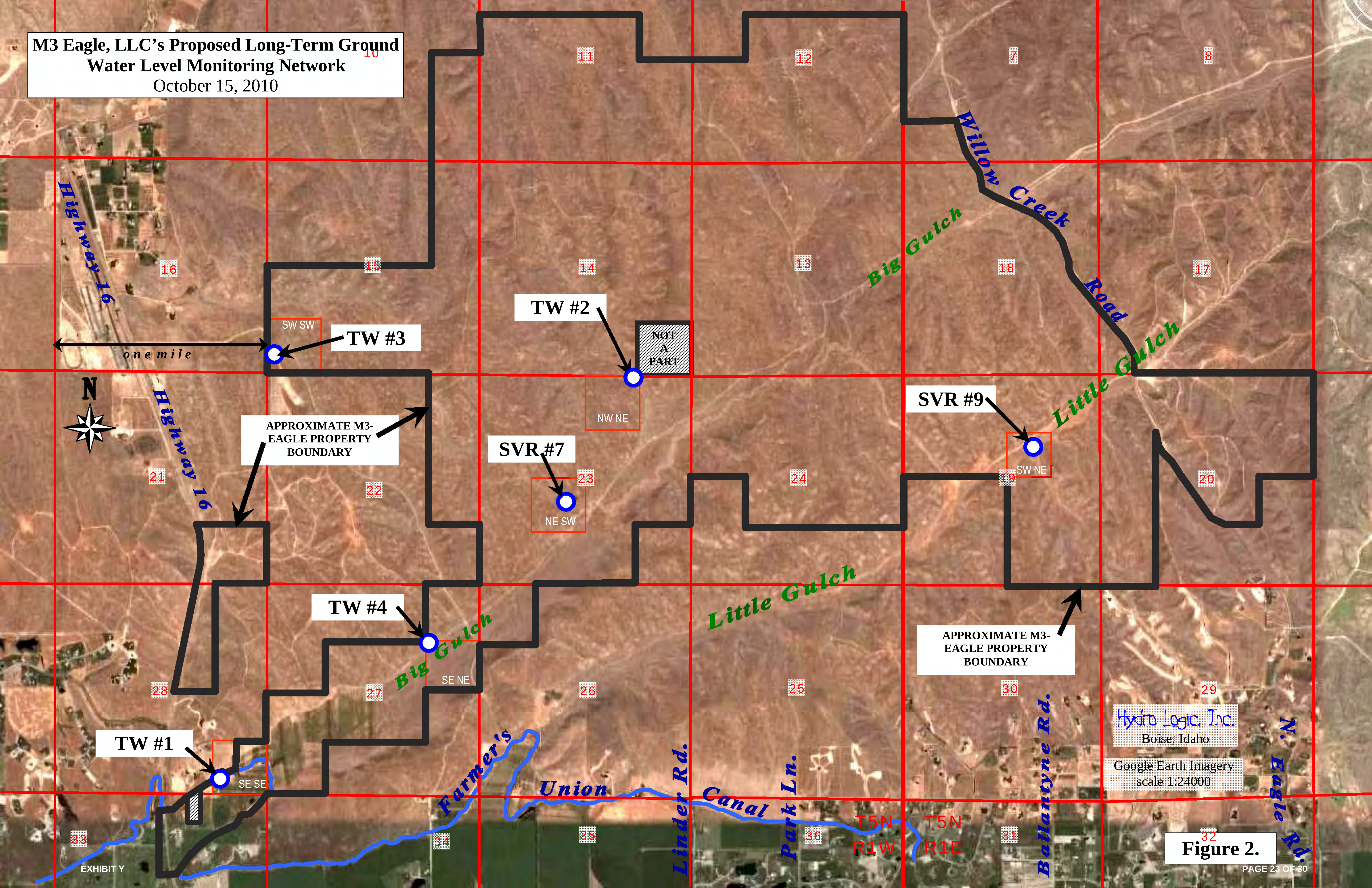
Annual Monitoring Report: On or before July 31 each year after pumping commences under the Permit, M3 shall prepare and file with IDWR an interpretive monitoring report by a professional hydrogeologist ("Monitoring Report") which shall include:

1) The amount, timing, and location of ground water production under the Permit.
2) Plotted hydrographs for each monitored well using BE-corrected data showing seasonal variations, water-level trends, and pumping effects, along with a discussion of water level trends, and notable changes in water levels, the high and low water level measurements recorded, and an explanation of any other factors that may be relative to the water levels in the Pierce Gulch Sand Aquifer (PGSA).
3) Drawdown calculations determined by comparison of the average water level at each monitoring well for each month during the most recent annual period with the average water level for the same month during the previous annual monitoring period(s) or similar information as may be required by the Department.
4) Other information describing hydrologic impacts of the water right holder's ground water pumping on senior surface and ground water users (to the extent data is available) and a determination of the cause(s) of any observed water level declines.
5) A discussion of the effects of the water right holder's ground water pumping on the shallow aquifer.
6) Any available updated information concerning projections for the project's impacts on the aquifer at full build out.

The monitoring and reporting requirements set forth herein shall remain in place throughout the Permit's 30 year planning horizon unless terminated sooner by order of the Department. If the Department determines that annual Monitoring Reports are not necessary to effectively administer water rights or evaluate impacts on the resource by the water right holder's pumping, the Department can reduce the frequency of the Monitoring Reports to once every five years or such other frequency the Department deems necessary.



M3 Eagle, LLC's Proposed Long-Term Ground Water Level Monitoring Network
October 15, 2010
TW #1
TW #2
TW #3
TW #4
SVR #7
SVR #9
NOT A PART
one mile
N
APPROXIMATE M3-EAGLE PROPERTY BOUNDARY
APPROXIMATE M3-EAGLE PROPERTY BOUNDARY
SW SW
NW NE
NE SW
SW NE
SE NE
SE SE
Highway 16
Willow Creek Road
Big Gulch
Little Gulch
Little Gulch
Big Gulch
Farmer's
Union
Ditch
Linder Rd.
Park Ln.
Ballantyne Rd.
N. Eagle Rd.
T5N T5N
R1W R1E
Hydro Logic, Inc.
Boise, Idaho
U.S. Geological Survey
7.5-min. series quads
scale 1:24000
Figure 1.


M3 Eagle, LLC's Proposed Long-Term Ground Water Level Monitoring Network
October 15, 2010
TW #1
TW #2
TW #3
TW #4
SVR #7
SVR #9
SW SW
NW NE
NE SW
SW NE
SE NE
SE SE
NOT A PART
APPROXIMATE M3-EAGLE PROPERTY BOUNDARY
APPROXIMATE M3-EAGLE PROPERTY BOUNDARY
one mile
N
Highway 16
Highway 16
Willow Creek Road
Big Gulch
Big Gulch
Little Gulch
Little Gulch
Farmer's Union Canal
Linder Rd.
Park Ln.
Ballantyne Rd.
N. Eagle Rd.
T5N R1W
T5N R1E
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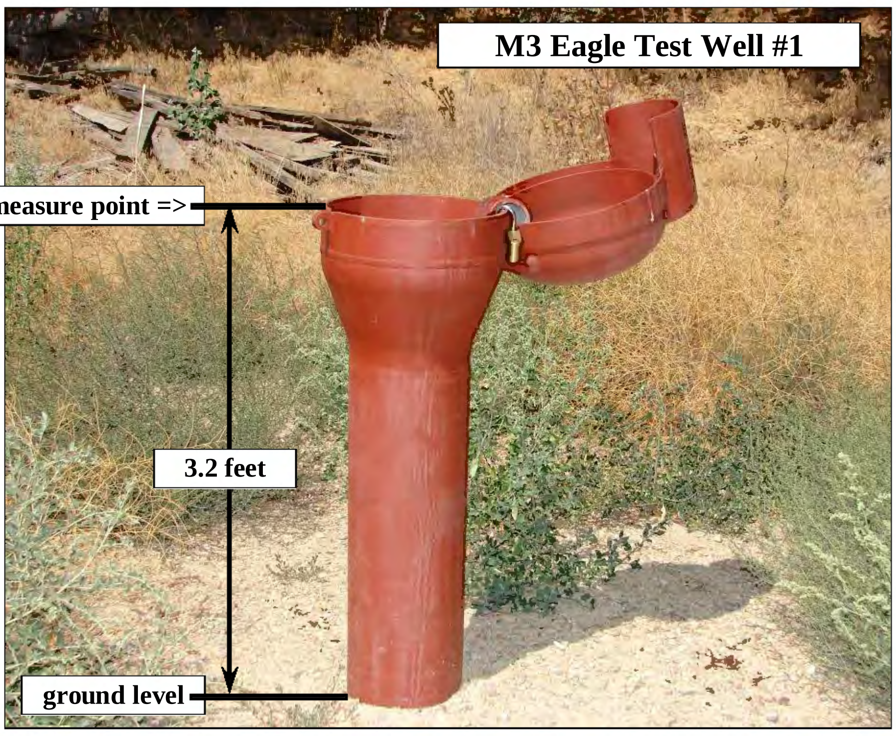
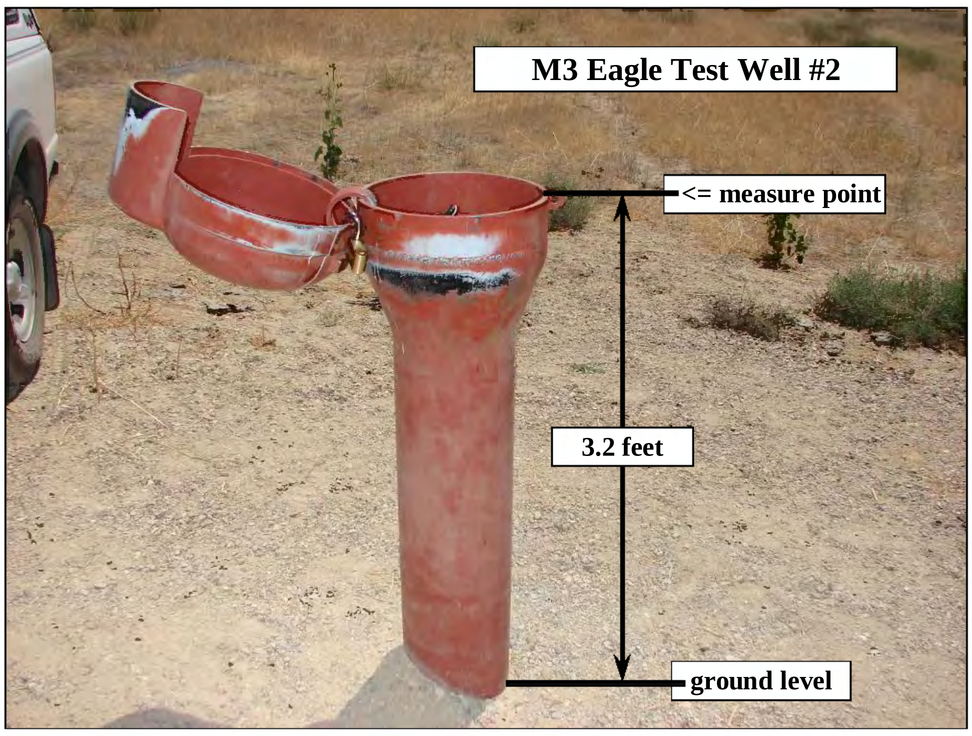
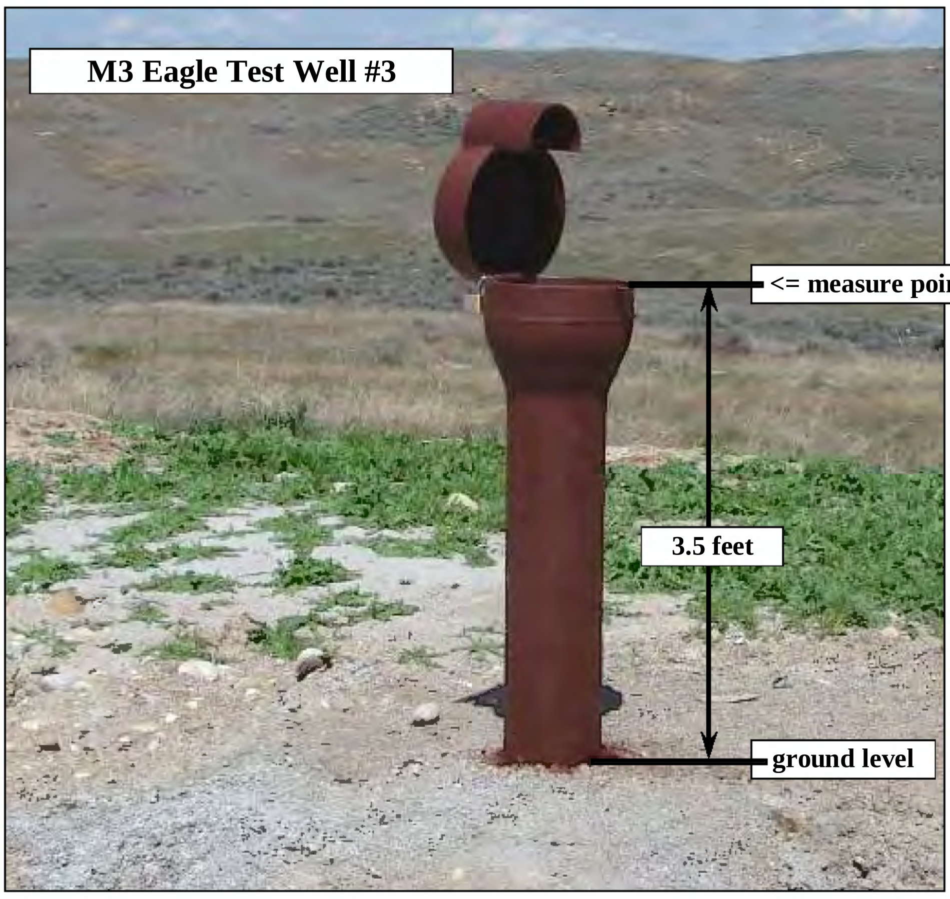
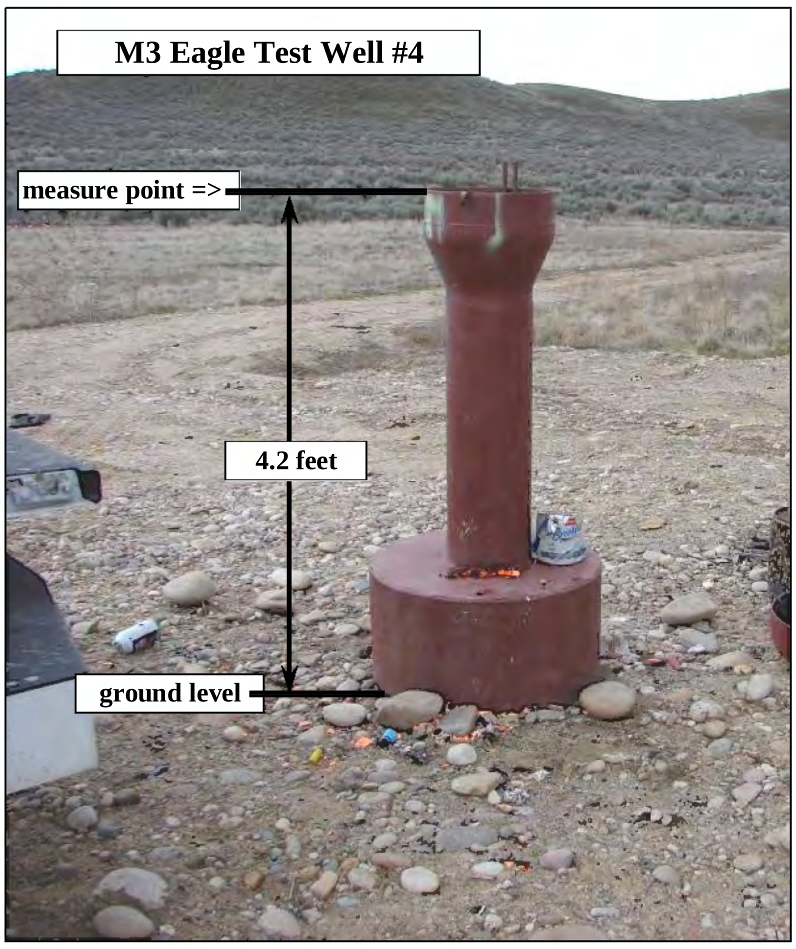
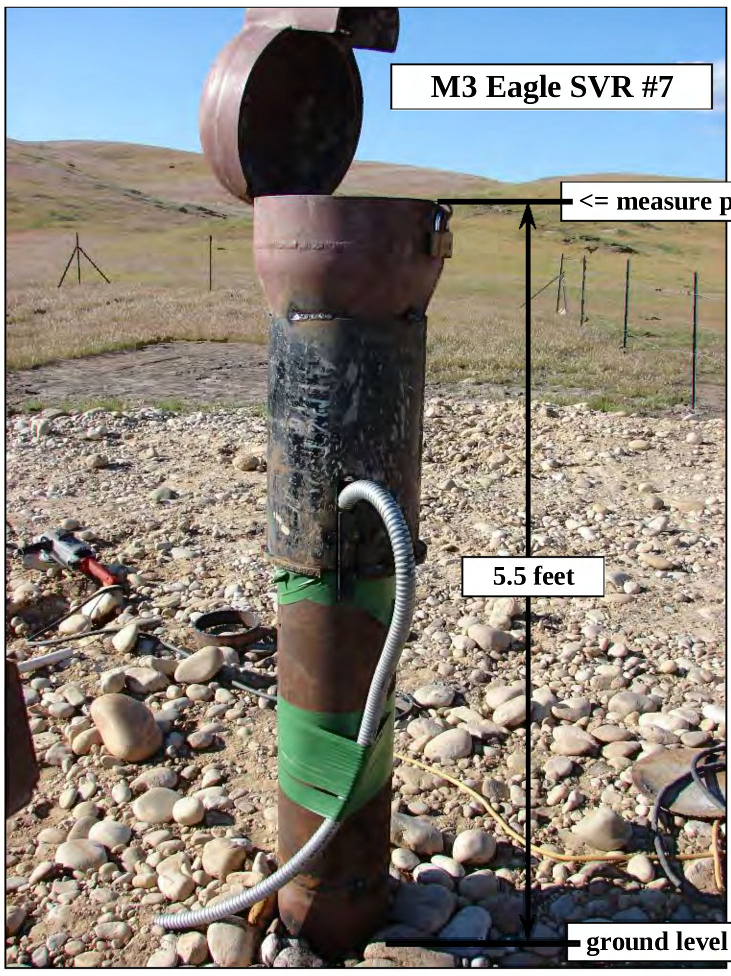
Hydro Logic, Inc.
Boise, Idaho
Google Earth Imagery
scale 1:24000
Figure 2.
EXHIBIT Y
PAGE 23 OF 30

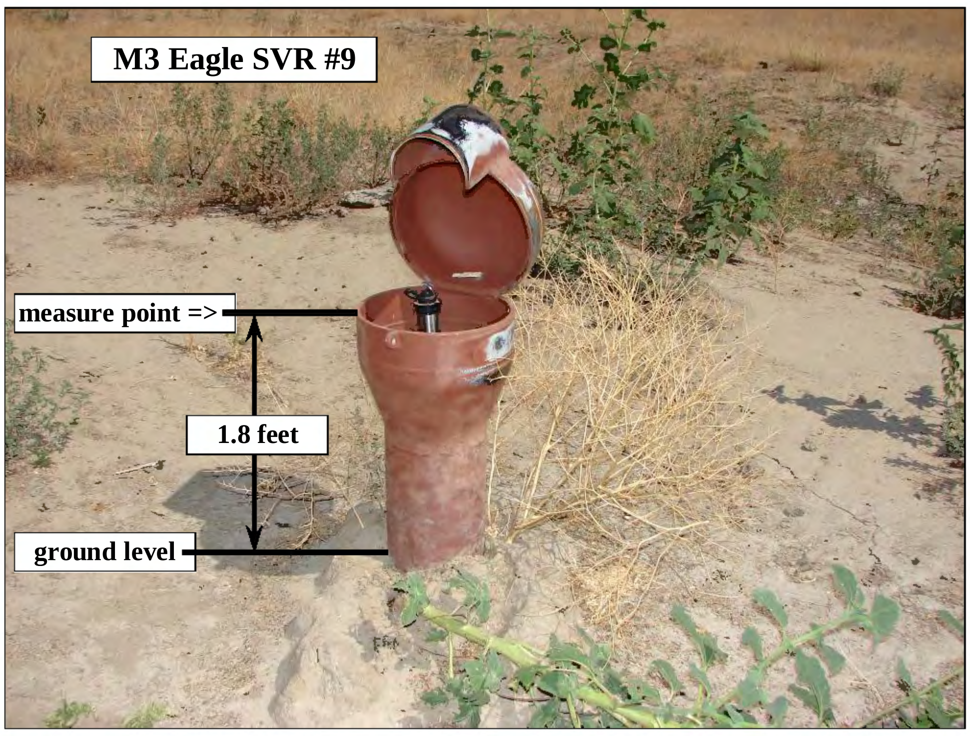












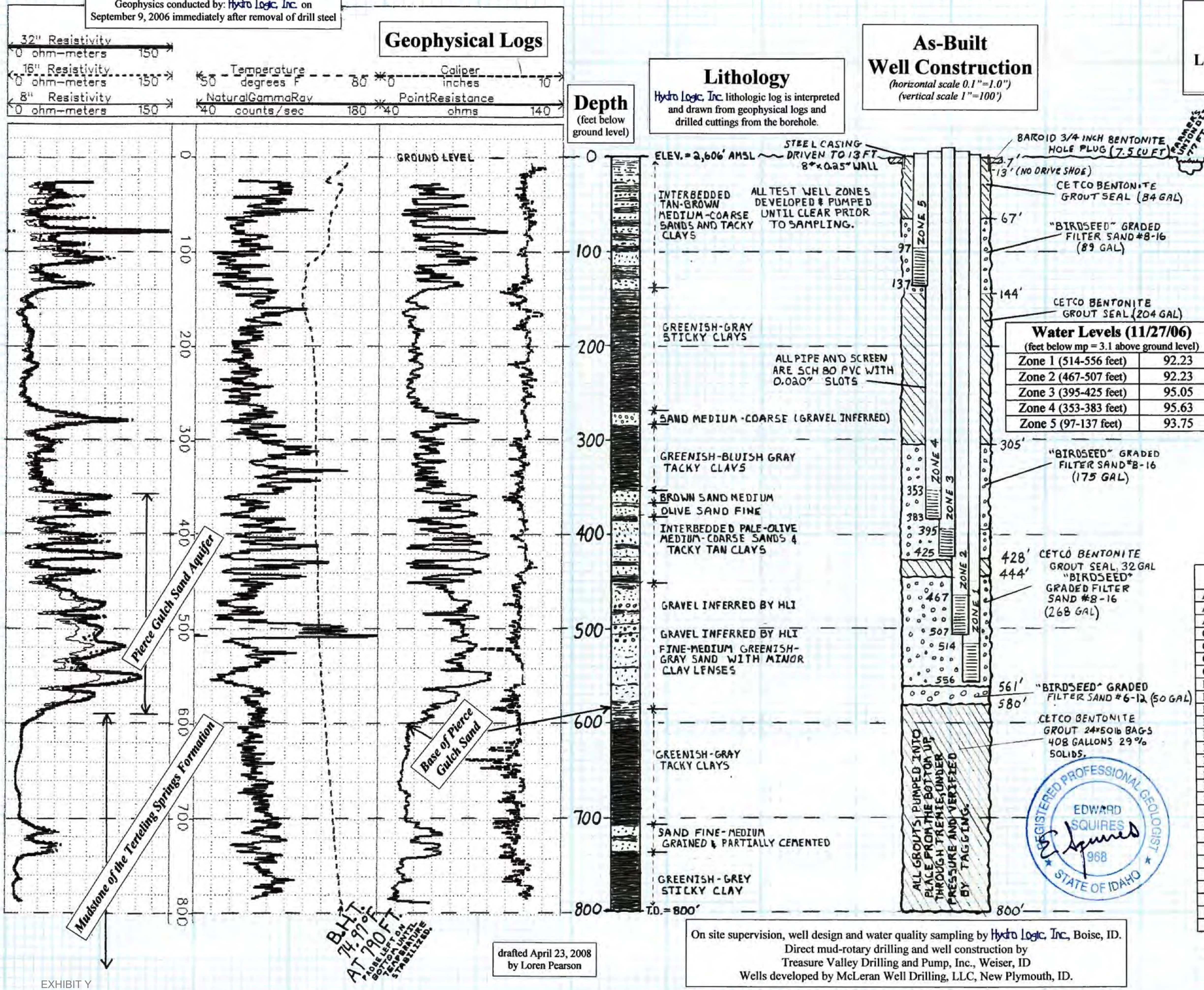
Hydro Logic, Inc.
Boise, Idaho

Figure 3.

Figure 3. M3 Eagle Monitoring Well Measure Points

M3 Eagle - Test Well #1

T. 5 N., R. 1 W., Section 28, SE¼, SE¼
Latitude 43º 44' 12.37" Longitude 116º 27' 26.86"
Well completed September 2006



Water Levels (11/27/06)

(feet below mp = 3.1 above ground level)

Zone 1 (514-556 feet)	92.23
Zone 2 (467-507 feet)	92.23
Zone 3 (395-425 feet)	95.05
Zone 4 (353-383 feet)	95.63
Zone 5 (97-137 feet)	93.75

Water Chemistry

Analyte (mg/L unless noted)	Zone 1 514-556 feet	Zone 2 467-507 feet
Alkalinity	133.0	125.0
Ammonia as N	0.37	0.06
Arsenic	<0.003	<0.003
Calcium as CaCO3	84.4	85.5
Chloride	3.42	3.22
Conductivity (uS/cm)	302	297.0
Corrosivity	-0.40	-0.44
Fluoride	0.69	0.60
Hardness	111.0	109.0
Iron (dissolved/filtered)	0.23	<0.01
Magnesium	6.50	5.73
Manganese (dissolved)	0.10	0.02
Nitrate as N	<0.10	<0.10
Nitrite as N	<0.01	<0.01
pH (SU)	7.47	7.48
Potassium	2.26	2.21
Silica	31.8	30.7
Sodium	22.1	21.7
Sulfate	17.2	20.7
Sulfide	<0.05	<0.05
Total Dissolved Solids	173 .0	188.0
Total Kjeldahl Nitrogen	0.39	0.13
Total Organic Carbon	<1.0	<1.0
Field Temperature (ºF)	67.1	66.0
Field Conductivity (uS)	305	295
Dissolved Oxygen	+1.7	+2.6
Field pH (S.U.)	7.19	7.19

Analyses by Alchem Laboratories, Boise, Idaho.
Zones 1 to 3 sampled 10/09/06. Zones 4 & 5 sampled 10/9/06.
Field measured parameters by Hydro Logic, Inc.

Analyte (mg/L unless noted)	Zone 3 395-425 feet	Zone 4 352-382 feet	Zone 5 98-138 feet
Alkalinity	119.0	114.0	119.0
Ammonia as N	0.04	<0.01	<0.01
Arsenic	<0.003	0.0049	0.0081
Calcium as CaCO3	77.7	81.3	85.9
Chloride	3.57	3.54	4.36
Conductivity (uS/cm)	282.0	285.0	281.0
Corrosivity	-0.50	-0.61	-1.16
Fluoride	0.60	0.50	0.24
Hardness	102.0	105.0	111.0
Iron (dissolved/filtered)	0.01	<0.01	<0.01
Magnesium	5.83	5.85	6.22
Manganese (dissolved)	<0.01	<0.01	<0.01
Nitrate as N	0.30	0.33	2.30
Nitrite as N	<0.01	<0.01	<0.01
pH (SU)	7.84	7.40	6.91
Potassium	2.07	2.10	2.74
Silica	29.5	28.7	38.0
Sodium	21.1	17.9	13.6
Sulfate	21.4	22.3	12.0
Sulfide	<0.05	<0.05	<0.05
Total Dissolved Solids	185.0	203.0	208.0
Total Kjeldahl N	<0.10	<0.10	<0.10
Total Organic Carbon	<1.0	<1.0	<1.0
Field Temperature (ºF)	64.7	63.8	57.4
Field Conductivity (uS)	274	268	265
Dissolved Oxygen	+4.9	+2.63	+ 9.51
Field pH (S.U.)	7.27	7.07	6.72

drafted April 23, 2008
by Loren Pearson

On site supervision, well design and water quality sampling by Hydro Logic, Inc., Boise, ID.
Direct mud-rotary drilling and well construction by
Treasure Valley Drilling and Pump, Inc., Weiser, ID
Wells developed by McLeran Well Drilling, LLC, New Plymouth, ID.

Figure 4.

M3 Eagle - Test Well #2

T. 5 N., R. 1 W., Section 23, NE¼, NW¼, NE¼
Latitude 43° 45' 50.63" Longitude 116° 25' 6.58"
Well completed October 2006

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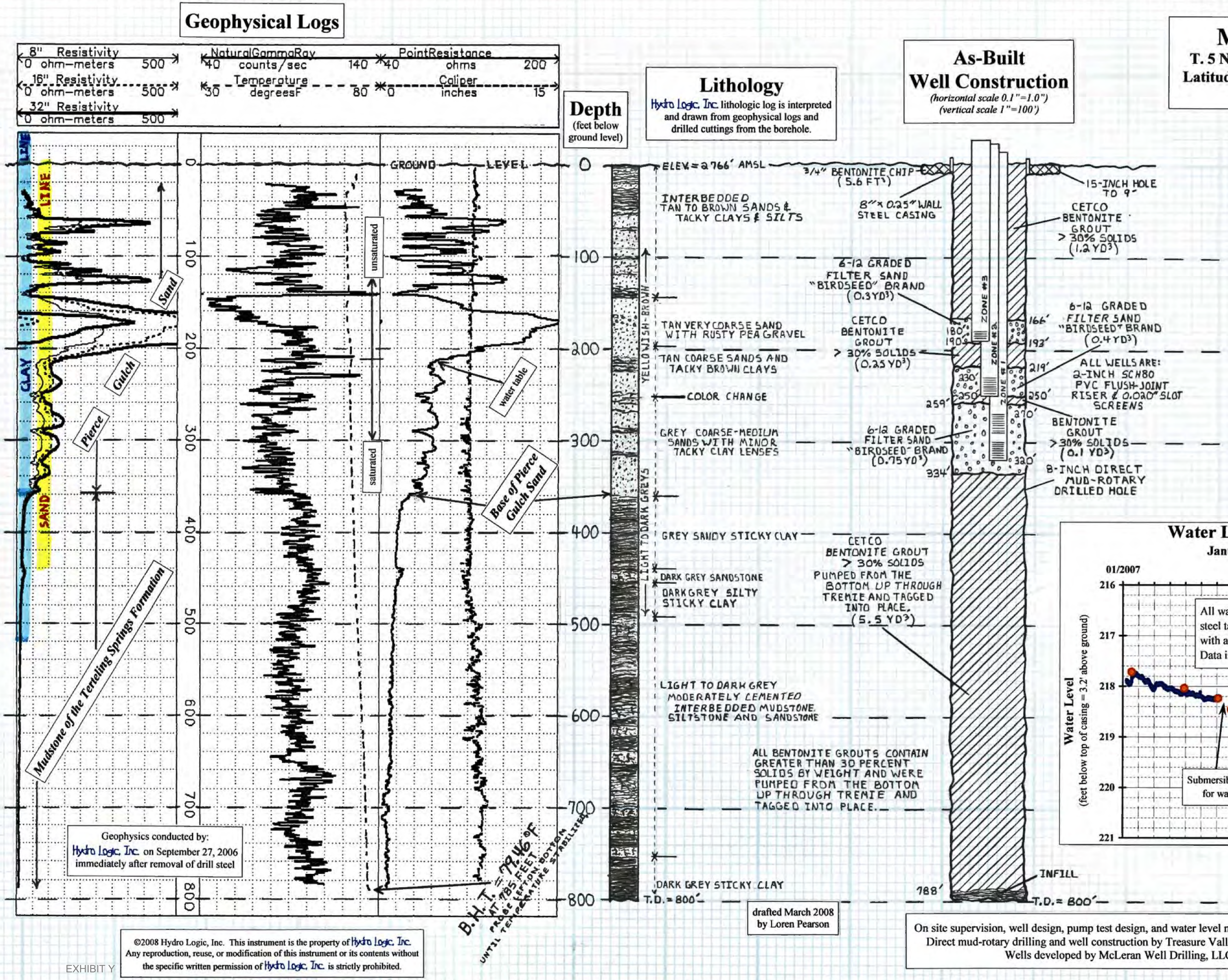


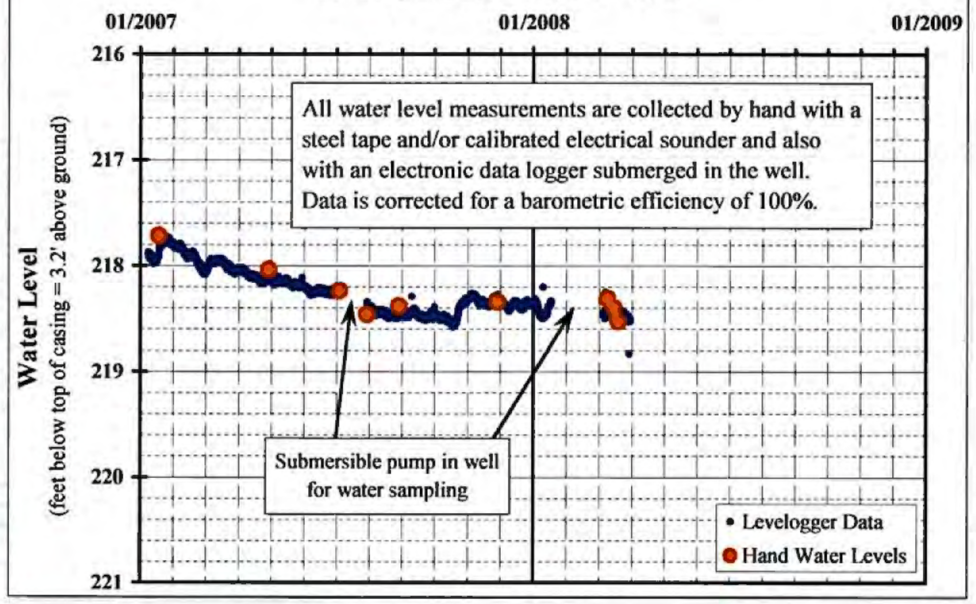
Date / Time *(24-hr clock)*	ZONE #1 *(320 - 270 feet bgl)*	ZONE #2 *(250 - 230 feet bgl)*	ZONE #3 *(190 - 180 feet bgl)*
10/10/06 13:05	216.87	-	unsaturated zone (installed to confirm water table depth)
11/07/06 12:00	217.23	217.36	
1/18/07 14:27	217.19	217.37	
4/30/07 15:25	216.97	215.76	
6/01/07 12:00	216.17	216.75	
7/24/07 12:30	-	217.11	
7/31/07 13:00	217.58	217.91	
8/30/07 12:20	217.60	217.93	
9/19/07 16:30	215.93	216.26	

Water Levels
(feet below measure point = 3.0 feet above ground)

Water levels recorded by Hydro Logic, Inc.

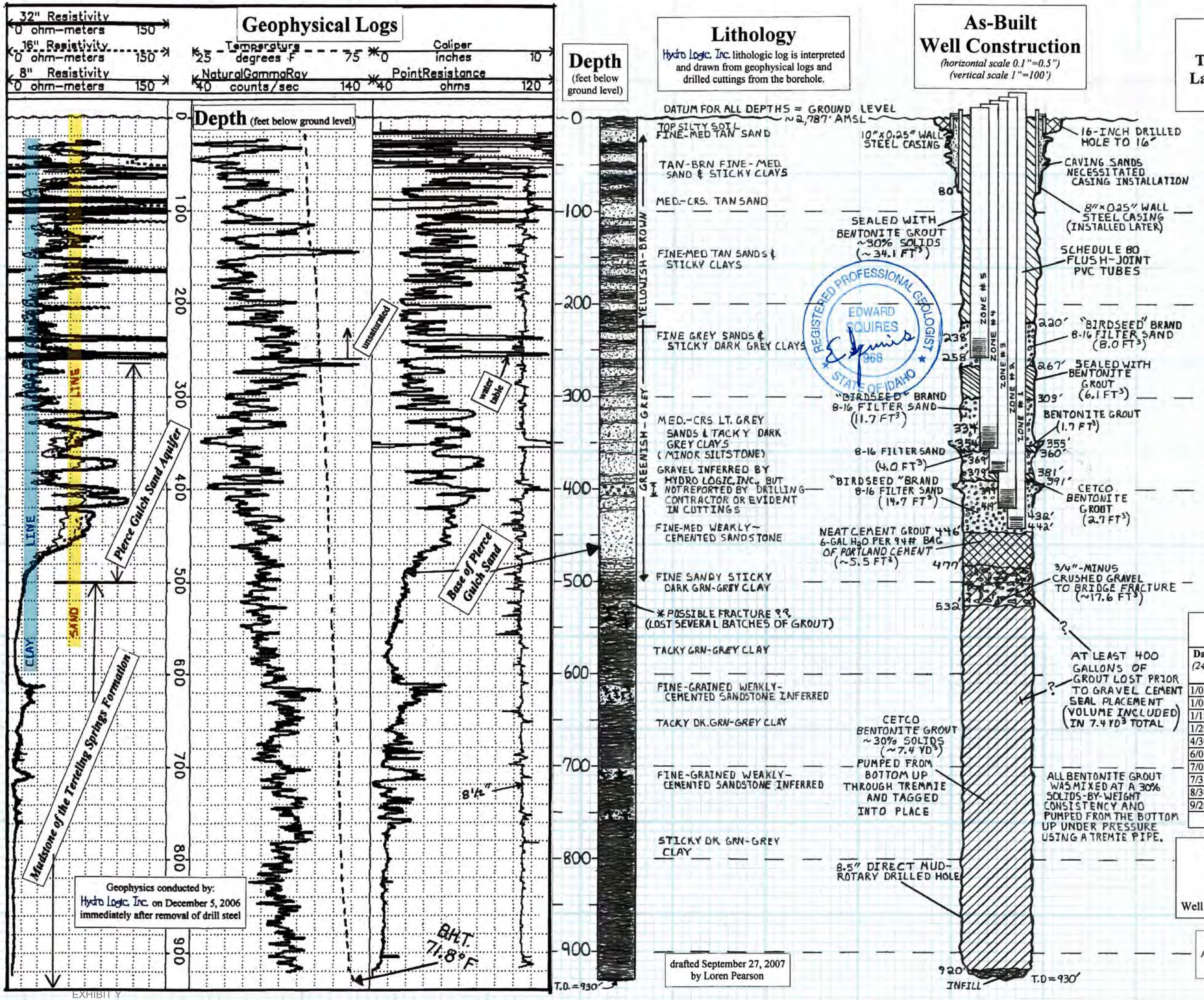
Water Level Monitoring - Zone #1

January 8, 2007 - March 31, 2008



On site supervision, well design, pump test design, and water level monitoring by Hydro Logic, Inc., Boise, ID. Direct mud-rotary drilling and well construction by Treasure Valley Drilling and Pump, Inc., Weiser, ID. Wells developed by McLean Well Drilling, LLC, New Plymouth, ID.

Figure 5.



M3 Eagle - Test Well #3

T. 5 N., R. 1 W., Section 15, SW¼, SW¼, SW¼

Latitude 43° 45' 56.44" Longitude 116° 27' 8.35"

Well completed December, 2006

Ground Water Chemistry

Analysis (in mg/L unless noted)	ZONE #1 (442 - 432 feet bgl)	ZONE #2 (419 - 399 feet bgl)	ZONE #3 (379 - 369 feet bgl)
Alkalinity	136.0	123.0	117.0
Ammonia as N	0.28	0.14	0.05
Arsenic	0.008	0.005	0.009
Calcium as $CaCO_3$	69.8	74.8	86.5
Chloride	5.39	5.31	7.02
Conductivity *(µS)*	316.0	305.0	321.0
Corrosivity	-0.14	-0.46	-0.30
Fluoride	0.51	0.52	0.52
Hardness	98.4	106.0	118.0
Iron *(dissolved)*	0.16	0.09	0.03
Magnesium	6.94	7.48	7.47
Manganese *(dissolved)*	0.07	0.09	0.05
Nitrate as N	0.13	0.13	0.12
Nitrite as N	<0.01	<0.01	<0.01
Orthophosphate	0.477	0.270	0.276
pH - Lab *(S.U.)*	7.90	7.59	7.72
Potassium	2.90	2.54	2.53
Silica	43.5	41.2	35.8
Sodium	30.4	24.3	26.2
Sulfate	22.7	23.9	32.3
Sulfide	< 0.05	< 0.05	< 0.05
Total Dissolved Solids	253	235.0	238.0
Total Kjeldahl Nitrogen	0.35	0.23	0.18
Total Organic Carbon	1.34	< 1.0	< 1.0
Field Conductivity (µS)	*310*	*307*	*321*
Field Dissolved Oxygen	*6.64*	*4.89*	*4.87*
Field O.R.P. (mV)	*+106*	*+6*	*+110*
Field pH (S.U.)	*7.62*	*7.22*	*7.46*
Field Temperature (°F)	*64.2*	*63.2*	*62.2*

Analyses by Alchem Laboratories, Boise, ID

Samples collected on January 30, 2007 by Hydro Logic, Inc.

Water Levels

(feet below measure point = 3.5 feet above ground)

Date / Time (24-hr clock)	ZONE #1 (442 - 432 feet bgl)	ZONE #2 (419 - 399 feet bgl)	ZONE #3 (379 - 369 feet bgl)	ZONE #4 (354 - 334 feet bgl)	ZONE #5 (258 - 238 feet bgl)
1/05/07 13:05	261.42	261.48	261.68	261.79	unsaturated zone (installed to prove water table depth)
1/08/07 17:34	262.28	262.34	262.43	262.62	
1/18/07 10:07	263.30	263.34	263.42	263.60	
1/29/07 09:26	262.22	262.30	262.35	262.54	
4/30/07 11:39	262.62	262.63	262.71	262.90	
6/01/07 09:45	261.85	261.84	261.90	262.09	
7/03/07 09:54	262.34	263.74	263.81	263.99	
7/31/07 10:58	263.85	263.82	263.92	264.07	
8/30/07 10:01	263.93	263.95	263.96	264.18	
9/20/07 16:06	262.15	262.10	262.17	262.35	

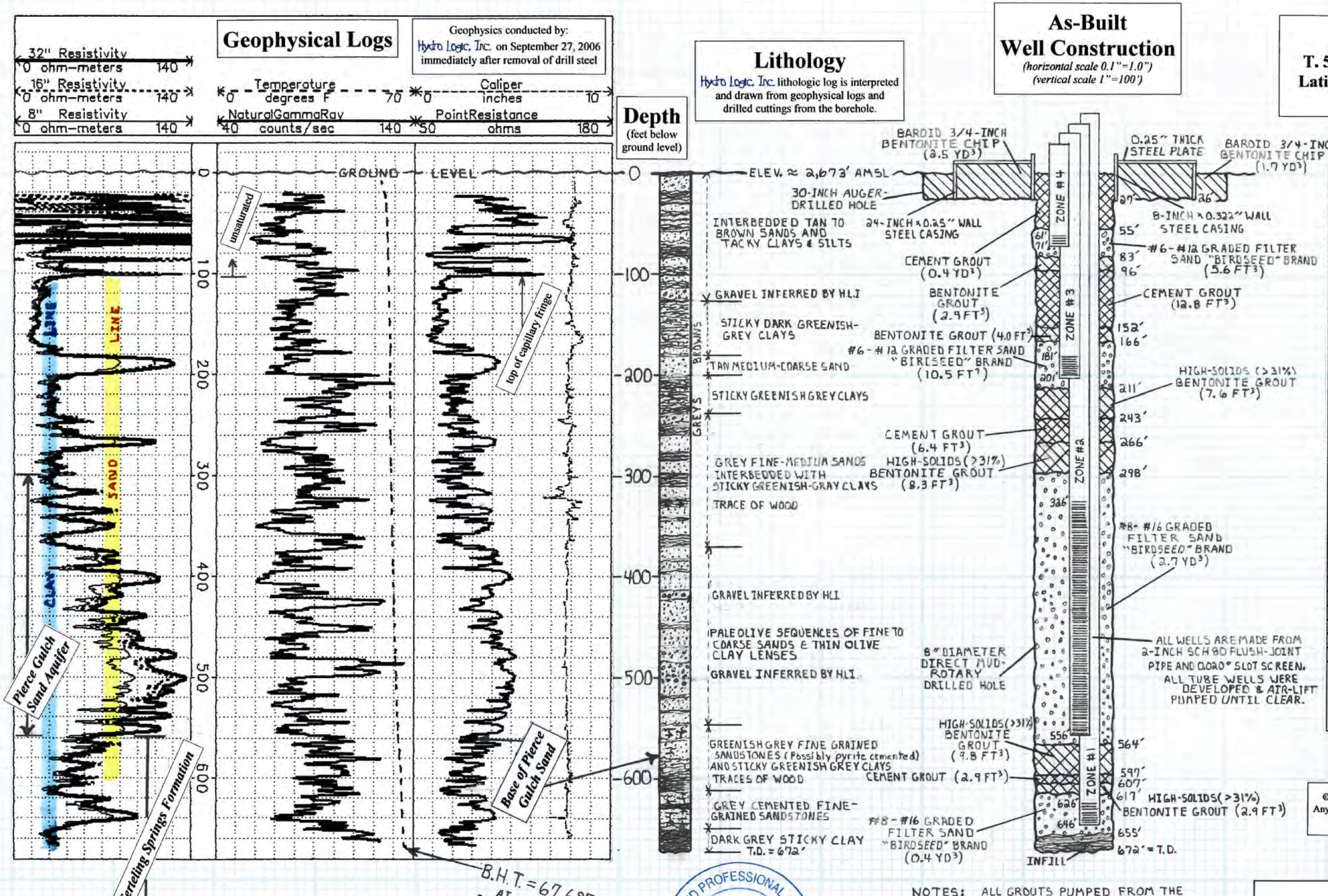
Water levels recorded by Hydro Logic, Inc.

On site supervision, well design, pump test design, and water quality sampling by Hydro Logic, Inc., Boise, ID.
Direct mud-rotary drilling and well construction by Treasure Valley Drilling and Pump, Inc., Weiser, ID
Well development by McLeran Well Drilling, LLC, New Plymouth, ID.

Figure 6.

M3 Eagle - Test Well #4

T. 5 N., R. 1 W., Section 27, NW¼, SE¼, NE¼
Latitude 43° 44' 48.7" Longitude 116° 26' 14.6"
Well completed February 2008



Ground Water Chemistry

Analysis (in mg/L unless noted)	ZONE #1 (646 - 626 ft bgl)	ZONE #2 (556 - 326 ft bgl)
Alkalinity	128.0	122.0
Ammonia as N	0.11	<0.01
Arsenic	0.0029	0.0066
Calcium as $CaCO_3$	83.9	81.0
Chloride	4.13	4.57
Color (apparent)	<1	<1
Conductivity (µS)	307.0	300.0
Corrosivity	-0.45	-0.46
Fluoride	0.48	0.43
Hardness	118.0	109.0
Iron (total)	0.31	0.02
Iron (dissolved)	0.27	0.01
Magnesium	8.33	6.81
Manganese (dissolved)	0.07	0.01
Nitrate as N	<0.10	0.39
Nitrite as N	<0.01	<0.01
Odor	<1	<1
Orthophosphate	0.104	0.133
pH - Lab (S.U.)	7.45	7.52
Potassium	2.52	2.28
Silica	37.2	32.5
Sodium	24.0	25.8
Sulfate	21.2	23.0
Sulfide	<0.05	<0.05
Total Dissolved Solids	225.0	223.0
Total Kjeldahl Nitrogen	0.11	<0.10
Total Organic Carbon	<1.0	1.00
Field Conductivity (µS)	*316 to 333*	*303 to 334*
Field Dissolved Oxygen	*0.09*	*2.26*
Field O.R.P. (mV)	*-122 to -105*	*+99 to +116*
Field pH (S.U.)	*7.48 to 7.64*	*7.53 to 7.70*
Field Temperature (°F)	*68.9*	*64.6*

Water samples and field parameters collected on April 3, 2008 by Hydro Logic, Inc.
Each field parameter (except DO) was acquired with two separate calibrated meters to validate measurements.
Analyses by Alchem Laboratories, Inc., Boise, ID

On site supervision, well design, pump test design, and water quality sampling by Hydro Logic, Inc., Boise, ID.
Direct mud-rotary drilling and well construction by Treasure Valley Drilling and Pump, Inc., Weiser, ID
Well development by McLeran Well Drilling, LLC, Fruitland, ID

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NOTES: ALL GROUTS PUMPED FROM THE BOTTOM UP THROUGH TREMIE AND TAGGED INTO PLACE.
ALL BENTONITE GROUTS CONTAIN GREATER THAN 31% SOLIDS BY WEIGHT.
ALL CEMENT GROUTS WERE MADE WITH 6 GALLONS OF WATER MIXED WITH 94 POUNDS OF PORTLAND CEMENT.

drafted March 2008
by Loren Pearson

Water Levels

(feet below measure point = 3.5 feet above ground)

Date / Time (24-hr clock)	ZONE #1 (646 - 626 ft bgl)	ZONE #2 (556 - 326 ft bgl)	ZONE #3 (201 - 181 ft bgl)	ZONE #4 (61 - 71 ft bgl)
3/07/08 18:31	130.25	130.72	134.76	unsaturated zone (installed to confirm vadose zone)
3/14/08 17:12	130.25	130.73	134.20	
3/20/08 12:27	130.32	130.79	134.49	
3/22/08 18:12	130.43	130.92	134.74	
3/31/08 14:51	130.11	130.60	134.56	

Water levels recorde

Figure 7.

M3 Eagle - S.V.R. Well #9

T.5.N R.1E. Section 19, SW¼, NE¼

Latitude N43° 45' 33.3" Longitude W116° 22' 52.1"

Completed June 2004

Geophysical Log

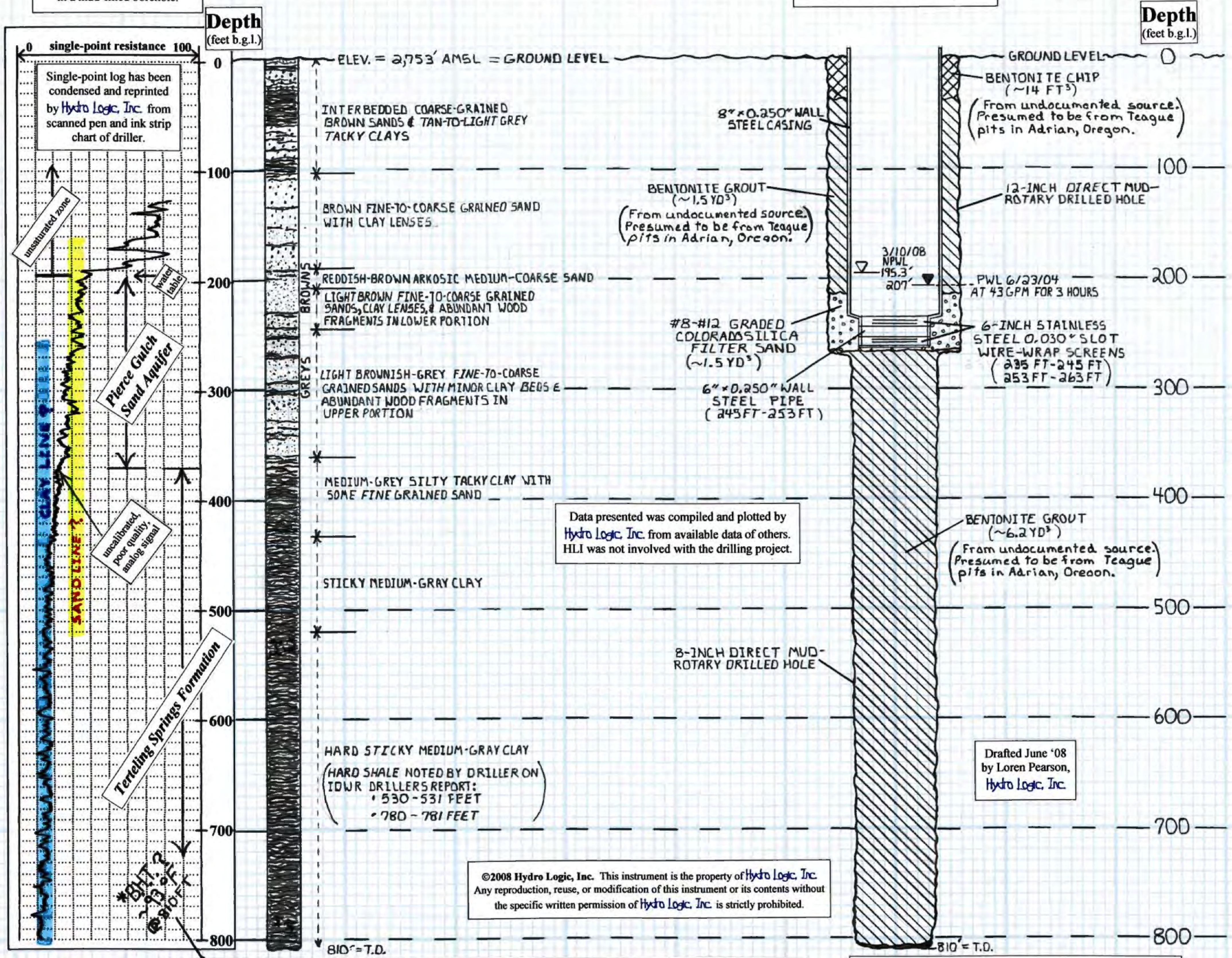
(June 2004)
by Stevens and Sons Drilling
in a mud-filled borehole.

Lithology

Feast Geosciences lithologic log was developed from drilled cuttings. Lithology has been reinterpreted and readjusted below 120 feet to better fit with HLI's interpretation of the geology and the geophysical log.

As-Built Well Construction

(horizontal scale 0.1"=1.0")
(vertical scale 1"=100')



Data presented was compiled and plotted by Hydro Logic, Inc. from available data of others. HLI was not involved with the drilling project.

Drafted June '08
by Loren Pearson,
Hydro Logic, Inc.

* SPF report of 10-13-2004 states:
"The driller measured the bottom-hole temperature (at 810 feet below ground surface) by running a bit to the bottom of the borehole, then pulling up and measuring the temperature of a chunk of clay attached to the bit. He recorded a temperature of 93°F in the clay. The actual temperature of the clay is probably higher (but cooled as the bit was retracted to ground surface)."

On site supervision and well design by:
SPF Water Engineering and Feast Geosciences, LLC, Boise, ID.
Direct mud-rotary drilling and well construction by:
Stevens and Son Drilling Co., Nampa, ID

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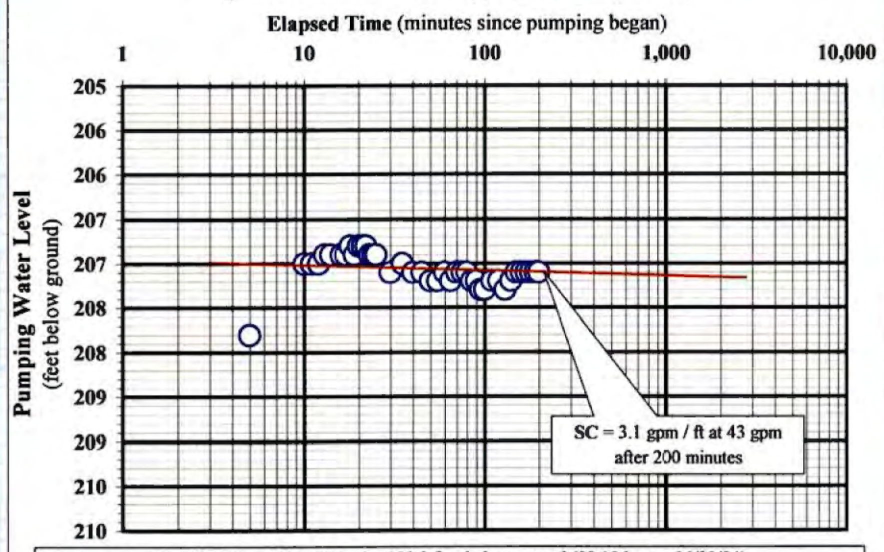
Ground Water Chemistry

Lab Analyses *(note: all samples with 0.45µm filter prior to analysis except sulfide)*	SPF Water Engineering **Results** (in mg/L unless noted) — **SCREENED** *(235 - 263 feet bgl)*
Ammonia as N	0.10
Antimony	<0.005
Arsenic	<0.005
Barium	0.10
Beryllium	<0.0005
Bicarbonate	107
Cadmium	<0.0005
Calcium as $CaCO_3$	24.9
Chloride	10
Chromium	<0.002
Conductivity (µS)	336
Fluoride	0.45
Hardness	102
Iron (dissolved)	0.60
Magnesium	10.4
Manganese	0.12
Mercury	<0.0002
Nickel	<0.02
Nitrate as N	<0.2
Nitrite as N	<0.01
pH (S.U.)	2.5
Potassium	2.0
Selenium	<0.005
Sodium	26.9
Sulfate	44
Sulfide (*unfiltered*)	<0.05
Thallium	<0.002
Total Dissolved Solids	216
Field Analyses	
Field Temperature (°F)	68

SPF samples collected on June 23, 2004 by Feast Geosciences.
Analyses by Analytical Laboratories, Boise, ID

Hydraulic Testing - (June 23, 2004)



Non-Pumping Water Level = 193.3 feet below ground (09:10 hrs on 06/23/04)
Test conducted by Feast Geosciences and Stevens and Son Drilling Co.
Well was developed by pumping and surging according to SPF report.
Plotted by Hydro Logic, Inc.

Figure 8.

M3 Eagle - S.V.R Well #7

T5N R1W Section 23, NE¼, SW¼
Latitude 43° 45' 18.9" Longitude 116° 25' 29.7"
Completed April 2004

Geophysical Log
(March 2004)
by Stevens and Sons Drilling
in a mud-filled borehole.

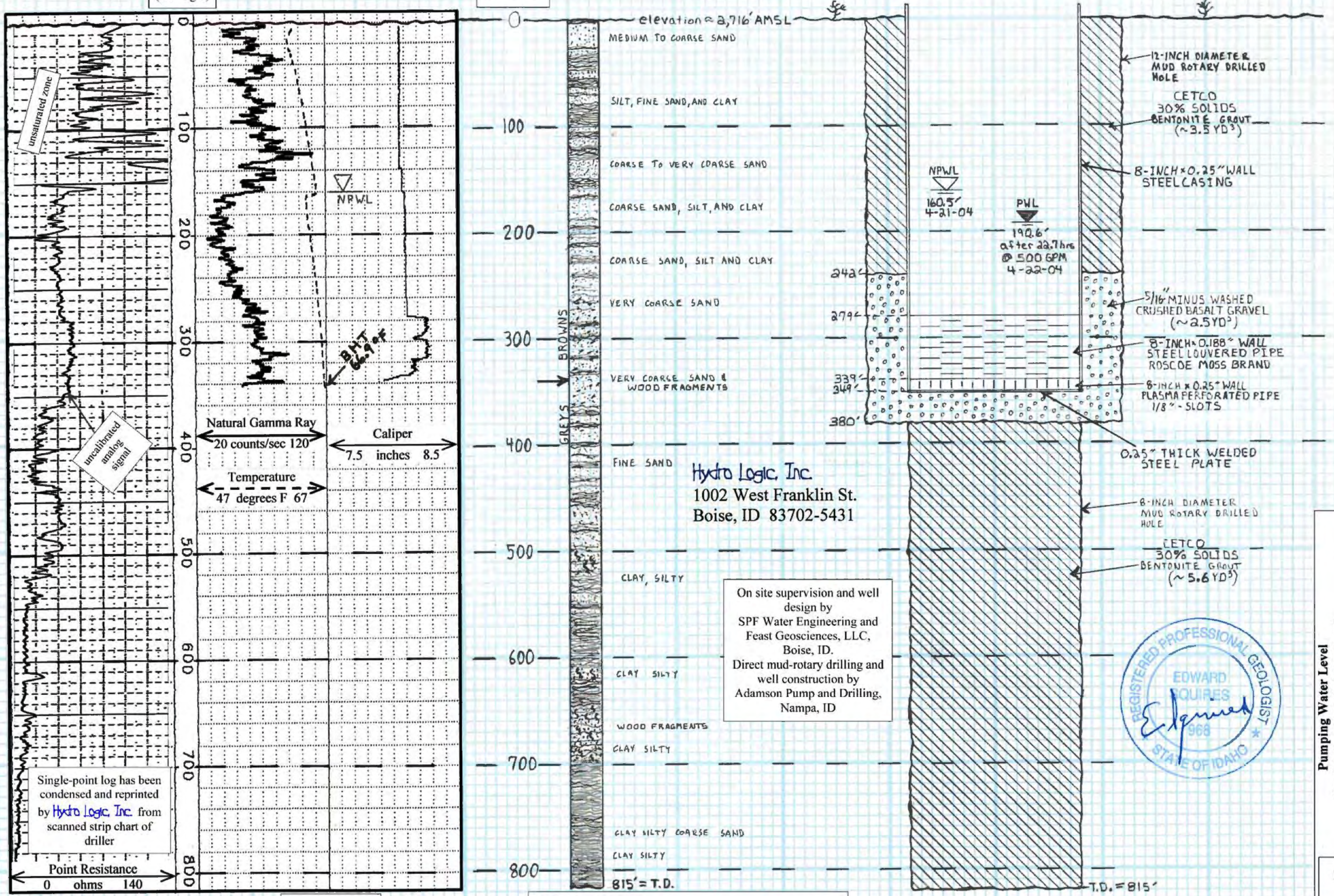
Geophysical Logs
(April 27, 2007)
by Hydro Logic, Inc.
in a steel cased well.

Lithology
Feast Geosciences lithologic log was developed from drilled cuttings. Lithology has been reinterpreted and readjusted to better fit with geophysical logs by Hydro Logic, Inc.

As-Built Well Construction
(from IDWR Driller's Report and Hydro Logic, Inc. downhole camera survey conducted on August 28, 2007)
(horizontal scale 0.1"=0.5")
(vertical scale 1"=100')

Depth (feet b.g.l.)

Depth (feet b.g.l.)



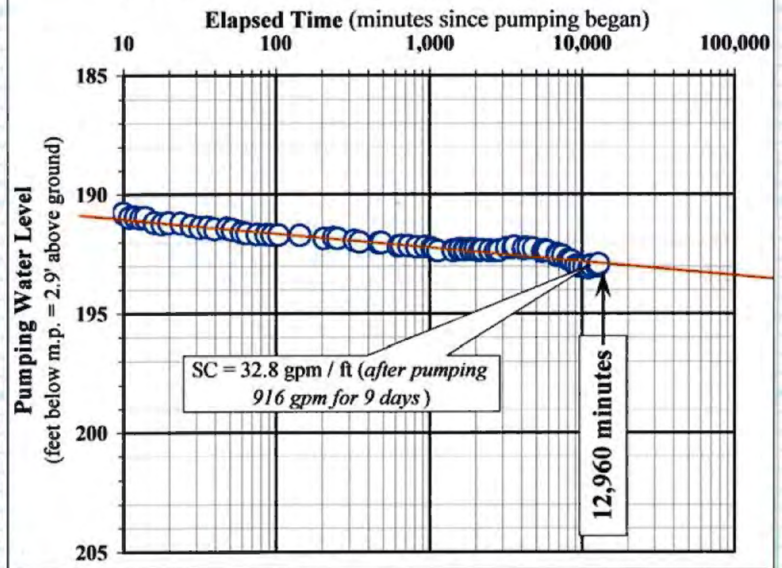
Drafted 02-15-08
by Loren Pearson,
Hydro Logic, Inc.

Ground Water Chemistry

Lab Analyses	SPF Water Engineering **Results** (in mg/L unless noted) SCREENED *(279 - 349 feet bgl)*	Hydro Logic, Inc. **Results** (in mg/L unless noted) SCREENED *(279 - 349 feet bgl)*
Alkalinity		120.0
Ammonia as N	<0.04	0.02
Arsenic	<0.005	0.0037
Calcium as $CaCO_3$	29.1	77.8
Chloride	5	4.42
Conductivity (uS)		305.0
Corrosivity		-0.35
Fluoride	0.44	0.43
Hardness	110	115.0
Iron (dissolved)		0.11
Iron (total)	0.11	0.11
Magnesium	8.19	8.91
Manganese	<0.05	0.02
Nitrate as N	0.31	0.34
Nitrite as N	<0.01	<0.01
Odor		<1
pH		7.63
Potassium	2.0	2.60
Silica		38.9
Sodium	22.9	23.2
Sulfate	24	23.5
Sulfide	<0.05	<0.05
Total Dissolved Solids	212	235.0
Total Kjeldahl Nitrogen		<0.10
Total Organic Carbon		3.36
Field Analyses		
Field Conductivity (µS)	300	382
Field Dissolved Oxygen		+1.37
Field Odor (describe)		minor H_2S
Field O.R.P. (mV)		+55
Field pH (S.U.)	7.00	7.40
Field Temperature (°F)	68.1	67.0
Field Visible Gas (yes or no)		yes

HLI samples collected on March 14, 2008 by Hydro Logic, Inc.
Analyses by Alchem Laboratories, Boise, ID
SPF samples collected on April 21, 2004 by Feast Geosciences.
Analyses by Analytical Laboratories, Boise, ID

Hydraulic Testing - (March 10-19, 2008)



Non-Pumping Water Level = 165.00 feet below m.p. (16:00 hrs on 03/10/2008)
Testing conducted by Hydro Logic, Inc. and McLeran Well Drilling, LLC.
(no barometric or antec… d to this plot.)

Figure 9.

EXHIBIT Z – RAFN APPLICATION

Water Right Application for
Reasonably Anticipated Future Needs (RAFN)

Submitted by the City of Eagle
To the Idaho Department of Water Resources

CITY OF EAGLE, IDAHO

REASONABLY ANTICIPATED FUTURE NEEDS WATER RIGHTS ANALYSIS

Approved October 13, 2011

James Reynolds, Mayor

Michael Echeita, Public Works Director

Executive Summary

The City of Eagle's Comprehensive Plan and other planning data reflects the City's planning information and efforts pursuant to the Local Land Use Planning Act and is the basis for determining the City's population during the planning period. For its water needs assessment, the City selected a planning area consistent with its Comprehensive Plan and a planning horizon of 30 years. The City's professional planning and engineering staff, in conjunction with the City's Public Works Department, used the planning data from the Comprehensive Plan to determine future water needs for the City in 2041 taking into account the goals of the City, the City's existing water rights, the Development Agreement between the M3 Eagle and the City, and the geographic limitations on use of Application for Permit No. 63-32573.

Based on its Comprehensive Plan and other factors, the City determined its population in 2041 will be 65,322 citizens. Based on the Development Agreement with M3 and anticipating Permit No. 63-32573 will be issued for its full amount, water for 47,867 citizens will be needed. The population of 47,867 will require 32.15 cfs of water. Since the City has an assumed existing portfolio of 5.58 cfs of Municipal rights, the City will require an additional 26.57 cfs of municipal water rights.

Introduction

This analysis of Reasonably Anticipated Future Need water right is for the City of Eagle as a whole and encompasses the areas covered by the City's Comprehensive Plan. This includes the M3 Eagle project because the M3 Eagle project lands have been annexed into the City. However, because M3 Eagle limited Application for Permit No. 63-32573 such that the water can only be used within the M3 project area, the City has taken this special limitation into consideration in analyzing its demand for future water needs. Nevertheless, as directed by IDWR, this analysis is for the City as a whole and does not provide for separating the M3 Eagle project water needs from those for the entire City.

This analysis of water demands through 2041 for the City of Eagle (City) was prepared pursuant to the Local Land Use Planning Act I.C. § 67-6508 and I.C.§ 42-202(B). This document meets two objectives: (1) it establishes the reasonably anticipated future water needs for the City of Eagle through 2041 and (2) it helps the Idaho Department of Water Resources (IDWR) and M3 Eagle LLC (M3 Eagle) implement a Settlement Agreement entered into by the two parties on January 11, 2011.

Development of the water system in the City of Eagle has been a focal point since 2002 when the City refined its process of requiring new subdivisions within its water service planning area to connect to the City's water system. Since that time, public works utility planning has become an integral part of the comprehensive land use planning process of the City.

The City has adopted a planning area as identified in its Comprehensive Plan that includes its Area of Impact. The City of Eagle, through its Public Works Department, intends to be the water service provider for development in this area. The City recognizes that, depending on valley-wide economic factors, growth into undeveloped areas within this boundary may take 50 years or more to occur. As described herein, the City's selected window for water utility planning for the planning area in this analysis is 30 years, covering the period from 2011 to 2041.

This analysis of water demands for the City's Reasonably Anticipated Future Needs (RAFN) complies with Idaho statutory provisions that allow municipal water providers to plan for the future. It is also responsive to the Settlement Agreement between the IDWR and M3 Eagle, LLC dated January 19, 2011. Although the City's Comprehensive Plan covers planning through 2054, the City was requested by M3 Eagle to use a thirty (30) year planning horizon in order to facilitate the Settlement Agreement.

As further explained below, to serve a population of 47,867 for the Comprehensive Plan area, the City requires a diversion rate of 32.15 cubic feet per second (cfs) from groundwater sources to meet peak hour demands. The City currently has a water right portfolio for 5.58 cfs. Efforts by the City to obtain additional water rights since 2005 have been thwarted by a variety of factors including protests of the City's applications. Application for Permit No. 63-32573, which is the subject of the M3/IDWR Settlement Agreement and has been assigned to the City, seeks a maximum daily diversion rate of 23.18 cfs for the M3 project area. Assuming Application for Permit No. 63-32573 is approved for 23.18 cfs and the existing municipal rights for 5.58 cfs, the City will need an additional 26.57 cfs to meet the needs of its citizens and achieve City objectives for its growth through 2041.

City Water System Planning

In 2002, the City of Eagle developed the first master planning and budget document for its water system. It focused on the Lexington Hills and Brookwood area of the City. The City Engineer prepared a comprehensive Amended Master Plan for water in 2005, which identified improvements to the water system throughout the City's 2005 water service planning area. The Master Plan was amended and updated in 2008 as additional City wells were completed. The Idaho Department of Environmental Quality approved design and operation of the wells and water lines. Copies of the 2008 Amended Master Water Plan are on file with both the Idaho Department of Environmental Quality (IDEQ) and the Idaho Department of Water Resources and are adopted as part of this analysis. Eagle's Master Water Plan is a transitional document and periodic updates are done when necessary.

City Comprehensive Land Use Planning

A City's Comprehensive Plan is the fundamental planning document for the City. Under Idaho's Local Land Use Planning Act ("LLUPA"), I. C. § 67-6508, every city is required "to conduct a comprehensive planning process designed to prepare, implement, and review and update a comprehensive plan . . . [that] shall consider previous and existing conditions, trends, desirable goals and objectives, or desirable future situations for each [of fifteen] planning component[s]", which include:

- Analysis of past, present, and future trends in population;
- Analysis of public school capacity;
- Analysis of the economic base of the area;
- Analysis of the suitability of lands for recreation, housing, commerce, industry, and public facilities;
- Analysis of natural resources;
- Analysis of hazardous areas;
- Analysis showing general plans for public services, facilities, and utilities;
- Analysis showing the general system of major traffic thoroughfares and other related transportation facilities;
- Analysis showing a system of recreation areas;
- Analysis of areas of special historical, archeological, architectural, ecological, wildlife, or scenic significance;
- Analysis of housing conditions and needs; and
- Analysis of needs for governing landscaping, building design, tree planting, signs, and suggested patterns and standards for community design, development, and beautification.

Eagle's Comprehensive Plan and The North Eagle Foothills Planning Area

In 2004, the City of Eagle adopted its Comprehensive Plan. The Comprehensive Plan addressed City planning areas south of Homer Road and unincorporated land in the City's western Area of Impact. The Comprehensive Plan has been updated and is appropriate.

Later, the City turned its attention toward urban-style development occurring in unincorporated areas of Ada County, especially foothills areas. The City determined the foothills north of the City uses a unique area likely to become part of the City and began to focus on how development of this area might relate to, and affect, the City, the City's infrastructure, and the City's overall planning goals. The City determined it was in the best interest of the public to review development opportunities and constraints, and develop population estimates and other planning data for the entire foothills area north of Eagle through the statutorily-prescribed comprehensive planning process and the LLUPA.

As part of its planning, the City undertook an extensive process to compile and adopt the "North Eagle Foothills Plan" as a special component of its existing Comprehensive Plan. The "North Eagle Foothills Planning Area" (referred to in the Comprehensive Plan as a "land use sub-area") generally covers the area between Beacon Light Road on the south and the Gem County line on the north and between State Highway 55 on the East and State Highway 16 on the West. The North Eagle Planning Area Foothills includes M3 Eagle project and other areas.

The comprehensive planning process under LLUPA requires the City to: provide for citizen meetings; hearings; surveys; or other methods; to obtain advice on the planning process plan and implementation. A City may also conduct informational meetings and consult with public officials and agencies, public utility companies, and civic, educational, professional, or other organizations.[1]

[1] Idaho Code § 67-6507.

To meet the LLUPA's requirements for the North Eagle Foothills Plan, the City engaged over 500 participants through a series of weekly work groups that discussed population and planning data for the Foothills sub-area, including planning data on: water; foothills transportation; habitat and open space; infrastructure and facilities; activity centers; landscape and design review associated with development of the Foothills. The resulting plan for the Foothills sub-area is "based upon the work of those individuals who were committed to finding workable solutions and long-term development options for the Foothills."[2]

The North Eagle Foothills Plan is referred to in planning parlance as a detailed "specific area plan". A specific area plan provides greater specificity and guidance from the City to landowners in the Foothills. To develop this specific area plan, the City obtained substantial input and advice from a number of individuals and experts. Because the M3 Eagle project was included in this planning area, the City's professional planning staff, engineers and consultants reviewed the population and planning data developed for the M3 Eagle portion of the Foothills planning area as part of the process for annexing the M3 Eagle land into the City.

City Population Estimates

Future population levels comprise an important component of the City's planning efforts pursuant to the LLUPA. The City's Comprehensive Plan and other data helps the City staff make a reasoned calculation of the City's population in the future. The City's Comprehensive Plan adopted a planning growth rate of 4%.

As part of this analysis, the Eagle Planning Department used the adopted Comprehensive Plan growth rate and re-evaluated it in light of recent population and growth rate estimates and historical growth rate data for the City. The City considered regional population and growth estimates to help refine the City's population estimate from its Comprehensive Plan. The considered information was extensive. Data from eight predictive models including COMPASS for Eagle, Boise, Kuna and the Treasure Valley. In addition, the City used data from Moody's Analytics 2011-2014, the State of Idaho 2011-2014, the Idaho Economic Annual (Boise MSA) 2010-2020, and the Idaho Economic Annual (Boise MSA) 2010-2040. The objective of the re-evaluation process was to consider the Comprehensive Plan growth rate in light of current data in order to develop a population estimate specific for the City of Eagle. The conclusion of the City's evaluation was that the Comprehensive Plan growth rate, which had originally considered factors such as economic indicators and rates of growth over the years, was still appropriate for city planning efforts during the planning period of the Comprehensive Plan as well as this analysis. The population figure determined by the City is specifically for the City of Eagle and reflects the City's expertise and authority in determining population levels pursuant to the LLUPA. This resulting population estimate was used by the City to calculate future water demands for the City as explained below.

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[2] Page 63 of the 2007 Eagle Comprehensive Plan.

According to the 2010 U.S. Census, the Eagle population as of April, 2010 was 19,908. Based on subsequent permits issued by the City, the 2011 population was determined to be 20,140. This population along with the Census reporting of 2.82 persons per household for the City of Eagle is the basis for this RAFN analysis. The projected population in 2041 in the planning area is 65,322.[3]

M3 Eagle Annexation and Rezone.

Because the IDWR/M3 Eagle Settlement Agreement addressed the issue of annexation of the M3 Eagle property, an explanation of the annexation of M3 Eagle property into the City is appropriate. As an area is annexed into a city under Idaho statutes, the land is generally rezoned because the prior land use is not the same as the anticipated use after annexation. This is what occurred with the M3 Eagle property. M3 Eagle applied to the City for annexation and for a rezone from the existing Ada County rural residential zone to the City's R-1-DA zone (residential with a development agreement). Idaho law specifically requires that any rezone request must be in accord with the legislatively-adopted comprehensive plan.[4] During the course of public hearings held before the Eagle Planning & Zoning Commission and the Eagle City Council, the City concluded that the M3 Eagle rezone and development plan application was in accord with the City's Comprehensive Plan, including the specific North Eagle Foothills Plan component.

The City approved the annexation and rezone of the M3 Eagle property subject to the terms of a specific development agreement, as authorized by statute.[5] On December 27, 2007, M3 Eagle and City entered into a Pre-Annexation and Development Agreement, recorded in Ada County as Instrument No. 107170114, Ada County Recorder's Office. The Development Agreement reflects the City's approval of the M3 Eagle planned community project and the annexation of the property into the City. The M3 Eagle property was annexed into the City on November 30, 2009.

A development agreement creates a contractual obligation between a city and a property owner. The M3 Eagle Development Agreement assures the City that the M3 Eagle planned community will be developed over time substantially as planned. The term of the M3 Eagle Development Agreement is 30 years from the date of annexation,[6] with the ability to extend the term for an additional 10 years.

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[3]The actual population of the M3 Eagle project is influenced by the Development Agreement between the City of Eagle and M3 Eagle and estimated by M3 Eagle as to its development and product mix. However, for City planning purposes the M3 Eagle population at buildout in 2041 is 17,455.

[4]See, e.g., Bone v. City of Lewiston, 107 Idaho 844, 693 P.2d 1046 (1984).

[5] See, Idaho Code, §§ 50-222; 50-301; 67-6508; 67-6511; 67-6512; and 67-6511A; and Eagle City Code, Title 8. This contract between the City and M3 Eagle is called a "Pre-Annexation" agreement because, at the time the City entered into the agreement, the M3 Eagle property was not yet contiguous to the City. The M3 Eagle property was not ripe for annexation until the M3 Eagle property became contiguous to the City's boundary. That contiguity occurred in November, 2009. The M3 Eagle property has been annexed into the City, and the Development Agreement is in full force and effect.

[6]See Section 1.8(b).

Under the Development Agreement, M3 Eagle and the City agreed to facilitate the annexation, comprehensive planning, zoning designation, adoption of ordinances and development of the property by providing for, among other things: (i) conditions, terms, restrictions and requirements for the annexation of the property; (ii) conditions, terms, restrictions and requirements for the construction and installation of public infrastructure; (iii) permitted uses for the property; (iv) density and intensity of such uses; and (v) other matters related to the development of the property.[7]

In addition, the Development Agreement provides that: the zoning designation of R-1-DA…is the appropriate zoning designation for the property and is designed to establish proper and beneficial land use designations and regulations, densities, provisions for public infrastructure, design regulations, procedures for administration and implementation and other matters related to the development of the M3 Eagle property.[8]

The Development Agreement's provisions in connection with water reflect the City's Comprehensive Planning efforts under LLUPA and are consistent with the City's Comprehensive Plan's overall goal to provide safe, reliable and cost-efficient water service to Eagle residents. The City's Comprehensive Plan contemplates that securing water rights and constructing a water system in the Foothills will be an essential part of the City's future development. The Plan also acknowledges that water needs in the foothills, on a per-capita or per unit basis, may not be the same as for the rest of the City or what the City has experienced historically. The Plan also recognizes that the water system in the foothills at the outset may not be interconnected with the water system below the foothills.

According to the City's Comprehensive Plan, the City's policies recognize the unique nature of planned community development in the foothills.[9] For example, the City's Comprehensive Plan calls for developing irrigation and water reuse goals for the foothills. The Development Agreement reflects M3 Eagle's plan to re-use water generated from both wastewater and drainage systems for irrigation consistent with the City's Comprehensive Plan.[10]

The M3 Eagle Development Agreement specifically addresses domestic water needs and water system development for the M3 Eagle project.[11] The Development Agreement's Section 2.2 requires M3 Eagle to construct the entire water system for the project, acquiring all water rights necessary to serve each phase of the M3 Eagle project, and to convey the water system and

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[7] Development Agreement, Recital B, Page 7.

[8] Development Agreement, Recital K, Page 8.

[9] Comprehensive Plan, Section 4.6.2.

[10] Comprehensive Plan, Section 4.6.3; Development Agreement Section 2.2(i), 2.3(d) and 2.4d).

[11] Under the Development Agreement, the "Water System" is a water production, storage, treatment, and delivery system to serve all uses on the Property and that includes, without limitation, wells, reservoirs, pumps, diversion structures, water transmission and distribution pipes and related plumbing, pump houses, water treatment facilities, water storage tanks, and pressurized irrigation systems, together with all water rights and permits pursuant to which water, both potable and non-potable, will be diverted and used by means of the Water System. The Water System shall also include those portions of the Wastewater System used for the storage and delivery of treated sewage effluent for beneficial uses on the Property, and any additional water rights or permits that may be associated with such uses.

water rights to the City in phases as the project develops. All costs of the water system, acquisition of the water rights including mitigation and monitoring costs, and the City's costs incurred in cooperating with M3 Eagle on securing the necessary water rights are to be borne by M3 Eagle. Under the Development Agreement, the City is the M3 Eagle project's municipal water provider. The water system for the M3 Eagle project is to be operated in conjunction with existing and planned water facilities of the City. However, the City is not allowed to use the water transferred to the City by M3 Eagle to serve other properties unless the City can demonstrate that it has obtained adequate rights to the M3 Eagle project and other properties to be served. The City is not obligated to use other City water rights to serve the M3 Eagle project and the rights conveyed to the City are inadequate, M3 Eagle must secure additional water rights and convey them to the City.

The Development Agreement is consistent with Eagle City Code, Title 6, Chapter 5, which requires a developer such as M3 to secure the water rights for its project and convey them and the requisite water system to the City for inclusion in the City system.[12]

Current City Water Rights

Any assessment of future water needs should reflect the current water rights of the City. The current water rights for the City of Eagle water system are summarized in Table 1.

Table 1

Water Right No.	Well No. (POD)	Priority Date	Authorized Diversion Rate (cfs)	Combined Municipal Diversion Rate (cfs)
63-09331		1/17/1980	0.10	0.10
63-11413	1	4/2/1991	3.15	
63-12448	2 3	4/8/1998	3.25	3.25
63-12017		2/2/1994	1.56 (3)	
63-32089	4	1/19/2005	4.0(1)	
63-32090	5		4.9(2)	2.23
Total Municipal Diversion Rate				5.58

(1) Includes 1.77 cfs for Fire Protection.
(2) The entire diversion rate is identified for Fire Protection.
(3) Amenity use only.

[12] The City would note that paragraph 3 of the IDWR/M3 Settlement Agreement suggesting that M3 Eagle might contract with a municipal provider other than the City is inconsistent with the Development Agreement. Paragraph 2.2 of the Development Agreement states "As set forth in this Agreement, it is City's and Developer's intent to have City be the water service provider and not have a PUC regulated provider serve the Property."

Current City Well Capacity

Likewise, it is helpful to also understand existing well capacity as a component of potential infrastructure needs. The pumping capacity of the City wells is summarized in Table 2.

Table 2

Municipal Well No.	Well Location	Current Capacity (gpm)	Current Capacity (cfs)
1	Lexington 1	960	2.14
2	Lexington 2	N/A	N/A
3	Brookwood	1,758	3.92
4	Legacy Area	1,886	4.21
5	Eaglefield Area	2,460	5.49
Total Pumping Capacity		7,064	15.76

M3 Eagle Water Demand

The City's analysis for its future water needs reflects the M3 Development Agreement because the M3 Eagle property is part of the City, but Permit 63-32573 can only be used in the M3 Eagle project area because of the limitations M3 Eagle placed on the application.

To comply with its obligations and the Development Agreement, M3 Eagle filed Application for Permit Number 63-32573 seeking an appropriation of 23.18 cubic feet per second. M3 supported its application with numerous reports and assessments which were part of a lengthy proceeding before the IDWR. M3 Eagle supported its water demands based on the requirements included in its Development Agreement and the specifics of its project. Based on its Development Agreement and submittals to the City, M3 estimated density at 2.49 persons per residential unit. The Development Agreement fixed the number of residential units in the M3 project at 7,153 units. Thus, the M3 estimated population for their project is 17,811 based on their estimated household size for the development.[13]

For its planning, the City of Eagle uses a 2010 Census value of 2.82 persons per residential unit on a city-wide basis. The difference between these estimated persons per household, whether using the City's figure of 2.82 or M3's 2.49, is, in the City's opinion, so small as to be irrelevant in determining water needs over a period of 30 years. M3 Eagle's value is simply an estimate based on its planned development. For purposes of the City's water demand analysis, the City's population per household is more relevant. M3 correctly determined that in the North Eagle Foothills Planning area, irrigation has not historically occurred on a broad scale. Therefore, as part of its water needs analysis, M3 also calculated a demand for irrigation.[14]

[13] The City's planning analysis estimated a population of 17,455. The difference is reflected in differing estimates of persons per household. M3 Eagle's population estimates do not affect the City's planning analysis pursuant to the LLUPA.

[14] The City's ordinances require that development lands with existing irrigation continue to provide irrigation water by using existing irrigation supplies. This helps conserve ground water. However, in the foothills area, there is little existing irrigation use. Therefore, M3's determination that there is a need for additional water for irrigation is, in the City's view, reasonable.

M3's water calculations used an average demand of 274 gallons per day per residence. For its planning, the City uses an average of 281 gallons per day per residence. The City's value was approved by the Idaho Department of Environmental Quality (IDEQ). (See attached approval letter dated April 17, 2008.) As with the population projections, the City believes that the small difference between M3's assessment of gallons per residence and the City's determination are so small as to be irrelevant for water needs planning purposes. Inherent in these slight differences is the fact that the M3 calculations are based on internal M3 Eagle planning while the City's planning calculations are based on a more generalized determination used by the City under LLUPA. The fact that the two methodologies produced very similar figures corroborates the reasonableness of the two planning methodologies and the determination of need.

City of Eagle Future Demands

Based on the City of Eagle's Comprehensive Plan, the City's population is anticipated to be 65,322 in 2041. This includes the entire area of the Comprehensive Plan including the M3 project area. Although the Development Agreement with M3 limits the number of household units in the M3 project area, the City's population determination for the entire City utilizes the best information available from the City's planning efforts pursuant to LLUPA. The City's planning determinations for the City's analysis hold true regardless of whether the M3 Eagle population is slightly different.

Because the M3 Development Agreement, Permit Number 63-32573, and the M3/IDWR Settlement Agreement all anticipate the water right will only be used on the M3 project area, the City has approached its future needs analysis from a City planning perspective, while recognizing the M3 Eagle project and those limitations. The City has focused its future water needs for the City for its water service area which includes the North Eagle Foothills Plan area outside of the M3 project area. M3 Eagle determined its water demand based on a phased development approach as reflected in the Development Agreement and according to its specific development plan. The City bases its future water demand based on a projected population value for the entire City which is more appropriate from a City planning perspective. While M3 is a private developer with a defined project area and a specific number of authorized units, the City is a municipal corporation responsible for all of its citizens. The City is not in the business of constructing homes or developing property and a phased approach focused on building houses is not appropriate or applicable for a City's planning needs.

The City future needs determination is based on a total population basis and, whether the population is located in the M3 project area or outside, is irrelevant from a City water needs perspective. For City planning, it is the total population within the Comprehensive Plan area, coupled with reasonable use demands that influences the amount of water needed.

The City's water needs determination is based on a per-household average of 281 gallons per day. The City's value of 281 gpd figure is based on actual historical data using values approved by IDEQ for planning municipal service. The City's Engineer reviewed historical water use in the City's current system as identified in the City's Master Water Plan. This review of actual residential, school use, and commercial use over a 32-month period provided the 281 gallons per day value. For its slightly less density value of 2.49 persons per household, the City believes the 274 gpd figure determined by M3 is reasonable when compared to the City's actual use data.

As mentioned, M3 has also planned for a water right including an irrigation demand. The City service area outside the M3 project typically has irrigation water already in place. The City, by ordinance, requires that when existing irrigation water is in place, a developer must use that water instead of having to secure additional water. This effectively prevents a developer from selling off the existing irrigation rights and attempting to use City water for irrigation. The City has not typically included an irrigation demand in its planning for areas with existing irrigation water rights. As noted earlier, the North Eagle Foothills Planning Area is a unique planning sub-area within the City's Comprehensive Plan. The City has reviewed M3's anticipated irrigation demand and believes the demand reflects a reasonable irrigation demand based on the submittals M3 made as part of its annexation and rezone application and the Development Agreement.

In sum, with regard to M3's potable water demand and irrigation demand, the City believes the values are reasonable. The City's acceptance of the M3 population estimates and planning data which drive the M3 irrigation and potable water determinations is reflected in the fact that, based on the City's reliance on M3 Eagle's representations and information, the City annexed the M3 project area and entered into a Development Agreement with M3 Eagle.

Future City Water Rights Need

Using the City's 4% growth rate in the Comprehensive Plan, the City's population in 2041 will be 65,322. The population in the M3 Eagle area will be 17,455. The difference of 47,867 is the City's population on which its long term (30 years) water needs are based. Table 3 below summarizes the City's water right need.

Table 3

City of Eagle Future Needs	
City Demand in 2041 (1) (2)	32.15 cfs
Less Current Water Rights	(5.58 cfs)
Future Needs	26.57 cfs
Notes: CFS – Cubic Feet Per Second MDD – Maximum Daily Demand PHD – Peak Hour Demand GPD – Gallons Per Day MGD – Million Gallons Per Day	

(1) Underlying Factors*:

City Population 2041: 47,867 (65,322 – 17,455 M3)
Persons per Residence: 2.82
Average Daily Demand: 281 gpd/residence
Maximum Daily Demand Peaking Factor: 1.7
Peak Hour Demand Peaking Factor: 1.7

*Based on undeveloped areas, the maximum future growth for the EWC and UWI service areas is 5,640 people which equates to 2.51 cfs

(2) Water Demand Calculation

- Number of Households (47,867 people/2.82 people per household) = 16,974
- Multiplied by 281 gpd per household = 4,769,726 gpd
- Divided by 1440 = 3312 gpm (7.38 cfs)
- Multiplied by Peaking Factor of 1.7 = 12.55 cfs (MDD)
- Multiplied by Peaking Factor of 1.7 = 21.33 cfs (PHD)
- Plus Irrigation for 360.5 acres @ .03 cfs/acre = 10.82 cfs
- Minus City Existing Water Rights = 5.58 cfs
- Total = 26.57 cfs

From Table 1, Eagle's Municipal Rights are currently 5.58 cfs. From Table 3, based on the City's forecasted growth, the demand at 2041 will require 32.15 cfs. Application for Permit No. 63-32573 would account for the 23.18 cfs needed for the M3 project area. The difference of 26.57 cfs between 32.15 cfs and 5.58 cfs is the amount required for the City of Eagle to meet its reasonably anticipated future needs through 2041.

The City's determination is based on Peak Hour demand. The *Idaho Rules for Public Drinking Water Systems* require the City to supply Maximum Day Demands from well capacity. Therefore, the City must have adequate water rights and well capacity to meet the projected Maximum Day Demand. Peak Hour Demands (or Maximum Day Demand plus fire flow) can be supplied using a combination of pump capacity and storage. In other words, the City can have less water right and pump capacity than the Peak Hour Demand, if it develops adequate storage capacity. Historically, the City has supplied Peak Hour Demand almost entirely from well capacity.

Whether to supply Peak Hour Demand from developed storage capacity or well capacity or some combination is a decision that must be made by the City as part of its future planning and management. It may be more cost effective to construct additional wells to meet Peak Hour Demand than to construct storage reservoirs, booster pumps and pressure reducing valves However, determining whether to use pumping capacity or storage is a decision for the City based on economics and other factors including its Comprehensive Plan.

Conclusion

Based on its Comprehensive Plan growth rate of 4%, historical water use, and assuming the approval of the 23.18 cfs under Application for Permit No. 63-32573 and 5.58 cfs of existing municipal rights, the City of Eagle has concluded its reasonably anticipated future needs are 26.57 cfs of Municipal water rights to serve 47,867 citizens in 2041.

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EXHIBIT AA – SAMPLING HISTORY
WESTERN & EASTERN ZONE

City of Eagle
IDEQ Water Quality
Chemical, Radiological, Elemental, and Biological Sampling History

Chemical and Radiological Sampling History

PWS NUMBER: ID4010222

PWS NAME: EAGLE, CITY OF (WESTERN ZONE)

Total Records: 338

- **A PWS is only required to report the most recent detections of any contaminant at each representative sampling location.** For example, if nitrate is detected in a sample collected at Well X in 2012 , but is not detected at Well X in 2013 , then the system is not required to report nitrate for Well X in the 2013 CCR. **Note:** If a contaminant (e.g., nitrate) is listed with a "Y" (meaning "Yes") in the "non-detect" column, this means that sampling results showed a "non-detect" – that is to say, nitrate was not detected.

- **Required Language.** If a system reports a detection, the system must give the major sources of the contaminant. To report this information, go to **Appendix A of the CCR template,** find the contaminant, and copy the information from the *"Major Sources in Drinking Water"* column and place it in your CCR. If the system exceeds the MCL (maximum contaminant level) value of a contaminant, the system must show the potential health effects of the contaminant. To report this information, go to **Appendix A of the CCR template** , find the contaminant, and copy the information from the *"Health Effects Language"* column and place it in your CCR.

Abbreviations used below:

MG/L (mg/L) = milligrams per liter (mg/L = ppm in Appendix A)
UG/L (µg/L) = micrograms per liter (ug/L = ppb in Appendix A)
PIC/L (pCi/L) = picocuries per liter

Contaminant	Date Collected	Facility	Non Detect?	Detected level	Units	CCR Units
1,1,1-TRICHLOROETHANE	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000		0
1,1,1-TRICHLOROETHANE	03/17/2011	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
1,1,1-TRICHLOROETHANE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
1,1,1-TRICHLOROETHANE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000		0
1,1,1-TRICHLOROETHANE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
1,1,1-TRICHLOROETHANE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
1,1,1-TRICHLOROETHANE	02/10/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
1,1,1-TRICHLOROETHANE	02/10/2009	WELL #4 (LEGACY)	Y	0.000000000		0
1,1,2-TRICHLOROETHANE	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000		0
1,1,2-TRICHLOROETHANE	03/17/2011	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
1,1,2-TRICHLOROETHANE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
1,1,2-TRICHLOROETHANE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000		0
1,1,2-TRICHLOROETHANE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
1,1,2-TRICHLOROETHANE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
1,1,2-TRICHLOROETHANE	02/10/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
1,1,2-TRICHLOROETHANE	02/10/2009	WELL #4 (LEGACY)	Y	0.000000000		0
1,1-DICHLOROETHYLENE	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000		0
1,1-DICHLOROETHYLENE	03/17/2011	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
1,1-DICHLOROETHYLENE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
1,1-DICHLOROETHYLENE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000		0
1,1-DICHLOROETHYLENE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
1,1-DICHLOROETHYLENE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
1,1-DICHLOROETHYLENE	02/10/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
1,1-DICHLOROETHYLENE	02/10/2009	WELL #4 (LEGACY)	Y	0.000000000		0
1,2,4-TRICHLOROBENZENE	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000		0
1,2,4-TRICHLOROBENZENE	03/17/2011	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
1,2,4-TRICHLOROBENZENE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
1,2,4-TRICHLOROBENZENE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000		0
1,2,4-TRICHLOROBENZENE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
1,2,4-TRICHLOROBENZENE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
1,2,4-TRICHLOROBENZENE	02/10/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
1,2,4-TRICHLOROBENZENE	02/10/2009	WELL #4 (LEGACY)	Y	0.000000000		0
1,2-DIBROMO-3-CHLOROPROPANE	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
1,2-DIBROMO-3-CHLOROPROPANE	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0

1,2-DIBROMO-3-CHLOROPROPANE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
1,2-DIBROMO-3-CHLOROPROPANE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000	0
1,2-DICHLOROETHANE	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000	0
1,2-DICHLOROETHANE	03/17/2011	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
1,2-DICHLOROETHANE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
1,2-DICHLOROETHANE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000	0
1,2-DICHLOROETHANE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000	0
1,2-DICHLOROETHANE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
1,2-DICHLOROETHANE	02/10/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
1,2-DICHLOROETHANE	02/10/2009	WELL #4 (LEGACY)	Y	0.000000000	0
1,2-DICHLOROPROPANE	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000	0
1,2-DICHLOROPROPANE	03/17/2011	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
1,2-DICHLOROPROPANE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
1,2-DICHLOROPROPANE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000	0
1,2-DICHLOROPROPANE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000	0
1,2-DICHLOROPROPANE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
1,2-DICHLOROPROPANE	02/10/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
1,2-DICHLOROPROPANE	02/10/2009	WELL #4 (LEGACY)	Y	0.000000000	0
2,4,5-TP	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000	0
2,4,5-TP	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
2,4,5-TP	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000	0
2,4,5-TP	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
2,4-D	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000	0
2,4-D	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
2,4-D	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000	0
2,4-D	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
ANTIMONY, TOTAL	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000	0
ANTIMONY, TOTAL	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
ARSENIC	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000	
ARSENIC	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000	
ATRAZINE	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000	0
ATRAZINE	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
ATRAZINE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000	0
ATRAZINE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
BARIUM	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000	0.000000000
BARIUM	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000	0.000000000
BENZENE	03/17/2011	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
BENZENE	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000	0
BENZENE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
BENZENE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000	0
BENZENE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000	0
BENZENE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
BENZENE	02/10/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
BENZENE	02/10/2009	WELL #4 (LEGACY)	Y	0.000000000	0
BENZO(A)PYRENE	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000	0
BENZO(A)PYRENE	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
BENZO(A)PYRENE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000	0
BENZO(A)PYRENE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
BERYLLIUM, TOTAL	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000	0
BERYLLIUM, TOTAL	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
BHC-GAMMA	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
BHC-GAMMA	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000	0
BHC-GAMMA	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000	0
BHC-GAMMA	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
CADMIUM	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000	0
CADMIUM	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
CARBOFURAN	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
CARBOFURAN	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000	0
CARBOFURAN	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000	0
CARBOFURAN	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
CARBON TETRACHLORIDE	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000	0
CARBON TETRACHLORIDE	03/17/2011	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
CARBON TETRACHLORIDE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
CARBON TETRACHLORIDE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000	0
CARBON TETRACHLORIDE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000	0
CARBON TETRACHLORIDE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
CARBON TETRACHLORIDE	02/10/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
CARBON TETRACHLORIDE	02/10/2009	WELL #4 (LEGACY)	Y	0.000000000	0
CHLORDANE	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000	0
CHLORDANE	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
CHLORDANE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000	0
CHLORDANE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
CHLOROBENZENE	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000	0.000000000
CHLOROBENZENE	03/17/2011	WELL #5 (EAGLEFIELD)	Y	0.000000000	0.000000000
CHLOROBENZENE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000	0.000000000
CHLOROBENZENE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000	0.000000000
CHLOROBENZENE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000	0.000000000
CHLOROBENZENE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0.000000000
CHLOROBENZENE	02/10/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0.000000000
CHLOROBENZENE	02/10/2009	WELL #4 (LEGACY)	Y	0.000000000	0.000000000
CHROMIUM	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000	0
CHROMIUM	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
CIS-1,2-DICHLOROETHYLENE	03/17/2011	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
CIS-1,2-DICHLOROETHYLENE	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000	0
CIS-1,2-DICHLOROETHYLENE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
CIS-1,2-DICHLOROETHYLENE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000	0
CIS-1,2-DICHLOROETHYLENE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000	0
CIS-1,2-DICHLOROETHYLENE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
CIS-1,2-DICHLOROETHYLENE	02/10/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
CIS-1,2-DICHLOROETHYLENE	02/10/2009	WELL #4 (LEGACY)	Y	0.000000000	0

COMBINED RADIUM (-226 & -228)	03/17/2009	WELL #4 (LEGACY)		1.510000000	PCI/L	1.510000000
COMBINED RADIUM (-226 & -228)	03/17/2009	WELL #5 (EAGLEFIELD)		0.760000000	PCI/L	0.760000000
DALAPON	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
DALAPON	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
DALAPON	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
DALAPON	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
DI(2-ETHYLHEXYL) ADIPATE	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
DI(2-ETHYLHEXYL) ADIPATE	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
DI(2-ETHYLHEXYL) ADIPATE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
DI(2-ETHYLHEXYL) ADIPATE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
DI(2-ETHYLHEXYL) PHTHALATE	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
DI(2-ETHYLHEXYL) PHTHALATE	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
DI(2-ETHYLHEXYL) PHTHALATE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
DI(2-ETHYLHEXYL) PHTHALATE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
DICHLOROMETHANE	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000		0
DICHLOROMETHANE	03/17/2011	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
DICHLOROMETHANE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
DICHLOROMETHANE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000		0
DICHLOROMETHANE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
DICHLOROMETHANE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
DICHLOROMETHANE	02/10/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
DICHLOROMETHANE	02/10/2009	WELL #4 (LEGACY)	Y	0.000000000		0
DINOSEB	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
DINOSEB	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
DINOSEB	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
DINOSEB	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
DIQUAT	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
DIQUAT	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
DIQUAT	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
DIQUAT	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
ENDOTHALL	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
ENDOTHALL	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
ENDOTHALL	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
ENDOTHALL	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
ENDRIN	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
ENDRIN	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
ENDRIN	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
ENDRIN	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
ETHYLBENZENE	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000		0
ETHYLBENZENE	03/17/2011	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
ETHYLBENZENE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
ETHYLBENZENE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000		0
ETHYLBENZENE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
ETHYLBENZENE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
ETHYLBENZENE	02/10/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
ETHYLBENZENE	02/10/2009	WELL #4 (LEGACY)	Y	0.000000000		0
ETHYLENE DIBROMIDE	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
ETHYLENE DIBROMIDE	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
ETHYLENE DIBROMIDE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
ETHYLENE DIBROMIDE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
FLUORIDE	09/27/2013	WELL #4 (LEGACY)	N	0.410000000	MG/L	0.410000000
FLUORIDE	09/27/2013	WELL #5 (EAGLEFIELD)	N	0.390000000	MG/L	0.390000000
GLYPHOSATE	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
GLYPHOSATE	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
GLYPHOSATE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
GLYPHOSATE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
GROSS ALPHA, EXCL. RADON & U	06/30/2009	WELL #5 (EAGLEFIELD)	N	1.680000000	PCI/L	1.680000000
GROSS ALPHA, EXCL. RADON & U	06/30/2009	WELL #4 (LEGACY)	N	3.670000000	PCI/L	3.670000000
GROSS ALPHA, INCL. RADON & U	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0.000000000
GROSS ALPHA, INCL. RADON & U	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0.000000000
GROSS ALPHA, INCL. RADON & U	08/20/2009	WELL #5 (EAGLEFIELD)	N	1.360000000	PCI/L	1.360000000
GROSS ALPHA, INCL. RADON & U	03/17/2009	WELL #5 (EAGLEFIELD)	N	2.310000000	PCI/L	2.310000000
GROSS ALPHA, INCL. RADON & U	03/17/2009	WELL #4 (LEGACY)	N	5.360000000	PCI/L	5.360000000
HEPTACHLOR	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
HEPTACHLOR	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
HEPTACHLOR	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
HEPTACHLOR	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
HEPTACHLOR EPOXIDE	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
HEPTACHLOR EPOXIDE	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
HEPTACHLOR EPOXIDE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
HEPTACHLOR EPOXIDE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
HEXACHLOROBENZENE	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
HEXACHLOROBENZENE	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
HEXACHLOROBENZENE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
HEXACHLOROBENZENE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
HEXACHLOROCYCLOPENTADIENE	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
HEXACHLOROCYCLOPENTADIENE	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
HEXACHLOROCYCLOPENTADIENE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
HEXACHLOROCYCLOPENTADIENE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
LASSO	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
LASSO	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
LASSO	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
LASSO	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
MERCURY	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
MERCURY	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
METHOXYCHLOR	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
METHOXYCHLOR	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
METHOXYCHLOR	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
METHOXYCHLOR	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
NITRATE	09/30/2014	WELL #4 (LEGACY)	Y	0.000000000		0.000000000

NITRATE	09/30/2014	WELL #5 (EAGLEFIELD)	Y	0.000000000		0.000000000
NITRATE	11/13/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0.000000000
NITRATE	11/13/2013	WELL #4 (LEGACY)	Y	0.000000000		0.000000000
NITRATE	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0.000000000
NITRATE	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0.000000000
NITRATE	09/17/2012	WELL #5 (EAGLEFIELD)	Y	0.000000000		0.000000000
NITRATE	09/17/2012	WELL #4 (LEGACY)	Y	0.000000000		0.000000000
NITRATE	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000		0.000000000
NITRATE	03/17/2011	WELL #5 (EAGLEFIELD)	N	0.200000000	MG/L	0.200000000
NITRATE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000		0.000000000
NITRATE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000		0.000000000
NITRATE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000		0.000000000
NITRATE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000		0.000000000
NITRATE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0.000000000
NITRATE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0.000000000
O-DICHLOROBENZENE	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000		0
O-DICHLOROBENZENE	03/17/2011	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
O-DICHLOROBENZENE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
O-DICHLOROBENZENE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000		0
O-DICHLOROBENZENE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
O-DICHLOROBENZENE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
O-DICHLOROBENZENE	02/10/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
O-DICHLOROBENZENE	02/10/2009	WELL #4 (LEGACY)	Y	0.000000000		0
OXAMYL	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
OXAMYL	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
OXAMYL	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
OXAMYL	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
P-DICHLOROBENZENE	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000		0
P-DICHLOROBENZENE	03/17/2011	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
P-DICHLOROBENZENE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
P-DICHLOROBENZENE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000		0
P-DICHLOROBENZENE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
P-DICHLOROBENZENE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
P-DICHLOROBENZENE	02/10/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
P-DICHLOROBENZENE	02/10/2009	WELL #4 (LEGACY)	Y	0.000000000		0
PENTACHLOROPHENOL	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
PENTACHLOROPHENOL	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
PENTACHLOROPHENOL	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
PENTACHLOROPHENOL	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
PICLORAM	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
PICLORAM	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
PICLORAM	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
PICLORAM	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
RADIUM-226	03/17/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0.000000000
RADIUM-226	03/17/2009	WELL #4 (LEGACY)	Y	0.000000000		0.000000000
RADIUM-228	10/05/2009	WELL #5 (EAGLEFIELD)	N	0.610000000	PCI/L	0.610000000
RADIUM-228	10/05/2009	WELL #4 (LEGACY)	N	0.310000000	PCI/L	0.310000000
RADIUM-228	08/20/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0.000000000
RADIUM-228	07/01/2009	WELL #5 (EAGLEFIELD)	N	0.240000000	PCI/L	0.240000000
RADIUM-228	07/01/2009	WELL #4 (LEGACY)	N	0.520000000	PCI/L	0.520000000
RADIUM-228	03/17/2009	WELL #4 (LEGACY)	N	1.510000000	PCI/L	1.510000000
RADIUM-228	03/17/2009	WELL #5 (EAGLEFIELD)	N	0.760000000	PCI/L	0.760000000
SELENIUM	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
SELENIUM	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
SIMAZINE	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
SIMAZINE	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
SIMAZINE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
SIMAZINE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
STYRENE	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000		0
STYRENE	03/17/2011	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
STYRENE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
STYRENE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000		0
STYRENE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
STYRENE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
STYRENE	02/10/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
STYRENE	02/10/2009	WELL #4 (LEGACY)	Y	0.000000000		0
TETRACHLOROETHYLENE	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000		0
TETRACHLOROETHYLENE	03/17/2011	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
TETRACHLOROETHYLENE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
TETRACHLOROETHYLENE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000		0
TETRACHLOROETHYLENE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
TETRACHLOROETHYLENE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
TETRACHLOROETHYLENE	02/10/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
TETRACHLOROETHYLENE	02/10/2009	WELL #4 (LEGACY)	Y	0.000000000		0
THALLIUM, TOTAL	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
THALLIUM, TOTAL	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
TOLUENE	03/17/2011	WELL #5 (EAGLEFIELD)	Y	0.000000000		0.000000000
TOLUENE	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000		0.000000000
TOLUENE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000		0.000000000
TOLUENE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000		0.000000000
TOLUENE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0.000000000
TOLUENE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0.000000000
TOLUENE	02/10/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0.000000000
TOLUENE	02/10/2009	WELL #4 (LEGACY)	Y	0.000000000		0.000000000
TOTAL POLYCHLORINATED BIPHENYLS (PCB)	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
TOTAL POLYCHLORINATED BIPHENYLS (PCB)	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
TOTAL POLYCHLORINATED BIPHENYLS (PCB)	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		0
TOTAL POLYCHLORINATED BIPHENYLS (PCB)	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		0
TOXAPHENE	09/27/2013	WELL #4 (LEGACY)	Y	0.000000000		0
TOXAPHENE	09/27/2013	WELL #5 (EAGLEFIELD)	Y	0.000000000		0

TOXAPHENE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000	0
TOXAPHENE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
TRANS-1,2-DICHLOROETHYLENE	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000	0
TRANS-1,2-DICHLOROETHYLENE	03/17/2011	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
TRANS-1,2-DICHLOROETHYLENE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
TRANS-1,2-DICHLOROETHYLENE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000	0
TRANS-1,2-DICHLOROETHYLENE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000	0
TRANS-1,2-DICHLOROETHYLENE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
TRANS-1,2-DICHLOROETHYLENE	02/10/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
TRANS-1,2-DICHLOROETHYLENE	02/10/2009	WELL #4 (LEGACY)	Y	0.000000000	0
TRICHLOROETHYLENE	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000	0
TRICHLOROETHYLENE	03/17/2011	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
TRICHLOROETHYLENE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
TRICHLOROETHYLENE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000	0
TRICHLOROETHYLENE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000	0
TRICHLOROETHYLENE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
TRICHLOROETHYLENE	02/10/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
TRICHLOROETHYLENE	02/10/2009	WELL #4 (LEGACY)	Y	0.000000000	0
VINYL CHLORIDE	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000	0
VINYL CHLORIDE	03/17/2011	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
VINYL CHLORIDE	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
VINYL CHLORIDE	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000	0
VINYL CHLORIDE	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000	0
VINYL CHLORIDE	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
VINYL CHLORIDE	02/10/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0
VINYL CHLORIDE	02/10/2009	WELL #4 (LEGACY)	Y	0.000000000	0
XYLENES, TOTAL	03/17/2011	WELL #4 (LEGACY)	Y	0.000000000	0.000000000
XYLENES, TOTAL	03/17/2011	WELL #5 (EAGLEFIELD)	Y	0.000000000	0.000000000
XYLENES, TOTAL	02/10/2010	WELL #5 (EAGLEFIELD)	Y	0.000000000	0.000000000
XYLENES, TOTAL	02/10/2010	WELL #4 (LEGACY)	Y	0.000000000	0.000000000
XYLENES, TOTAL	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000	0.000000000
XYLENES, TOTAL	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0.000000000
XYLENES, TOTAL	02/10/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000	0.000000000
XYLENES, TOTAL	02/10/2009	WELL #4 (LEGACY)	Y	0.000000000	0.000000000

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

Coliform Sampling History

PWS NUMBER: ID4010222

PWS NAME: EAGLE, CITY OF (WESTERN ZONE)

Total Records: 12

- **Only report coliform results in the CCR if one or more samples tested positive during the 2013 calendar year.**

- **Required Language.** If your water system's coliform history for the year included one or more samples present for coliform, you must give the major sources of the contaminant. To report this information, go to **Appendix A of the CCR template** , find the contaminant, and copy the information from the *"Major Sources in Drinking Water"* column and place it in your CCR. If the system has exceeded the MCL (maximum contaminant level) value for coliforms, go to **Appendix A of the CCR template** , find the contaminant, and copy the information from the *"Health Effects Language"* column and place it in your CCR.

Contaminant	Date Collected	P=present A=absent
COLIFORM (TCR)	12/11/2013	A
COLIFORM (TCR)	11/06/2013	A
COLIFORM (TCR)	10/01/2013	A
COLIFORM (TCR)	09/04/2013	A
COLIFORM (TCR)	08/06/2013	A
COLIFORM (TCR)	07/02/2013	A
COLIFORM (TCR)	06/04/2013	A
COLIFORM (TCR)	05/02/2013	A
COLIFORM (TCR)	04/02/2013	A
COLIFORM (TCR)	03/05/2013	A
COLIFORM (TCR)	02/05/2013	A
COLIFORM (TCR)	01/02/2013	A

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

Lead and Copper Sample History

PWS NUMBER: ID4010222

PWS NAME: EAGLE, CITY OF (WESTERN ZONE)

Total Records: 14

- **A public water system is only required to report the most recent 90% percentile detections for lead and copper within the past five years.** If a result is listed as zero, it should be assumed the result was actually a non-detect.

- **Other lead and copper information to be included** in the CCR not listed on this page are the number of samples collected from the distribution system, and the highest level of lead or copper that was detected.

- **Required Language.** If there are detections for lead and copper to report, the system must give the major sources of the contaminant. If a system reports a detection, the system must give the major sources of the contaminant. To report this information, go to **Appendix A of the CCR template** , find the contaminant, and copy the information from the *"Major Sources in Drinking Water"* column and place it in your CCR. If the system exceeds the MCL (maximum contaminant level) value of a contaminant, the system must show the potential health effects of the contaminant. To report this information, go to **Appendix A of the CCR template** , find the contaminant, and copy the information from the *"Health Effects Language"* column and place it in your CCR.

Abbreviations used below:

MG/L (mg/L) = milligrams per liter (mg/L = ppm in Appendix A)
UG/L (μg/L) = micrograms per liter (ug/L = ppb in Appendix A)

Contaminant	# Samples Collected	Result	Units	Period Begin Date	Period End Date	CCR Units
LEAD SUMMARY	5	0.000	MG/L	01/01/2013	12/31/2013	0
COPPER SUMMARY	5	0.045	MG/L	01/01/2013	12/31/2013	0.045
LEAD SUMMARY	5	0.005	MG/L	01/01/2012	12/31/2012	5
COPPER SUMMARY	5	0.045	MG/L	01/01/2012	12/31/2012	0.045
LEAD SUMMARY	5	0.007	MG/L	01/01/2011	12/31/2011	7
COPPER SUMMARY	5	0.030	MG/L	01/01/2011	12/31/2011	0.030
LEAD SUMMARY	5	0.005	MG/L	01/01/2011	12/31/2011	5
COPPER SUMMARY	5	0.045	MG/L	01/01/2011	12/31/2011	0.045
LEAD SUMMARY	5	0.000	MG/L	01/01/2010	06/30/2010	0
COPPER SUMMARY	5	0.035	MG/L	01/01/2010	06/30/2010	0.035
LEAD SUMMARY	5	0.000	MG/L	07/01/2009	12/31/2009	0
LEAD SUMMARY	0	0.000		07/01/2009	12/31/2009	0
COPPER SUMMARY	5	0.035	MG/L	07/01/2009	12/31/2009	0.035
COPPER SUMMARY	0	0.000		07/01/2009	12/31/2009	0.000

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

DBP Sampling History

PWS NUMBER: ID4010222

PWS NAME: EAGLE, CITY OF (WESTERN ZONE)

Total Records: 6

- **Sampling history is only listed for systems which are practicing chlorination on a full-time basis.**

- **Public water systems that are required to collect one sample for disinfection byproducts once every year, or every three years, are only required to report the most recent detections for disinfection byproducts**If the most recent sampling was a non-detect for the contaminants, then it is not necessary to report any disinfection byproduct sampling.**Note:** If a contaminant is listed with a "Y" (meaning "Yes") in the "non-detect" column, this means that sampling results showed a "non-detect" - that is to say, the contaminant was not detected.

- **If a public water system collects more than one sample per year, the system must report the average of Total Trihalomethanes and Haloacetic Acids Group 5 over the 2013 calendar year.**The The highest level detected, and the range for each contaminant must also be reported.

- **Required Language.** If a system reports a detection, the system must give the major sources of the contaminant. To report this information, go to**Appendix A of the CCR template** , find the contaminant, and copy the information from the *"Major Sources in Drinking Water"* column and place it in your CCR. If the system has exceeded the MCL (maximum contaminant level) value of a contaminant, go to **Appendix A of the CCR template** , find the contaminant, and copy the information from the *"Health Effects Language"* column and place it in your CCR.

Contaminant	Date Collected	Facility	Non Detect?	Detected Level	Units	CCR Units
TTHM	10/05/2009	WELL #4 (LEGACY)	Y	0.000000000		
TTHM	10/05/2009	WELL #5 (EAGLEFIELD)	Y	0.000000000		
TTHM	12/02/2008	WELL #5 (EAGLEFIELD)	Y	0.000000000		
TTHM	12/02/2008	WELL #4 (LEGACY)	Y	0.000000000		
TTHM	08/18/2008	WELL #4 (LEGACY)	Y	0.000000000		
TTHM	08/18/2008	WELL #5 (EAGLEFIELD)	Y	0.000000000		

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

Chlorine Maximum Residual Disinfectant Level Sampling History

PWS NUMBER:

PWS NAME:

Total Records: 0

- **Sampling history is only listed for systems which are practicing chlorination on a full-time basis.**

- **Please include in your CCR the highest chlorine residual level detected during the previous calendar year (2013) by your system, as well as the average of all residuals collected during 2013 .**

- **Required Language.** If the system exceeds the chlorine MCL (maximum contaminant level) value, the system must show the potential health effects of the contaminant. To report this information, go to **Appendix A of the CCR template** , find the contaminant, and copy the information from the *"Health Effects Language"* column and place it in your CCR.

Samples Collected	Chlorine Residual	Units	Begin Date	Monitoring Period

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

Chemical and Radiological Sampling History

PWS NUMBER: ID4010201

PWS NAME: EAGLE, CITY OF (EASTERN ZONE)

Total Records: 260

- **A PWS is only required to report the most recent detections of any contaminant at each representative sampling location.** For example, if nitrate is detected in a sample collected at Well X in 2012 , but is not detected at Well X in 2013 , then the system is not required to report nitrate for Well X in the 2013 CCR. **Note:** If a contaminant (e.g., nitrate) is listed with a "Y" (meaning "Yes") in the "non-detect" column, this means that sampling results showed a "non-detect" – that is to say, nitrate was not detected.

- **Required Language.** If a system reports a detection, the system must give the major sources of the contaminant. To report this information, go to **Appendix A of the CCR template,** find the contaminant, and copy the information from the *"Major Sources in Drinking Water"* column and place it in your CCR. If the system exceeds the MCL (maximum contaminant level) value of a contaminant, the system must show the potential health effects of the contaminant. To report this information, go to **Appendix A of the CCR template** , find the contaminant, and copy the information from the *"Health Effects Language"* column and place it in your CCR.

Abbreviations used below:

MG/L (mg/L) = milligrams per liter (mg/L = ppm in Appendix A)
UG/L (µg/L) = micrograms per liter (ug/L = ppb in Appendix A)
PIC/L (pCi/L) = picocuries per liter

Contaminant	Date Collected	Facility	Non Detect?	Detected level	Units	CCR Units
1,1,1-TRICHLOROETHANE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
1,1,1-TRICHLOROETHANE	09/17/2012	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,1,1-TRICHLOROETHANE	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,1,1-TRICHLOROETHANE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,1,1-TRICHLOROETHANE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,1,2-TRICHLOROETHANE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
1,1,2-TRICHLOROETHANE	09/17/2012	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,1,2-TRICHLOROETHANE	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,1,2-TRICHLOROETHANE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,1,2-TRICHLOROETHANE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,1-DICHLOROETHYLENE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
1,1-DICHLOROETHYLENE	09/17/2012	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,1-DICHLOROETHYLENE	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,1-DICHLOROETHYLENE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,1-DICHLOROETHYLENE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,2,4-TRICHLOROBENZENE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
1,2,4-TRICHLOROBENZENE	09/17/2012	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,2,4-TRICHLOROBENZENE	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,2,4-TRICHLOROBENZENE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,2,4-TRICHLOROBENZENE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,2-DIBROMO-3-CHLOROPROPANE	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,2-DIBROMO-3-CHLOROPROPANE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
1,2-DIBROMO-3-CHLOROPROPANE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,2-DIBROMO-3-CHLOROPROPANE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,2-DICHLOROETHANE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
1,2-DICHLOROETHANE	09/17/2012	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,2-DICHLOROETHANE	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,2-DICHLOROETHANE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,2-DICHLOROETHANE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,2-DICHLOROPROPANE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
1,2-DICHLOROPROPANE	09/17/2012	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,2-DICHLOROPROPANE	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,2-DICHLOROPROPANE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
1,2-DICHLOROPROPANE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0

2,4,5-TP	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
2,4,5-TP	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
2,4,5-TP	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
2,4,5-TP	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
2,4-D	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
2,4-D	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
2,4-D	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
2,4-D	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
ANTIMONY, TOTAL	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
ARSENIC	09/27/2013	WELL #3 - BROOKWOOD	N	0.005000000	MG/L	5
ARSENIC	02/10/2010	WELL 1 - LEXINGTON HILLS	N	0.005000000	MG/L	5
ATRAZINE	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
ATRAZINE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
ATRAZINE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
ATRAZINE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
BARIUM	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0.000000000
BENZENE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
BENZENE	09/17/2012	WELL #3 - BROOKWOOD	Y	0.000000000		0
BENZENE	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000		0
BENZENE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
BENZENE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
BENZO(A)PYRENE	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
BENZO(A)PYRENE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
BENZO(A)PYRENE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
BENZO(A)PYRENE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
BERYLLIUM, TOTAL	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
BHC-GAMMA	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
BHC-GAMMA	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
BHC-GAMMA	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
BHC-GAMMA	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
CADMIUM	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
CARBOFURAN	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
CARBOFURAN	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
CARBOFURAN	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
CARBOFURAN	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
CARBON TETRACHLORIDE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
CARBON TETRACHLORIDE	09/17/2012	WELL #3 - BROOKWOOD	Y	0.000000000		0
CARBON TETRACHLORIDE	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000		0
CARBON TETRACHLORIDE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
CARBON TETRACHLORIDE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
CHLORDANE	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
CHLORDANE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
CHLORDANE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
CHLORDANE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
CHLOROBENZENE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0.000000000
CHLOROBENZENE	09/17/2012	WELL #3 - BROOKWOOD	Y	0.000000000		0.000000000
CHLOROBENZENE	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000		0.000000000
CHLOROBENZENE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0.000000000
CHLOROBENZENE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0.000000000
CHROMIUM	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
CIS-1,2-DICHLOROETHYLENE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
CIS-1,2-DICHLOROETHYLENE	09/17/2012	WELL #3 - BROOKWOOD	Y	0.000000000		0
CIS-1,2-DICHLOROETHYLENE	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000		0
CIS-1,2-DICHLOROETHYLENE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
CIS-1,2-DICHLOROETHYLENE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
COMBINED URANIUM	09/27/2013	WELL 1 - LEXINGTON HILLS	N	25.000000000	UG/L	25.000000000
DALAPON	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
DALAPON	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
DALAPON	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
DALAPON	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
DI(2-ETHYLHEXYL) ADIPATE	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
DI(2-ETHYLHEXYL) ADIPATE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
DI(2-ETHYLHEXYL) ADIPATE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
DI(2-ETHYLHEXYL) ADIPATE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
DI(2-ETHYLHEXYL) PHTHALATE	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
DI(2-ETHYLHEXYL) PHTHALATE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
DI(2-ETHYLHEXYL) PHTHALATE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
DI(2-ETHYLHEXYL) PHTHALATE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
DICHLOROMETHANE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
DICHLOROMETHANE	09/17/2012	WELL #3 - BROOKWOOD	Y	0.000000000		0
DICHLOROMETHANE	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000		0
DICHLOROMETHANE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
DICHLOROMETHANE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
DINOSEB	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
DINOSEB	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
DINOSEB	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
DINOSEB	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
DIQUAT	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
DIQUAT	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
DIQUAT	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
DIQUAT	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
ENDOTHALL	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
ENDOTHALL	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
ENDOTHALL	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
ENDOTHALL	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
ENDRIN	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
ENDRIN	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
ENDRIN	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
ENDRIN	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
ETHYLBENZENE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0

ETHYLBENZENE	09/17/2012	WELL #3 - BROOKWOOD	Y	0.000000000		0
ETHYLBENZENE	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000		0
ETHYLBENZENE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
ETHYLBENZENE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
ETHYLENE DIBROMIDE	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
ETHYLENE DIBROMIDE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
ETHYLENE DIBROMIDE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
ETHYLENE DIBROMIDE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
FLUORIDE	09/27/2013	WELL #3 - BROOKWOOD	N	0.400000000	MG/L	0.400000000
GLYPHOSATE	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
GLYPHOSATE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
GLYPHOSATE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
GLYPHOSATE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
GROSS ALPHA, EXCL. RADON & U	09/27/2013	WELL 1 - LEXINGTON HILLS	N	8.750000000	PCI/L	8.750000000
GROSS ALPHA, EXCL. RADON & U	07/29/2010	WELL #3 - BROOKWOOD	N	4.760000000	PCI/L	4.760000000
GROSS ALPHA, EXCL. RADON & U	06/22/2010	WELL 1 - LEXINGTON HILLS	N	8.990000000	PCI/L	8.990000000
GROSS ALPHA, EXCL. RADON & U	06/22/2010	WELL #3 - BROOKWOOD	N	2.280000000	PCI/L	2.280000000
GROSS ALPHA, EXCL. RADON & U	02/10/2010	WELL #3 - BROOKWOOD	N	2.870000000	PCI/L	2.870000000
GROSS ALPHA, INCL. RADON & U	08/20/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0.000000000
HEPTACHLOR	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
HEPTACHLOR	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
HEPTACHLOR	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
HEPTACHLOR	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
HEPTACHLOR EPOXIDE	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
HEPTACHLOR EPOXIDE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
HEPTACHLOR EPOXIDE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
HEPTACHLOR EPOXIDE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
HEXACHLOROBENZENE	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
HEXACHLOROBENZENE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
HEXACHLOROBENZENE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
HEXACHLOROBENZENE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
HEXACHLOROCYCLOPENTADIENE	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
HEXACHLOROCYCLOPENTADIENE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
HEXACHLOROCYCLOPENTADIENE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
HEXACHLOROCYCLOPENTADIENE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
LASSO	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
LASSO	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
LASSO	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
LASSO	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
MERCURY	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
METHOXYCHLOR	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
METHOXYCHLOR	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
METHOXYCHLOR	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
METHOXYCHLOR	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
NITRATE	09/30/2014	WELL #3 - BROOKWOOD	N	1.800000000	MG/L	1.800000000
NITRATE	09/30/2014	WELL 1 - LEXINGTON HILLS	N	4.000000000	MG/L	4.000000000
NITRATE	09/27/2013	WELL 1 - LEXINGTON HILLS	N	4.600000000	MG/L	4.600000000
NITRATE	09/27/2013	WELL #3 - BROOKWOOD	N	1.900000000	MG/L	1.900000000
NITRATE	09/17/2012	WELL 1 - LEXINGTON HILLS	N	3.400000000	MG/L	3.400000000
NITRATE	09/17/2012	WELL #3 - BROOKWOOD	N	1.700000000	MG/L	1.700000000
NITRATE	03/17/2011	WELL 1 - LEXINGTON HILLS	N	2.000000000	MG/L	2.000000000
NITRATE	03/17/2011	WELL #3 - BROOKWOOD	N	1.900000000	MG/L	1.900000000
NITRATE	07/29/2010	WELL 1 - LEXINGTON HILLS	N	2.500000000	MG/L	2.500000000
NITRATE	02/10/2010	WELL 1 - LEXINGTON HILLS	N	5.400000000	MG/L	5.400000000
NITRATE	02/10/2010	WELL #3 - BROOKWOOD	N	1.900000000	MG/L	1.900000000
NITRATE	10/05/2009	WELL 1 - LEXINGTON HILLS	N	3.900000000	MG/L	3.900000000
O-DICHLOROBENZENE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
O-DICHLOROBENZENE	09/17/2012	WELL #3 - BROOKWOOD	Y	0.000000000		0
O-DICHLOROBENZENE	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000		0
O-DICHLOROBENZENE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
O-DICHLOROBENZENE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
OXAMYL	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
OXAMYL	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
OXAMYL	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
OXAMYL	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
P-DICHLOROBENZENE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
P-DICHLOROBENZENE	09/17/2012	WELL #3 - BROOKWOOD	Y	0.000000000		0
P-DICHLOROBENZENE	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000		0
P-DICHLOROBENZENE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
P-DICHLOROBENZENE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
PENTACHLOROPHENOL	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
PENTACHLOROPHENOL	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
PENTACHLOROPHENOL	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
PENTACHLOROPHENOL	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
PICLORAM	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
PICLORAM	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0
PICLORAM	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0
PICLORAM	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		0
RADIUM-226	10/12/2011	WELL #3 - BROOKWOOD	Y	0.000000000		0.000000000
RADIUM-226	09/14/2011	WELL #3 - BROOKWOOD	Y	0.000000000		0.000000000
RADIUM-226	06/30/2011	WELL #3 - BROOKWOOD	Y	0.000000000		0.000000000
RADIUM-226	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000		0.000000000
RADIUM-226	10/22/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0.000000000
RADIUM-228	07/29/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0.000000000
RADIUM-228	06/22/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0.000000000
RADIUM-228	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000		0.000000000
RADIUM-228	08/20/2009	WELL #3 - BROOKWOOD	N	0.870000000	PCI/L	0.870000000
SELENIUM	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
SIMAZINE	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000		0
SIMAZINE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000		0

SIMAZINE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000	0
SIMAZINE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000	0
STYRENE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000	0
STYRENE	09/17/2012	WELL #3 - BROOKWOOD	Y	0.000000000	0
STYRENE	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000	0
STYRENE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000	0
STYRENE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000	0
TETRACHLOROETHYLENE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000	0
TETRACHLOROETHYLENE	09/17/2012	WELL #3 - BROOKWOOD	Y	0.000000000	0
TETRACHLOROETHYLENE	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000	0
TETRACHLOROETHYLENE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000	0
TETRACHLOROETHYLENE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000	0
THALLIUM, TOTAL	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000	0
TOLUENE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000	0.000000000
TOLUENE	09/17/2012	WELL #3 - BROOKWOOD	Y	0.000000000	0.000000000
TOLUENE	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000	0.000000000
TOLUENE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000	0.000000000
TOLUENE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000	0.000000000
TOTAL POLYCHLORINATED BIPHENYLS (PCB)	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000	0
TOTAL POLYCHLORINATED BIPHENYLS (PCB)	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000	0
TOTAL POLYCHLORINATED BIPHENYLS (PCB)	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000	0
TOTAL POLYCHLORINATED BIPHENYLS (PCB)	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000	0
TOXAPHENE	09/27/2013	WELL #3 - BROOKWOOD	Y	0.000000000	0
TOXAPHENE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000	0
TOXAPHENE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000	0
TOXAPHENE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000	0
TRANS-1,2-DICHLOROETHYLENE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000	0
TRANS-1,2-DICHLOROETHYLENE	09/17/2012	WELL #3 - BROOKWOOD	Y	0.000000000	0
TRANS-1,2-DICHLOROETHYLENE	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000	0
TRANS-1,2-DICHLOROETHYLENE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000	0
TRANS-1,2-DICHLOROETHYLENE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000	0
TRICHLOROETHYLENE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000	0
TRICHLOROETHYLENE	09/17/2012	WELL #3 - BROOKWOOD	Y	0.000000000	0
TRICHLOROETHYLENE	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000	0
TRICHLOROETHYLENE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000	0
TRICHLOROETHYLENE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000	0
VINYL CHLORIDE	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000	0
VINYL CHLORIDE	09/17/2012	WELL #3 - BROOKWOOD	Y	0.000000000	0
VINYL CHLORIDE	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000	0
VINYL CHLORIDE	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000	0
VINYL CHLORIDE	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000	0
XYLENES, TOTAL	09/27/2013	WELL 1 - LEXINGTON HILLS	Y	0.000000000	0.000000000
XYLENES, TOTAL	09/17/2012	WELL #3 - BROOKWOOD	Y	0.000000000	0.000000000
XYLENES, TOTAL	03/17/2011	WELL #3 - BROOKWOOD	Y	0.000000000	0.000000000
XYLENES, TOTAL	02/10/2010	WELL #3 - BROOKWOOD	Y	0.000000000	0.000000000
XYLENES, TOTAL	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000	0.000000000

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

Coliform Sampling History

PWS NUMBER: ID4010201

PWS NAME: EAGLE, CITY OF (EASTERN ZONE)

Total Records: 48

- **Only report coliform results in the CCR if one or more samples tested positive during the 2013 calendar year.**

- **Required Language.** If your water system's coliform history for the year included one or more samples present for coliform, you must give the major sources of the contaminant. To report this information, go to **Appendix A of the CCR template** , find the contaminant, and copy the information from the *"Major Sources in Drinking Water"* column and place it in your CCR. If the system has exceeded the MCL (maximum contaminant level) value for coliforms, go to **Appendix A of the CCR template** , find the contaminant, and copy the information from the *"Health Effects Language"* column and place it in your CCR.

Contaminant	Date Collected	P=present A=absent
COLIFORM (TCR)	12/11/2013	A
COLIFORM (TCR)	12/11/2013	A
COLIFORM (TCR)	12/11/2013	A
COLIFORM (TCR)	12/11/2013	A
COLIFORM (TCR)	11/06/2013	A
COLIFORM (TCR)	11/06/2013	A
COLIFORM (TCR)	11/06/2013	A
COLIFORM (TCR)	11/06/2013	A
COLIFORM (TCR)	10/01/2013	A
COLIFORM (TCR)	10/01/2013	A
COLIFORM (TCR)	10/01/2013	A
COLIFORM (TCR)	10/01/2013	A
COLIFORM (TCR)	09/04/2013	A
COLIFORM (TCR)	09/04/2013	A
COLIFORM (TCR)	09/04/2013	A
COLIFORM (TCR)	09/04/2013	A
COLIFORM (TCR)	08/06/2013	A
COLIFORM (TCR)	08/06/2013	A
COLIFORM (TCR)	08/06/2013	A
COLIFORM (TCR)	08/06/2013	A
COLIFORM (TCR)	07/02/2013	A
COLIFORM (TCR)	07/02/2013	A
COLIFORM (TCR)	07/02/2013	A
COLIFORM (TCR)	07/02/2013	A
COLIFORM (TCR)	06/04/2013	A
COLIFORM (TCR)	06/04/2013	A
COLIFORM (TCR)	06/04/2013	A
COLIFORM (TCR)	06/04/2013	A
COLIFORM (TCR)	05/02/2013	A
COLIFORM (TCR)	05/02/2013	A
COLIFORM (TCR)	05/02/2013	A
COLIFORM (TCR)	05/02/2013	A
COLIFORM (TCR)	04/02/2013	A
COLIFORM (TCR)	04/02/2013	A
COLIFORM (TCR)	04/02/2013	A
COLIFORM (TCR)	04/02/2013	A
COLIFORM (TCR)	03/05/2013	A
COLIFORM (TCR)	03/05/2013	A
COLIFORM (TCR)	03/05/2013	A
COLIFORM (TCR)	03/05/2013	A
COLIFORM (TCR)	02/05/2013	A
COLIFORM (TCR)	02/05/2013	A
COLIFORM (TCR)	02/05/2013	A
COLIFORM (TCR)	02/05/2013	A
COLIFORM (TCR)	01/02/2013	A
COLIFORM (TCR)	01/02/2013	A
COLIFORM (TCR)	01/02/2013	A
COLIFORM (TCR)	01/02/2013	A

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

Lead and Copper Sample History

PWS NUMBER: ID4010201

PWS NAME: EAGLE, CITY OF (EASTERN ZONE)

Total Records: 2

- **A public water system is only required to report the most recent 90% percentile detections for lead and copper within the past five years.** If a result is listed as zero, it should be assumed the result was actually a non-detect.

- **Other lead and copper information to be included** in the CCR not listed on this page are the number of samples collected from the distribution system, and the highest level of lead or copper that was detected.

- **Required Language.** If there are detections for lead and copper to report, the system must give the major sources of the contaminant. If a system reports a detection, the system must give the major sources of the contaminant. To report this information, go to **Appendix A of the CCR template** , find the contaminant, and copy the information from the *"Major Sources in Drinking Water"* column and place it in your CCR. If the system exceeds the MCL (maximum contaminant level) value of a contaminant, the system must show the potential health effects of the contaminant. To report this information, go to **Appendix A of the CCR template** , find the contaminant, and copy the information from the *"Health Effects Language"* column and place it in your CCR.

Abbreviations used below:

MG/L (mg/L) = milligrams per liter (mg/L = ppm in Appendix A)
UG/L (µg/L) = micrograms per liter (ug/L = ppb in Appendix A)

Contaminant	# Samples Collected	Result	Units	Period Begin Date	Period End Date	CCR Units
LEAD SUMMARY	10	0.000	MG/L	01/01/2009	12/31/2011	0
COPPER SUMMARY	10	0.710	MG/L	01/01/2009	12/31/2011	0.710

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

DBP Sampling History

PWS NUMBER: ID4010201

PWS NAME: EAGLE, CITY OF (EASTERN ZONE)

Total Records: 11

- **Sampling history is only listed for systems which are practicing chlorination on a full-time basis.**

- **Public water systems that are required to collect one sample for disinfection byproducts once every year, or every three years, are only required to report the most recent detections for disinfection byproducts**If the most recent sampling was a non-detect for the contaminants, then it is not necessary to report any disinfection byproduct sampling.**Note:** If a contaminant is listed with a "Y" (meaning "Yes") in the "non-detect" column, this means that sampling results showed a "non-detect" - that is to say, the contaminant was not detected.

- **If a public water system collects more than one sample per year, the system must report the average of Total Trihalomethanes and Haloacetic Acids Group 5 over the 2013 calendar year.**The The highest level detected, and the range for each contaminant must also be reported.

- **Required Language.** If a system reports a detection, the system must give the major sources of the contaminant. To report this information, go to**Appendix A of the CCR template** , find the contaminant, and copy the information from the*"Major Sources in Drinking Water"*column and place it in your CCR. If the system has exceeded the MCL (maximum contaminant level) value of a contaminant, go to **Appendix A of the CCR template** , find the contaminant, and copy the information from the *"Health Effects Language"* column and place it in your CCR.

Contaminant	Date Collected	Facility	Non Detect?	Detected Level	Units	CCR Units
TOTAL HALOACETIC ACIDS (HAA5)	09/29/2011	DISTRIBUTION SYSTEM	Y	0.000000000		
TTHM	09/29/2011	DISTRIBUTION SYSTEM	Y	0.000000000		
TTHM	10/05/2009	WELL #3 - BROOKWOOD	Y	0.000000000		
TOTAL HALOACETIC ACIDS (HAA5)	12/02/2008	DISTRIBUTION SYSTEM	Y	0.000000000		
TTHM	12/02/2008	DISTRIBUTION SYSTEM	Y	0.000000000	MG/L	0
TOTAL HALOACETIC ACIDS (HAA5)	08/26/2008	DISTRIBUTION SYSTEM	Y	0.000000000	MG/L	0
TTHM	08/26/2008	DISTRIBUTION SYSTEM	N	0.009100000	MG/L	9.1
TOTAL HALOACETIC ACIDS (HAA5)	08/31/2005	DISTRIBUTION SYSTEM	Y	0.000000000	MG/L	0
TTHM	08/31/2005	DISTRIBUTION SYSTEM	N	0.005200000	MG/L	5.2
TOTAL HALOACETIC ACIDS (HAA5)	10/12/2004	DISTRIBUTION SYSTEM	Y	0.000000000		
TTHM	10/12/2004	DISTRIBUTION SYSTEM	N	0.003800000	MG/L	3.8

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

Chlorine Maximum Residual Disinfectant Level Sampling History

PWS NUMBER:

PWS NAME:

Total Records: 0

- **Sampling history is only listed for systems which are practicing chlorination on a full-time basis.**

- **Please include in your CCR the highest chlorine residual level detected during the previous calendar year (2013) by your system, as well as the average of all residuals collected during 2013 .**

- **Required Language.** If the system exceeds the chlorine MCL (maximum contaminant level) value, the system must show the potential health effects of the contaminant. To report this information, go to **Appendix A of the CCR template** , find the contaminant, and copy the information from the *"Health Effects Language"* column and place it in your CCR.

Samples Collected	Chlorine Residual	Units	Begin Date	Monitoring Period

Note: Please notify your regional DEQ office if you find discrepancies in your sampling or violation histories. DEQ will correct the errors in the agency's database.

EXHIBIT AB – CHLORINATION SYSTEM REPORT for WELL NO. 1 and WELL NO. 3

City of Eagle

Chlorination System Report, Well #1 and Well #3

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1445 North Orchard • Boise, Idaho 83706 • (208) 373-0550
www.deq.idaho.gov

C.L. "Butch" Otter, Governor
Curt Fransen, Director

September 5, 2013

Brent Arte, Lead Water Operator
City of Eagle
P.O. Box 1520
Eagle, ID 83616

RE: City of Eagle Chlorination System, Wells 1 and 3 (Eagle, Ada County)
a. 39-118 Violation Resolution
b. Preliminary Engineering Report Approval
c. Acceptance of Record Drawings

Dear Mr. Arte:

The City of Eagle (City) changed the chlorination system in well houses 1 and 2 without approved PERs, plans, and specifications as discussed in the letter dated May 14, 2013. The City responded to the Department of Environmental Quality's (DEQ) letter by providing the requested preliminary engineering report and record drawings. DEQ reviewed the documentation.

The preliminary engineering report appears to meet State of Idaho standards and is approved. The record drawings for this project have been reviewed. The drawings meet the requirements of Idaho Code 39-118; however, this office does not approve record drawings.

Please note that as a result of the change to the disinfection process, your operation and maintenance manual may need to be updated.

Based on the documentation provided, DEQ has decided not to seek formal enforcement action. Thank you for your corporation in this matter. Please call me with any questions at (208) 373-0184 or contact me via e-mail at kevin.ryan@deq.idaho.gov.

Sincerely,

Kevin P. Ryan, P.E.
Staff Engineer

KPR/vas

PDF: Basil Tupyi, P.E., Holladay Engineering Co.
Todd Crutcher, P.E., Boise Regional Office
TRIM Record #2012AGD3482

Mayor
James D. Reynolds

CITY OF EAGLE
Water Department
660 E Civic Lane
PO Box 1520
Eagle, Idaho 83616
P: 208-489-8777
F: 208-939-6827

August 13, 2013

Kevin Ryan, PE
Idaho Department of Environmental Quality
1445 North Orchard
Boise, Idaho 83706

Subject:Submittal of Project Specific Engineering Report
Chlorination System Improvement Project – Eastern Water System, City of Eagle

Dear Mr. Ryan,

In accordance with an Idaho Department of Environmental Quality (IDEQ) Violation of Idaho Code 39-118 and Request for Information letter dated May 14, 2013, the City of Eagle hereby submits a site specific engineering report with construction record drawings for IDEQ review. The enclosed Project Specific Engineering Report for Chlorination System Improvements – Eastern Water System closely follows the preliminary engineering report format requirements specified in the Idaho Administrative Procedures Act (IDAPA) 58.01.08, "Idaho Rules for Public Drinking Water Systems," (revised 4-4-13).

Please contact Basil Tupyi at basil@holladayengineering.com if you have questions regarding the engineering report.

Sincerely,

City of Eagle
Brent Arte
Lead Water Operator
City of Eagle Water Department

Enclosure:
Engineering Report, Chlorination System Improvements --Eastern Water System

Copies To:
The Honorable Jim Reynolds, Mayor of Eagle
Kasey Ketterling, PE

Project Specific Engineering Report

Chlorination System Improvement Project
Eastern Water System

Prepared for

City of Eagle
PO Box 1520
Eagle, Idaho 83616

August 2013

PROFESSIONAL ENGINEER
REGISTERED
4017
12 August 2013
STATE OF IDAHO
BASIL TUPYI

Prepared by:

HOLLADAY ENGINEERING CO.
ENGINEERS • CONSULTANTS
32 N Main Street • PO Box 235 • Payette, ID 83661
208 642 3304 • 208 642 2159 Fax

HECO Project No. EG 13-0058

TABLE OF CONTENTS

1.0 INTRODUCTION

The City of Eagle replaced both onsite sodium hypochlorite (NaClO) generation systems serving its Eastern Water System with liquid sodium hypochlorite injection systems because of repeated system failures associated with the sodium hypochlorite generation systems. In accordance with an Idaho Department of Environmental Quality (IDEQ) Violation of Idaho Code 39-118 and Request for Information letter dated May 14, 2013, the City of Eagle hereby submits a site specific engineering report with construction record drawings for IDEQ review. This project-specific engineering report closely follows the preliminary engineering report format requirements specified in the Idaho Administrative Procedures Act (IDAPA) 58.01.08, "Idaho Rules for Public Drinking Water Systems,"(revised 4-4-13) and includes the following:

- Engineer's Seal (IDAPA 58.01.08.503. 02)
- General Information (IDAPA 58.01.08.503.03.a.i. 1-5))
    - Project Description and Location
    - Access and Utilities
    - Surrounding Land Use
    - Security
- Coordination with Facility Plan (IDAPA 58.01.08.503.03.a.ii. 1-11)
    - Description of Existing System
    - Estimated Facility Sizing per Person
    - Water Quantity
    - Water Storage
    - Operating Pressure
    - Hydraulic Modeling Analysis
    - Sources of Water
    - Collection system and sewage treatment works
    - Project Wastewater Treatment Requirements
    - Project Financing Methods
    - Flooding Impacts

- Code Provisions (IDAPA 58.01.08. 503.03.a.iii)
- Cost Estimate (IDAPA 58.01.08. 503.03.a.iv)
- Construction Schedule (IDAPA 58.01.08. 503.03.a.v)
- Potential Sources of Contamination (IDAPA 58.01.08. 503.03.a.vi)
- Soils and Groundwater Levels ((IDAPA 58.01.08. 503.03.a.vii.)
- Drinking Water Wells and Spring Construction Project_(IDAPA 58.01.08. 503.03.b.)
- Well and Pump House Construction Projects (IDAPA 58.01.08. 503.03.c.)
- Reservoir and Storage Construction Projects (IDAPA 58.01.08. 503.03.d.)

Both liquid chlorination systems have been functioning satisfactory since July 2012 and appear capable of providing adequate chlorine residuals for maintaining good water aesthetics, whereas customer complaints have been minimal. Additionally, operational problems associated with leaking equipment and system control failures have been eliminated minimizing system operation and maintenance effort.

2.0 GENERAL INFORMATION (reference IDAPA 58.01.08.503.03.a.i. 1-5)

2.1. Project Description and Location

The City of Eagle installed liquid sodium hypochlorite water disinfection systems in 2012 at City Wells #1 and #3 that serve Eagle's Eastern Water System. The project locations include:

- Well #1 located in the Lexington Hills development near the intersection of West Floating Feather Road and East Stonybrook Court, and
- Well #3 located in the Brookwood development and north of East Floating Feather Road on North Eagle Road.

Proprietary MIOX® water disinfection systems that utilize mixed oxidant (miox) solutions produced by electrolysis of sodium chloride (NaCl) brine were previously installed onto Wells #1 and #3 in 2008 to help control bacteria growth and to control water quality aesthetics as reported in the August 2008 IDEQ approved Chlorination System Project Preliminary Engineering Report (2008 PER). Though the proprietary MIOX® water disinfection system was installed less than 5 years ago, the MIOX® systems serving Wells #1 and #3 required considerable maintenance to keep the systems functional, whereas the manufacturer's representative and City of Eagle staff could not prevent the polyethylene tubing, fittings, and chemical feed pump from abruptly leaking and failing. This condition and the systems inability to properly control chlorine residuals with the programmable logic controller (PLC) and supervisory controlled and data acquisition (SCADA) system prompted the City of Eagle to disconnect, disassemble, and replace the MIOX® water disinfection systems with conventional liquid sodium hypochlorite disinfection systems that utilize 12 percent liquid chlorine solution.

The final design and construction of the liquid chlorine injection system is virtually identical for both Well #1 (Lexington Hills) and Well #3 (Brookwood) sites consisting of:

- Pulsatron electronic metering pump, 115 volts, 0.60 amps, 50/60 hertz, single phase, 44 gallons per day output at maximum operating pressure of 100 psi
- Liquid chlorine storage tank with secondary containment: estimated 80 gallon tank for Well #1 (Lexington Hills) and 375 gallon tank for Well #3 (Brookwood)
- Chemical metering pumps are connected to the existing PLC and SCADA systems to proportionally control chlorine injection to the rate of water flow and chlorine demand.
- Plastic piping and appurtenances from the liquid chlorine storage tank to the metering pump to the chlorine injection ports located on the well discharge piping.
- No changes were made to the chlorine injection ports; therefore, subsequent chlorine mixing conditions and retention times were not changed.

Attachment B in the 2008 PER reported a total estimated chlorine demand of 0.65 mg/L for both Wells #1 and #3 for the oxidation of metals and to control taste and odor. The 2008 PER further recommended a total chlorine dose rate of 1 mg/L, which the City continues to maintain with the liquid chlorination systems to meet the chlorine demand.

2.2 Site Selection

The City of Eagle obtained Well #1 (Lexington Hills) from developers Lexington Hill Inc. and Treasure Valley Village Inc. Development in 1992 with water rights, well house, and system appurtenances. The City of Eagle constructed Well #3 with a well house enclosure that was made operational in 2007. The initial water disinfection systems that utilized onsite sodium hypochlorite generation system were installed in 2008 at both well houses, therefore, site selection as it relates to chlorination system improvements discussed in this Engineering Report were pre-established and remains unchanged.

2.3 Access and Utilities

Both well houses have residential street access. Well #1 (Lexington Hills) is located on East Stony Brook Court and Well #3 (Brookwood) is located on North Eagle Road as shown on Sheet 1 of the Engineering Drawings. Well houses housing the chlorination systems for Wells #1 and #3 have electrical power services. Well house floor drainage is connected to storm sewers and not sanitary sewers. Improvements to the chlorination system do not affect site access and the utilities serving the existing well house sites.

2.4 Surrounding Land Use

The surrounding land use for each of the well houses housing the chlorination systems is residential and the project improvements required no change to surrounding land use, nor do project improvements have any environmental impact to surrounding land use.

2.5 Security

The chlorination systems are housed in small masonry brick well houses for City Wells #1 and #3 that were constructed in or about 1992 and 2007, respectively. The well houses are not fenced, but both well houses have entry door locks that are maintained by city staff to prevent unauthorized well house entry. Additionally, the areas are lighted to discourage vandalism. All project activities were performed inside of the well houses; therefore, the conditions securing the well site did not change following the installation of the liquid chlorination systems.

3.0 COORDINATION WITH EXISTING FACILITY PLAN

3.1 Existing Facility

The water system improvements as discussed in this Engineering Report are for the Eastern Water System that is owned, operated, and maintained by the City of Eagle. The current Eastern Water System is supplied by two groundwater wells identified as City Well #1 (Lexington Hills) and City Well #3 (Brookwood well) with a 1 million gallon above ground water storage reservoir connected to the water distribution system. City Well #2 (also within Lexington Hills) is offline because of poor water aesthetics and sands. The water distribution system contains more than 100,000 feet of mains and laterals plus conventionally located valves, fire hydrants, blow-off valves, and service meters. Additionally, pressure reducer valves are strategically located throughout the water system that divides the system into two pressure zones to accommodate the difference in surface elevation, estimated 134 feet, from the lowest point in the system to the highest point in the system.

3.2 Facility Sizing

The City of Eagle continues to grow based on US Census Bureau data. The 2006 population estimate was 18,419 capita, followed by a base population estimate of 19,918 taken from the 2010 census, to 20,433 estimated capita in 2011, and 21,025 estimated capita in 2012. The City of Eagle is served by three drinking water providers: 1) City of Eagle's Western and Eastern Water Systems, 2) the Eagle Water Company, and 3) the United Water Idaho. However, only the Western and Eastern Water Systems are owned and operated by the City of Eagle. Each water provider serves within an area certificated to it by the Idaho Public Utilities Commission. The City of Eagle has begun developing a declining balance account of equivalent residential users (ERUs) being served by the Western and Eastern Water Systems. As of July 19th, 2013 there were only 142 active meters (ERUs) billed for the Western Water System and 1,352 active meters (ERUs) billed for the Eastern Water System. According to February 8, 2011 calculations, the Eastern Water System is capable of serving 2,925 ERUs with no water storage and approximately 4,600 ERUs with water storage and a limit on water rights. Therefore, the existing Eastern Water System is not hydraulically limited and this project had no affect on the capacity to serve ERUs, except to maintain water aesthetics.

3.3 Water Quantity

The existing Eastern water system with two wells and 1 million gallon water storage reservoir has the capacity to serve 2,925 ERUs with the following system design criteria.

- Water consumption per person = 100 gallons per day
- Equivalent Residential Customer (ERC) is 2.82 persons per household (note that city water service connections are for residences; therefore, ERC and ERUs are equivalent)
- Average water use per household is 2.81 gallons per day
- Approved water diversion rate is 3.25 cfs

This project has no impact on water quantity for the Eastern Water System.

3.4 Water Storage

A 1 million gallon water storage reservoir was constructed for the Eastern Water System at a site east of the Eagle Sports Park in 2008 which addressed the future city needs. For example, the water storage reservoir will help maintain residential fire flow of 1,500 gpm for approximately 4,600 ERU's. However, due to the low number of existing water system connections that results in high hydraulic residence times, water chlorination is essential to prevent bacteria growth that would otherwise affect water quality and water aesthetics.

3.5 Operating Pressure

The Idaho Rules for Public Drinking Water Systems require public water systems to maintain a minimum pressure of 40 psi and a maximum pressure of 100 psi throughout the water distribution system. The Eastern Water System complies with this regulatory requirement with distribution pressures from 60 psi to nearly 90 psi depending on the elevation of the specific site. Pressure reducer valves are strategically located throughout the water system that divides the system into two pressure zones to accommodate the difference in surface elevation, estimated 134 feet, from the lowest point in the system to the highest point in the system. This project has no impact on system operating pressure.

3.6 Hydraulic Modeling Analysis

Hydraulic modeling performed during the development of the 2005 Water System Master Plan recommended water system improvements to the Eastern Water System to include the construction of Well #3, construction of a 1,000,000 gallon water storage reservoir and installation of standby power for Well #1 that were all constructed in 2008. The 2008 Updates to the Water System Master Plan focused on improvements to the Western Updates and did not report any additional deficiencies to the Eastern Water System. Therefore, there are no apparent sizing or system improvements proposed for the Eastern Water System that requires hydraulic modeling.

3.7 Sources of Water

Two groundwater wells (Wells #1 and #3) supply water for the Eastern Water System that have low concentrations of iron and other contaminants that affect water aesthetics. Well #2 is offline because of poor water aesthetics and sand. However, according to the 2008 Updates to the Water System Master Plan, additional water supply sources are not necessary based on present water demands discussed in Section 3.2 above.

3.8 Collection System and Sewage Treatment Works

There was no sanitary sewer generated during and following this project; therefore, there were no sewage collection and treatment requirements for this project.

3.9 Project Wastewater Treatment Requirements

There were no wastewater discharges generated during and following this project; therefore, there were no project wastewater treatment requirements for this project.

3.10 Project Financing Methods

The project was completed using City labor and materials financed within the existing operations and maintenance budget; therefore, the water system improvements required no additional financing or adjustment in user service fees.

3.11 Flooding Impacts

Both well houses are not at risk to flooding events, as noted in the 2008 PER. The foundation elevations for both well houses housing the chlorination disinfection systems are not located within the flood plain and both well houses are located outside the FEMA floodway and special flood hazard areas for the Boise river, which is the nearest major surface water body.

4.0 CODE PROVISIONS

The project design and construction was based on The Idaho Administrative Procedures Act (IDAPA) 58.01.08, "Idaho Rules for Public Drinking Water Systems,"(revised 4-4-13) and the Recommended Standards for Water Works, 2012 Edition, Great Lakes – Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers.

5.0 COST ESTIMATE

Total estimated project cost to remove the former chlorine generation system and install a conventional liquid chlorine disinfection system was $9,900. Most project materials were taken from the City inventory and normal system operations and maintenance labor was used to install the liquid chlorine disinfection system; therefore, specific project costs were not tracked and cannot be fully ascertained. Estimated project costs are presented in Table 1.

Table 1
Estimated Project Costs For Liquid Chlorine Disinfection System Installation

Activity Description		Estimated Costs		
		Labor	Materials	Total Costs
1	Disassemble former MIOX Systems and Recycle Components	$400	$000	$400
2	Provide and Install New Chlorine Injection Pumps and Piping	$1,200	$6,000	$7,200
3	Provide and Install Tankage	$200	$1,200	$1,400
4	Provide Electrical Services To Connect to SCADA and Calibrate Pumps	$800	$100	$900
Total Project Estimate Each Well House Improvement				$9,900

6.0 CONSTRUCTION SCHEDULE

Installation of the liquid sodium hypochlorite disinfection systems for Well #1 (Lexington Hills) was completed on or about June 2012. Installation of the liquid sodium hypochlorite disinfection system for Well #3 (Brookwood) was completed on or about July 2012.

7.0 POTENTIAL SOURCES OF CONTAMINATION

The water supply sources for the Eastern Water System are not at risk of microbial contamination, but the City adds chlorine to the water system for controlling water aesthetics that may be affected by the long hydraulic residence times. For example, chlorine is added for the oxidation of metals and for taste and odor control. According to IDAPA 58.01.08.552.04.b. the City must ensure that chlorine residual entering the distribution system after treatment is less than four (4.0) mg/L; therefore, the City of Eagle achieves this condition with daily monitoring of free and total chlorine at the well head. The 2008 PER reported a total estimated chlorine demand of 0.65 mg/L for both Wells #1 and #3 for the oxidation of metals and for taste and odor control. The 2008 PER recommended a chlorine dose rate of 1 mg/L but the City has increased the chlorine dose rate to 2.0 mg/L for water aesthetics.

8.0 SOILS AND GROUNDWATER LEVELS.

Water system improvements implemented in this project all occurred within the existing well houses; therefore, there were no construction activities outside of the well houses that disturbed soil or impacted surface or ground waters.

9.0 DRINKING WATER WELLS AND SPRING CONSTRUCTION PROJECT

This project did not involve new construction or rehabilitation of drinking water wells or springs used for water supply. Additionally, this project has no impact on the existing Wells #1 and #3 that serve as the water supply for the Eastern Water System, except for maintaining water aesthetics of water pumped from these existing wells.

10.0 WELL AND PUMP HOUSE CONSTRUCTION PROJECTS

This project did not involve new construction or rehabilitation of the well houses. Project work was limited to the removal of the electrolytic chlorine generator and installation of liquid chlorine metering pumps with tankage and piping to the existing chlorine injection ports. The chlorine injection ports were not changed and the chlorine metering pumps were connected to the existing PLC and SCADA controls to proportionately control chlorine dosage to water flow and chlorine demand.

11.0 RESERVOIR AND STORAGE CONSTRUCTION PROJECTS

This project did not include new construction or rehabilitation of water storage facilities.

Attachment A

As-Built Construction Drawings

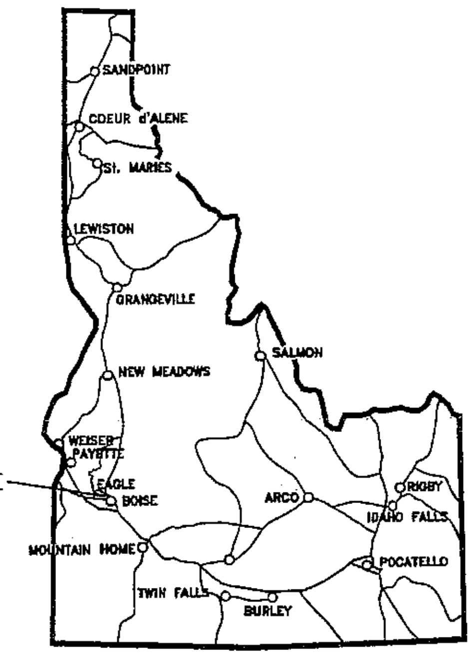
INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	WELL #1, LEXINGTON PREVIOUS 2008 HYPOCHLORITE GENERATION SYSTEM
3	WELL #1, LEXINGTON NEW 2012 CHLORINATION SYSTEM
4	WELL #3, BROOKWOOD PREVIOUS 2008 HYPOCHLORITE GENERATION SYSTEM
5	WELL #3, BROOKWOOD NEW 2012 CHLORINATION SYSTEM

CITY OF EAGLE

CHLORINATION SYSTEM IMPROVEMENT PROJECT ADA COUNTY

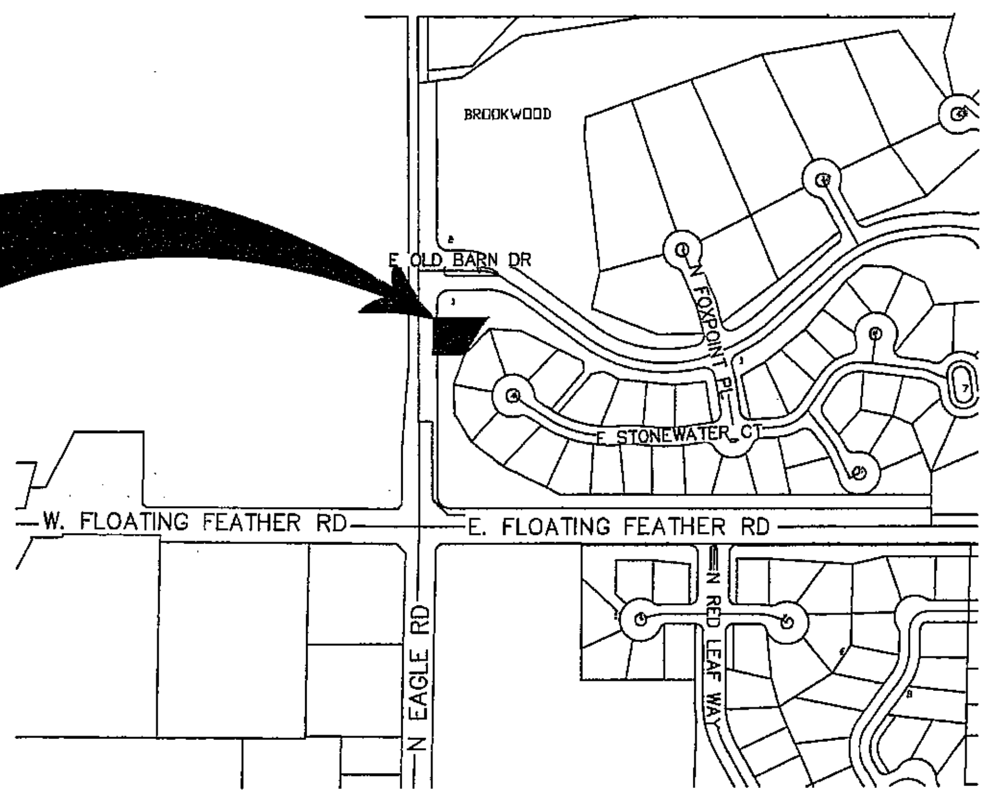
AS-BUILT

JULY 2013

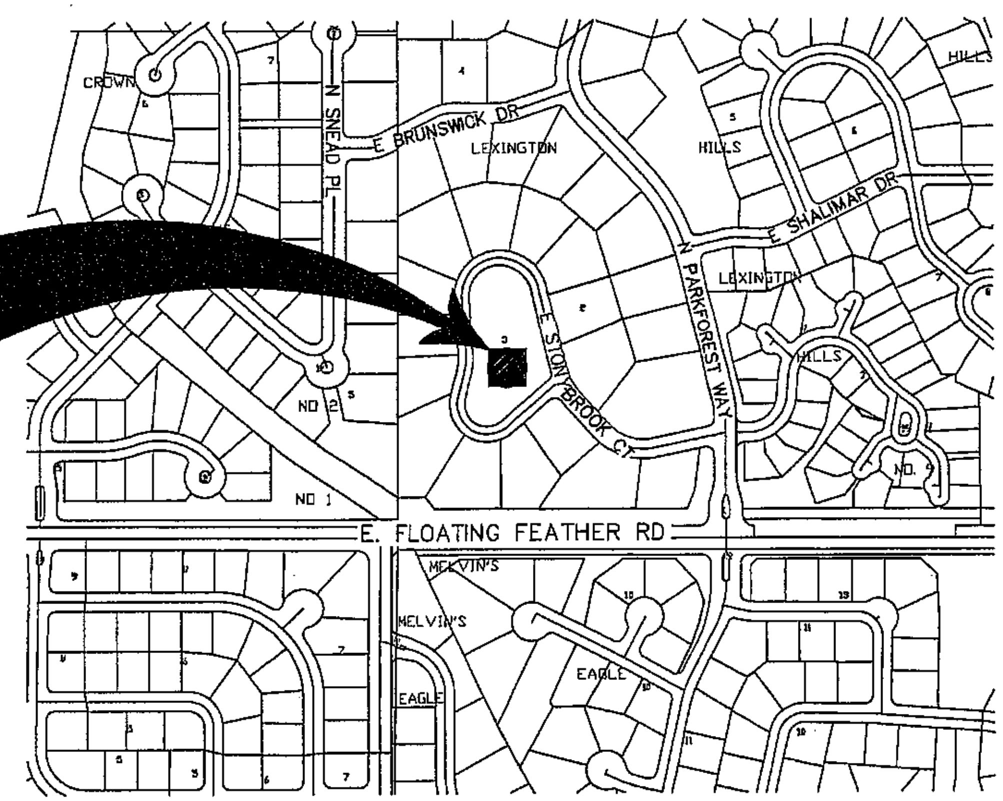


EAGLE

PROJECT LOCATION (BROOKWOOD WELL #3)



PROJECT LOCATION (LEXINGTON HILLS WELL #1)



VICINITY MAP SCALE

500 0 500 1000

FEET

ORIGINAL STORED AT: HOLLADAY ENGINEERING 32 N. MAIN, PAYETTE, IDAHO

PROFESSIONAL ENGINEER REGISTERED 4017 12 August 2013 STATE OF IDAHO BASIL TUPYI

REVISIONS			
NO.	DATE	BY	DESCRIPTION

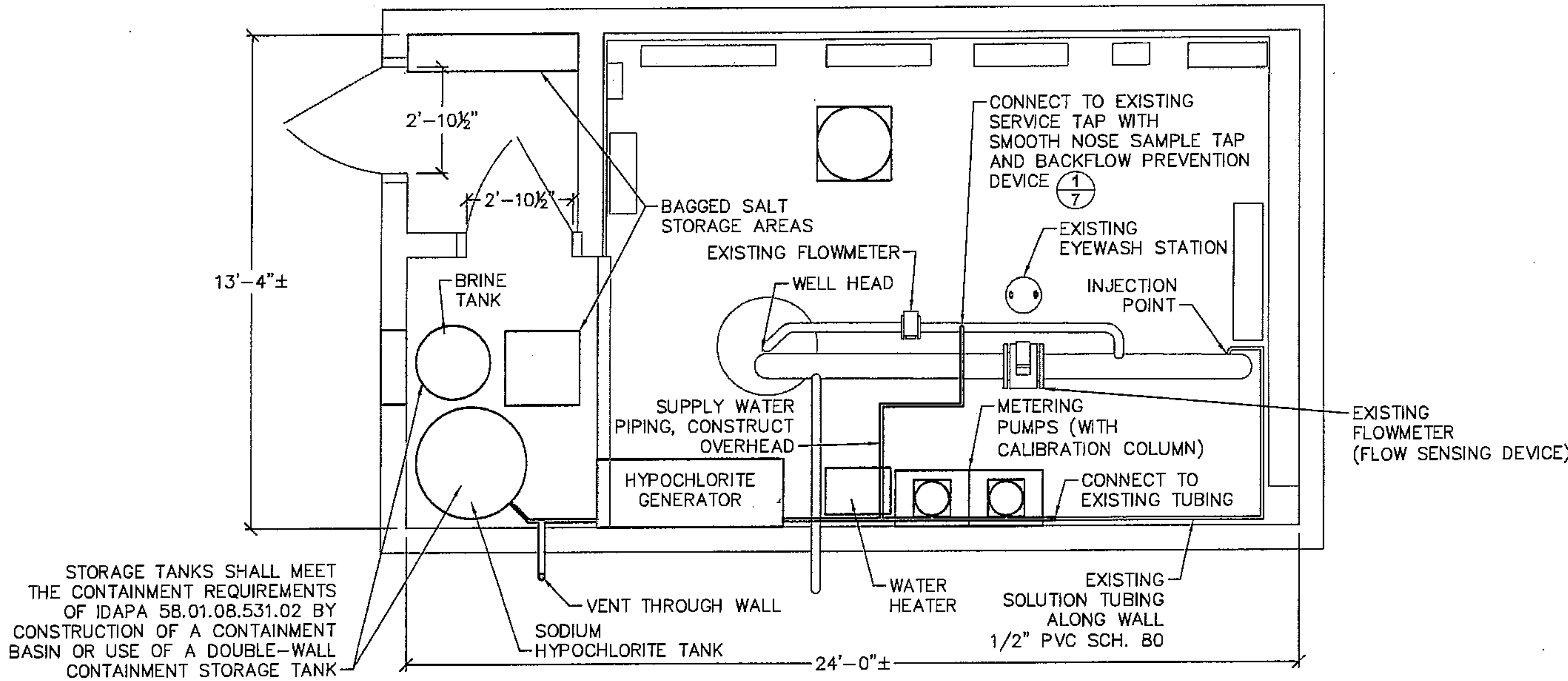
DESIGNED: A. GEHRKE	SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY	
DESIGN CHECKED: A. GEHRKE		
DETAILED: C. BENSON	CADD FILE NAME: C:\Eg\13-0058\dwg\CHLORINATION_SYS\13-0058_TP.dwg	
DRAWING CHECKED: B. TUPYI	DRAWING DATE: JULY 2013	

HOLLADAY ENGINEERING CO.
ENGINEERS • CONSULTANTS
32 N Main • PO Box 235 • Payette, ID 83661
(208) 642-3304 • hec@holladayengineering.com

PROJECT NO.
EG 13-0058

TITLE SHEET
CHLORINATION SYSTEM IMPROVEMENT PROJECT
CITY OF EAGLE, IDAHO

SHEET 1 OF 5



LEXINGTON HILLS WELL #1
HYPOCHLORITE GENERATION SYSTEM

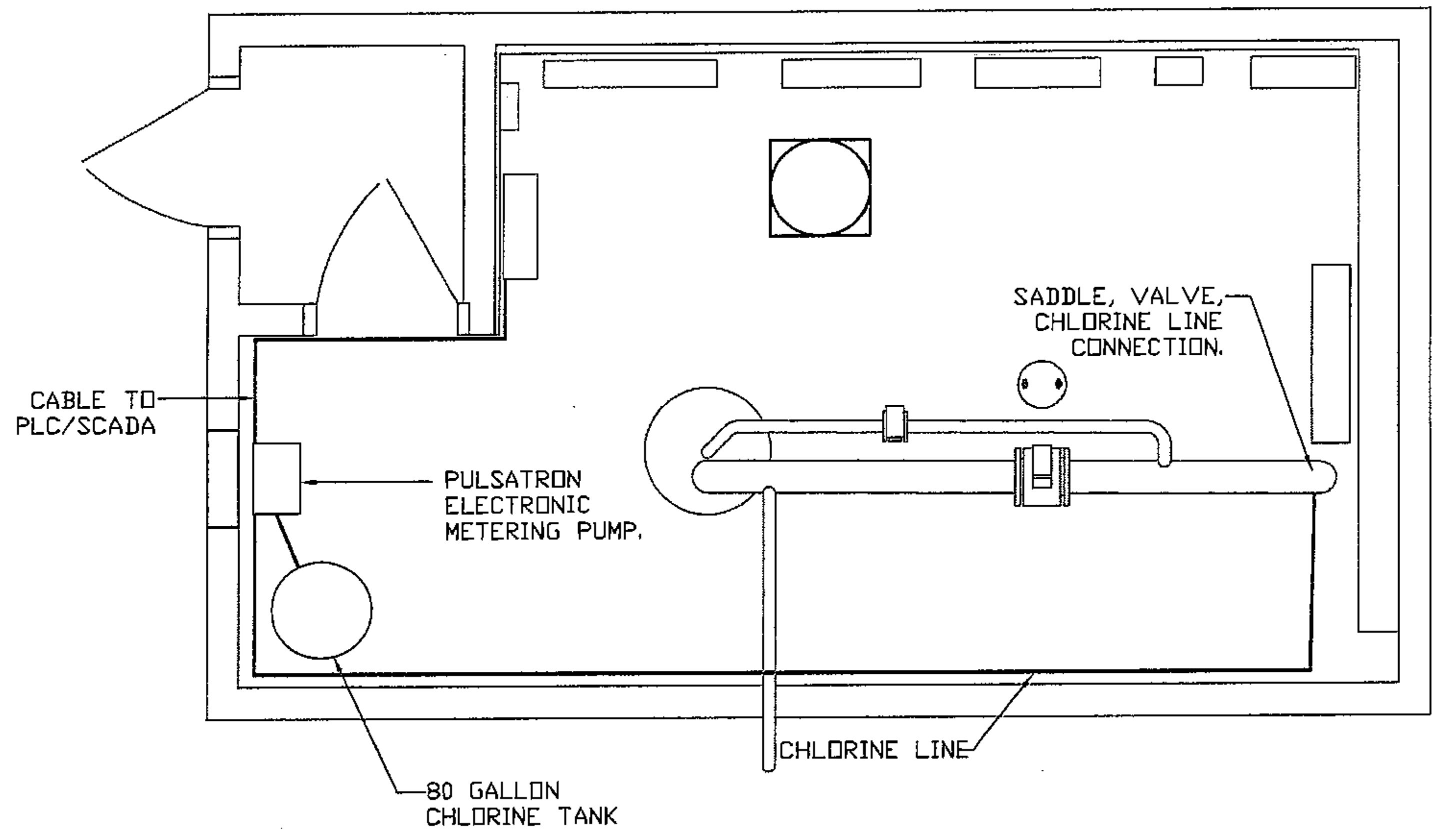
NOT TO SCALE

AS-BUILT
JULY 2013

ORIGINAL STORED AT: HOLLADAY ENGINEERING 32 N. MAIN, PAYETTE, IDAHO

PROFESSIONAL ENGINEER
REGISTERED
4017
12 August 2013
STATE OF IDAHO
BASIL TUPYI

REVISIONS								
NO.	DATE	BY	DESCRIPTION	DESIGNED: A. GEHRKE	SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY	HOLLADAY ENGINEERING CO. ENGINEERS • CONSULTANTS 32 N Main • PO Box 235 • Payette, ID 83661 (208) 642-3304 • hec@holladayengineering.com	PROJECT NO. EG 13-0058	WELL #1, LEXINGTON PREVIOUS 2008 HYPOCHLORITE GENERATION SYSTEM
				DESIGN CHECKED: A. GEHRKE	CADD FILE NAME: G:\Eg\13-0058\dwg\CHLORINATION_SYS\13-0058_ASBUILT.dwg			CHLORINATION SYSTEM IMPROVEMENT PROJECT CITY OF EAGLE, IDAHO
				DETAILED: C. BENSON	DRAWING DATE: JULY 2013			SHEET 2 OF 5
				DRAWING CHECKED: B. TUPYI				



LEXINGTON HILLS WELL #1
HYPOCHLORITE GENERATION SYSTEM
REVISIONS

NOT TO SCALE

AS-BUILT
JULY 2013

ORIGINAL STORED AT: HOLLADAY ENGINEERING 32 N. MAIN, PAYETTE, IDAHO

PROFESSIONAL ENGINEER REGISTERED 4017 STATE OF IDAHO BASIL TUPYI
13 August 2013

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DETAILED: C. BENSON	CADD FILE NAME: G:\Eg\13-0058\dwg\CHLORINATION_SYS\13-0058_ASBUILT.dwg
DRAWING CHECKED: B. TUPYI	DRAWING DATE: JULY 2013

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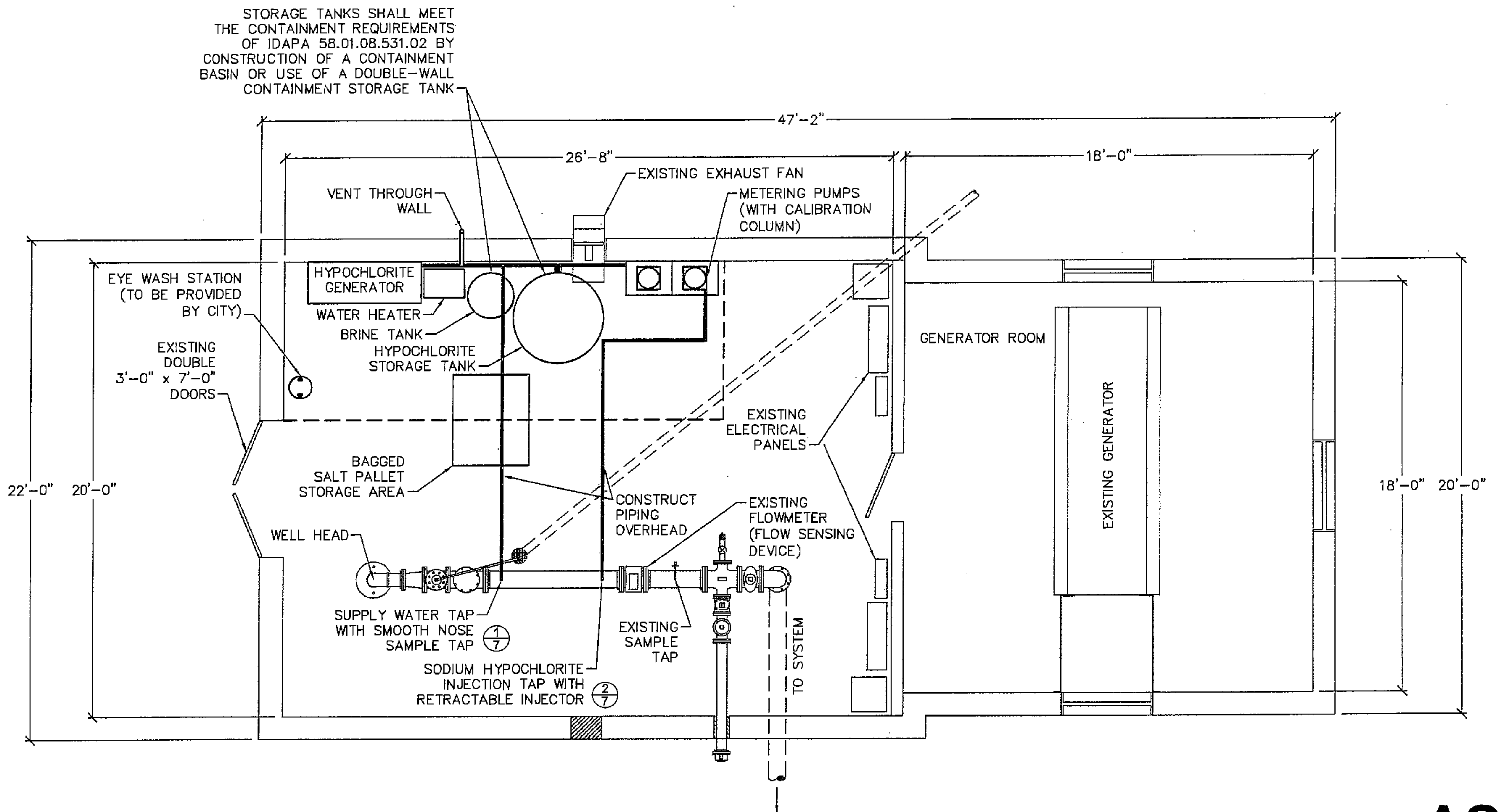
PROJECT NO.
EG 13-0058

WELL #1, LEXINGTON NEW 2012 CHLORINATION SYSTEM
CHLORINATION SYSTEM IMPROVEMENT PROJECT
CITY OF EAGLE, IDAHO

SHEET 3 OF 5



BROOKWOOD WELL #3
HYPOCHLORITE GENERATION SYSTEM

NOT TO SCALE

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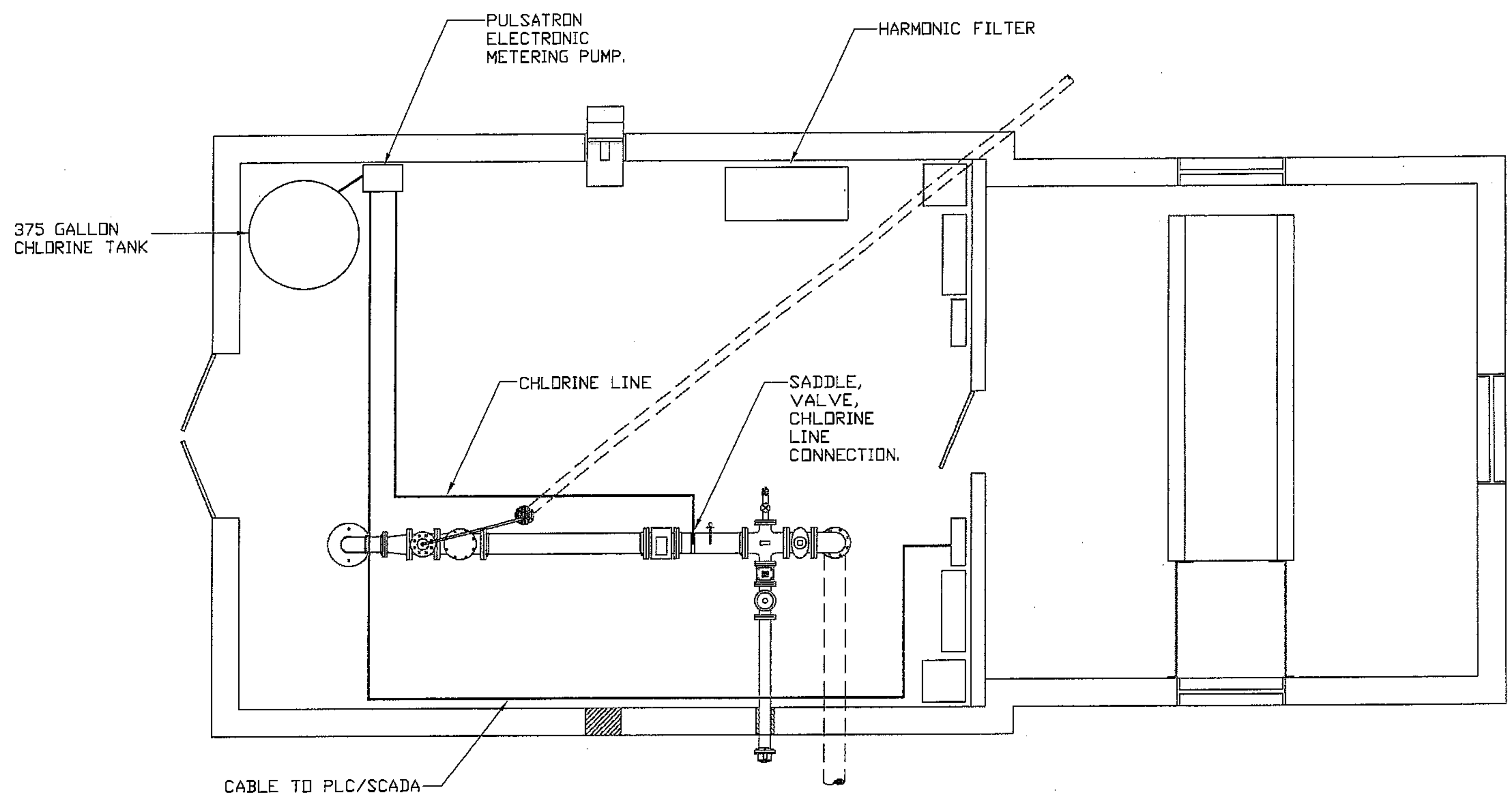
WELL #3, BROOKWOOD PREVIOUS 2008 HYPOCHLORITE GENERATION SYSTEM

CHLORINATION SYSTEM IMPROVEMENT PROJECT
CITY OF EAGLE, IDAHO

SHEET 4 OF 5



BROOKWOOD WELL #3
HYPOCHLORITE GENERATION SYSTEM
REVISIONS

NOT TO SCALE

AS-BUILT
JULY 2013

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PROFESSIONAL ENGINEER REGISTERED 4017 12 August 2013 STATE OF IDAHO BASIL TUPYI

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PROJECT NO.
EG 13-0058

WELL #3, BROOKWOOD NEW 2012 CHLORINATION SYSTEM

CHLORINATION SYSTEM IMPROVEMENT PROJECT
CITY OF EAGLE, IDAHO

SHEET 5 OF 5

Attachment B

Project Photos

B-1 Well #1, Lexington Hills

B-2 Well #3, Brookwood

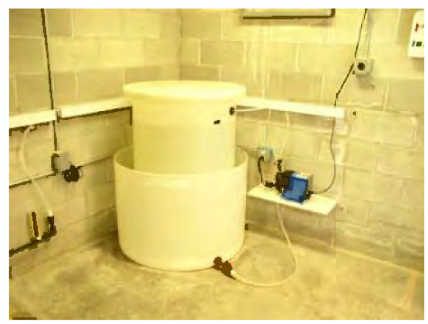
Attachment B-1
Photos of Well House and Appurtenances for Well #1 (Lexington Hills)

Existing Well House for Well #1
(looking southwest)

Existing Well #1
(looking to west wall)

Existing Chlorine Injection Point, Well #1

Existing Well #1
(looking to east wall)



Chlorine tank with secondary containment
and metering pump along west wall

Metering Pump Specifications

Attachment B-2
Photos of Well House and Appurtenances for Well #3 (Brookwood)

Existing Well House for Well #3
(looking east)

Existing Well #3
(looking to east and south walls and east entry door)

Existing Well #3
(looking to west wall and west entry door)

New Chlorine Storage Tank and Pump in Background
(looking at north west corner wall)

Existing Chlorine Injection Point for Well #3

Chlorine Metering Pump with Storage Tank

New Metering Pump Specifications

EXHIBIT AC – CHLORINATION SYSTEM REPORT AND DATA for WELL NO. 4 and WELL NO. 5

Chlorination System Improvement Engineering Report
Approved by IDEQ, June 29, 2015

Chlorination Data for Pilot Study
February 11, 2015

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1445 North Orchard • Boise, Idaho 83706 • (208) 373-0550
www.deq.idaho.gov

C.L. "Butch" Otter, Governor
Curt Fransen, Director

June 29, 2015

Ken Acuff
City of Eagle Water Department
660 East Civic Lane
P.O. Box 1520
Eagle, ID 83616

RE: City of Eagle - Chlorination Improvements Resolution (Eagle, Ada County)
Public Drinking Water System - Preliminary Engineering Report

Dear Mr. Acuff:

The referenced project appears to meet State of Idaho standards and is approved based on the conditions listed below.

I. PROJECT SPECIFIC CONDITIONS:

A. This approval is for the Preliminary Engineering Report.

B. The record drawings for this project have been reviewed. The drawings are accepted as meeting the requirements of Idaho Code 39-118. This office does not approve record drawings.

Please call me with any questions at (208) 373-0184 or contact me via e-mail at kevin.ryan@deq.idaho.gov.

Sincerely,

Kevin Ryan
Staff Engineer

ec: Todd Crutcher, P.E., Boise Regional Office
TRIM Record #2015AGD2011

Project Specific Engineering Report

Chlorination System Improvement Project
Western Water System

Prepared for

City of Eagle
PO Box 1520
Eagle, Idaho 83616

April 2015

PROFESSIONAL ENGINEER
REGISTERED
4017
20 April 2015
STATE OF IDAHO
BASIL TUPYI

HOLLADAY ENGINEERING CO.
ENGINEERS • CONSULTANTS
32 N Main Street • PO Box 235 • Payette, ID 83661
208 642 3304 • 208 642 2159 Fax

HECO Project No. EG 15-0058 B

TABLE OF CONTENTS

TABLE OF CONTENTS, Continued

1.0 INTRODUCTION

The City of Eagle conducted a full-scale pilot study to determine the effectiveness of chlorination to control water aesthetics for the Eagle Western Water System. Data collected during the pilot study and presented to the Idaho Department of Environmental Quality (DEQ) on February 12, 2015 indicated chlorination combined with flushing is necessary to counter the high hydraulic residence periods in the water distribution system that affect water aesthetics. Hydraulic residence periods in the water distribution system have decreased in recent years to approximately 3 days in 2014, but is still high because of the lack of active water service connections or equivalent dwelling units (EDUs). The EDUs for 2014 was estimated 263, but nearly 700 EDUs are required for the existing Western Water System to have a hydraulic residence period of 1 day or less. DEQ reviewed the February 12th data and on March 2, 2015 requested a preliminary engineering report be prepared with as-built construction drawings of the chlorination systems if the City of Eagle continues to use chlorination to control water aesthetics. In accordance with an Idaho Administrative Procedures Act (IDAPA) 58.01.08.503, a preliminary engineering report is required for all material modifications to existing water systems that require plan and specification review and approval. The City of Eagle hereby submits this Project Specific Engineering Report with construction record drawings for DEQ review of the chlorination system. The wells, piping, housing, and other appurtenances for the Eagle Western Water System were described in the March 2008 Revision of the 2005 Water System Master Plan that has been previously regulatory approved. Therefore, this project specific engineering report only focuses on the chlorination systems for Wells #4 and #5. This project specific engineering report follows the preliminary engineering report format requirements specified in IDAPA 58.01.08 (revised 4-4-13) and includes the following items applicable to chlorination system improvements:

- Engineer's Seal (IDAPA 58.01.08.503. 02)
- General Information (IDAPA 58.01.08.503.03.a.i. 1-5))
    - Project Description and Location
    - Access and Utilities
    - Surrounding Land Use
    - Security
- Coordination with Facility Plan (IDAPA 58.01.08.503.03.a.ii. 1-11)
    - Description of Existing System
    - Estimated Facility Sizing per Person
    - Water Quantity
    - Water Storage
    - Operating Pressure
    - Hydraulic Modeling Analysis
    - Sources of Water
    - Collection system and sewage treatment works
    - Project Wastewater Treatment Requirements
    - Project Financing Methods
    - Flooding Impacts

- Code Provisions (IDAPA 58.01.08.503.03.a.iii)
- Cost Estimate (IDAPA 58.01.08.503.03.a.iv)
- Construction Schedule (IDAPA 58.01.08.503.03.a.v)
- Potential Sources of Contamination (IDAPA 58.01.08.503.03.a.vi)
- Soils and Groundwater Levels (IDAPA 58.01.08.503.03.a.vii.)
- Drinking Water Wells and Spring Construction Project (IDAPA 58.01.08.503.03.b.)
- Well and Pump House Construction Projects (IDAPA 58.01.08.503.03.c.)
- Reservoir and Storage Construction Projects (IDAPA 58.01.08.503.03.d.)

2.0 GENERAL INFORMATION

2.1. Project Description and Location

The City of Eagle installed liquid sodium hypochlorite water disinfection systems in 2011 at City Wells #4 and #5 that serve Eagle's Western Water System. The project locations include:

- Well #4 located in the Mosca Seca No. 2 Subdivision (also known as Legacy Well) near the intersection of North World Cup Lane and West Hamm Lane
- Well #5 located in the Preserve No. 1 Subdivision (also known as Eaglefield Well) near the intersection of West Rotherham Drive and North Golden Crown Way.

The final design and construction of the liquid chlorine injection systems are virtually identical for both Well #4 (Legacy) and Well #5 (Eaglefield) sites consisting of:

- Pulsatron electronic metering pump, 115 volts, 0.60 amps, 50/60 hertz, single phase, 44 gallons per day output at maximum operating pressure of 100 psi
- Liquid chlorine storage tank with secondary containment: estimated 400 gallon tank for Well #4 (Legacy) and 250 gallon tank for Well #5 (Eaglefield)
- Chemical metering pumps are connected to the existing PLC and SCADA systems to proportionally control chlorine injection to the rate of water flow and chlorine demand.
- Plastic piping and appurtenances from the liquid chlorine storage tank to the metering pump to the chlorine injection ports located on the well discharge piping.

The pilot study data estimated a total chlorine demand of 0.35 and 0.5 mg/L for Wells #4 and #5, respectively, for the oxidation of metals and to control taste and odor. The pilot study found that a total chlorine residual of 2 mg/L at the well heads will achieve total chlorine residuals ranging from 0.3 to 0.5 mg/L at the residences. This condition is recommended for future daily operation.

2.2 Site Selection

The City of Eagle constructed both Wells #4 and Well #5 in 2007 as part of the Legacy and Eaglefield subdivision developments. The March 2008 Revision to Eagle's 2005 Water System Master Plan described the pumps, housing and appurtenances for the each well field, less chlorination system. Site selection for the chlorination system improvements were based on the existing pumphouse layouts shown on Sheets 2 of 5 and 4 of 5 on the attached engineering drawings.

2.3 Access and Utilities

Both well houses have residential street access. Well #4 (Legacy) is located on North World Cup Lane and Well #5 (Eaglefield) is located on West Rotherham Drive as shown on Sheet 1 of 5 on the Engineering Drawings. Well houses housing the chlorination systems for Wells #4 and #5 have electrical power services. Well house floor drainage is connected to storm sewers and not sanitary sewers. Improvements to the chlorination system do not affect site access and the utilities serving the existing well house sites.

2.4 Surrounding Land Use

The surrounding land use for each of the well houses containing the chlorination systems is residential and the project improvements required no change to surrounding land use, nor do project improvements have any environmental impact to surrounding land use.

2.5 Security

The chlorination systems are housed in small masonry block well houses for City Wells #4 and #5 that were constructed in 2007. The well houses are not fenced, but both well houses have entry door locks that are maintained by city staff to prevent unauthorized well house entry. The City's SCADA system has an alarm notification for any entry into the well houses. Additionally, the areas are lighted to discourage vandalism. All project activities were performed inside of the well houses; therefore, the conditions securing the well site did not change following the installation of the liquid chlorination systems.

3.0 COORDINATION WITH EXISTING FACILITY PLAN

(March 2008 Revision to the Eagle 2005 Water Master Plan)

3.1 Existing Facility

The water system improvements as discussed in this Engineering Report are for the Western Water System that is owned, operated, and maintained by the City of Eagle. The current Western Water System is supplied by two groundwater wells identified as City Well #4 (Legacy) and City Well #5 (Eaglefield) connected to the water distribution system. The maximum pumping capacity for City Wells #4 and #5 are 1886 gpm and 2460 gpm, respectively. However, DEQ has accepted the nominal capacity for Wells #4 and #5 as 1000 gppm and 1580 gpm respectively. The water distribution system presently contains approximately 40,000 linear feet of mains and laterals plus conventionally located valves, fire hydrants, blow-off valves, and service meters.

3.2 Facility Sizing

The City of Eagle continues to grow based on US Census Bureau data. The 2006 population estimate was 18,419 capita, followed by a base population estimate of 19,918 taken from the 2010 census, to 20,424 estimated capita in 2011, 21,002 estimated capita in 2012, and 21,646 estimated capita in 2013 per US Census Factfinder data reported on April 2015. The City of Eagle is served by three drinking water providers: 1) City of Eagle's Western and Eastern Water Systems, 2) the Eagle Water Company, and 3) the United Water Idaho. However, only the Western and Eastern Water Systems are owned and operated by the City of Eagle. Each water provider serves within an area certificated to it by the Idaho Public Utilities Commission. The City of Eagle has begun developing a declining balance account of equivalent residential users (ERUs) being served by the Western and Eastern Water Systems. As of 2014, there were approximately 263 EDUs being serviced by Eagle's Western Water System that is sized to provide drinking water for more than 1600 residences. Therefore, the existing Western Water System is not hydraulically limited and this project had no affect on the capacity to serve EDUs, except to maintain water aesthetics.

3.3 Water Quantity

The existing Western water system with two wells has the capacity to serve more than 1,600 EDUs with the following system design criteria as published in the declining balance worksheet, dated August 7, 2008.

- Equivalent Residential Customer (ERC) is 2.5 persons per household (note that city water service connections are for residences; therefore, ERC and EDUs are equivalent)
- Peak hour demand = 0.50 gpm / ERC (per 2005 Amended Master Plan)
- Maximum day demand = 0.33 gpm/ ERC (per 2005 Amended Master Plan)
- Approved water diversion rate is 2.63 cfs
- Minimum fire flow requirements = 1,500 gpm

This project has no impact on water quantity for the Western Water System.

3.4 Water Storage

There are no water storage facilities within Eagle's Western Water System.

3.5 Operating Pressure

The Idaho Rules for Public Drinking Water Systems require public water systems to maintain a minimum pressure of 40 psi and a maximum pressure of 100 psi throughout the water distribution system. The Western Water System complies with this regulatory requirement with distribution pressures from 60 psi to nearly 90 psi depending on the elevation of the specific site and distance from the wellhead.

3.6 Hydraulic Modeling Analysis

Hydraulic modeling performed during the development of the 2005 Water System Master was limited to the Eastern Water System. However, thereafter hydraulic modeling of the Western Water System has been performed only to assess fire flows at maximum daily demands for localized developments. Therefore, the City of Eagle is presently developing a comprehensive water distribution layout that will be used to complete a thorough hydraulic model for the Western Water System to assess water system capacity.

3.7 Sources of Water

Two groundwater wells (Wells #4 and #5) supply water for the Western Water System that have low concentrations of iron and other contaminants that affect water aesthetics. However, according to the 2008 Updates to the Water System Master Plan, additional water supply sources are not necessary based on present water demands discussed in Section 3.2 above.

3.8 Collection System and Sewage Treatment Works

There was no sanitary sewer generated during and following this project; therefore, there were no sewage collection and treatment requirements for this project.

3.9 Project Wastewater Treatment Requirements

There were no wastewater discharges generated during and following this project; therefore, there were no project wastewater treatment requirements for this project.

3.10 Project Financing Methods

The project was completed using City labor and materials financed within the existing operations and maintenance budget; therefore, the water system improvements required no additional financing or adjustment in user service fees.

3.11 Flooding Impacts

Both well houses are not at risk to flooding events. The foundation elevations for both well houses housing the chlorination disinfection systems are not located within the flood plain and both well houses are located outside the FEMA floodway and special flood hazard areas.

4.0 CODE PROVISIONS

The project design and construction was based on The Idaho Administrative Procedures Act (IDAPA) 58.01.08, "Idaho Rules for Public Drinking Water Systems,"(revised 4-4-13) and the Recommended Standards for Water Works, 2012 Edition, Great Lakes – Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers.

5.0 COST ESTIMATE

Total estimated project cost to remove the former chlorine generation system and install a conventional liquid chlorine disinfection system was $9,500. Most project materials were taken from the City inventory and normal system operations and maintenance labor was used to install the liquid chlorine disinfection system; therefore, specific project costs were not tracked and cannot be fully ascertained. Estimated project costs are presented in Table 1.

TABLE 1
Estimated Project Costs For Liquid Chlorine Disinfection System Installation

Activity Description		Estimated Costs		
		Labor	Materials	Total Costs
1	Provide and Install New Chlorine Injection Pumps and Piping	$1,200	$6,000	$7,200
2	Provide and Install Tankage	$200	$1,200	$1,400
3	Provide Electrical Services To Connect to SCADA and Calibrate Pumps	$800	$100	$900
Total Project Estimate Each Well House Improvement				$9,500

6.0 CONSTRUCTION SCHEDULE

Installation of the liquid sodium hypochlorite disinfection systems for Wells #4 (Legacy) and #5 (Eaglefield) were completed on or about June 2011.

7.0 POTENTIAL SOURCES OF CONTAMINATION

The water supply sources for the Western Water System are not at risk of microbial contamination, but the City adds chlorine to the water system for controlling water aesthetics that may be affected by the long hydraulic residence times. For example, chlorine is added for the oxidation of metals and for taste and odor control. According to IDAPA 58.01.08.552.04.b. the City must ensure that chlorine residual entering the distribution system after treatment is less than four (4.0) mg/L; therefore, the City of Eagle achieves this condition with daily monitoring of free and total chlorine at the well head. The pilot study data reported a total estimated chlorine demand of 0.35 mg/L and 0.5 mg/L for Wells #4 and #5, respectively, for the oxidation of metals and for taste and odor control. The pilot study recommended a chlorine dose rate of 2 mg/L at each well head to control water aesthetics.

8.0 SOILS AND GROUNDWATER LEVELS

Water system improvements implemented in this project all occurred within the existing well houses; therefore, there were no construction activities outside of the well houses that disturbed soil or impacted surface or ground waters.

9.0 DRINKING WATER WELLS AND SPRING CONSTRUCTION PROJECT

This project did not involve new construction or rehabilitation of drinking water wells or springs used for water supply. Additionally, this project has no impact on the existing Wells #4 and #5 that serve as the water supply for the Western Water System, except for maintaining water aesthetics of water pumped from these existing wells.

10.0 WELL AND PUMP HOUSE CONSTRUCTION PROJECTS

This project did not involve new construction or rehabilitation of the well houses. Project work was limited to the installation of liquid chlorine metering pumps with tankage and piping to the chlorine injection ports. The chlorine metering pumps were connected to the existing PLC and SCADA controls to proportionately control chlorine dosage to water flow and chlorine demand.

11.0 RESERVOIR AND STORAGE CONSTRUCTION PROJECTS

This project did not include new construction or rehabilitation of water storage facilities.

ATTACHMENT A

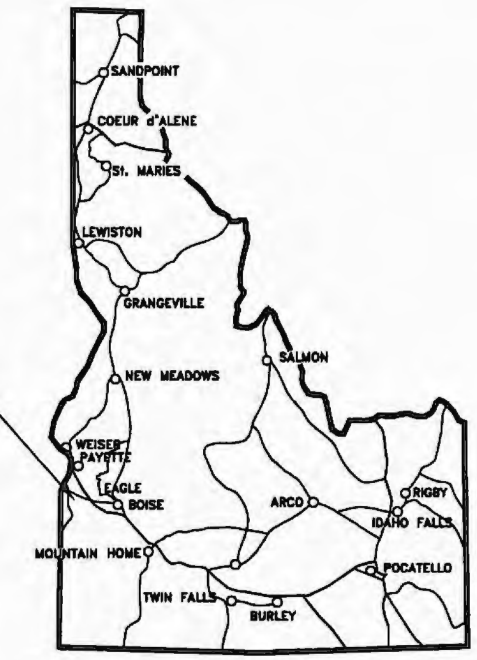
As-Built Construction Drawings

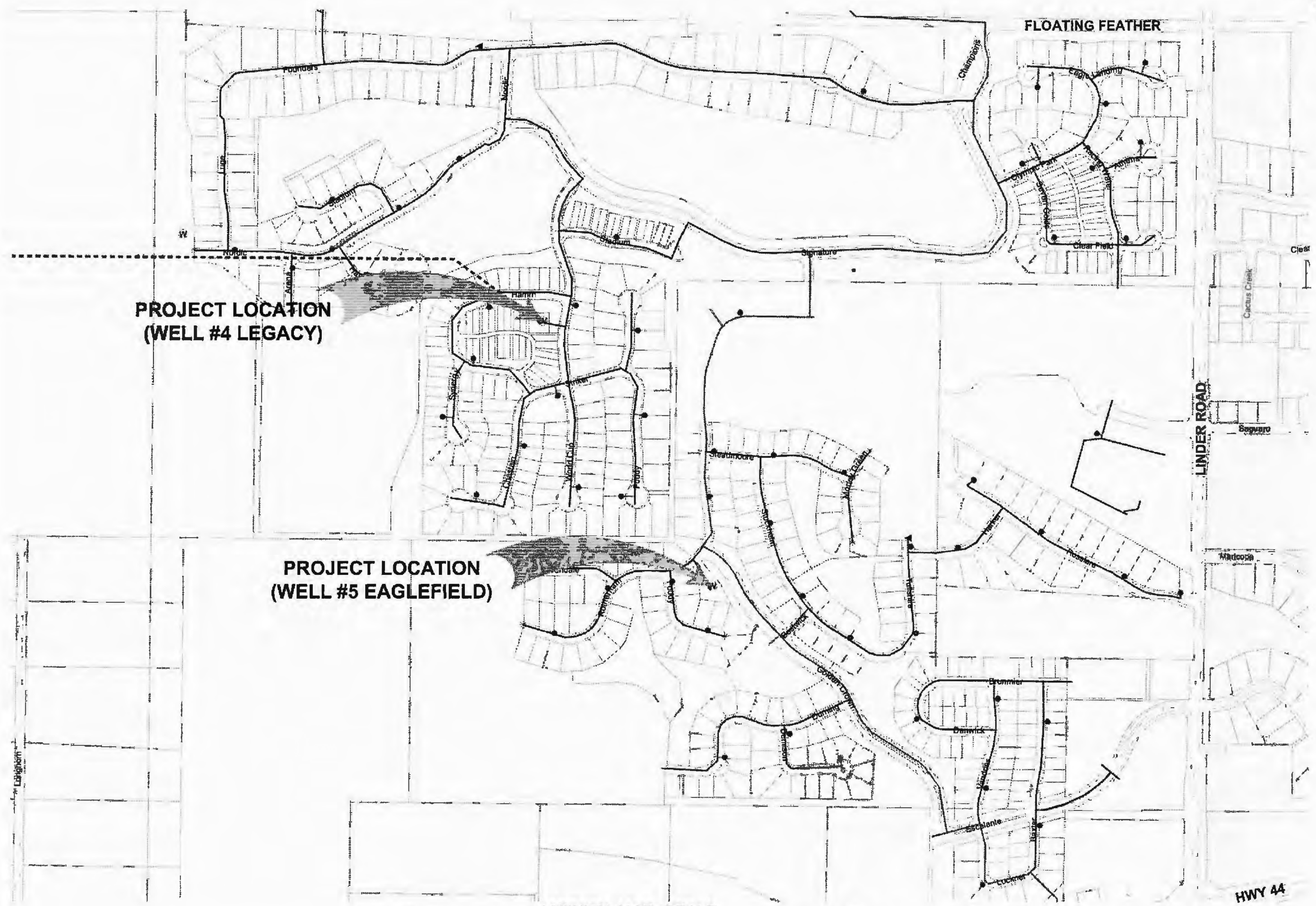
Sheet 1 of 5: Title Sheet
Sheet 2 of 5, Well #4, Legacy Before Chlorination System
Sheet 3 of 5, Well #4, Chlorination System
Sheet 4 of 5, Well #5, Eaglefield Before Chlorination System
Sheet 5 of 5, Well #5, Eaglefield Chlorination System

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	TITLE SHEET 2015
2	WELL #4 WELLHOUSE LAYOUT, 2008
3	WELL #4 (LEGACY WELL) CHLORINATION SYSTEM 2015
4	WELL #5 WELLHOUSE LAYOUT, 2008
5	WELL #5 (EAGLEFIELD WELL) CHLORINATION SYSTEM 2015

CITY OF EAGLE
WESTERN WATER SYSTEM
CHLORINATION SYSTEM IMPROVEMENT

AS-BUILT
APRIL 2015





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DETAILED: Z. ESSINGER	
DRAWING CHECKED: B. TUPYI	DRAWING DATE: APRIL 2015

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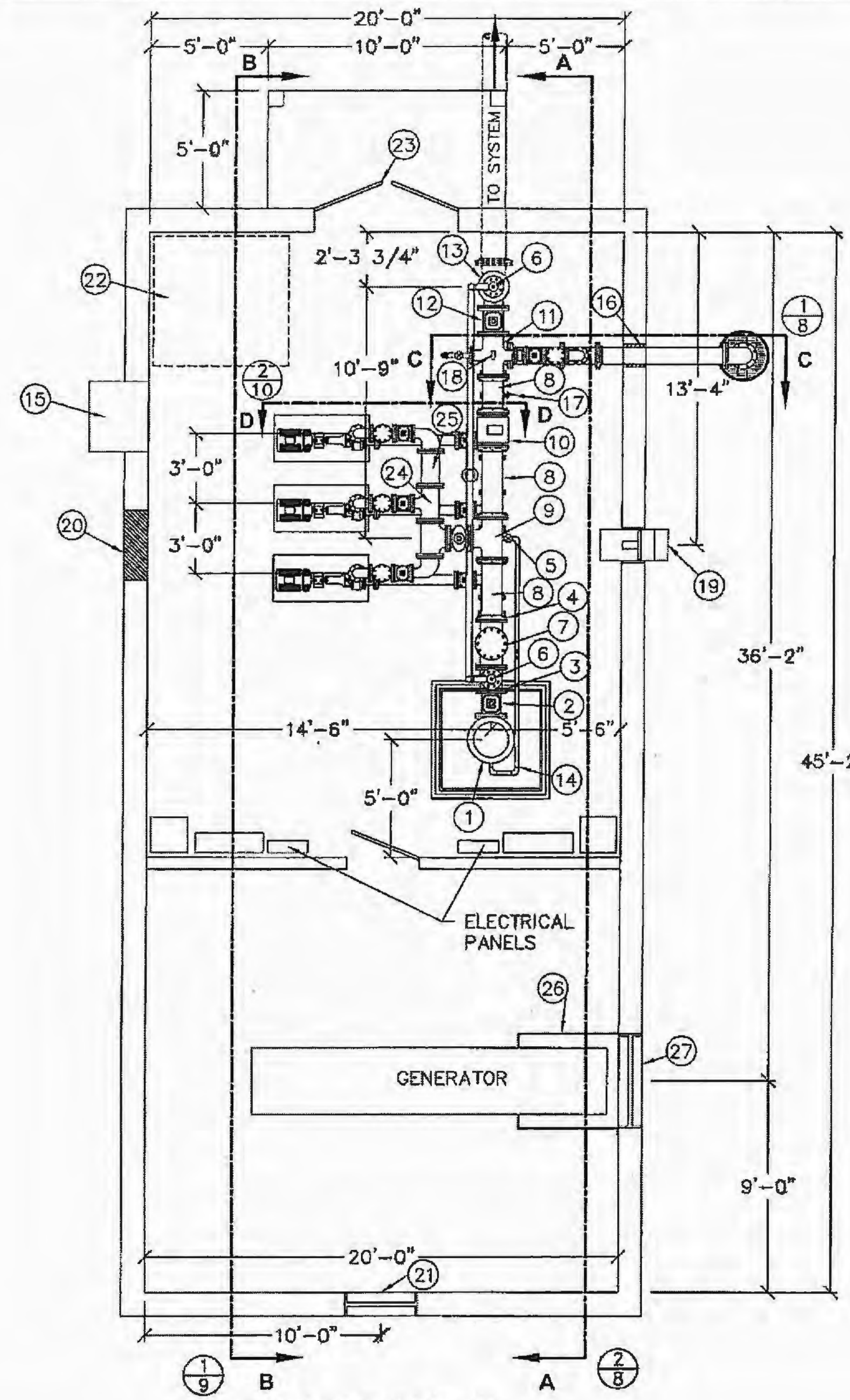
PROJECT NO.
EG 15-0058B

TITLE SHEET
WESTERN WATER CHLORINATION SYSTEM
CITY OF EAGLE, IDAHO

SHEET 1 OF 5

AS-BUILT
1/28/08



BUILDING PLAN VIEW
NOT TO SCALE

LEGEND:

1. WELL PUMP MOTOR
2. 10" NON-RISING GATE VALVE
3. 10" DI SPOOL (FLG); 12"± LENGTH W/ 3" SADDLE
4. 10" FLANGE ADAPTER (TYP)
5. 2" GATE VALVE
6. 3" AIR RELEASE AND VACUUM BREAKER VALVE (THD) W/ THROTTLING CONTROL DEVICE
7. 10" CHECK VALVE (FLG)
8. 10" D.I. PIPE W/ FLG ADAPTERS; LENGTH AS NEEDED.
9. 10x10x8 TEE (FLG)
10. 10" ELECTROMAGNETIC FLOWMETER (FLG)
11. 10"x4"x10"x4" CROSS (FLG) W\ PRESSURE GAUGE & 2 ½" FLUSHING PORT 3/12
12. 10" NON-RISING GATE VALVE (FLG)
13. 10" TEE (FLG) W\ BLIND FLANGE
14. 2" COPPER
15. WALL A/C UNIT
16. WALL SLEEVE AND MODULAR PIPE PENETRATION SEAL; COORDINATE PLACEMENT & CONSTRUCTION OF WALL SLEEVE WITH BUILDING CONTRACTOR
17. SMOOTH NOSE SAMPLE TAP
18. PRESSURE GUAGE
19. DIRECT DRIVE EXHAUST FAN WITH WALL COLLAR, MOTOR SIDE GUARD, DAMPER, AND WEATHERHOOD
20. 36"x36" MOTORIZED LOUVER
21. 36"x36" LOUVER
22. FUTURE CHLORINATION
23. DOUBLE EXTERIOR WALKWAY DOORS; (2) 3'-0"W x 7'-0"H x 1-3/4"T; INSULATED METAL W/ THRESHOLD; FULL-GLOSS ENAMEL FINISH; HOLLOW-METAL FRAME
24. 8X8x4" TEE
25. 8" D.I. PIPE W/ FLANGE ADAPTERS LENGTH AS NEEDED
26. DIRECT CONNECT AIR INTAKE TO LOUVER WITH DUCTING
27. 4'x6' LOUVER – SIZE TO EXCEED DIMENSION OF GENERATOR TO FACILITATE REMOVAL

ORIGINAL STORED AT: HOLLADAY ENGINEERING 32 N. MAIN, PAYETTE, IDAHO

PROFESSIONAL ENGINEER REGISTERED 12246 1-28-08 STATE OF IDAHO KASEY K. KETTERLING

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DESIGN CHECKED: J. BLOM
DETAILED: S. MCGEHEE
DRAWING CHECKED: J. BLOM
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PROJECT NO. EG 061204 WA

PLAN VIEW SHEET
LEGACY WELL HOUSE
CITY OF EAGLE, IDAHO
SHEET 5 OF 14

REVISIONS			
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1	2/28/07		DEQ COMMENTS

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DETAILED: Z. ESSINGER
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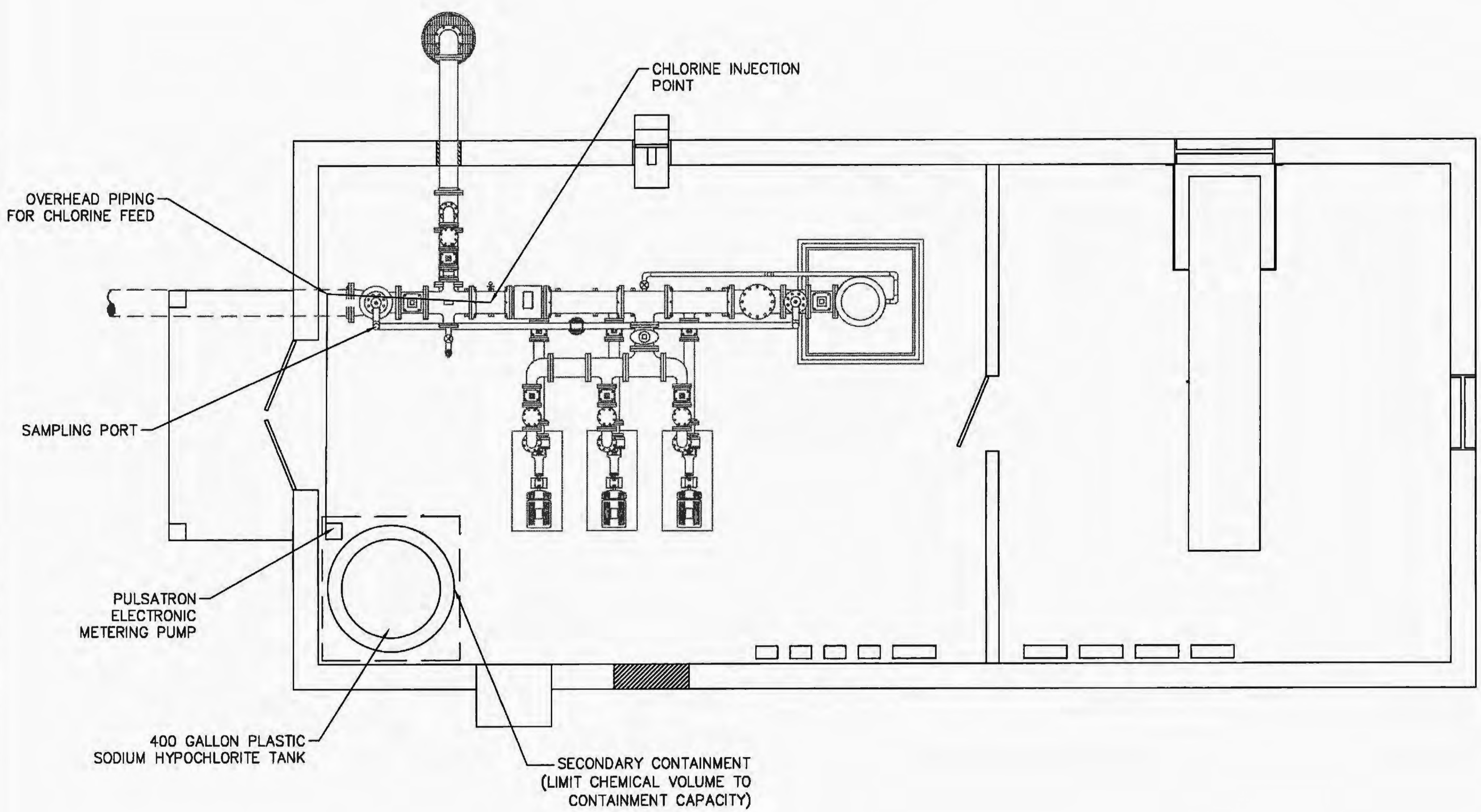
PROJECT NO. EG 15-0058B

PLAN VIEW SHEET
WELL #4 (LEGACY WELL)
WELLHOUSE LAYOUT, 2008
CITY OF EAGLE, IDAHO
SHEET 2 OF 5



ORIGINAL STORED AT: HOLLADAY ENGINEERING 32 N. MAIN, PAYETTE, IDAHO

PROFESSIONAL ENGINEER
REGISTERED
4017
20 April 2015
STATE OF IDAHO
BASIL TUPYI

REVISIONS			
NO.	DATE	BY	DESCRIPTION

DESIGNED: B. TUPYI
DESIGN CHECKED: M. DAVIS
DETAILED: Z. ESSINGER
DRAWING CHECKED: B. TUPYI

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: G:\CLIENTS\EG\15-0058B\PRELIMINARY\DWG\15-0058B_WELL_HOUSE_1.dwg
DRAWING DATE: MARCH 2015

HOLLADAY ENGINEERING CO.
ENGINEERS • CONSULTANTS
32 N Main • PO Box 235 • Payette, ID 83661
(208) 642-3304 • hec@holladayengineering.com

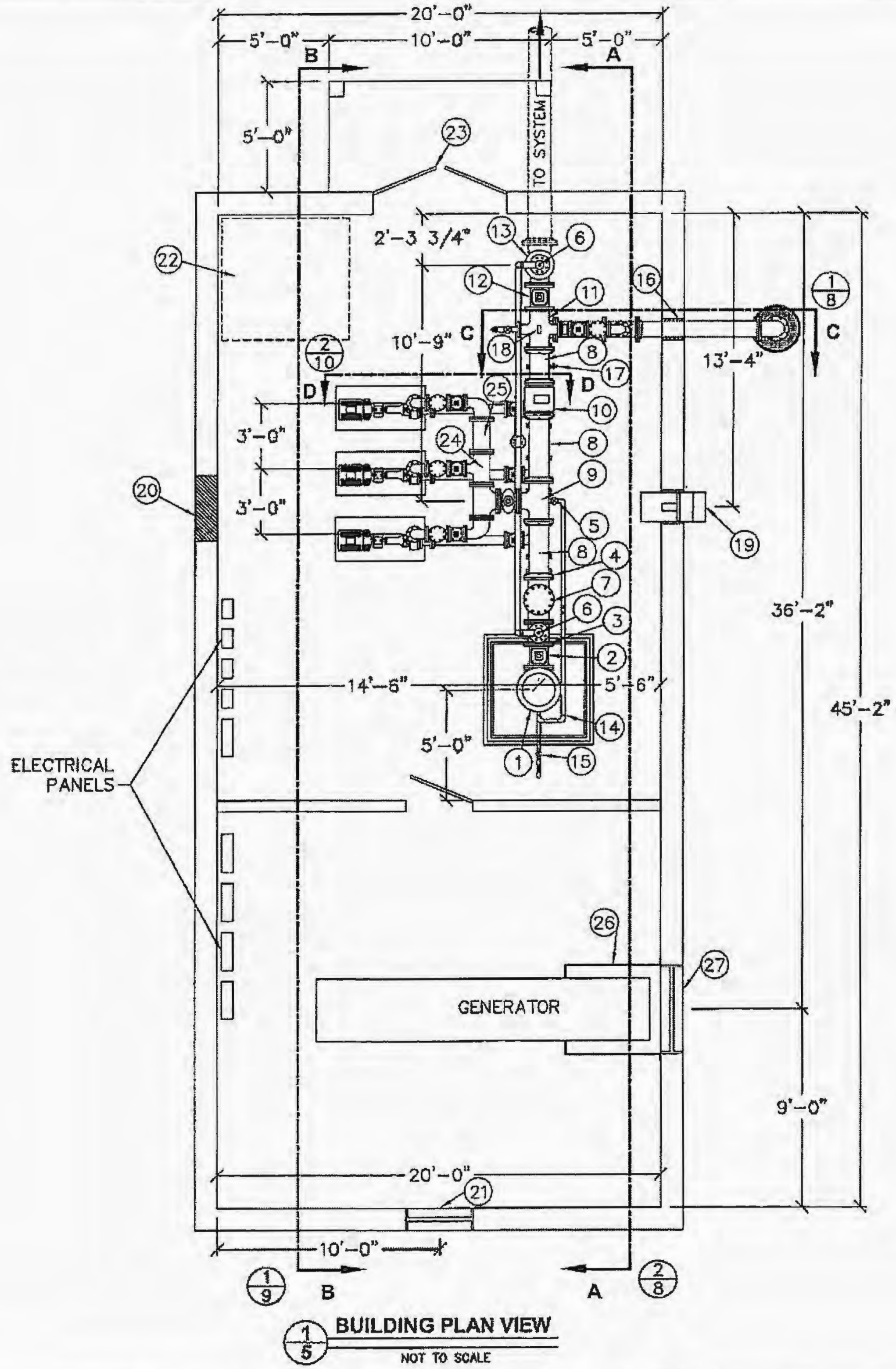
PROJECT NO.
EG 15-0058B

TYPICAL SECTIONS

WELL #4, (LEGACY WELL)
CHLORINATION SYSTEM
CITY OF EAGLE, IDAHO

SHEET 3 OF 5

AS-BUILT
1/28/08



BUILDING PLAN VIEW
NOT TO SCALE

LEGEND:

1. WELL PUMP MOTOR
2. 10" NON-RISING GATE VALVE
3. 10" DI SPOOL (FLG); 12"± LENGTH W/ 3" SADDLE
4. 10" FLANGE ADAPTER (TYP)
5. 2" GATE VALVE
6. 3" AIR RELEASE AND VACUUM BREAKER VALVE (THD) W/ THROTTLING CONTROL DEVICE
7. 10" CHECK VALVE (FLG)
8. 10" D.I. PIPE W/ FLG ADAPTERS; LENGTH AS NEEDED
9. 10x10x8 TEE (FLG)
10. 10" ELECTROMAGNETIC FLOWMETER (FLG)
11. 10"x4"x10"x4" CROSS (FLG) W\ PRESSURE GAUGE & 2 ½" FLUSHING PORT 3/12
12. 10" NON-RISING GATE VALVE (FLG)
13. 10" TEE (FLG) W\ BLIND FLANGE
14. 1" COPPER
15. 2" WELL VENT W\ CHECK VALVE, BALL VALVE, & MESH SCREEN
16. WALL SLEEVE AND MODULAR PIPE PENETRATION SEAL; COORDINATE PLACEMENT & CONSTRUCTION OF WALL SLEEVE WITH BUILDING CONTRACTOR
17. SMOOTH NOSE SAMPLE TAP
18. PRESSURE GUAGE
19. DIRECT DRIVE EXHAUST FAN WITH WALL COLLAR, MOTOR SIDE GUARD, DAMPER, AND WEATHERHOOD
20. 36"x36" MOTORIZED LOUVER
21. 36"x36" LOUVER
22. FUTURE CHLORINATION
23. DOUBLE EXTERIOR WALKWAY DOORS; (2) 3'-0"W x 7'-0"H x 1-3/4"T; INSULATED METAL W/ THRESHOLD; FULL-GLOSS ENAMEL FINISH; HOLLOW-METAL FRAME
24. 8X8x4" TEE
25. 8" D.I. PIPE W/ FLANGE ADAPTERS LENGTH AS NEEDED
26. DIRECT CONNECT AIR INTAKE TO LOUVER WITH DUCTING
27. 4'x6' LOUVER – SIZE TO EXCEED DIMENSION OF GENERATOR TO FACILITATE REMOVAL

ORIGINAL STORED AT: HOLLADAY ENGINEERING 32 N. MAIN, PAYETTE, IDAHO

PROFESSIONAL ENGINEER REGISTERED 12246 1-28-08 STATE OF IDAHO KASEY K. KETTERLING

REVISIONS			
NO.	DATE	BY	DESCRIPTION
1	2/28/07		DEQ COMMENTS

DESIGNED: J. BLOM
DESIGN CHECKED: J. BLOM
DETAILED: S. MCGEHEE
DRAWING CHECKED: J. BLOM
SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: G:\Eg\013305\dwg\WELL HOUSE\AS-BUILT\013305_dtl.dwg
DRAWING DATE: JANUARY 2008

HOLLADAY ENGINEERING CO.
ENGINEERS • GEOLOGISTS • CONSULTANTS

PROJECT NO. EG 013305WA

PLAN VIEW SHEET
EAGLEFIELD WELL HOUSE
CITY OF EAGLE, IDAHO
SHEET 5 OF 14

REVISIONS			
NO.	DATE	BY	DESCRIPTION
1	2/28/07		DEQ COMMENTS

DESIGNED: –
DESIGN CHECKED: –
DETAILED: Z. ESSINGER
DRAWING CHECKED: –
SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
DRAWING DATE: MARCH 2015

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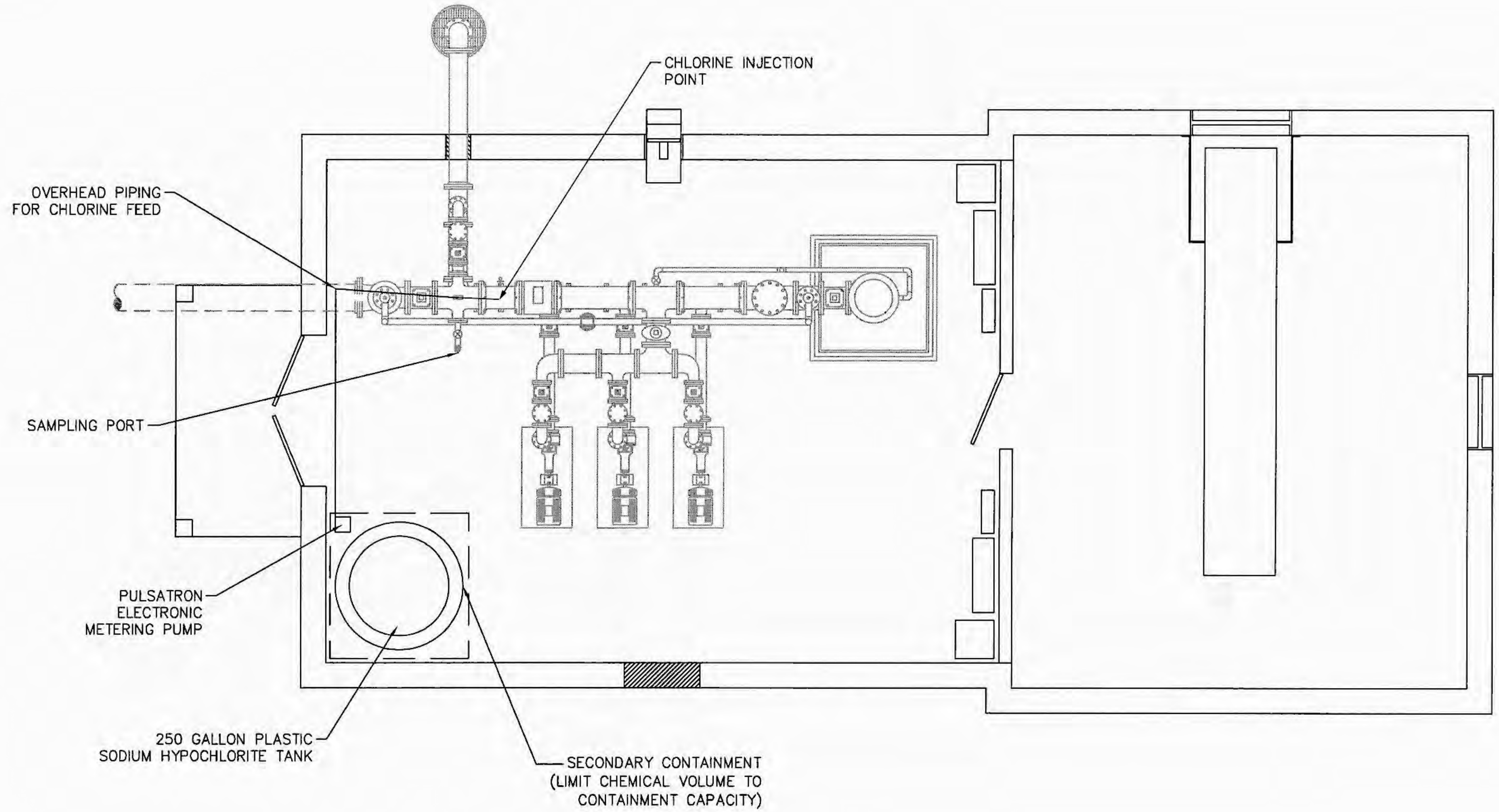
PROJECT NO. EG 15-0058B

PLAN VIEW SHEET
WELL #5, (EAGLEFIELD WELL)
CHLORINATION SYSTEM
CITY OF EAGLE, IDAHO
SHEET 4 OF 5



ORIGINAL STORED AT: HOLLADAY ENGINEERING 32 N. MAIN, PAYETTE, IDAHO

PROFESSIONAL ENGINEER REGISTERED 4017 20 April 2015 STATE OF IDAHO BASIL TUPYI

REVISIONS			
NO.	DATE	BY	DESCRIPTION

DESIGNED: B. TUPYI
DESIGN CHECKED: M. DAVIS
DETAILED: Z. ESSINGER
DRAWING CHECKED: B. TUPYI

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: G:\CLIENTS\EG\15-0058B\PRELIMINARY\DWG 15-0058B_WELL_HOUSE_2.dwg
DRAWING DATE: MARCH 2015

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PROJECT NO.
EG 15-0058B

TYPICAL SECTIONS
WELL #5, (EAGLEFIELD WELL)
CHLORINATION SYSTEM
CITY OF EAGLE, IDAHO

SHEET 5 OF 5

ATTACHMENT B

Project Photos

B-1 Well #4, Legacy Well
B-2 Well #5, Eaglefield Well

ATTACHMENT B-1: Photos of Well House & Appurtenances for Well #4 (Legacy)

Photo 1: Existing Well House for Well #4 (Legacy)

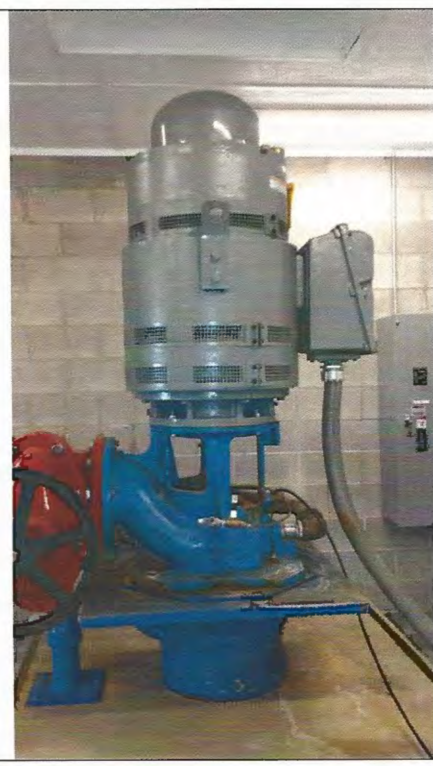

Photo 2: Existing Well #4

ATTACHMENT B-1: Photos of Well House & Appurtenances for Well #4 (Legacy)

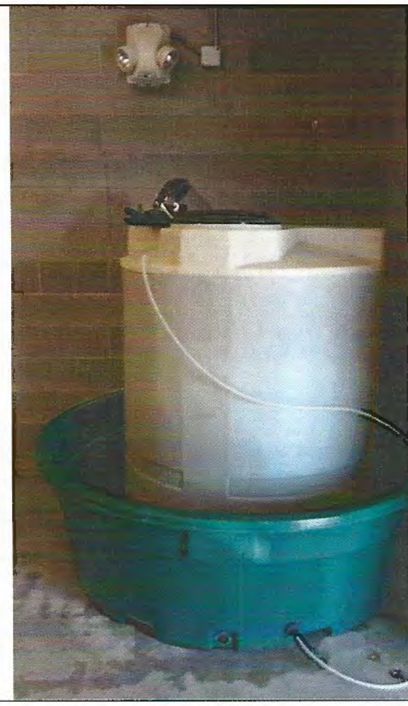

Photo 3: Chlorine Tank with Secondary Containment & Metering Pump for Well #4

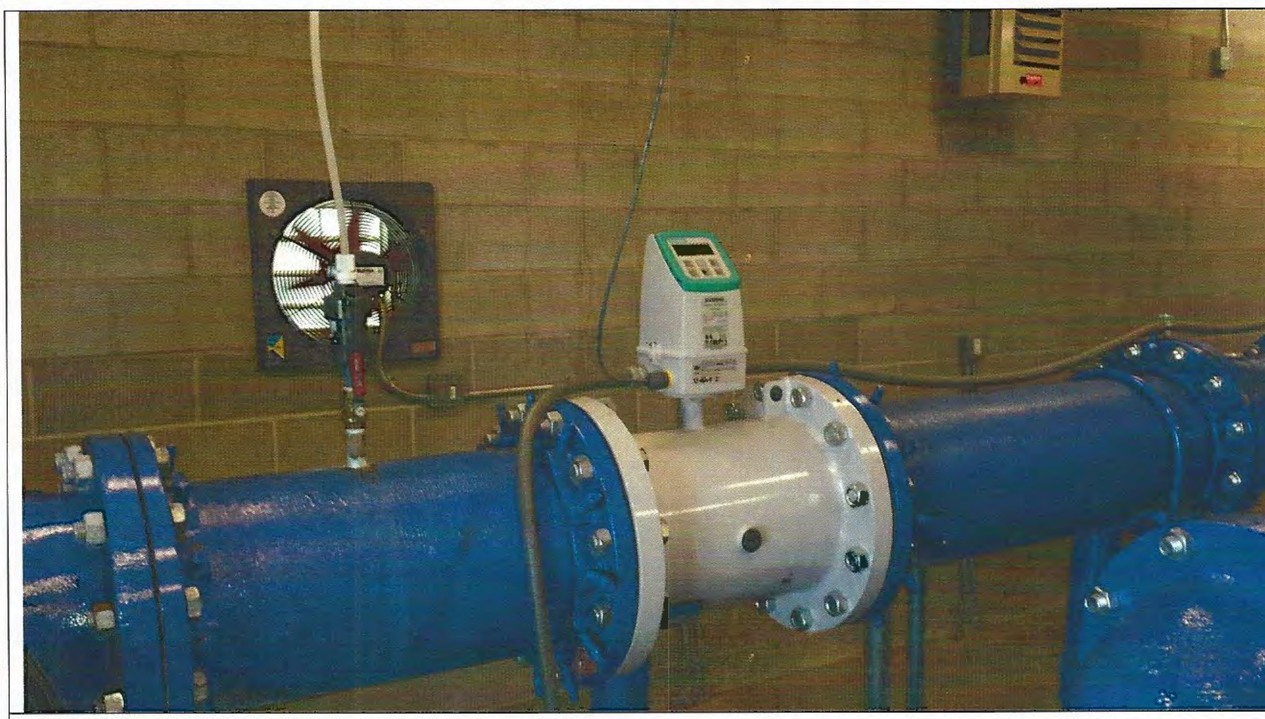

Photo 4: Chlorine Injection Port with Flow Meter

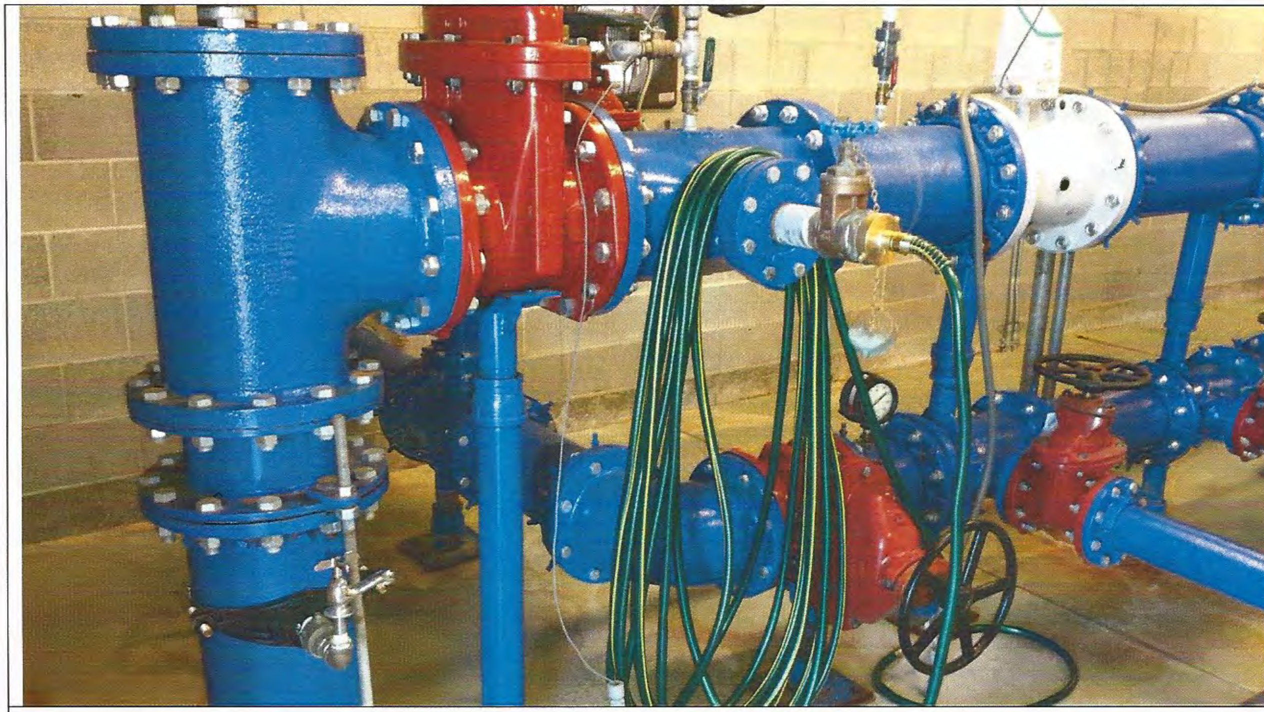

Photo 5: Sampling Port in Lower Left, Chlorine Injection Port in Upper Right

ATTACHMENT B-2: Photos of Well House & Appurtenances for Well #5 (Eaglefield)

Photo 1: Existing Well House #5 (Eaglefield)

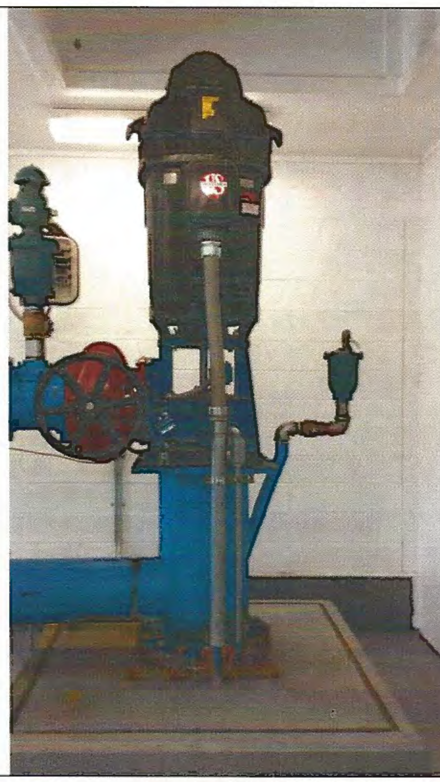

Photo 2: Existing Well #5

ATTACHMENT B-2: Photos of Well House & Appurtenances for Well #5 (Eaglefield)

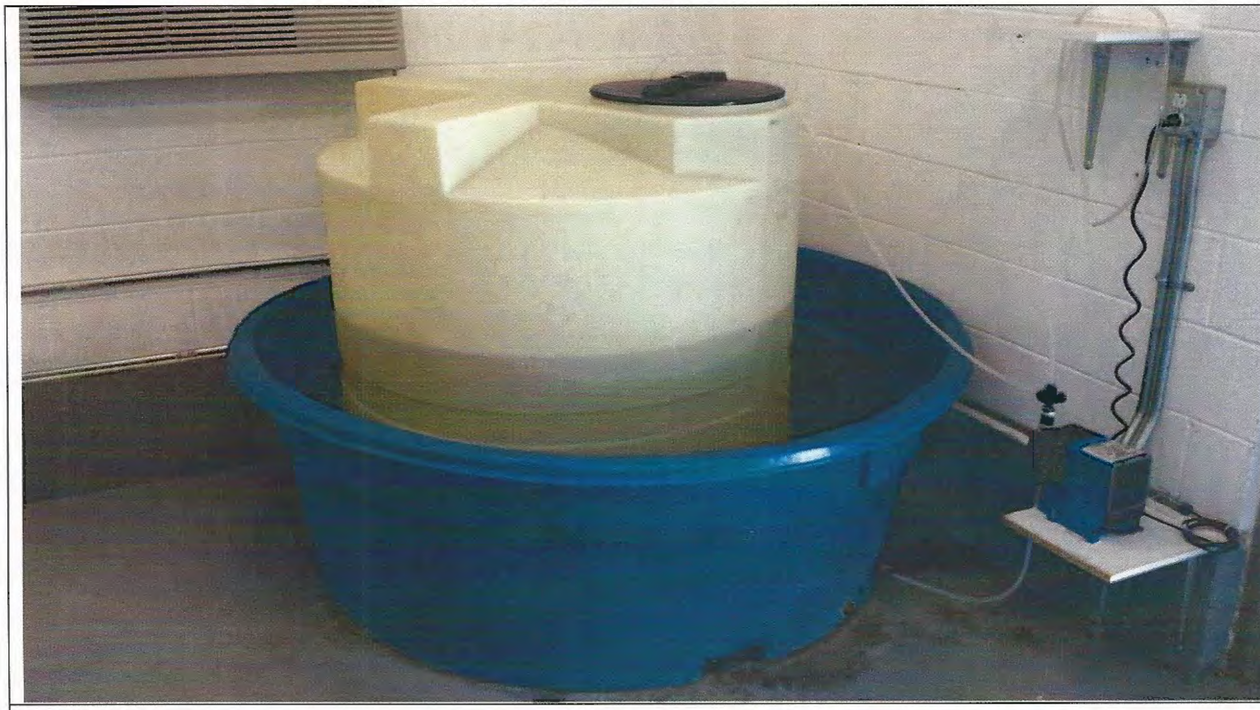

Photo 3: Chlorine Tank with Secondary Containment & Metering Pump for Well #5

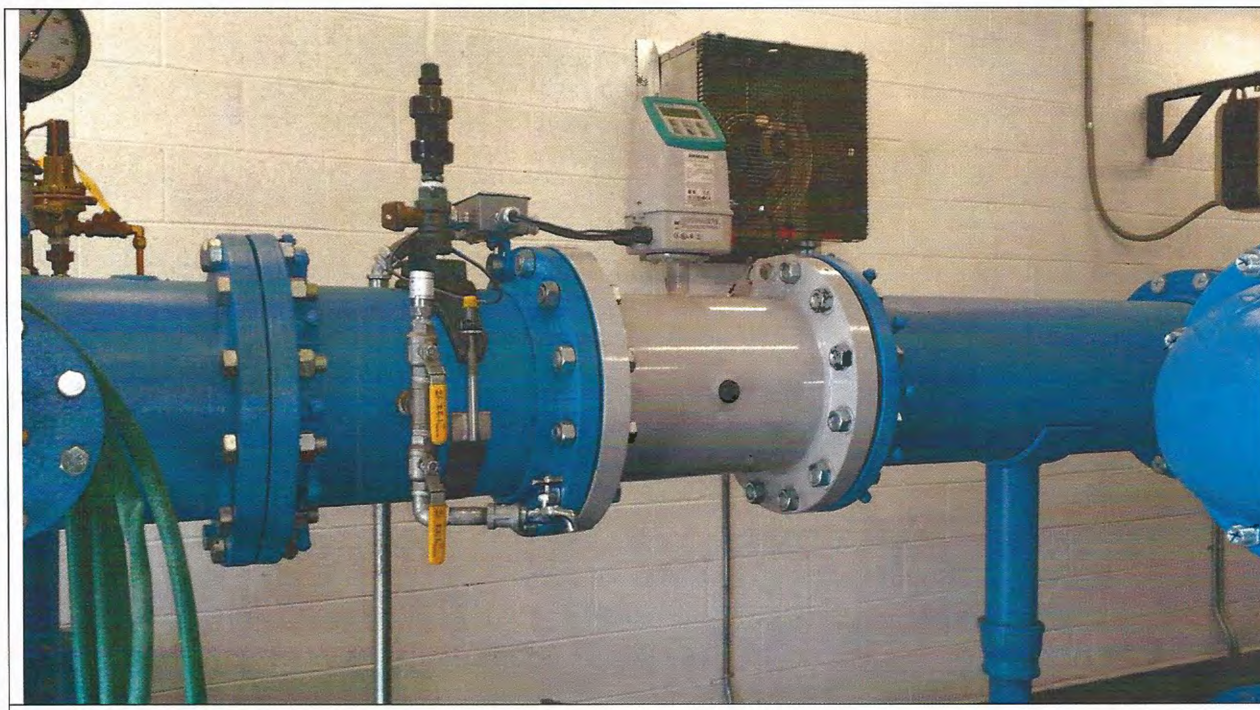

Photo 4: Chlorine Injection Port with Sampling Port & Flow Meter

ATTACHMENT I
PRESENTATION OF DATA COLLECTED FOR PILOT STUDY
Prepared February 11, 2015

The City of Eagle Western Zone Aesthetic Chlorination Pilot Study Plan (Pilot Study) approved by IDEQ on July 12, 2011 was designed to 1) identify the conditions that may cause poor water aesthetics, 2) determine the effectiveness of chlorination for controlling water aesthetics and 3) develop operational guidance necessary to prevent poor water aesthetics for the Eagle Western Water System. However much of the data has not been collected for various reasons; therefore, a conference call[1] was conducted with the Idaho Department of Environmental Quality (IDEQ) and it was concluded that the existing pilot study data would be presented to IDEQ for their review with a preliminary engineering report and as-built construction drawings to be submitted within 60 days following IDEQ's concurrence with this data presentation.

Eagle's Western Water System as mapped in Figure 1 is bounded by Floating Feather on the north, Linder Avenue on the east, and the Boise River on the south; however, presently property development is limited south of State Hwy 44 to the Boise River. Not all of the water user complaints from 2011 to 2014 are mapped in Figure 1 that shows three distinct residentially developed areas where water complaints have been reported. These areas include:

1. Northwestern sector
2. North eastern sector with Charter School, and
3. South eastern sector

Some of the mapped areas showing no water aesthetic complaints have not been developed and have no residences; therefore, there is no water consumption or water use in these areas. Given the high number of water aesthetic complaints plotted on Figure 1, it is undeniable that the water users of the Eagle Western Water System have water aesthetic issues or problems. The water complaints or problems recorded include yellow color or staining from iron and rotten egg smell associated with sulfides.

Eagle's Western Water System is sized to provide drinking water for more than 1600 residences, but the system served approximately 263 equivalent dwelling units (EDUs) in 2014 to include a charter school. Therefore, the water system is greatly oversized for the number of existing water service connections. See Table 1 for yearly EDU growth. The water volume capacity within the piping of the water distribution system in 2011 was approximately 166,000 gallons per Table 2. Therefore, the water distribution system in 2014 had approximately 2.5 to 3 days of water storage alone, based on an average EDU consumption rate of 252 gallons per day, established from 2009 through 2013 water use planning data. This condition creates long hydraulic retention periods that can potentially create stagnant or "aged" drinking water as well as allow fine silts that have accumulated in the piping to promote bacterial activity. Flushing helps reduce the water age and remove accumulated fine silts while chlorination helps minimize the impacts from "aged" drinking water and prevent bacteria growth in piping. Note the number of

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[1] Telephone conference call on February 4, 2015 at 1530 hours,
Idaho Department of Environmental Quality Representatives: Kevin Ryan, PE and Richard Lee
City of Eagle Representatives: Ken Acuff, (Water System Superintendent), Mike Davis, PE (City Engineer), and Basil Tupyi, PE (Environmental Engineer

water users has increased since 2010, but nearly 700 EDUs will be required for a hydraulic residence period of 1 day or less for the distribution system sized in 2011. However, expansion of the water distribution system to areas south of State Highway 44 will also increase the potential water volume capacity and hydraulic residence period. Therefore, flushing and/or chlorination should be continued to counter the high hydraulic residence periods.

TABLE 1
Summary of EDUs for Years 2010 – 2014

Year	EDUs	Yearly EDU Increase
2010	13	
2011	22	9
2012	73	51
2013	156	83
2014	263	107

TABLE 2
Summary of Piping Lengths and Volumes in Water Distribution System in 2011

Pipe Diameter (inches)	Length (feet)	Potential Water Volume (gallons)
6	1,631	2,447
8	27,361	72,690
10	280	1,150
12	2,321	16,238
16	7,063	73,761
Total Water Volume in Water Distribution System		166,000

Table 3 reports baseline water characteristics and contaminants for both City groundwater supply sources – City Wells No. 4 and No. 5 that may affect water aesthetics. Waters from City Wells No. 4 and No. 5 are slightly corrosive, moderately hard, and contains low metal contaminant concentrations. Iron appears to be the primary contaminant that may affect water aesthetics, since other contaminants such as ammonia, manganese, and sulfides are non-detectable and are not expected to affect water quality aesthetics. However, numerous complaints have been noted for sulfide odors.

Chlorination can be used to oxidize iron and sulfides as well as control bacteria growth. Based on the iron contaminant levels reported in Table 3 and the chlorine demands for iron in Table 4, the theoretical chlorine demand for iron in Wells No. 4 and No. 5 are calculated 0.35 and 0.5, respectively. Figures 2 and 3 illustrate the relationships of total and free chlorine residuals to determine chlorine breakpoint for Wells No. 4 and No. 5, which is estimated to be less than 0.5 mg/L for both wells. Though the chlorine demands for Wells No. 4 and No. 5 are relatively low, chlorine should be used to oxidize the iron and prevent it from promoting iron bacteria and other color forming bodies. Chlorine also works well to oxidize sulfides and prevent the rotten egg odor.

Table 3
Summary of Well Water Characteristics for Eagle Western Water Supply System

WATER SAMPLE LOCATION and DATE	Total Iron (mg/L)	Manganese (mg/L)	Sulfate (mg/L)	Hydrogen Sulfide (mg/L)	Color (C.U)	Odor (TON)	Corrosivity	pH (suc.)	Hardness (mg/L as CaCo3))	THMs (µg/L)	HAAs (µg/L)	Total Organic Carbon (mg/L)	Sulfur (mg/L)	Ortho-Phosphate (mg/L)	Total Phosphate (mg/L)	Ammonia (mg/L)	TKN (mg/L)	Nitrate (mg/L)	Total Dissolved Solids (mg/L)
Drinking Water Standards or Guidelines	0.3	0.05	250		15			6.5 – 8.5		80	60	250							
Test Method	EPA 200.7	EPA 200.7	EPA 300.0	SM 4500-S2D	SM 2120	EPA140.1	(Langelier)	EPA 150.1	SM 2340 or EPA 200.8	EPA 524.2	SM 6251 B	EPA 415.1	EPA 200.7	EPA 365.1	EPA 365.4	EPA 350.1	EPA 351.2	EPA 300.0	EPA 160.1
Legacy (City Well #4)																			
3/24/2006	0.08	<0.05	14	-	-	-	-	-											
2/28/2007	0.25	0.048	15	<0.05	5	slight H_2S	-1.3	6.7	97.0										
4/20/2013 (unchlorinated)	0.06 <0.05 dissolved	<0.05 <0.05 dissolved	15	<0.05	<5	N.O.D.	-1.23	6.9	89.6	<2.0	<10	<0.10	-	<0.05	0.05	<0.04	<0.10	<0.02	164
11/13/2013 (unchlorinated)	0.54 0.38 dissolved	<0.05 <0.05 dissolved	4	<0.05	5	N.O.D. slight H_2S	-1.28	6.8	94.4	<2.0	<10	<0.05	5.1	<0.05	0.07	<0.04	<0.10	<0.2	116
Eaglefield (City Well #5)																			
5/16/2006	<0.05	<0.05	-	<0.05	25	n.o.o.	-0.9	7.1	74.3										
5/18/2006	-	-	-	<0.05	25	n.o.o	-	-	-										
4/10/2008	-	-	-	<0.05	-	-	-	-	-										
10/05/2009	0.3	0.05	-																
4/30/2013 (unchlorinated)	0.08 0.07 dissolved	<0.05 <0.05 dissolved	17	<0.05	<5	2 --slight odor in first dilution	-1.2	6.9	91.6	<2.0	<10	<0.10		<0.05	0.05	<0.04	<0.10	<0.02	174
11/13/2013 (chlorinated)	0.8 0.5 dissolved	<0.05 <0.05 dissolved	7	<0.05	10	N.O.D	-1.37	6.7	93.6	<2.0	<10	<0.05	5.5	<0.05	0.05	<0.04	<0.10	<0.2	112

n.o.o.: no odor observed t.o.n.: threshold odor number N.O.D.: no odor detected
Iron: mg/L rusty or yellow color with metallic taste
Manganese: black to brown staining, bitter metallic taste
Sulfate: salty taste
Hydrogen sulfide: "rotten-egg", musty or chemical smell
Corrosivity: Langelier Index > +0.5 is scaling and < -0.5 is corrosive,
pH: low pH: bitter metallic taste, corrosion
Hardness: Soft 0 – 60 mg/L, Moderately Hard 61 – 120 mg/L, Hard = 121 – 180 mg/L and Very Hard > 181 mg/L
Disinfection By-Products – Total Trihalomethanes (THMs) and Five Haloacetic Acids (HAAs)

Table 4 **Typical Chlorine Demand Factors for Various Contaminants**			
Analyte	Chlorine Demand Factor (mg Chlorine per mg ion)		
	From Spon Water Consulting	From University of North Carolina	AWWA Chlorine/Chloramination Handbook
Iron (Fe)	0.64	0.64	0.6
Manganese (Mn)	1.3	0.93	1.3
Sulfide (S)	2 to 8.7	8.86	2.1
Sulfate (SO_4)	8.32		
Nitrite (NO_2)	5.0		
Ammonia (NH_3)	7.6 to 12	7.61	10
Organic Nitrogen (TKN - NH_3)	1.0		1.0
Total Organic Carbon (TOC)	0.1	1 – 1.5	0.1

Note 1: Chlorine demand is dependent upon time, water pH, and water temperature; therefore, the stoichiometric chlorine demand factors reported above are not absolute, but will provide an estimated chlorine demand that can be compared to laboratory data.

Total and free chlorine residual were measured at the well head and at several residences for approximately two months (June- July 2014) . Total and free chlorine field measurements are presented in Tables 5 and 6. Little chlorine demand was noted at the residential locations tested with total and free chlorine concentrations generally being within 0.1 mg/L of each other. Total chlorine residuals at the well head were approximately 2.0 mg/L with total chlorine residuals ranging from 0.3 to 0.5 mg/L at the residences. No chlorine residual measurements were collected at water complaint locations; therefore, no conclusions can be ascertained on whether chlorine helped improve water aesthetics (i.e., color and odor).

In summary, the well characterization data reported in Table 3 and their respective chlorine demands are not typical for poor water aesthetics; therefore, silt or sediment build-up in the piping as well as water age is suspected to create poor water aesthetics. Iron and sulfide removal processes are generally not warranted for the low iron and sulfide concentrations reported in Table 3, but iron sequestration could become a water treatment alternative to keep the iron in its dissolved state, when the water system has a low hydraulic residence period, say 0.5 to 1 day. Increasing the chlorine concentration may help control sulfide odors, but there is insufficient data to confirm this condition.

Though increased water demand is expected to improve and better maintain water aesthetics and minimize water aesthetic complaints, the City of Eagle should continue to chlorinate both groundwater supplies and collect data to evaluate system performance. Data collection should include daily free and total chlorine concentrations at each well head, charter school, and at least two areas within the distribution system where complaints are frequent. Additionally, any new water complaints should be site investigated to observe site conditions and tested for free and total chlorine residuals. In summary, data collected can be used to provide operational guidance necessary to control poor water aesthetics for the Eagle Western Water System.

Table 5
Monthly Summary of Chlorine Residuals

June 2014	Well No. 4		Well No. 5		Charter School		Snoqualmie			Well 5 Preserve			Flushing and Complaint Location
	Total	Free	Total	Free	Total	Free	Total	Free	Location	Total	Free	Location	
1													
2	1.72	1.83	1.75	2.20	0.39	0.32	0.44	0.41	5070 Olympic Park	0.42	0.39	Escelante/Baxter	
3	1.50	1.59	2.20	2.20	0.34	0.21	0.43	0.37	Founders Hydrant	0.40	0.39	Rotherham/Faudy	
4	1.79	1.78	2.20	2.20	0.38	0.22	0.39	0.27	5070 Olympic Park	0.42	0.30	Escelante/Baxter	
5	0.79	1.48	1.06	1.02	0.30	0.19	0.41	0.31	Founders Hydrant	0.49	0.42	Rotherham/Faudy	
6	2.20	0.87	2.20	2.20	0.30	0.22	0.50	0.42	5070 Olympic Park	0.55	0.45	Escelante/Baxter	
7													
8													
9	1.83	1.48	1.69	1.77	0.34	0.21	0.46	0.37	Founders Hydrant	0.43	0.39	Rotherham/Faudy	
10	1.15	0.87	1.82	1.56	0.39	0.34	0.40	0.38	5070 Olympic Park	0.38	0.30	Escelante/Baxter	
11	1.03	1.24	2.11	2.12	0.37	0.39	0.42	0.41	Founders Hydrant	0.44	0.41	Rotherham/Faudy	
12	1.33	1.34	1.91	1.68	0.32	0.29	0.47	0.38	5070 Olympic Park	0.46	0.40	Escelante/Baxter	
13	1.05	0.70	2.04	2.20	0.34	0.30	0.48	0.42	Founders Hydrant	0.41	0.27	Rotherham/Faudy	
14													
15													
16	0.97	0.92	0.94	0.80	0.37	0.32	0.47	0.43	5070 Olympic Park	0.49	0.40	Escelante/Baxter	
17	1.24	0.02	1.12	0.48	0.40	0.37	0.50	0.40	Founders Hydrant	0.49	0.38	Rotherham/Faudy	
18	1.20	0.84	2.20	2.20	0.39	0.33	0.38	0.32	5070 Olympic Park	0.42	0.30	Escelante/Baxter	
19	1.14	0.74	1.20	1.11	0.38	0.34	0.41	0.37	Founders Hydrant	0.38	0.33	Rotherham/Faudy	
20	0.71	0.89	2.20	2.20	0.39	0.35	0.50	0.52	5070 Olympic Park	0.54	0.42	Escelante/Baxter	
21													
22													
23	1.21	0.30	1.19	1.11	0.25	0.10	0.41	0.30	Founders Hydrant	0.44	0.39	Rotherham/Faudy	
24	1.01	0.41	2.20	2.20	0.27	0.22	0.44	0.27	5070 Olympic Park	0.40	0.31	Escelante/Baxter	
25	0.54	0.50	2.20	2.20	0.39	0.34	0.41	0.21	Founders Hydrant	0.40	0.29	Rotherham/Faudy	
26	1.24	0.77	2.20	2.20	0.30	0.23	0.40	0.36	5070 Olympic Park	0.44	0.39	Escelante/Baxter	
27	1.39	0.70	2.20	2.20	0.34	0.30	0.38	0.29	Founders Hydrant	0.41	0.27	Rotherham/Faudy	
28													
29													
30	1.84	1.63	1.26	1.33	0.39	0.31	0.41	0.36	5070 Olympic Park	0.33	0.25	Escelante/Baxter	
31													

Table 6
Monthly Summary of Chlorine Residuals

July 2014	Well No. 4 Legacy		Well No. 5 Eaglefield		Charter School		Snoqualmie			Well 5 Preserve			Flushing and/or Complaint Location
	Total	Free	Total	Free	Total	Free	Total	Free	Location	Total	Free	Location	
1	2.09	-	2.14	-	0.34	0.31	0.43	0.33	Founders Hydrant	0.40	0.32	Rotherham/Faudy	
2	2.20	2.20	2.20	2.20	0.40	0.31	0.33	0.35	5070 Olympic Park	0.35	0.29	Escelante/Baxter	
3	1.00	0.97	1.19	1.11	0.42	0.39	0.41	0.33	Founders Hydrant	0.44	0.41	Rotherham/Faudy	
4													
5													
6													
7	0.51	1.13	1.64	2.20	0.39	0.33	0.40	0.37	5070 Olympic Park	0.37	0.29	Escelante/Baxter	
8	2.20	0.73	2.20	2.20	0.37	0.21	0.42	0.31	Founders Hydrant	0.44	0.31	Rotherham/Faudy	
9	1.20	0.83	0.92	0.90	0.39	0.34	0.38	0.29	5070 Olympic Park	0.40	0.32	Escelante/Baxter	
10	0.96	0.81	1.10	1.01	0.38	0.30	0.40	0.44	Founders Hydrant	0.49	0.40	Rotherham/Faudy	
11	1.13	0.91	1.74	1.69	0.33	0.26	0.41	0.37	5070 Olympic Park	0.39	0.37	Escelante/Baxter	
12													
13													
14	0.63	0.51	2.20	2.20	0.34	0.25	0.41	0.39	Founders Hydrant	0.44	0.37	Rotherham/Faudy	
15	0.81	0.17	1.63	1.43	0.36	0.29	0.37	0.29	5070 Olympic Park	0.39	0.28	Escelante/Baxter	
16	0.76	0.73	2.20	2.20	0.34	0.28	0.33	0.26	Founders Hydrant	0.34	0.37	Rotherham/Faudy	
17	0.96	0.81	2.20	2.20	0.31	0.17	0.37	0.29	5070 Olympic Park	0.37	0.30	Escelante/Baxter	
18	1.07	0.80	2.11	1.90	0.34	0.22	0.39	0.30	Founders Hydrant	0.42	0.34	Rotherham/Faudy	
19													
20													
21	0.71	0.89	2.20	2.20	0.30	0.22	0.38	0.21	5070 Olympic Park	0.35	0.22	Escelante/Baxter	
22					0.36	0.29	0.34	0.25	Founders Hydrant	0,36	0.29	Rotherham/Faudy	
23					0.38	0.28	0.37	0.27	5070 Olympic Park	0.38	0.28	Escelante/Baxter	
24					0.40	0.33	0.34	0.29	Founders Hydrant	0.40	0.33	Rotherham/Faudy	
25	0.42	0.89	2.06	2.03	0.37	0.31	0.41	0.37	5070 Olympic Park	0.40	0.39	Escelante/Baxter	
26													
27													
28	1.24	1.00	2.20	2.20	0.34	0.34	0.39	0.29	Founders Hydrant	0.39	0.24	Rotherham/Faudy	
29	0.87	0.47	1.56	1.53	0.39	0.21	0.35	0.33	5070 Olympic Park	0.38	0.31	Escelante/Baxter	
30	0.37	0.40	2.20	2.20	0.38	0.29	0.37	0.25	Founders Hydrant	0.32	0.29	Rotherham/Faudy	
31	2.20	1.37	0.04	2.20	0.37	0.32	0.41	0.31	5070 Olympic Park	0.49	0.43	Escelante/Baxter	

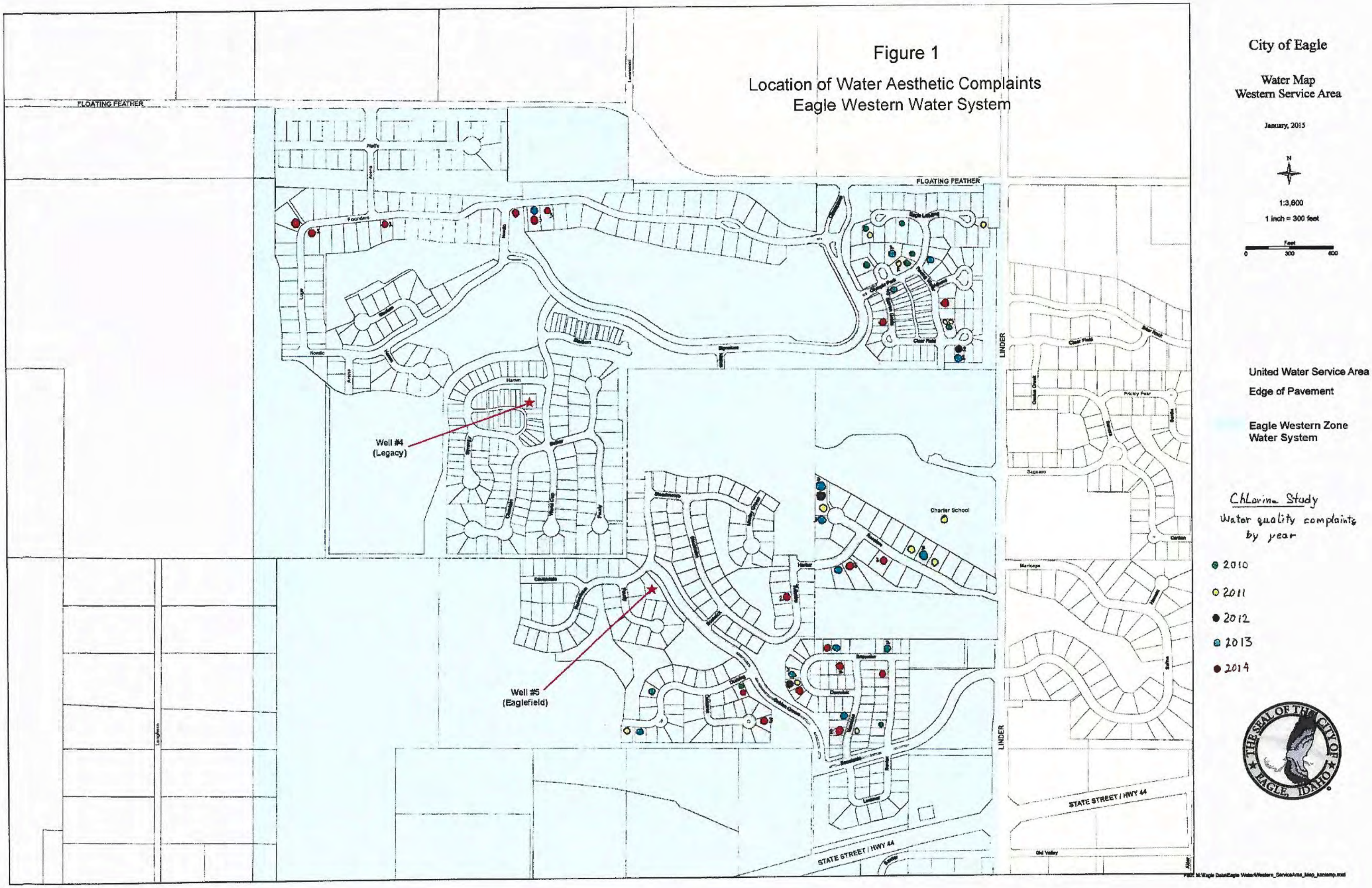
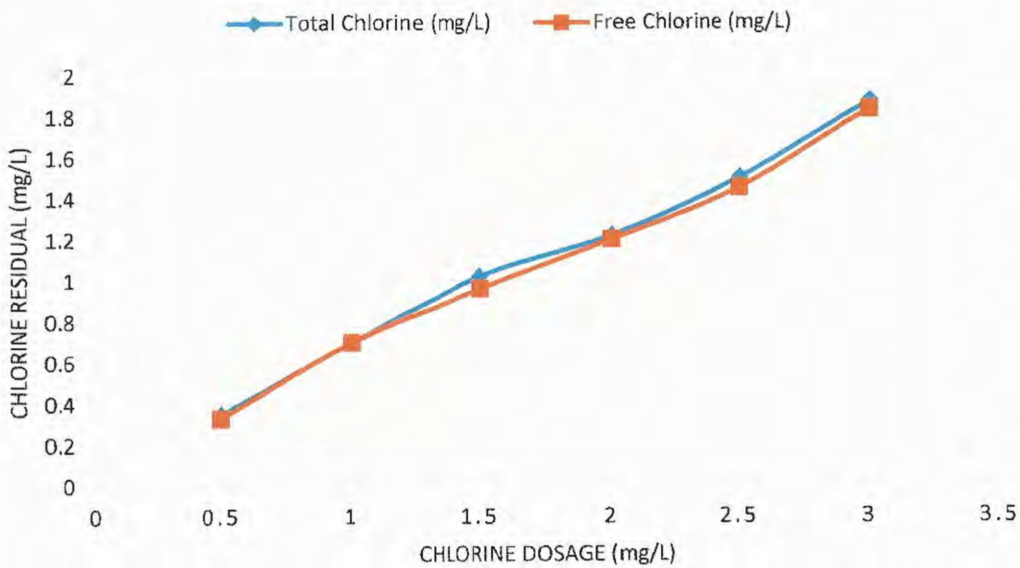


Figure 1
Location of Water Aesthetic Complaints
Eagle Western Water System
City of Eagle
Water Map
Western Service Area
January, 2015
1:3,600
1 inch = 300 feet
United Water Service Area
Edge of Pavement
Eagle Western Zone
Water System
Chlorine Study
Water quality complaints by year
2010
2011
2012
2013
2014
Well #4
(Legacy)
Well #5
(Eaglefield)
FLOATING FEATHER
LINDER
STATE STREET / HWY 44
Charter School
THE SEAL OF THE CITY OF EAGLE, IDAHO



Sample Collected - November 13, 2013

Analyzed by Analytical Laboratories, INC on Nov. 27, 2013

NH_3 < 0.04 mg/L

TOC< 0.05 mg/L

TKN < 0.10 mg/L

Mn < 0.05 mg/L

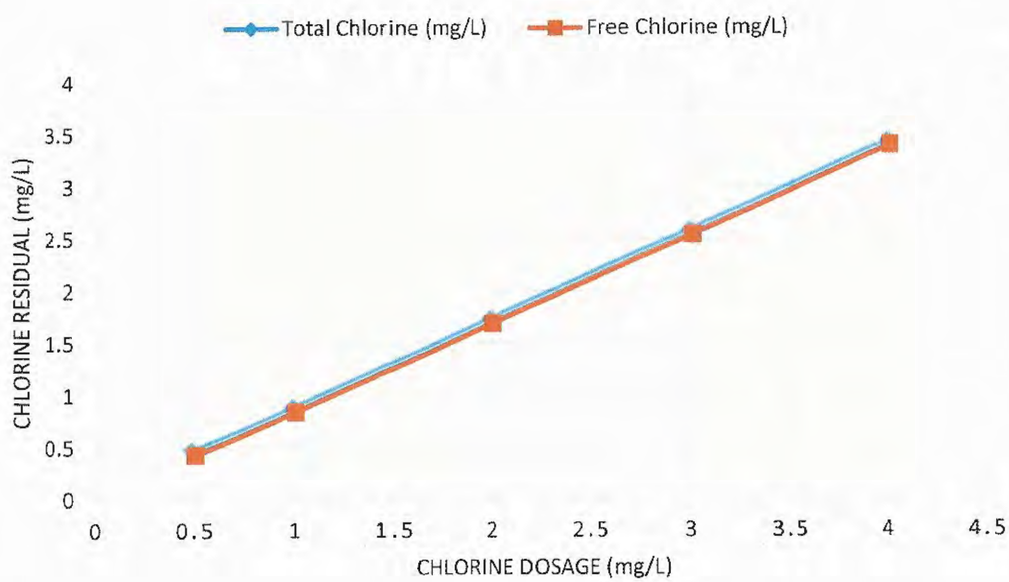
Fe = 0.54 mg/L

Theoretical Chlorine demand ~ 0.35 mL

Note: The holding period between sample collection and sample analysis is acceptable given the ammonia and total Kjeldahl nitrogen concentration are not detectable.

Figure 2

Chlorine Demand Curve for Legacy Well - (City Well No. 4)



Analyzed by Analytical Laboratories, INC
NH_3 < 0.04 mg/L
Theoretical Chlorine demand ~ 0.50 mL

Figure 3

Chlorine Demand Curve for
Eaglefield Well - (City Well No. 5)

EXHIBIT AD – SANITARY SURVEYS

City of Eagle

Enhanced Sanitary Survey – May, 2010
Western Service Area: PWS # ID4010222

Enhanced Sanitary Survey – May, 2010
Eastern Service Area: PWS #ID4010201

The most recent Sanitary Survey was completed on April 29, 2015. It has become the policy of the Idaho Department of Environmental Quality to not issue letters of approval. Per an September 25, 2015 email from Brandon Lowder, IDEQ, all current deficiencies were addressed within the required timeframes. The attached Sanitary Surveys are the last notices of record.

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1445 North Orchard • Boise, Idaho 83706 • (208) 373-0550

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

May 24, 2010

Eagle, City of (Western Zone)
Attn: Michael Echeita
P.O. Box 1520
Eagle, ID 83616

PWS# ID4010222

Subject: Enhanced Sanitary Survey conducted on May 10, 2010

Dear Mr. Echeita:

A copy of the Enhanced Sanitary Survey form, the photo log and photos for Public Water System (ID4010222) are enclosed with this mailing for your records. Attached, you will find a list of the significant deficiencies and/or recommended improvements for your system.

Please consult with your regulating agency regarding the significant deficiencies identified in this written notification. Upon agreement between the public water system and the regulating agency, please provide a written corrective action plan to the regulating agency that addresses all significant deficiencies. This consultation with the regulating agency shall be completed within 30 days of receiving this written notification. This request is Pursuant to IDAPA 58.01.08.323 for groundwater systems and IDAPA 58.01.08.302 for surface water systems.

For all new water systems or modifications to existing water systems, an engineering report shall be submitted to the Department of Environmental Quality (DEQ) for review and approval prior to or concurrent with the submittal of plans and specifications as required in Subsection 503.03, pursuant to IDAPA 58.01.08.503.

Prior to construction of new public water supply systems or modifications of existing public water supply systems, plans and specifications must be submitted to the DEQ for review, and approved, pursuant to IDAPA 58.01.08.504.

Thank you for your time and cooperation in the completion of this survey. If you have any questions, please contact me at (208) 373-0568 or via e-mail at brandon.lowder@deq.idaho.gov.

Sincerely,

Brandon Lowder
Drinking Water Analyst
Idaho Department of Environmental Quality

Enclosures: List of Significant Deficiencies
Enhanced Sanitary Survey Inspection Form
Photo Log and Photos

May 24, 2010
Eagle, City of (Western Zone)
PWS# 4010222

RE: Enhanced Sanitary Survey conducted on May 10, 2010

You will find a list of the significant deficiencies, deficiencies and recommended improvements for your system summarized below. In order to address all significant deficiencies, follow steps 1, 2 & 3.

Step 1: After reviewing the significant deficiencies listed below, please call our office to identify a corrective action plan for each significant deficiency within 30 days of receiving this written notification. During that call, please be prepared to provide a "Planned Completion Date" for each item.

Step 2: Complete the planned action(s) by the agreed upon date.

Step 3: Enter an "Actual Completion Date", Initials, identify the "Corrective action taken", and sign that each corrective action has been corrected by the agreed upon date and that the corrective action meets the requirements pursuant to IDAPA 58.01.08. Please send a copy of the corrective action taken to the regulating agency.

Significant Deficiencies

Pumping:

#16: The auxiliary power generator fuel tank for Well #3-Brookwood does not have secondary containment.
Note: Spill containment may be incorporated into the design of the generator. Please verify this, and if spill containment is not incorporated it shall be installed, and shall be sized to handle 110% of the generator fuel tank volume.

Planned Completion Date: ____________,

Actual Completion Date: _____________, *Initials*________.
Corrective action taken:

I certify, to the best of my knowledge that all significant deficiencies have been corrected by the agreed upon date and that the corrective action meet the requirements pursuant to IDAPA 58.01.08.

Signature: ____ **Date:** ________________

Recommendations

Distribution:

#8/10: DEQ recommends a leak detection and water conservation program be put in place and utilized.

This system will be in substantial compliance with regulations if the significant deficiencies of this survey are corrected. Thank you for your time and cooperation in the completion of this survey. If you have any questions, please contact me at (208) 373-0568 or via e-mail at brandon.lowder@deq.idaho.gov.

Sincerely,

Brandon Lowder
Drinking Water Analyst
Idaho Department of Environmental Quality

Enclosures: Enhanced Sanitary Survey Report
Enhanced Sanitary Survey Inspection Form
Photo Log and Photos

State of Idaho Public Water System Enhanced Sanitary Survey

WATER SYSTEM INVENTORY INFORMATION

SURVEY DATE: 5/10/2010 *(mm/dd/yyyy)*

PWS #: 4010222

Name of Public Water System: **Eagle, City of (Western Zone)**

# of Groundwater Sources: 2

#of Surface Water Sources: 0

# of Storage Facilities: 0

Total Storage (gal) : 0

Date of Last Survey: N/A (New System)

Health District: [x] N/A

DEQ Region: [ ] N/A — BRO

County: Ada

Number of Service Connections: 15

Residential Population: 25

Status: [x] Approved [ ] Disapproved

Water Purchased From: [x] N/A — PWS #: Name:

Water Sold To: [x] N/A — PWS #: Name:

Owner Type: Local Government

Legal Entity: Government Agency

Water System Classification: [x] Community Water System [ ] Nontransient Noncommunity [ ] Transient Noncommunity - NC

Combined Sources? [ ] Yes [x] No — If yes, [ ] Well Field [ ] Manifold/Spring Box — Sources Combined:

System Classification: Distribution: DWDVSWS — Treatment: [x] N/A

Seasonal Operation Dates: [x] N/A — Date Open: — Date Closed:

Responsible Charge Operator (DO): [ ] No DO [ ] N/A - Identify Operator for GW-NC PWS)

[x] Mr. [ ] Ms. Brent Arte

Properly Licensed? [x] Yes [ ] No [ ] N/A-GW-NC

License Type: DWD2 [ ] N/A

License Number: DWD2-14255

Mailing Address: 660 Civic Ln.

City, State, Zip Code: Eagle, ID 83616

Telephone — Day: (208) 489-8787 — Night: — Fax:

E-mail: barte@cityofeagle.org

Legal Owner's Name: [ ] Mr. [ ] Ms. City of Eagle (Sharon Bergmann

Mailing Address: P.O. Box 1520

City, State, Zip Code: Eagle, ID 83616

Telephone — Day: (208) 939-6813 — Night: — Fax:

E-mail:

Substitute Responsible Charge Operator (OP): [ ] No OP [ ] N/A for GW-NC PWS

[x] Mr. [ ] Ms. Timothy Hill

Properly Licensed? [x] Yes [ ] No [ ] N/A-GW-NC

License Type: DWD4, DWT4 [ ] N/A

License Number: DWD4-15819, DWT4-10773

Mailing Address: 660 Civic Ln.

City, State, Zip Code: Eagle, ID 83616

Telephone — Day: (208) 939-1129 — Night: — Fax:

E-mail:

Individuals present during inspection:

Name	Title
Brent Arte	Operator
Brandon Lowder	DEQ

Physical location of the PWS (Township, Range, Section):

Samples taken at the time of survey by inspector? [ ] Yes [x] No

If yes, what:

Survey performed by: Name: Brandon Lowder — Title: Drinking Water Analyst — Phone #: (208) 373-0568

Agency: [x] IDEQ [ ] Health Dept. [ ] Other:

General Information

yes	no	n/a	unk	note	
[ ]	[ ]	[x]	[ ]	[ ]	1. Have previously required Significant Deficiencies & Deficiencies been addressed?
[ ]	[ ]	[x]	[ ]	[ ]	2. Have modifications been made to the PWS since the last ESS?
[ ]	[ ]	[x]	[ ]	[ ]	3. If yes, are the modifications considered to be significant?
[ ]	[ ]	[x]	[ ]	[ ]	4. If yes, were plans and specs submitted to and approved by DEQ?
[ ]	[x]	[ ]	[ ]	[ ]	5. Are there any known issues or problems with equipment or operation of the PWS that could negatively effect the quality of the water produced? *(If yes, comment)*

Comments:

Sanitary Survey Index

Modules used:	#
[ ] General Information	
[ ] Groundwater Source	
[ ] Storage	
[ ] Hydropneumatic Tanks	
[ ] Distribution	
[ ] Pumping	
[ ] Financial Capacity	
[ ] Managerial Capacity	
[ ] Treatment Application	
[ ] Disinfection	
[ ] Notes	
[ ] Photo Log	
Total Modules	0

GROUNDWATER SOURCE - PG.1

SURVEY DATE: 5/10/2010 (mm/dd/yyyy) PWS #: 4010222

A separate sources form must be filled out for **each** groundwater source in the PWS.

Tag #: D0041080	Common Name of Source: Well #4 Legacy	Source: [x] Well → [ ] Manifold; [ ] Spring → [ ] Spring Box	Is this Source Treated? [ ] Yes [x] No
Physical Location: T:4N R:1W S:11 SW NW			Treatment Objective: [x] N/A
			Treatment Types: [x] N/A *(Identify Treatment Train in Comments)*

Is there a well log for the groundwater source? [x] Yes [ ] No [ ] N/A [ ] Unk

Pump Capacity (GPM)	Casing Size (In)	Date Drilled:	Well Depth (Ft)	Casing Depth (Ft)	Grout Depth(Ft)	Static Water Depth (Ft)
1300 [ ] Unk	16", 12" [ ] Unk	4/17/2006 [ ] Unk	357' [ ] Unk	282' [ ] Unk	272' [ ] Unk	6lb artesian [ ] Unk

Is the Casing Screened?	Screen Depth (Ft): [ ] N/A [ ] Unk	Is the Casing Perforated?	Perforation Depth (Ft): [x] N/A
[x] Yes [ ] No [ ] Unk [ ] N/A	From: 282' To: 352'	[ ] Yes [x] No [ ] Unk [ ] N/A	From: [ ] Unk To:

Latitude (Decimal): 43.701769

Longitude (Decimal): -116.42638

All Sources

1. This source is:
   [x] Active [ ] Proposed
   [ ] Inactive [ ] Emergency (<60 days per year)

yes	no	n/a	unk	note	Question
[ ]	[x]	[ ]	[ ]	[ ]	2. Has there been a Source Water Assessment conducted for the source? Date:
[x]	[ ]	[ ]	[ ]	[ ]	3. Has a final GWUDI determination been done for this source? Date: **4/16/2008**

[ ] N/A 4-36 if source is a spring

WELL INFORMATION

yes	no	n/a	unk	note	Question
[x]	[ ]		[ ]	[ ]	4. Is the well on a separate lot that is large enough to provide a minimum distance of 50 feet between the well and the nearest property line? (applicable if constructed after 11/1/77) [ ] Significant [ ] Deficiency
					Are the following minimum distances from the PWS well being met?
[x]	[ ]		[ ]	[ ]	5. - <u>Gravity</u> sewer line..........50 Ft.
[x]	[ ]		[ ]	[ ]	6. - Pressure sewer line..........100 Ft.
[x]	[ ]		[ ]	[ ]	7. - Individual home septic tank..........100 Ft.
[x]	[ ]		[ ]	[ ]	8. - Individual home disposal field..........100 Ft.
[x]	[ ]		[ ]	[ ]	9. - Individual home seepage pit..........100 Ft.
[x]	[ ]		[ ]	[ ]	10. - Privies..........100 Ft.
[x]	[ ]		[ ]	[ ]	11. - Livestock..........50 Ft.
[x]	[ ]		[ ]	[ ]	12. - Canals, streams, ditches, lakes, ponds and tanks used to store nonpotable substances.........50 Ft.
[ ]	[x]		[ ]	[ ]	13. Are pesticides, herbicides, fertilizers, portable containers of petroleum products, or other toxic or hazardous materials stored on the well lot?
[ ]	[x]		[ ]	[ ]	14. Are pesticides, herbicides, or fertilizers applied to the well lot?
[ ]	[x]		[ ]	[ ]	15. Is the well in a pit? If yes, Date constructed:
[ ]	[ ]	[x]	[ ]	[ ]	16. Was the well that is located in a pit installed after 11/5/64?
[ ]	[ ]	[x]	[ ]	[ ]	17. If pit was installed prior to 11/5/64 – Has DEQ granted an exception and does the pit have water tight construction of pit walls and floor, a floor drain and an acceptable pit cover?
[x]	[ ]	[ ]	[ ]	[ ]	18 Is the well protected from unauthorized entry? *(Recommended)*
[x]	[ ]	[ ]	[ ]	[ ]	19. Does the casing extend a minimum of 18 inches above the final ground surface and/ or 12 inches above the pump house floor? [ ] Significant [ ] Deficiency
[ ]	[ ]	[x]	[ ]	[x]	20. Is the well vented with the open end of the vent screened and terminated downward at least 18 inches above the final ground surface?
[x]	[ ]		[ ]	[ ]	21. Is the well provided with a sanitary cap that prevents surface water entry?
[x]	[ ]		[ ]	[ ]	22. Is the well cased and sealed in such a manner that surface water cannot enter the well?

COMMENTS:
(Please indicate question number)

20. Can not vent, artesian well.

Page ______ Of ______

Common Name	SURVEY DATE		PWS #
Well #4 Legacy	5/10/2010	(mm/dd/yyyy)	4010222

GROUNDWATER SOURCES - PG. 2

COMMENTS:
(Please indicate question number)

yes	no	n/a	unk	note	WELL INFORMATION (cont.)
☑	☐	☐	☐	☐	23. Is there a smooth nosed sample tap provided on the well discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☑	☐	☐	☐	☐ ☐ Unnecessary	24. Is an instantaneous and totalizing flow meter equipped with nonvolatile memory installed on the pump distribution line of the well and is it maintained and working properly? 21936 gallons
☑	☐	☐	☐	☐	25. Is a pressure gauge provided at all installations and is it maintained and working properly? 85 psi.
☑	☐	☐	☐	☐	26. Can the well be pumped to waste at the design capacity of the well via an approved air gap at a location prior to the first service connection?

yes	no	n/a	unk	note	PUMP HOUSE *(Any structure containing important water system components)*
☑	☐	☐	☐	☐	27. Is the source located in a pump house?
☑	☐	☐	☐	☐	28. Is the pump house kept clean and in good repair? *(Floor cracks?)*
☑	☐	☐	☐	☐	29. Is the pump house protected from unauthorized personnel?
☑	☐	☐	☐	☐	30. Does the pump house have adequate lighting throughout? *(Recommended)*
☑	☐	☐	☐	☐	31. Are all non-sample taps installed in the pump house equipped with an appropriate backflow prevention device?
☑ ☐ Significant	☐	☐	☐ Deficiency	☐	32. Is adequate ventilation provided in the pump house for dissipation of excess heat and moisture from the equipment?
☑ ☐ Significant	☐	☐	☐ Deficiency	☐	33. Is adequate heating provided in the pump house to provided safe and efficient operation of equipment to prevent freezing?
☑	☐	☐	☐	☐	34. Is the pump house protected from flooding, have adequate drainage, is the floor surface at least six (6) inches above the final ground surface, and is the ground surface graded so as to lead surface water away from the pump house?
☐	☑	☐	☐	☐	35. Is the sump for pump house floor drains closer than 30 feet from the well?
☐	☑	☐	☐	☐	36. Is the floor drain connected to sewer, storm drains, chlorination room drains, or any other source of contamination?

yes	no	n/a	unk	note	SPRING INFORMATION
☐	☐	☑	☐	☐	37. Is the entire area within a one hundred (100) foot radius of the spring box fenced to prevent trespassing of livestock and void of buildings, dwellings and sources of contamination?
☐	☐	☑	☐	☐	38. Is surface water diverted from the 100 foot protection zone around the spring?
☐	☐	☑	☐	☐	39. Is the spring housed in a permanent structure and protected from contamination including the entry of surface water, animals and dust?
☐	☐	☑	☐	☐	40. Is there a smooth nosed sample tap provided on the spring discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☐	☐	☑	☐	☐	41. Is a flow meter or other flow measuring device provided?

yes	no	n/a	unk	note	SPRING BOX INFORMATION *(Not all existing springs have a spring box)*
☐	☐	☑	☐	☐	42. Is the spring box equipped with a screened overflow?
☐	☐	☑	☐	☐	43. Is the supply intake located above the floor of the collection chamber?
☐	☐	☑	☐	☐	44. Is the spring box protected from contamination including the entry of surface water, animals, and dust?
☐	☐	☑	☐	☐	45. Is the access port fitted with a solid water tight cover which overlaps a framed opening and extended down around the frame at least 2 inches?
☐	☐	☑	☐	☐	46. Is the access port a framed opening that is at least 4 inches high with a locking device?
☐	☐	☑	☐	☐	47. Is the access port elevated at least twenty-four (24) inches above the top of the box or ground level, whichever is higher?

Page ______ Of ______

GROUNDWATER SOURCE - PG.1

SURVEY DATE: 5/10/2010 *(mm/dd/yyyy)*

PWS #: 4010222

A separate sources form must be filled out for **each** groundwater source in the PWS.

Tag #:	Common Name of Source:	Source:	Is this Source Treated? [ ] Yes [x] No
D0042405	Well #5 Eaglefield	[x] Well → [ ] Manifold [ ] Spring → [ ] Spring Box	Treatment Objective: [x] N/A
Physical Location: T:4N R:1W S:11 NW SE			Treatment Types: [x] N/A *(Identify Treatment Train in Comments)*

Is there a well log for the groundwater source? [x] Yes [ ] No [ ] N/A [ ] Unk

Pump Capacity (GPM)	Casing Size (In)	Date Drilled:	Well Depth (Ft)	Casing Depth (Ft)	Grout Depth(Ft)	Static Water Depth (Ft)
1125 [ ] Unk	16", 12" [ ] Unk	5/6/2006 [ ] Unk	430' [ ] Unk	345' [ ] Unk	320' [ ] Unk	8.1 lb artesian [ ] Unk

Is the Casing Screened?	Screen Depth (Ft): [ ] N/A [ ] Unk	Is the Casing Perforated?	Perforation Depth (Ft): [x] N/A
[x] Yes [ ] No [ ] Unk [ ] N/A	From: 345' To: 425'	[ ] Yes [x] No [ ] Unk [ ] N/A	[ ] Unk From: To:

Latitude (Decimal): 43.697258

Longitude (Decimal): -116.421094

All Sources

1. This source is:
   [x] Active [ ] Proposed
   [ ] Inactive [ ] Emergency (<60 days per year)

yes	no	n/a	unk	note	Question
[ ]	[x]	[ ]	[ ]	[ ]	2. Has there been a Source Water Assessment conducted for the source? Date:
[x]	[ ]	[ ]	[ ]	[ ]	3. Has a final GWUDI determination been done for this source? Date: **4/16/2008**

[ ] N/A 4-36 if source is a spring

WELL INFORMATION

yes	no	n/a	unk	note	Question
[x]	[ ]		[ ]	[ ]	4. Is the well on a separate lot that is large enough to provide a minimum distance of 50 feet between the well and the nearest property line? (applicable if constructed after 11/1/77) — [ ] Significant [ ] Deficiency
					Are the following minimum distances from the PWS well being met?
[x]	[ ]		[ ]	[ ]	5. - Gravity sewer line...50 Ft.
[x]	[ ]		[ ]	[ ]	6. - Pressure sewer line......................................100 Ft.
[x]	[ ]		[ ]	[ ]	7. - Individual home septic tank.............................100 Ft.
[x]	[ ]		[ ]	[ ]	8. - Individual home disposal field..........................100 Ft.
[x]	[ ]		[ ]	[ ]	9. - Individual home seepage pit............................100 Ft.
[x]	[ ]		[ ]	[ ]	10. - Privies..100 Ft.
[x]	[ ]		[ ]	[ ]	11. - Livestock..50 Ft.
[x]	[ ]		[ ]	[ ]	12. - Canals, streams, ditches, lakes, ponds and tanks used to store nonpotable substances.........50 Ft.
[ ]	[x]		[ ]	[ ]	13. Are pesticides, herbicides, fertilizers, portable containers of petroleum products, or other toxic or hazardous materials stored on the well lot?
[ ]	[x]		[ ]	[ ]	14. Are pesticides, herbicides, or fertilizers applied to the well lot?
[ ]	[x]		[ ]	[ ]	15. Is the well in a pit? If yes, Date constructed:
[ ]	[ ]	[x]	[ ]	[ ]	16. Was the well that is located in a pit installed after 11/5/64?
[ ]	[ ]	[x]	[ ]	[ ]	17. If pit was installed prior to 11/5/64 – Has DEQ granted an exception and does the pit have water tight construction of pit walls and floor, a floor drain and an acceptable pit cover?
[x]	[ ]	[ ]	[ ]	[ ]	18 Is the well protected from unauthorized entry? *(Recommended)*
[x]	[ ]	[ ]	[ ]	[ ]	19. Does the casing extend a minimum of 18 inches above the final ground surface and/ or 12 inches above the pump house floor? — [ ] Significant [ ] Deficiency
[ ]	[ ]	[x]	[ ]	[x]	20. Is the well vented with the open end of the vent screened and terminated downward at least 18 inches above the final ground surface?
[x]	[ ]		[ ]	[ ]	21. Is the well provided with a sanitary cap that prevents surface water entry?
[x]	[ ]		[ ]	[ ]	22. Is the well cased and sealed in such a manner that surface water cannot enter the well?

COMMENTS:
(Please indicate question number)

20. Can not be vented, artesian well

	Common Name	SURVEY DATE		PWS #
GROUNDWATER SOURCES - PG. 2	Well #5 Eaglefield	5/10/2010	*(mm/dd/yyyy)*	4010222

yes	no	n/a	unk	note	WELL INFORMATION (cont.)
☑	☐	☐	☐	☐	23. Is there a smooth nosed sample tap provided on the well discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☑	☐	☐ Unnecessary ☐	☐	☐	24. Is an instantaneous and totalizing flow meter equipped with nonvolatile memory installed on the pump distribution line of the well and is it maintained and working properly? **15381027** gallons
☑	☐	☐	☐	☐	25. Is a pressure gauge provided at all installations and is it maintained and working properly? **75** psi.
☑	☐	☐	☐	☐	26. Can the well be pumped to waste at the design capacity of the well via an approved air gap at a location prior to the first service connection?

yes	no	n/a	unk	note	PUMP HOUSE *(Any structure containing important water system components)*
☑	☐	☐	☐	☐	27. Is the source located in a pump house?
☑	☐	☐	☐	☐	28. Is the pump house kept clean and in good repair? *(Floor cracks?)*
☑	☐	☐	☐	☐	29. Is the pump house protected from unauthorized personnel?
☑	☐	☐	☐	☐	30. Does the pump house have adequate lighting throughout? *(Recommended)*
☑	☐	☐	☐	☐	31. Are all non-sample taps installed in the pump house equipped with an appropriate backflow prevention device?
☑	☐	☐	☐	☐	32. Is adequate ventilation provided in the pump house for dissipation of excess heat and moisture from the equipment? ☐ Significant ☐ Deficiency
☑	☐	☐	☐	☐	33. Is adequate heating provided in the pump house to provided safe and efficient operation of equipment to prevent freezing? ☐ Significant ☐ Deficiency
☑	☐	☐	☐	☐	34. Is the pump house protected from flooding, have adequate drainage, is the floor surface at least six (6) inches above the final ground surface, and is the ground surface graded so as to lead surface water away from the pump house?
☐	☑	☐	☐	☐	35. Is the sump for pump house floor drains closer than 30 feet from the well?
☐	☑	☐	☐	☐	36. Is the floor drain connected to sewer, storm drains, chlorination room drains, or any other source of contamination?

yes	no	n/a	unk	note	SPRING INFORMATION
☐	☐	☑	☐	☐	37. Is the entire area within a one hundred (100) foot radius of the spring box fenced to prevent trespassing of livestock and void of buildings, dwellings and sources of contamination?
☐	☐	☑	☐	☐	38. Is surface water diverted from the 100 foot protection zone around the spring?
☐	☐	☑	☐	☐	39. Is the spring housed in a permanent structure and protected from contamination including the entry of surface water, animals and dust?
☐	☐	☑	☐	☐	40. Is there a smooth nosed sample tap provided on the spring discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☐	☐	☑	☐	☐	41. Is a flow meter or other flow measuring device provided?

yes	no	n/a	unk	note	SPRING BOX INFORMATION *(Not all existing springs have a spring box)*
☐	☐	☑	☐	☐	42. Is the spring box equipped with a screened overflow?
☐	☐	☑	☐	☐	43. Is the supply intake located above the floor of the collection chamber?
☐	☐	☑	☐	☐	44. Is the spring box protected from contamination including the entry of surface water, animals, and dust?
☐	☐	☑	☐	☐	45. Is the access port fitted with a solid water tight cover which overlaps a framed opening and extended down around the frame at least 2 inches?
☐	☐	☑	☐	☐	46. Is the access port a framed opening that is at least 4 inches high with a locking device?
☐	☐	☑	☐	☐	47. Is the access port elevated at least twenty-four (24) inches above the top of the box or ground level, whichever is higher?

COMMENTS:
(Please indicate question number)

Page ______ Of ______

DISTRIBUTION

One form for **all** distribution systems in the PWS.

SURVEY DATE		PWS #
5/10/2010	*(mm/dd/yyyy)*	4010222

What are water lines made of:

Material(s): ☐ Unk

☐ Steel ☐ HDPE (black) ☐ Asbestos/Cement

☑ PVC ☐ Ductile Iron ☐ Copper

☐ Other:

Size(s): ☐ Unk

6" - 12", Mostly 8"

How many services are metered?

15 out of **15**

Number of Fire Hydrants:

About 38

COMMENTS:
(Please indicate the question number)

yes	no	n/a	unk	note	**DISTRIBUTION**
☐	☑	☐	☐	☐	1. Have there been any interruptions in service during the past year? (including pressure loss)
☐	☐	☑	☐	☐	2. If a loss of pressure occurred (>20 psi), did the PWS provide public notice and disinfect the system? *(Reminder)*
☑	☐	☐	☐	☐	3. Is the PWS able to maintain a minimum pressure of twenty (20) psi throughout the distribution system (including fire flow), or forty (40) psi for PWSs constructed after 7/1/1985 (excluding fire flow), during maximum hourly demand conditions?
☐	☑	☐	☐	☐	4. Was the pressure observed at a service connection?
					5. If yes: ____ psi. Location: ____ Time: ____ ☐ A.M. ☐ P.M.

yes	no	n/a	unk	note	
☑	☐	☐	☐	☐	6. Do all water mains that provide fire flow have a diameter of at least 6 inches?
☑	☐	☐	☐	☐	7. Are valves exercised regularly? *(Recommended)* If yes, how often? **At least once/year**
☐	☑	☐	☐	☐	8. Is there a leak detection program? *(Recommended)*
☐	☐	☐	☑	☐	9. Is 15% or more of the water unaccounted for?
☐	☑	☐	☐	☐	10. Is a water conservation program in effect? *(Recommended)*
☑	☐	☐	☐	☐	11. Is an adequate map of the distribution system maintained? *(Recommended)*
☑	☐	☐	☐	☐	12. Does the system flush all main lines annually? *(Recommended)*
☑	☐	☐	☐	☐	13. Are all dead end water mains equipped with a means to flush?
☑	☐	☐	☐	☐	14. If yes, are the deadends flushed at least semiannually?
☐	☑	☐	☐	☐	15. Are there any distribution materials used that should not be in contact with the drinking water? *If yes, explain in comments section.*
☑	☐	☐	☐	☐	16. Is the system adequately protected from freezing?
☑	☐	☐	☐	☐	17. Is there a cross connection control program? *(Community PWSs Only)*
☑	☐	☐	☐	☐	18. Is the operator trained in cross connection control? *(Recommended)*
☐	☑	☐	☐	☐	19. Is the operator aware of any cross connections or were any cross connections observed during the course of the survey?
☑	☐	☐	☐	☐	20. If a separate non-potable irrigation system is provided for the consumer, are all mains, hydrants, and appurtenances easily identified as non-potable? (Purple Tape or other) *(Recommended)*

yes	no	n/a	unk	note	**Air/Vacuum Relief Valves** - *Placed at high points in water mains.*
☐	☐	☑	☐	☐	21. Are all automatic air relief valves equipped with a means of backflow protection?

PUMPING - PG. 1

One form for all Pumps.

SURVEY DATE		PWS #
5/10/2010	(mm/dd/yyyy)	4010222

PUMPS, PUMPHOUSES, AND CONTROLS

Pump ID#:	Physical Location:	Type of Pump:	Brand:	Model:	Horsepower:	Purpose:
L1	Legacy Well House (Fire Pump)	Turbine	GE	5KE405Dtt6002	125	Fire Flow
L2	Legacy Well House	Booster	Emerson	C538	7.5	Meet Demand
L3	Legacy Well House	Booster	Emerson	R415	10	Meet Demand
L4	Legacy Well House	Booster	Emerson	R433	15	Meet Demand
E1	Eaglefield Well House (Fire Pump)	Turbine	Emerson	BF75A	150	Fire Flow
E2	Eaglefield Well House	Booster	Emerson	C538	7.5	Meet Demand
E3	Eaglefield Well House	Booster	Emerson	C538	7.5	Meet Demand
E4	Eaglefield Well House	Booster	Emerson	R415	10	Meet Demand

yes	no	n/a	unk	note	Question	COMMENTS: (Please indicate the question number)
					ALL PUMPS	
☑	☐	☐	☐	☐	1. Are all pumps capable of providing the maximum pumping demand of the system?	
☐	☑	☐	☐	☐	2. Does the pump(s) cycle excessively? *(Recommended)*	
☑	☐	☐	☐	☑	3. Are all pumps provided with readily available spare parts and tools?	3. Riverside Pump, Inc.
☑	☐	☐	☐	☑	4. Is a water pressure relief valve installed where the pump is directly connected to the distribution system?	4. Relief via pump control valve
☑	☐	☐	☐	☐	5. Is a standard pressure gauge installed on the discharge line?	
					WELL PUMPS	
☑	☐	☐	☐	☑	6. Is there an accessible check valve installed in the discharge line of each well between the pump and the shut-off valve?	6. Check valve only on the fire pump, artesian line does not have a pump and does not need check
☑	☐	☐	☐	☐	7. If the system has a vertical turbine motor driven pump(s), is an air release-vacuum relief valve located upstream from the check valve, with exhaust/relief piping terminating in a down-turned position at least 18 inches above the floor and covered with a 24 mesh corrosion resistant screen?	
☑	☐	☐	☐	☐	8. If the pump(s) is "oil lubricated", is the oil NSF approved and suitable for human consumption?	
					WATER PUMPS *(not well pumps)*	
☑	☐	☐	☐	☐	9. Is an accessible check valve on the discharge side between the pump and the shut-off valve?	
					AUXILIARY POWER	
☑	☐	☐	☐	☐	10. Is there auxiliary power on-site? (Community Systems Only) ☐ Significant ☐ Deficiency	
☑	☐	☐	☐	☐	11. Is auxiliary power tested? *(Recommended)*	
☑	☐	☐	☐	☐	12. If a diesel or gasoline fueled engine is used on the well lot; is the fuel tank and connecting piping double walled?	
☑	☐	☐	☐	☐	13. Is the fuel tank above ground?	
☑	☐	☐	☐	☐	14. Is a certified operator present during the filling of the fuel tank?	
					If the engine is in the well house	
☑	☐	☐	☐	☐	15. Is the engine exhaust directly discharged outside the well house?	
☐	☑	☐	☐	☑	16. Is a spill containment structure surrounding all fuel tanks adequate? *(Secondary containment - 110% fuel tank volume)*	16. Neither well (Eaglefield nor Legacy) have spill containment
					Community Systems Only	
☑	☐	☐	☐	☐	17. *(Community Systems built after 4/15/07 only)* Is on-site power or standby storage provided so water can be treated and supplied to pressurize the entire distribution system during a power outage for a minimum of 8 hours?	
☑	☐	☐	☐	☐	18. *(Community Systems built after 4/15/07 only)* If standby power is provided, Is there a minimum of 8 hours of fuel stored and located on site?	

PUMPING - PG. 2

SURVEY DATE		PWS #
5/10/2010	*(mm/dd/yyyy)*	4010222

yes	no	n/a	unk	note	BOOSTER PUMPS
☑	☐	☐	☐	☐ ☐ Unnecessary	19. Is an instantaneous and totalizing flow meter installed where the booster pump is directly connected to the distribution system?
☑	☐	☐	☐	☐	20. Are all in-line booster pumps supplied with an automatic cutoff that activates when intake pressure is less than or equal to 5 psi?
☐	☑	☐	☐	☐	21. Is the booster pump located on a suction line that is directly connected to any storage reservoir?
☐	☐	☑	☐	☐	22. If yes, are all booster pumps protected by an automatic cutoff to prevent pump damage and avoid excessive reservoir drawdown?

yes	no	n/a	unk	note	PUMP HOUSE *(Only pump houses that don't contain a Groundwater Source)*
☑	☐	☐	☐	☐	23. Is the pump house kept clean and in good repair? *(Floor cracks?)*
☑	☐	☐	☐	☐	24. Is the pump house protected from unauthorized personnel?
☑	☐	☐	☐	☐	25. Does the pump house have adequate lighting throughout? *(Recommended)*
☑	☐	☐	☐	☐	26. Are all non-sample taps installed in the pump house equipped with an appropriate backflow prevention device?
☑ ☐ Significant	☐	☐	☐ ☐ Deficiency	☐	27. Is adequate ventilation provided in the pump house for dissipation of excess heat and moisture from the equipment?
☑ ☐ Significant	☐	☐	☐ ☐ Deficiency	☐	28. Is adequate heating provided in the pump house to provided safe and efficient operation of equipment *(prevent moisture buildup and/or freezing)*?
☑	☐	☐	☐	☐	29. Is the pump house protected from flooding, have adequate drainage, is the floor surface at least six (6) inches above the final ground surface, and is the ground surface graded so as to lead surface water away from the pump house?

yes	no	n/a	unk	note	
☐	☑	☐	☐	☐	30. Is the sump for pump house floor drains closer than 30 feet from the well?
☐	☑	☐	☐	☐	31. Is the floor drain connected to sewer, storm drains, chlorination room drains, or any other source of contamination?

COMMENTS:
(Please indicate the question number)

FINANCIAL CAPACITY

SURVEY DATE		PWS #
5/10/2010	(mm/dd/yyyy)	4010201

yes	no	n/a	unk	note	FINANCIAL CAPACITY
☑	☐	☐	☐	☐	1. Is the PWS current with the payment of drinking water fees?
☐	☐	☐	☐	☐	2. Does the PWS charge a drinking water fee to the user? If yes, what is the fee: $ **8.50 base + 1.19 per hundred cubic**
☑	☐	☐	☐	☐	3. Is the PWS in the business of selling water?
					#3 Note: **- If no, identify why in the comments section and mark "N/A" on questions 4 - 19.**
☑	☐	☐	☐	☐	4. Does the PWS provide and use an annual budget? *(Recommended)*
☑	☐	☐	☐	☐	5. If applicable, is the PWS fund separate from the waste water/sewer utility fund? *(Recommended)*
☑	☐	☐	☐	☐	6. Do water system revenues exceed expenditures? *(Recommended)*
☑	☐	☐	☐	☑	7. Are controls established to prevent expenditures from exceeding revenues?
☑	☐	☐	☐	☐	8. Has an independent financial audit been completed? *(Recommended)*
☑	☐	☐	☐	☐	9. If yes, is a copy of the most recent balance sheet for the water system available? *(Recommended)*
☑	☐	☐	☐	☐	10. Does the water system include a cash budget within its annual budget for cash flow? *(Recommended)*
☑	☐	☐	☐	☐	11. Does the water system management review the user fee, user charge, or rate system at least annually? *(Recommended)*
					12. When was the last user fee, user charge, or rate system adjustment? **November 2008** *mm/dd/yyyy*
☑	☐	☐	☐	☐	13. Does the water system management review financial reports at least monthly? *(Recommended)*
☑	☐	☐	☐	☐	14. Does the PWS provide and use a capital budget? *(Recommended)*
☑	☐	☐	☐	☐	15. Has this PWS produced and does it currently utilize a capital improvements plan? *(Recommended)*
					16. If yes, when was the capital improvements budget produced? *mm/dd/yyyy*
☑	☐	☐	☐	☐	17. Has the capital improvement budget been updated in the last 18 months? *(Recommended)*
☑	☐	☐	☐	☐	18. Does the water system budget provide funding for depreciation of existing plant in service and/or for the funding of reserves for system replacement?
☑	☐	☐	☐	☐	19. Are there sufficient funds for training personnel?

COMMENTS:
(Please indicate the question number)

7. Would do a rate study and increase rates if needed

Page ________ Of ________

MANAGERIAL CAPACITY

SURVEY DATE		PWS #
05/10/2010	*(mm/dd/yyyy)*	4010201

MANAGERIAL CAPACITY

yes	no	n/a	unk	note	MANAGERIAL CAPACITY
☑	☐	☐	☐	☐	1. Is a properly licensed operator available at all times? (N/A for GW-NC PWS)
☐	☑	☐	☐	☐	2. Is there a Drinking Water Source Protection Plan developed for this system? Date:
☑	☐	☐	☐	☐	3. Does this PWS have a governing body or board of directors?

If no, please indicate:

- ☐ Sole Proprietorship
- ☐ Partnership
- ☐ Limited Liability Corp.
- ☐ Other:

4. How often does the board meet? ☐ N/A

- ☐ weekly
- ☐ semi-annually
- ☐ never
- ☑ monthly
- ☐ annually
- ☐ unknown
- ☐ bimonthly
- ☐ as necessary
- ☐ other:

yes	no	n/a	unk	note	Are the following records maintained onsite or located near by?
☑	☐	☐	☐	☐	5. - Bacteriological Analysis - **5 years retention.**
☑	☐	☐	☐	☐	6. - Chemical Analysis - **10 years retention.**
☐	☐	☑	☐	☐	7. - Records of actions taken to correct violations - **3 years retention.**
☐	☐	☑	☐	☐	8. - Copies of reports, summaries or communication related to sanitary surveys - **10 years retention.**
☑	☐	☐	☐	☐	9. - Reports concerning variances or exemptions - **5 years retention.**
☐	☐	☑	☐	☐	10. - Copies of public notices issued - **3 years retention.**
☐	☐	☑	☐	☐	11. - Daily free chlorine residuals *(required disinfection)* - **1 year retention.**
☑	☐	☐	☐	☐	12. Are routine maintenance schedules established? *(Recommended)*
☑	☐	☐	☐	☐	13. Is an operation and maintenance manual(s) provided for the PWS and does it include; daily operating instructions, operator safety procedures, location of valves and other key system features, parts list and parts order form, and information for contacting the water system operator?
☑	☐	☐	☐	☐	14. Is there a clear plan of organization and control among the people responsible for management and operations of the water system? *(Recommended)*

yes	no	n/a	unk	note	Are any samples of the following parameters past due?
☐	☑	☐	☐	☐	15. Coliform
☐	☑	☐	☐	☐	16. Nitrates
☐	☑	☐	☐	☐	17. Nitrites
☐	☑	☐	☐	☐	18. Lead and Copper
☐	☑	☐	☐	☐	19. IOCs
☐	☑	☐	☐	☐	20. VOCs
☐	☑	☐	☐	☐	21. SOCs
☐	☐	☑	☐	☐	22. Disinfection Byproducts
☐	☑	☐	☐	☐	23. Radionuclide
☑	☐	☐	☐	☐	24. Is a written total coliform rule (TCR) sample site plan available for review?
☑	☐	☐	☐	☐	25. Does the (TCR) sample site plan meet the minimum requirements?
☑	☐	☐	☐	☐	26. Does the system have a sufficient supply of approved sampling bottles properly stored? *(Recommended)*
☑	☐	☐	☐	☐	27. Does the PWS provide stairways, ladders and handrails where needed?
☑	☐	☐	☐	☐	28. Are treads of non-slip material provided where needed?
☐	☑	☐	☐	☐	29. Is a health concern produced from inadequately protected electrical wiring?
☑	☐	☐	☐	☐	30. Are all confined space entry requirements considered? *(Recommended)*
☐	☑	☐	☐	☐	31. Are there any unused subsurface water storage tanks that need to be abandoned?
☐	☑	☐	☐	☐	32. Are there any water supply wells that are no longer being used that need to be abandoned?

COMMENTS:
(Please indicate the question number)

State of Idaho
Department of Environmental Quality
Photo Log

Name of Facility:		Inspection Date		PWS#
Eagle, City of (Western Zone)		5/10/2010	*(mm/dd/yyyy)*	4010222
Camera Type: ☑ Digital ☐ 35mm ☐ Other:	Camera Brand: Nikon	Camera Model:		Camera ID#:

Photo:	Date:	By: (initials)	Direction: (N,S,E,W, etc.)	File Name:	Description:
1	5/10/2010	BL		DSCN1566	Legacy well house showing pump to waste outlet
2	5/10/2010	BL		DSCN1567	Legacy well showing fire flow line and artesian line, and boosters
3	5/10/2010	BL		DSCN1568	Legacy piping to distribution and pump to waste
4	5/10/2010	BL		DSCN1569	Eaglefield well house showing pump to waste outlet
5	5/10/2010	BL		DSCN1570	Eaglefield well showing fire flow and artesian line, and boosters
6	5/10/2010	BL		DSCN1571	Eaglefield piping to distribution and pump to waste
7	5/10/2010	BL		DSCN1572	Eaglefield auxiliary power generator

The photographers signature below signifies that the images identified on this photo log have not been tampered with and are representative of what was seen in the field.

Photographer(s) Signature(s): Date:

Page ________ Of ________

DSCN1566 – Well #4 Legacy showing pump to waste

DSCN1569 – Well #5 Eaglefield showing pump to waste

DSCN1567 – Legacy booster pumps from artesian pipe

DSCN1570 – Eaglefield boosters and fire pump

DSCN1568 – Legacy discharge to system and pump to waste

DSCN1571 – Eaglefield discharge piping and pump to waste

[redacted]

DSCN1572 – Eaglefield generator

Enhanced Sanitary Survey
Preliminary Inspection Findings Form

Facility Name: City of Eagle (Western Zone) PWS #: 4010222

Inspection Date: 5/10/10 Time Closing Conference Begins: 10:35 Time Closing Conference Ends: ______

Inspector: Brandon Lowder Phone #: ______
(Print Name)

Inspector: [signature]
(Signature)

Facility Representative: BRENT ARTE E-mail: barte@cityofeagle.org
(Print Name)

Title: Lead Operator Facility Representative: [signature]
(Signature)

Note: *Your signature indicates you have received this document and does not imply agreement with the violations noted.*

Yes ☐ No ☒ I would like to be contacted by ☐ Idaho Rural Water ☐ Rural Community Assistance Corp,

☐ Environmental Finance Center for no cost technical assistance at the following phone #: ______

Significant Deficiencies Noted at the Time of the Inspection:

In accordance with IDAPA 58.01.08.008.02., the health hazards identified below must be mitigated as required by the Department and terminated within a time schedule established by the Department.

	Correction Time Frame
1.	☐ 24 hours ☐ 7 days ☐ Corrective action plan within 30 days
2.	☐ 24 hours ☐ 7 days ☐ Corrective action plan within 30 days
3.	☐ 24 hours ☐ 7 days ☐ Corrective action plan within 30 days
4.	☐ 24 hours ☐ 7days ☐ Corrective action plan within 30 days
5.	☐ 24 hours ☐ 7 days ☐ Corrective action plan within 30 days
6.	☐ 24 hours ☐ 7 days ☐ Corrective action plan within 30 days

Potential Violations Pending Further Review:

1. Check valve on artesian lines for Eaglefield & Legacy
2. spill containment for diesel generator (both wells)
3.
4.
5.
6.

Original stays with inspector for scanning and filing. Copy stays with Public Water System Owner/Operator.

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1445 North Orchard • Boise, Idaho 83706 • (208) 373-0550

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

May 24, 2010

Eagle, City of (Eastern Zone)
Attn: Michael Echeita
P.O. Box 1520
Eagle, ID 83616

PWS# ID4010201

Subject: Enhanced Sanitary Survey conducted on May 10, 2010

Dear Mr. Echeita:

A copy of the Enhanced Sanitary Survey form, the photo log and photos for Public Water System (ID4010201) are enclosed with this mailing for your records. Attached, you will find a list of the significant deficiencies and/or recommended improvements for your system.

Please consult with your regulating agency regarding the significant deficiencies identified in this written notification. Upon agreement between the public water system and the regulating agency, please provide a written corrective action plan to the regulating agency that addresses all significant deficiencies. This consultation with the regulating agency shall be completed within 30 days of receiving this written notification. This request is Pursuant to IDAPA 58.01.08.323 for groundwater systems and IDAPA 58.01.08.302 for surface water systems.

For all new water systems or modifications to existing water systems, an engineering report shall be submitted to the Department of Environmental Quality (DEQ) for review and approval prior to or concurrent with the submittal of plans and specifications as required in Subsection 503.03, pursuant to IDAPA 58.01.08.503.

Prior to construction of new public water supply systems or modifications of existing public water supply systems, plans and specifications must be submitted to the DEQ for review, and approved, pursuant to IDAPA 58.01.08.504.

Thank you for your time and cooperation in the completion of this survey. If you have any questions, please contact me at (208) 373-0568 or via e-mail at brandon.lowder@deq.idaho.gov.

Sincerely,

Brandon Lowder
Drinking Water Analyst
Idaho Department of Environmental Quality

Enclosures: List of Significant Deficiencies
Enhanced Sanitary Survey Inspection Form
Photo Log and Photos

May 24, 2010
Eagle, City of (Eastern Zone)
PWS# 4010201

RE: Enhanced Sanitary Survey conducted on May 10, 2010

You will find a list of the significant deficiencies, deficiencies and recommended improvements for your system summarized below. In order to address all significant deficiencies, follow steps 1, 2 & 3.

Step 1:
After reviewing the significant deficiencies listed below, please call our office to identify a corrective action plan for each significant deficiency within 30 days of receiving this written notification. During that call, please be prepared to provide a "Planned Completion Date" for each item.

Step 2:
Complete the planned action(s) by the agreed upon date.

Step 3:
Enter an "Actual Completion Date", Initials, identify the "Corrective action taken", and sign that each corrective action has been corrected by the agreed upon date and that the corrective action meets the requirements pursuant to IDAPA 58.01.08. Please send a copy of the corrective action taken to the regulating agency.

Significant Deficiencies

Pumping:

#7: The air release/vacuum relief at Well #3-Brookwood was not screened.
Note: A 24 mesh, non-corrodible screen shall be installed to prevent contamination.

Planned Completion Date: ____________,

Actual Completion Date: _____________, Initials________.
Corrective action taken:

#16: The auxiliary power generator fuel tank for Well #3-Brookwood does not have secondary containment.
Note: Spill containment may be incorporated into the design of the generator. Please verify this, and if spill containment is not incorporated it shall be installed, and shall be sized to handle 110% of the generator fuel tank volume.

Planned Completion Date: ____________,

Actual Completion Date: _____________, Initials________.
Corrective action taken:

I certify, to the best of my knowledge that all significant deficiencies have been corrected by the agreed upon date and that the corrective action meet the requirements pursuant to IDAPA 58.01.08.

Signature: ____ Date: ________________

May 24, 2010
Eagle, City of (Eastern Zone)
PWS# 4010201

Deficiencies

Groundwater Source:

#4: The property line around Well #1-Lexington is closer than 50 feet.
Note: ***No action is required at this time****. However, please understand this is a vulnerable area, and continue to work with the property owner(s) to maintain a buffer that is free of toxic or hazardous contamination sources.*

#20: Well #3-Brookwood is not equipped with a well vent.
Note: No immediate action is required, but a well vent is needed to prevent casing and borehole damage. When installed the vent must be at least 18 inches above ground, down-turned and screened.

Managerial:

#32: Well #2 is no longer used, and shall be abandoned if future use is not planned.
Note: Supply wells that will no longer be used need to be adequately abandoned to prevent groundwater contamination. Please contact the Idaho Department of Water Resources for proper abandonment procedures if you do not plan on using this well.

Treatment Application:

#19: The venting from the chlorine generation at Well #3-Brookwood discharges near the air conditioning intake for the well house.
Note: ***No action is required at this time****, but if it is noticed that off gassing from the chlorine is being sucked into the well house through the nearby air conditioning intake, action may be required.*

Recommendations

Distribution:

#8/10: DEQ recommends a leak detection and water conservation program be put in place and utilized.

Treatment Application:

#8: There wasn't the capability to measure or track the quantity of chemical used as part of the hypochlorite process. This was because hypochlorite is continuously generated which fills up the tank. It is recommended that the system monitor the chemical usage somehow.

This system will be in substantial compliance with regulations if the significant deficiencies of this survey are corrected. Thank you for your time and cooperation in the completion of this survey. If you have any questions, please contact me at (208) 373-0568 or via e-mail at brandon.lowder@deq.idaho.gov.

Sincerely,

Brandon Lowder
Drinking Water Analyst
Idaho Department of Environmental Quality

Enclosures: Enhanced Sanitary Survey Report
Enhanced Sanitary Survey Inspection Form
Photo Log and Photos

State of Idaho Public Water System Enhanced Sanitary Survey

WATER SYSTEM INVENTORY INFORMATION

SURVEY DATE: 5/10/2010 (mm/dd/yyyy)

PWS #: 4010201

Name of Public Water System: **Eagle, City of (Eastern Zone)**

# of Groundwater Sources: 2
#of Surface Water Sources: 0
# of Storage Facilities: 1
Total Storage (gal): 1 MG

Date of Last Survey: 06/03/2003

Health District: ☑ N/A

DEQ Region: ☐ N/A
BRO

County: Ada

Number of Service Connections: 1326

Residential Population: 3645

Status: ☑ Approved ☐ Disapproved

Water Purchased From: ☑ N/A
PWS #:
Name:

Water Sold To: ☑ N/A
PWS #:
Name:

Owner Type: Local Government

Legal Entity: Government Agency

Water System Classification:
☑ Community Water System
☐ Nontransient Noncommunity
☐ Transient Noncommunity - NC

Combined Sources? ☐ Yes ☑ No
If yes, ☐ Well Field ☐ Manifold/Spring Box
Sources Combined:

System Classification:
Distribution: DWD2
Treatment: ☑ N/A

Seasonal Operation Dates: ☑ N/A
Date Open:
Date Closed:

Responsible Charge Operator (DO): ☐ No DO ☐ N/A - Identify Operator for GW-NC PWS)
☑ Mr. ☐ Ms. Brent Arte

Properly Licensed? ☑ Yes ☐ No ☐ N/A-GW-NC
License Type: DWD2 ☐ N/A
License Number: DWD2-14255
Mailing Address:
660 Civic Ln.
City, State, Zip Code:
Eagle, ID 83616
Telephone
Day: (208) 489-8787
Night:
Fax:
E-mail: barte@cityofeagle.org

Legal Owner's Name:
☐ Mr. ☐ Ms. City of Eagle (Sharon Bergmann
Mailing Address:
P.O. Box 1520
City, State, Zip Code:
Eagle, ID 83616
Telephone
Day: (208) 939-6813
Night:
Fax:
E-mail:

Substitute Responsible Charge Operator (OP): ☐ No OP ☐ N/A for GW-NC PWS
☑ Mr. ☐ Ms. Timothy Hill

Properly Licensed? ☑ Yes ☐ No ☐ N/A-GW-NC
License Type: DWD4, DWT4 ☐ N/A
License Number: DWD4-15819, DWT4-10773
Mailing Address:
660 Civic Ln.
City, State, Zip Code:
Eagle, ID 83616
Telephone
Day: (208) 939-1129
Night:
Fax:
E-mail:

Individuals present during inspection:

Name	Title
Brent Arte	Operator
Brandon Lowder	DEQ

Physical location of the PWS (Township, Range, Section):

Samples taken at the time of survey by inspector? ☐ Yes ☑ No

If yes, what:

Survey performed by:
Name: Brandon Lowder
Title: Drinking Water Analyst
Phone #: (208) 373-0568

Agency: ☑ IDEQ ☐ Health Dept. ☐ Other:

yes	no	n/a	unk	note	General Information
☐	☐	☑	☐	☐	1. Have previously required Significant Deficiencies & Deficiencies been addressed?
☑	☐	☐	☐	☐	2. Have modifications been made to the PWS since the last ESS?
☑	☐	☐	☐	☐	3. If yes, are the modifications considered to be significant?
☑	☐	☐	☐	☐	4. If yes, were plans and specs submitted to and approved by DEQ?
☐	☑	☐	☐	☐	5. Are there any known issues or problems with equipment or operation of the PWS that could negatively effect the quality of the water produced? (*If yes, comment*)

Comments:

Sanitary Survey Index

Modules used:	#
☑ General Information	1
☑ Groundwater Source	2
☑ Storage	1
☐ Hydropneumatic Tanks	0
☑ Distribution	1
☑ Pumping	1
☑ Financial Capacity	1
☑ Managerial Capacity	1
☑ Treatment Application	2
☑ Disinfection	2
☐ Notes	0
☑ Photo Log	1
Total Modules	**13**

GROUNDWATER SOURCE - PG.1

SURVEY DATE: 5/10/2010 *(mm/dd/yyyy)* | PWS #: 4010201

A separate sources form must be filled out for **each** groundwater source in the PWS.

Tag #:	Common Name of Source:	Source:	Is this Source Treated? [x] Yes [ ] No
E0006326	Well #1 Lexington	[x] Well → [ ] Manifold [ ] Spring → [ ] Spring Box	Treatment Objective: [ ] N/A
Physical Location:			Disinfection
			Treatment Types: [ ] N/A *(Identify Treatment Train in Comments)*
Is there a well log for the groundwater source? [x] Yes [ ] No [ ] N/A [ ] Unk			Hypochlorination

Pump Capacity (GPM)	Casing Size (In)	Date Drilled:	Well Depth (Ft)	Casing Depth (Ft)	Grout Depth(Ft)	Static Water Depth (Ft)
[ ] Unk	16" [ ] Unk	4/14/1992 [ ] Unk	615' [ ] Unk	612' [ ] Unk	115' [ ] Unk	90' [ ] Unk

Is the Casing Screened?	Screen Depth (Ft): [ ] N/A [ ] Unk	Is the Casing Perforated?	Perforation Depth (Ft): [x] N/A
[x] Yes [ ] No [ ] Unk [ ] N/A	From: 499, 519, 554, 592 To: 509, 529, 574, 602	[ ] Yes [x] No [ ] Unk [ ] N/A	From: [ ] Unk To:

Latitude (Decimal): 43.707458

Longitude (Decimal): -116.332511

All Sources

1. This source is:
   [x] Active [ ] Proposed
   [ ] Inactive [ ] Emergency (<60 days per year)

yes	no	n/a	unk	note	Question	COMMENTS: (Please indicate question number)
[x]	[ ]	[ ]	[ ]	[ ]	2. Has there been a Source Water Assessment conducted for the source? Date: **1/24/2002**	
[x]	[ ]	[ ]	[ ]	[ ]	3. Has a final GWUDI determination been done for this source? Date: **5/15/1996**	

[ ] N/A 4-36 if source is a spring

WELL INFORMATION

yes	no	n/a	unk	note	Question	COMMENTS
[ ]	[x]		[ ]	[x]	4. Is the well on a separate lot that is large enough to provide a minimum distance of 50 feet between the well and the nearest property line? (applicable if constructed after 11/1/77) [ ] Significant [x] Deficiency	4. <50', but no apparent contamination sources
					Are the following minimum distances from the PWS well being met?	
[x]	[ ]		[ ]	[ ]	5. - Gravity sewer line..........50 Ft.	
[x]	[ ]		[ ]	[ ]	6. - Pressure sewer line..........100 Ft.	
[x]	[ ]		[ ]	[ ]	7. - Individual home septic tank..........100 Ft.	
[x]	[ ]		[ ]	[ ]	8. - Individual home disposal field..........100 Ft.	
[x]	[ ]		[ ]	[ ]	9. - Individual home seepage pit..........100 Ft.	
[x]	[ ]		[ ]	[ ]	10. - Privies..........100 Ft.	
[x]	[ ]		[ ]	[ ]	11. - Livestock..........50 Ft.	
[x]	[ ]		[ ]	[ ]	12. - Canals, streams, ditches, lakes, ponds and tanks used to store nonpotable substances.........50 Ft.	
[ ]	[x]		[ ]	[ ]	13. Are pesticides, herbicides, fertilizers, portable containers of petroleum products, or other toxic or hazardous materials stored on the well lot?	
[x]	[ ]		[ ]	[x]	14. Are pesticides, herbicides, or fertilizers applied to the well lot?	14. Fertilizer appears to be used, but the system only has a couple feet of easement, so they can't really control fertilizer application
[ ]	[x]		[ ]	[ ]	15. Is the well in a pit? If yes, Date constructed:	
[ ]	[ ]	[x]	[ ]	[ ]	16. Was the well that is located in a pit installed after 11/5/64?	
[ ]	[ ]	[x]	[ ]	[ ]	17. If pit was installed prior to 11/5/64 – Has DEQ granted an exception and does the pit have water tight construction of pit walls and floor, a floor drain and an acceptable pit cover?	
[x]	[ ]	[ ]	[ ]	[ ]	18 Is the well protected from unauthorized entry? *(Recommended)*	
[x]	[ ]	[ ]	[ ]	[ ]	19. Does the casing extend a minimum of 18 inches above the final ground surface and/ or 12 inches above the pump house floor? [ ] Significant [ ] Deficiency	
[x]	[ ]	[ ]	[ ]	[ ]	20. Is the well vented with the open end of the vent screened and terminated downward at least 18 inches above the final ground surface?	
[x]	[ ]		[ ]	[ ]	21. Is the well provided with a sanitary cap that prevents surface water entry?	
[x]	[ ]		[ ]	[ ]	22. Is the well cased and sealed in such a manner that surface water cannot enter the well?	

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Common Name	SURVEY DATE		PWS #
Well #1 Lexington	5/10/2010	(mm/dd/yyyy)	4010201

COMMENTS:
(Please indicate question number)

yes	no	n/a	unk	note	WELL INFORMATION (cont.)
☑	☐	☐	☐	☐	23. Is there a smooth nosed sample tap provided on the well discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☑	☐	☐	☐	☐ ☐ Unnecessary	24. Is an instantaneous and totalizing flow meter equipped with nonvolatile memory installed on the pump distribution line of the well and is it maintained and working properly? **294045 k** gallons
☑	☐	☐	☐	☐	25. Is a pressure gauge provided at all installations and is it maintained and working properly? **85** psi.
☑	☐	☐	☐	☐	26. Can the well be pumped to waste at the design capacity of the well via an approved air gap at a location prior to the first service connection?

yes	no	n/a	unk	note	PUMP HOUSE *(Any structure containing important water system components)*
☑	☐	☐	☐	☐	27. Is the source located in a pump house?
☑	☐	☐	☐	☐	28. Is the pump house kept clean and in good repair? *(Floor cracks?)*
☑	☐	☐	☐	☐	29. Is the pump house protected from unauthorized personnel?
☑	☐	☐	☐	☐	30. Does the pump house have adequate lighting throughout? *(Recommended)*
☑	☐	☐	☐	☐	31. Are all non-sample taps installed in the pump house equipped with an appropriate backflow prevention device?
☑ ☐ Significant	☐	☐ ☐ Deficiency	☐	☐	32. Is adequate ventilation provided in the pump house for dissipation of excess heat and moisture from the equipment?
☑ ☐ Significant	☐	☐ ☐ Deficiency	☐	☐	33. Is adequate heating provided in the pump house to provided safe and efficient operation of equipment to prevent freezing?
☑	☐	☐	☐	☐	34. Is the pump house protected from flooding, have adequate drainage, is the floor surface at least six (6) inches above the final ground surface, and is the ground surface graded so as to lead surface water away from the pump house?
☐	☑	☐	☐	☐	35. Is the sump for pump house floor drains closer than 30 feet from the well?
☐	☑	☐	☐	☐	36. Is the floor drain connected to sewer, storm drains, chlorination room drains, or any other source of contamination?

yes	no	n/a	unk	note	SPRING INFORMATION
☐	☐	☑	☐	☐	37. Is the entire area within a one hundred (100) foot radius of the spring box fenced to prevent trespassing of livestock and void of buildings, dwellings and sources of contamination?
☐	☐	☑	☐	☐	38. Is surface water diverted from the 100 foot protection zone around the spring?
☐	☐	☑	☐	☐	39. Is the spring housed in a permanent structure and protected from contamination including the entry of surface water, animals and dust?
☐	☐	☑	☐	☐	40. Is there a smooth nosed sample tap provided on the spring discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☐	☐	☑	☐	☐	41. Is a flow meter or other flow measuring device provided?

yes	no	n/a	unk	note	SPRING BOX INFORMATION *(Not all existing springs have a spring box)*
☐	☐	☑	☐	☐	42. Is the spring box equipped with a screened overflow?
☐	☐	☑	☐	☐	43. Is the supply intake located above the floor of the collection chamber?
☐	☐	☑	☐	☐	44. Is the spring box protected from contamination including the entry of surface water, animals, and dust?
☐	☐	☑	☐	☐	45. Is the access port fitted with a solid water tight cover which overlaps a framed opening and extended down around the frame at least 2 inches?
☐	☐	☑	☐	☐	46. Is the access port a framed opening that is at least 4 inches high with a locking device?
☐	☐	☑	☐	☐	47. Is the access port elevated at least twenty-four (24) inches above the top of the box or ground level, whichever is higher?

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GROUNDWATER SOURCE - PG.1

A separate sources form must be filled out for **each** groundwater source in the PWS.

SURVEY DATE		PWS #
5/10/2010	*(mm/dd/yyyy)*	4010201

Tag #: D0047605	Common Name of Source: Well #3 Brookwood	Source: ☑ Well → ☐ Manifold; ☐ Spring → ☐ Spring Box	Is this Source Treated? ☑ Yes ☐ No

Physical Location:
T:4N R:1E S:4 SW SW

Treatment Objective: ☐ N/A

Disinfection

Treatment Types: ☐ N/A

(Identify Treatment Train in Comments)

Hypochlorination

Is there a well log for the groundwater source? ☑ Yes ☐ No ☐ N/A ☐ Unk

Pump Capacity (GPM)	Casing Size (In)	Date Drilled:	Well Depth (Ft)	Casing Depth (Ft)	Grout Depth(Ft)	Static Water Depth (Ft)
1000 ☐ Unk	12" ☐ Unk	3/2/2007 ☐ Unk	324' ☐ Unk	324' ☐ Unk	206' ☐ Unk	27' ☐ Unk

Is the Casing Screened?	Screen Depth (Ft): ☐ N/A ☐ Unk	Is the Casing Perforated?	Perforation Depth (Ft): ☑ N/A
☑ Yes ☐ No ☐ Unk ☐ N/A	From: 244' To: 314'	☐ Yes ☑ No ☐ Unk ☐ N/A	☐ Unk From: To:

Latitude (Decimal): 43.70775

Longitude (Decimal): -116.353486

COMMENTS:
(Please indicate question number)

All Sources

1. This source is: ☐ Active ☐ Proposed ☐ Inactive ☐ Emergency (<60 days per year)

yes	no	n/a	unk	note	Question
☐	☑	☐	☐	☐	2. Has there been a Source Water Assessment conducted for the source? Date:
☑	☐	☐	☐	☐	3. Has a final GWUDI determination been done for this source? Date: **4/8/2004**

☐ N/A 4-36 if source is a spring

WELL INFORMATION

yes	no	n/a	unk	note	Question
☑	☐		☐	☐	4. Is the well on a separate lot that is large enough to provide a minimum distance of 50 feet between the well and the nearest property line? (applicable if constructed after 11/1/77)
☐ Significant		☐ Deficiency			
					Are the following minimum distances from the PWS well being met?
☑	☐		☐	☐	5. - Gravity sewer line...50 Ft.
☑	☐		☐	☐	6. - Pressure sewer line.......................................100 Ft.
☑	☐		☐	☐	7. - Individual home septic tank..............................100 Ft.
☑	☐		☐	☐	8. - Individual home disposal field...........................100 Ft.
☑	☐		☐	☐	9. - Individual home seepage pit.............................100 Ft.
☑	☐		☐	☐	10. - Privies...100 Ft.
☑	☐		☐	☐	11. - Livestock...50 Ft.
☑	☐		☐	☐	12. - Canals, streams, ditches, lakes, ponds and tanks used to store nonpotable substances.........50 Ft.
☐	☑		☐	☐	13. Are pesticides, herbicides, fertilizers, portable containers of petroleum products, or other toxic or hazardous materials stored on the well lot?
☐	☑		☐	☐	14. Are pesticides, herbicides, or fertilizers applied to the well lot?
☐	☑		☐	☐	15. Is the well in a pit? If yes, Date constructed:
☐	☐	☑	☐	☐	16. Was the well that is located in a pit installed after 11/5/64?
☐	☐	☑	☐	☐	17. If pit was installed prior to 11/5/64 – Has DEQ granted an exception and does the pit have water tight construction of pit walls and floor, a floor drain and an acceptable pit cover?
☑	☐	☐	☐	☐	18 Is the well protected from unauthorized entry? *(Recommended)*
☑	☐	☐	☐	☐	19. Does the casing extend a minimum of 18 inches above the final ground surface and/ or 12 inches above the pump house floor?
☐ Significant		☐ Deficiency			
☐	☑	☐	☐	☐	20. Is the well vented with the open end of the vent screened and terminated downward at least 18 inches above the final ground surface?
☑	☐		☐	☐	21. Is the well provided with a sanitary cap that prevents surface water entry?
☑	☐		☐	☐	22. Is the well cased and sealed in such a manner that surface water cannot enter the well?

Page 4 Of 16

COMMENTS:
(Please indicate question number)

yes	no	n/a	unk	note	WELL INFORMATION (cont.)
✓					23. Is there a smooth nosed sample tap provided on the well discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
✓					24. Is an instantaneous and totalizing flow meter equipped with nonvolatile memory installed on the pump distribution line of the well and is it maintained and working properly? **56603 k** gallons
		☐ Unnecessary			
✓					25. Is a pressure gauge provided at all installations and is it maintained and working properly? ____ psi.
✓					26. Can the well be pumped to waste at the design capacity of the well via an approved air gap at a location prior to the first service connection?

yes	no	n/a	unk	note	PUMP HOUSE *(Any structure containing important water system components)*
✓					27. Is the source located in a pump house?
✓					28. Is the pump house kept clean and in good repair? *(Floor cracks?)*
✓					29. Is the pump house protected from unauthorized personnel?
✓					30. Does the pump house have adequate lighting throughout? *(Recommended)*
✓					31. Are all non-sample taps installed in the pump house equipped with an appropriate backflow prevention device?
✓					32. Is adequate ventilation provided in the pump house for dissipation of excess heat and moisture from the equipment?
☐ Significant		☐ Deficiency			
✓					33. Is adequate heating provided in the pump house to provided safe and efficient operation of equipment to prevent freezing?
☐ Significant		☐ Deficiency			
✓					34. Is the pump house protected from flooding, have adequate drainage, is the floor surface at least six (6) inches above the final ground surface, and is the ground surface graded so as to lead surface water away from the pump house?
	✓				35. Is the sump for pump house floor drains closer than 30 feet from the well?
	✓				36. Is the floor drain connected to sewer, storm drains, chlorination room drains, or any other source of contamination?

yes	no	n/a	unk	note	SPRING INFORMATION
		✓			37. Is the entire area within a one hundred (100) foot radius of the spring box fenced to prevent trespassing of livestock and void of buildings, dwellings and sources of contamination?
		✓			38. Is surface water diverted from the 100 foot protection zone around the spring?
		✓			39. Is the spring housed in a permanent structure and protected from contamination including the entry of surface water, animals and dust?
		✓			40. Is there a smooth nosed sample tap provided on the spring discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
		✓			41. Is a flow meter or other flow measuring device provided?

yes	no	n/a	unk	note	SPRING BOX INFORMATION *(Not all existing springs have a spring box)*
		✓			42. Is the spring box equipped with a screened overflow?
		✓			43. Is the supply intake located above the floor of the collection chamber?
		✓			44. Is the spring box protected from contamination including the entry of surface water, animals, and dust?
		✓			45. Is the access port fitted with a solid water tight cover which overlaps a framed opening and extended down around the frame at least 2 inches?
		✓			46. Is the access port a framed opening that is at least 4 inches high with a locking device?
		✓			47. Is the access port elevated at least twenty-four (24) inches above the top of the box or ground level, whichever is higher?

STORAGE

SURVEY DATE: 5/10/2010 (mm/dd/yyyy) PWS # 4010201

A separate storage form must be filled out for **each** storage unit in the PWS.

Storage Structure Name: Main Reservoir	Storage Structure ID #: T4010201TS1
Physical Location:	Date in service: ☐ Unk 2008
	Volume (gal): ☐ Unk 1 Million Gallons

COMMENTS: (Please indicate question number)

Storage Type:	Construction: ☐ Elevated	Type of material:
☑ Reservoir/Tank	☐ Above Ground	☐ Plastic ☐ Wood
☐ Standpipe	☑ Partially Below Ground	☐ Fiberglass ☐ Metal
	☐ Below Ground	☑ Concrete ☐ Naturally Contained

Total Days Supply (This structure):	Date Last:	Inspected: ☐ Unk	Cleaned: ☐ Unk
About 2 days ☐ Unk		2008	2008

How is the water level measured? ☐ Unk

Transducer

ALL STORAGE STRUCTURES

yes	no	n/a	unk	note	
☑	☐	☐	☐	☐	1. Is the storage structure safely accessible to the inspector?
☐	☑	☐	☐	☐	2. Is the PWS storage tank located within 500 feet of any municipal or Industrial wastewater treatment plant or any land which is spray irrigated with wastewater or used for sludge disposal?
☐	☑	☐	☐	☐	3. Are any of the storage structure drains directly connected to a sewer or storm drain?
☑	☐	☐	☐	☐	4. Is an overflow provided that discharges to daylight in a way that will preclude the possibility of backflow to the reservoir and, where practical, provided with an expanded metal screen installed within the pipe that will exclude rodents and deter vandalism?
☑	☐	☐	☐	☐	5. Are overflows brought down to an elevation between 12 and 24 inches above the ground surface? *(2X the diameter of the discharge pipe above a basin rim)*
☑	☐	☐	☐	☐	6. Do overflows discharge over a drainage inlet structure or splash plate?(storm or sanitary)
☑	☐	☐	☐	☐	7. Is the storage structure secure from unauthorized access?
☑	☐	☐	☐	☐	8. Does the storage reservoir have a watertight roof or cover and is it sloped to facilitate drainage?
☑	☐	☐	☐	☐	9. Is the storage water protected from contamination?
☑	☐	☐	☐	☐	10. Is the storage structure structurally sound?
☐	☑	☐	☐	☐	11. Could vegetation in the area potentially impact the storage structure?*(Recommended)*
☑	☐	☐	☐	☐	12. Is the storage structure designed so that it can be isolated from the distribution system without necessitating loss of pressure in the distribution system?
☐	☑	☐	☐	☐	13. Is leakage evident at time of inspection?
☐	☑	☐	☐	☐	14. Is the storage structure interior coating or liner peeling or cracked?
☑	☐	☐	☐	☐	15. Is the storage structure used to store finished water?
☑	☐	☐	☐	☐	16. Are access manhole openings for the storage structure 4 inches or greater above the surface of the roof, with a cover 2 inches overlapping, water tight, hinged and locked?
☑	☐	☐	☐	☐	17. Are all vents extended 12 inches above the roof and constructed to exclude potential sources of contamination? *(The overflow pipe shall not be considered a vent)*

ABOVE GROUND STORAGE

yes	no	n/a	unk	note	
☐	☐	☑	☐	☐	18. Do all vents open downward and are they fitted with a 4 mesh non-corrodible screen?

GROUND-LEVEL, PARTIALLY BURIED, or BELOW-GROUND STORAGE

yes	no	n/a	unk	note	
☑	☐	☐	☐	☐	19. Does the overflow for the storage structure have a vertical section of pipe at least 2 pipe diameters in length?
☑	☐	☐	☐	☐	20. Is the overflow for the storage structure provided with either a 24 mesh non-corrodible screen installed within the pipe when practical, or an expanded metal screen installed within the pipe plus a weighted flapper or check?
☑	☐	☐	☐	☐	21. Is the area surrounding the storage structure graded in a manner that will prevent surface water from standing within 50 feet of it?
☑	☐	☐	☐	☐	22. Are all vents for the storage structure open downward with the opening at least 24 inches above the roof or the ground level and covered with 24 mesh non-corrodible screen to exclude potential contamination?

PARTIALLY BURIED OR BELOW-GROUND STORAGE

yes	no	n/a	unk	note	
☑	☐	☐	☐	☐	23. Are "ALL" manholes elevated 24 inches above the surface of the roof or the ground level, which ever is higher?
☑	☐	☐	☐	☐	24. Is there a minimum distance of 50 feet between the storage structure and any non-potable main, standing water, or other possible source of contamination?

DISTRIBUTION

SURVEY DATE		PWS #
5/10/2010	*(mm/dd/yyyy)*	4010201

One form for **all** distribution systems in the PWS.

What are water lines made of:

Material(s): ☐ Unk

☐ Steel ☐ HDPE (black) ☐ Asbestos/Cement

☑ PVC ☐ Ductile Iron ☐ Copper

☐ Other:

Size(s): ☐ Unk

6" - 12"

How many services are metered?

1326 out of **1326**

Number of Fire Hydrants:

About 95

DISTRIBUTION

yes	no	n/a	unk	note	Question
☐	☑	☐	☐	☐	1. Have there been any interruptions in service during the past year? (including pressure loss)
☐	☐	☑	☐	☐	2. If a loss of pressure occurred (>20 psi), did the PWS provide public notice and disinfect the system? *(Reminder)*
☑	☐	☐	☐	☐	3. Is the PWS able to maintain a minimum pressure of twenty (20) psi throughout the distribution system (including fire flow), or forty (40) psi for PWSs constructed after 7/1/1985 (excluding fire flow), during maximum hourly demand conditions?
☐	☑	☐	☐	☐	4. Was the pressure observed at a service connection?

5. If yes: ______ psi.

Location: ______

Time: ______ ☐ A.M. ☐ P.M.

yes	no	n/a	unk	note	Question
☑	☐	☐	☐	☐	6. Do all water mains that provide fire flow have a diameter of at least 6 inches?
☑	☐	☐	☐	☐	7. Are valves exercised regularly? *(Recommended)* If yes, how often? **At least oncer/year**
☐	☑	☐	☐	☐	8. Is there a leak detection program? *(Recommended)*
☐	☐	☐	☑	☐	9. Is 15% or more of the water unaccounted for?
☐	☑	☐	☐	☑	10. Is a water conservation program in effect? *(Recommended)*
☑	☐	☐	☐	☐	11. Is an adequate map of the distribution system maintained? *(Recommended)*
☑	☐	☐	☐	☐	12. Does the system flush all main lines annually? *(Recommended)*
☑	☐	☐	☐	☐	13. Are all dead end water mains equipped with a means to flush?
☑	☐	☐	☐	☐	14. If yes, are the deadends flushed at least semiannually?
☐	☑	☐	☐	☐	15. Are there any distribution materials used that should not be in contact with the drinking water? *If yes, explain in comments section.*
☑	☐	☐	☐	☐	16. Is the system adequately protected from freezing?
☑	☐	☐	☐	☐	17. Is there a cross connection control program? *(Community PWSs Only)*
☑	☐	☐	☐	☐	18. Is the operator trained in cross connection control? *(Recommended)*
☐	☑	☐	☐	☐	19. Is the operator aware of any cross connections or were any cross connections observed during the course of the survey?
☑	☐	☐	☐	☐	20. If a separate non-potable irrigation system is provided for the consumer, are all mains, hydrants, and appurtenances easily identified as non-potable? (Purple Tape or other) *(Recommended)*

Air/Vacuum Relief Valves - *Placed at high points in water mains.*

yes	no	n/a	unk	note	Question
☐	☐	☑	☐	☐	21. Are all automatic air relief valves equipped with a means of backflow protection?

COMMENTS:
(Please indicate the question number)

10. The majority of the system is on pressurized irrigation, which eliminates a majority of conservation concerns

PUMPING - PG. 1

One form for **all** Pumps.

SURVEY DATE: 5/10/2010 (mm/dd/yyyy)

PWS #: 4010201

PUMPS, PUMPHOUSES, AND CONTROLS

Pump ID#:	Physical Location:	Type of Pump:	Brand:	Model:	Horsepower:	Purpose:
1	Lexington Production Pump	Submersible			15	Meet Demand
2	Lexington Fire Pump	Submersible			75	Fire Flow
3	Brookwood Pump	Submersible	Franklin Electric	239604	100	Meet Demand

ALL PUMPS

yes	no	n/a	unk	note	Question
☑	☐	☐	☐	☐	1. Are all pumps capable of providing the maximum pumping demand of the system?
☐	☑	☐	☐	☐	2. Does the pump(s) cycle excessively? *(Recommended)*
☑	☐	☐	☐	☑	3. Are all pumps provided with readily available spare parts and tools?
☑	☐	☐	☐	☑	4. Is a water pressure relief valve installed where the pump is directly connected to the distribution system?
☑	☐	☐	☐	☐	5. Is a standard pressure gauge installed on the discharge line?

WELL PUMPS

yes	no	n/a	unk	note	Question
☑	☐	☐	☐	☐	6. Is there an accessible check valve installed in the discharge line of each well between the pump and the shut-off valve?
☐	☑	☐	☐	☑	7. If the system has a <u>vertical turbine</u> motor driven pump(s), is an air release-vacuum relief valve located upstream from the check valve, with exhaust/relief piping terminating in a down-turned position at least 18 inches above the floor and covered with a 24 mesh corrosion resistant screen?
☐	☐	☑	☐	☐	8. If the pump(s) is "oil lubricated", is the oil NSF approved and suitable for human consumption?

WATER PUMPS *(not well pumps)*

yes	no	n/a	unk	note	Question
☐	☐	☑	☐	☐	9. Is an accessible check valve on the discharge side between the pump and the shut-off valve?

AUXILIARY POWER

yes	no	n/a	unk	note	Question
☑	☐	☐	☐	☑	10. Is there auxiliary power on-site? (Community Systems Only) ☐ Significant ☐ Deficiency
☑	☐	☐	☐	☐	11. Is auxiliary power tested? *(Recommended)*
☑	☐	☐	☐	☐	12. If a diesel or gasoline fueled engine is used on the well lot; is the fuel tank and connecting piping double walled?
☑	☐	☐	☐	☐	13. Is the fuel tank above ground?
☑	☐	☐	☐	☐	14. Is a certified operator present during the filling of the fuel tank?
					<u>If the engine is in the well house</u>
☑	☐	☐	☐	☐	15. Is the engine exhaust directly discharged outside the well house?
☐	☑	☐	☐	☐	16. Is a spill containment structure surrounding all fuel tanks adequate? *(Secondary containment - 110% fuel tank volume)*
					<u>Community Systems Only</u>
☑	☐	☐	☐	☐	17. (*Community Systems built after 4/15/07 only*) Is on-site power or standby storage provided so water can be treated and supplied to pressurize the entire distribution system during a power outage for a minimum of 8 hours?
☑	☐	☐	☐	☐	18. (*Community Systems built after 4/15/07 only*) If standby power is provided, Is there a minimum of 8 hours of fuel stored and located on site?

COMMENTS:
(Please indicate the question number)

3. Utilize Riverside Pump for parts & equipment

4. Pressure relief achieved through pump control valve

7. Air/Vacuum relief for Well #3 - Brookwood is not screened

10. Lexington well does not have auxiliary power, but is acceptable

PUMPING - PG. 2

SURVEY DATE		PWS #
5/10/2010	*(mm/dd/yyyy)*	4010201

COMMENTS:
(Please indicate the question number)

yes no n/a unk note

BOOSTER PUMPS

☐ ☐ ☐ ☐ ☐ ☐ Unnecessary — 19. Is an instantaneous and totalizing flow meter installed where the booster pump is directly connected to the distribution system?

☐ ☐ ☐ ☐ ☐ 20. Are all in-line booster pumps supplied with an automatic cutoff that activates when intake pressure is less than or equal to 5 psi?

☐ ☐ ☐ ☐ ☐ 21. Is the booster pump located on a suction line that is directly connected to any storage reservoir?

☐ ☐ ☐ ☐ ☐ 22. If yes, are all booster pumps protected by an automatic cutoff to prevent pump damage and avoid excessive reservoir drawdown?

yes no n/a unk note

PUMP HOUSE *(Only pump houses that don't contain a Groundwater Source)*

☐ ☐ ☐ ☐ ☐ 23. Is the pump house kept clean and in good repair? *(Floor cracks?)*

☐ ☐ ☐ ☐ ☐ 24. Is the pump house protected from unauthorized personnel?

☐ ☐ ☐ ☐ ☐ 25. Does the pump house have adequate lighting throughout? *(Recommended)*

☐ ☐ ☐ ☐ ☐ 26. Are all non-sample taps installed in the pump house equipped with an appropriate backflow prevention device?

☐ ☐ ☐ ☐ ☐ ☐ Significant ☐ Deficiency — 27. Is adequate ventilation provided in the pump house for dissipation of excess heat and moisture from the equipment?

☐ ☐ ☐ ☐ ☐ ☐ Significant ☐ Deficiency — 28. Is adequate heating provided in the pump house to provided safe and efficient operation of equipment *(prevent moisture buildup and/or freezing)*?

☐ ☐ ☐ ☐ ☐ 29. Is the pump house protected from flooding, have adequate drainage, is the floor surface at least six (6) inches above the final ground surface, and is the ground surface graded so as to lead surface water away from the pump house?

yes no n/a unk note

☐ ☐ ☐ ☐ ☐ 30. Is the sump for pump house floor drains closer than 30 feet from the well?

☐ ☐ ☐ ☐ ☐ 31. Is the floor drain connected to sewer, storm drains, chlorination room drains, or any other source of contamination?

	SURVEY DATE		PWS #
FINANCIAL CAPACITY	5/10/2010	*(mm/dd/yyyy)*	4010201

yes	no	n/a	unk	note	FINANCIAL CAPACITY
☑	☐	☐	☐	☐	1. Is the PWS current with the payment of drinking water fees?
☐	☐	☐	☐	☐	2. Does the PWS charge a drinking water fee to the user? If yes, what is the fee: $ **8.50 base + 1.19 per hundred cubic**
☑	☐	☐	☐	☐	3. Is the PWS in the business of selling water?
					#3 Note: **- If no, identify why in the comments section and mark "N/A" on questions 4 - 19.**
☑	☐	☐	☐	☐	4. Does the PWS provide and use an annual budget? *(Recommended)*
☑	☐	☐	☐	☐	5. If applicable, is the PWS fund separate from the waste water/sewer utility fund? *(Recommended)*
☑	☐	☐	☐	☐	6. Do water system revenues exceed expenditures? *(Recommended)*
☑	☐	☐	☐	☑	7. Are controls established to prevent expenditures from exceeding revenues?
☑	☐	☐	☐	☐	8. Has an independent financial audit been completed? *(Recommended)*
☑	☐	☐	☐	☐	9. If yes, is a copy of the most recent balance sheet for the water system available? *(Recommended)*
☑	☐	☐	☐	☐	10. Does the water system include a cash budget within its annual budget for cash flow? *(Recommended)*
☑	☐	☐	☐	☐	11. Does the water system management review the user fee, user charge, or rate system at least annually? *(Recommended)*
					12. When was the last user fee, user charge, or rate system adjustment? **November 2008** *mm/dd/yyyy*
☑	☐	☐	☐	☐	13. Does the water system management review financial reports at least monthly? *(Recommended)*
☑	☐	☐	☐	☐	14. Does the PWS provide and use a capital budget? *(Recommended)*
☑	☐	☐	☐	☐	15. Has this PWS produced and does it currently utilize a capital improvements plan? *(Recommended)*
					16. If yes, when was the capital improvements budget produced? *mm/dd/yyyy*
☑	☐	☐	☐	☐	17. Has the capital improvement budget been updated in the last 18 months? *(Recommended)*
☑	☐	☐	☐	☐	18. Does the water system budget provide funding for depreciation of existing plant in service and/or for the funding of reserves for system replacement?
☑	☐	☐	☐	☐	19. Are there sufficient funds for training personnel?

COMMENTS:
(Please indicate the question number)

7. Would do a rate study and increase rates if needed

MANAGERIAL CAPACITY

SURVEY DATE		PWS #
05/10/2010	*(mm/dd/yyyy)*	4010201

COMMENTS:
(Please indicate the question number)

yes	no	n/a	unk	note	**MANAGERIAL CAPACITY**
☑	☐	☐	☐	☐	1. Is a properly licensed operator available at all times? (N/A for GW-NC PWS)
☐	☑	☐	☐	☐	2. Is there a Drinking Water Source Protection Plan developed for this system? Date:
☑	☐	☐	☐	☐	3. Does this PWS have a governing body or board of directors?

If no, please indicate:

- ☐ Sole Proprietorship
- ☐ Partnership
- ☐ Limited Liability Corp.
- ☐ Other:

4. How often does the board meet? ☐ N/A

- ☐ weekly ☐ semi-annually ☐ never
- ☑ monthly ☐ annually ☐ unknown
- ☐ bimonthly ☐ as necessary ☐ other:

yes	no	n/a	unk	note	Are the following records maintained onsite or located near by?
☑	☐	☐	☐	☐	5. - Bacteriological Analysis - **5 years retention.**
☑	☐	☐	☐	☐	6. - Chemical Analysis - **10 years retention.**
☐	☐	☑	☐	☐	7. - Records of actions taken to correct violations - **3 years retention.**
☑	☐	☐	☐	☐	8. - Copies of reports, summaries or communication related to sanitary surveys - **10 years retention.**
☑	☐	☐	☐	☐	9. - Reports concerning variances or exemptions - **5 years retention.**
☐	☐	☑	☐	☐	10. - Copies of public notices issued - **3 years retention.**
☑	☐	☐	☐	☐	11. - Daily free chlorine residuals *(required disinfection)* - **1 year retention.**
☑	☐	☐	☐	☐	12. Are routine maintenance schedules established? *(Recommended)*
☑	☐	☐	☐	☐	13. Is an operation and maintenance manual(s) provided for the PWS and does it include; daily operating instructions, operator safety procedures, location of valves and other key system features, parts list and parts order form, and information for contacting the water system operator?
☑	☐	☐	☐	☐	14. Is there a clear plan of organization and control among the people responsible for management and operations of the water system? *(Recommended)*

yes	no	n/a	unk	note	Are any samples of the following parameters past due?
☐	☑	☐	☐	☐	15. Coliform
☐	☑	☐	☐	☐	16. Nitrates
☐	☑	☐	☐	☐	17. Nitrites
☐	☑	☐	☐	☐	18. Lead and Copper
☐	☑	☐	☐	☐	19. IOCs
☐	☑	☐	☐	☐	20. VOCs
☐	☑	☐	☐	☐	21. SOCs
☐	☑	☐	☐	☐	22. Disinfection Byproducts
☐	☑	☐	☐	☐	23. Radionuclide
☑	☐	☐	☐	☐	24. Is a written total coliform rule (TCR) sample site plan available for review?
☑	☐	☐	☐	☐	25. Does the (TCR) sample site plan meet the minimum requirements?
☑	☐	☐	☐	☐	26. Does the system have a sufficient supply of approved sampling bottles properly stored? *(Recommended)*
☑	☐	☐	☐	☐	27. Does the PWS provide stairways, ladders and handrails where needed?
☑	☐	☐	☐	☐	28. Are treads of non-slip material provided where needed?
☐	☑	☐	☐	☐	29. Is a health concern produced from inadequately protected electrical wiring?
☑	☐	☐	☐	☐	30. Are all confined space entry requirements considered? *(Recommended)*
☐	☑	☐	☐	☐	31. Are there any unused subsurface water storage tanks that need to be abandoned?
☑	☐	☐	☐	☑	32. Are there any water supply wells that are no longer being used that need to be abandoned?

Comments: 32. Lexington Well #2

TREATMENT APPLICATION & CONTROL

A separate form must be filled out for **each** Treatment Application in the PWS.

Survey Date		PWS #
5/10/2010	*(mm/dd/yyyy)*	4010201

Purpose of Treatment:	Treatment Facility Location:	Date Online: ☐ Unk	Treated Water (GPD): ☐ Unk
Disinfection	Lexington Well House		

Identify **one** process in the treatment train for inspection: ☐ N/A

☐ Sedimentation Basin ☐ Filtration ☐ Blending ☐ Oxidation ☐ Ion Exchange ☐ Aeration ☐ Reverse Osmosis ☐ Sequestration by Polyphosphates
☐ Detention Basin ☐ Chemical Coagulation ☐ Softening ☑ Disinfection (Complete Disinfection Mod.) ☐ Sequestration by Sodium Silicates

Sources Treated by Facility: (Tag #)	Equipment Manufacturer:	Model #:
Lexington Well #1	MiOX (NaClO Generation)	
	Pulsa Feeder - Omni	DC2C5FP-M1XE

Chemical Trade Name:	Chemical Manufacturer:	NSF/ANSI certified?
Salt (Water Softener Salt for Chlorine Generation)	Morton - White Crystal Water Softener Salt	☑ Yes ☐ No ☐ N/A ☐ Unk
		☐ Yes ☐ No ☐ N/A ☐ Unk
		☐ Yes ☐ No ☐ N/A ☐ Unk

yes	no	n/a	unk	note	Question
					WASTE HANDLING and DISPOSAL
☐	☐	☑	☐	☐	1. Are provisions made for proper disposal of water treatment plant waste such as sanitary, laboratory, clarification sludge, softening sludge, iron sludge, filter backwash water, brines and treatment media?
		☑		☐	2. If yes, how are wastes being disposed of? (Identify in comments)
					SAMPLE TAPS
☑	☐	☐	☐	☐	3. Are smooth-nosed sampling taps provided prior to and after each form of treatment?
		☐ N/A 4-23			**CHEMICAL APPLICATION** If no chemical applied, questions 4-23 are n/a
☑	☐	☐	☐	☐	4. Are spare parts available for all chemical feeders to replace parts which are subject to frequent wear and damage?
		☐			5. Are the feeders manually or automatically controlled? ☐ Manual ☑ Automatic
☑	☐	☐	☐	☐	6. For chemical application control systems, is the chemical feeder controlled by a flow sensing device so that injection of the chemicals will not continue when the flow of water stops?
☑	☐	☐	☐	☐	7. Is a means to measure water flow provided in order to determine chemical feed rates?
☐	☐	☑	☐	☑	8. Are provisions made for measuring the quantities of chemicals used?
☑	☐	☐	☐	☐	9. Is cross-connection control provided on the service water lines that discharge to the solution tanks?
☑	☐	☐	☐	☐	10. Is cross-connection control provided so that liquid chemical solutions cannot be siphoned through solution feeders into the water supply?
☑	☐	☐	☐	☐	11. Is the chemical feed equipment readily accessible for servicing, repair, and observation of operation?
☑	☐	☐	☐	☐	12. Is space provided for convenient/efficient storage and handling of chemicals? *(Recommended)*
☐	☑	☐	☐	☐	13. Are chemicals that are incompatible stored or handled together?
☑	☐	☐	☐	☐	14. Are chemical solution tanks kept covered?
☐	☐	☑	☐	☐	15. Are chemical solution tank overflow pipes, when provided, turned downward with the end screened? *(Recommended)*
☐	☐	☑	☐	☐	16. Do chemical solution tank overflow pipes, when provided, have free fall discharge? *(Recommended)*
☐	☐	☑	☐	☐	17. Where more than one (1) chemical is stored or handled, are tanks and pipelines clearly labeled to identify the chemical they contain?
☑	☐	☐	☐	☐	18. Are floor surfaces smooth and impervious, slip-proof and well drained? *(Recommended)*
☑	☐	FALSE ☐	☐	☐	19. Are vents from feeders, storage facilities and equipment exhaust discharged to the outside atmosphere above grade and remote from air intakes?
☑	☐	☐	☐	☐	20. Are chemical shipping containers fully labeled to include chemical name, purity, concentration, supplier name and address, and evidence of ANSI/NSF certification?
☑	☐	☐	☐	☐	21. Are acids and caustics kept in closed corrosion-resistant shipping containers or storage units?
☑	☐	☐	☐	☐	22. Are at least one pair of rubber gloves, a dust respirator of a type certified by NIOSH for toxic dusts, an apron or other protective clothing and goggles or face mask provided for each operator as required by the reviewing authority?
☑	☐	☐	☐	☐	23. Is a deluge shower and/or eyewashing device installed where strong acids and alkalis are used or stored?

Comments:
(Please indicate the question number)

8. Hypochlorite is constantly generated which makes it very difficult to measure the quantity used.

TREATMENT APPLICATION & CONTROL

A separate form must be filled out for **each** Treatment Application in the PWS.

Survey Date		PWS #
5/10/2010	*(mm/dd/yyyy)*	4010201

Purpose of Treatment:	Treatment Facility Location:	Date Online: ☐ Unk	Treated Water (GPD): ☐ Unk
Disinfection	Well #3 Brookwood Well House		

Identify **one** process in the treatment train for inspection: ☐ N/A

☐ Sedimentation Basin ☐ Filtration ☐ Blending ☐ Oxidation ☐ Ion Exchange ☐ Aeration ☐ Reverse Osmosis ☐ Sequestration by Polyphosphates
☐ Detention Basin ☐ Chemical Coagulation ☐ Softening ☑ Disinfection (Complete Disinfection Mod.) ☐ Sequestration by Sodium Silicates

Sources Treated by Facility: (Tag #)	Equipment Manufacturer:	Model #:
Brookwood Well #3	MiOX	Hypo-20
	(2) Pulsa Feeder Omni Pumps	DC2C5FP-M1XE

Chemical Trade Name:	Chemical Manufacturer:	NSF/ANSI certified?
Salt (Water Softener Salt for Chlorine Generation)	Morton - White Crystal Water Softener Salt	☑ Yes ☐ No ☐ N/A ☐ Unk
		☐ Yes ☐ No ☐ N/A ☐ Unk
		☐ Yes ☐ No ☐ N/A ☐ Unk

yes	no	n/a	unk	note	WASTE HANDLING and DISPOSAL	Comments: (Please indicate the question number)
☐	☐	☑	☐	☐	1. Are provisions made for proper disposal of water treatment plant waste such as sanitary, laboratory, clarification sludge, softening sludge, iron sludge, filter backwash water, brines and treatment media?	
		☑		☐	2. If yes, how are wastes being disposed of? (Identify in comments)	
yes	**no**	**n/a**	**unk**	**note**	**SAMPLE TAPS**	
☑	☐	☐	☐	☐	3. Are smooth-nosed sampling taps provided prior to and after each form of treatment?	
		☐ N/A 4-23			**CHEMICAL APPLICATION** If no chemical applied, questions 4-23 are n/a	
yes	**no**	**n/a**	**unk**	**note**		
☑	☐	☐	☐	☐	4. Are spare parts available for all chemical feeders to replace parts which are subject to frequent wear and damage?	
		☐			5. Are the feeders manually or automatically controlled? ☐ Manual ☑ Automatic	
☑	☐	☐	☐	☐	6. For chemical application control systems, is the chemical feeder controlled by a flow sensing device so that injection of the chemicals will not continue when the flow of water stops?	
☑	☐	☐	☐	☐	7. Is a means to measure water flow provided in order to determine chemical feed rates?	
☑	☐	☐	☐	☐	8. Are provisions made for measuring the quantities of chemicals used?	
☑	☐	☐	☐	☐	9. Is cross-connection control provided on the service water lines that discharge to the solution tanks?	
☑	☐	☐	☐	☐	10. Is cross-connection control provided so that liquid chemical solutions cannot be siphoned through solution feeders into the water supply?	
☑	☐	☐	☐	☐	11. Is the chemical feed equipment readily accessible for servicing, repair, and observation of operation?	
☑	☐	☐	☐	☐	12. Is space provided for convenient/efficient storage and handling of chemicals? *(Recommended)*	
☐	☑	☐	☐	☐	13. Are chemicals that are incompatible stored or handled together?	
☑	☐	☐	☐	☐	14. Are chemical solution tanks kept covered?	
☐	☐	☑	☐	☐	15. Are chemical solution tank overflow pipes, when provided, turned downward with the end screened? *(Recommended)*	
☐	☐	☑	☐	☐	16. Do chemical solution tank overflow pipes, when provided, have free fall discharge? *(Recommended)*	
☐	☐	☑	☐	☐	17. Where more than one (1) chemical is stored or handled, are tanks and pipelines clearly labeled to identify the chemical they contain?	
☑	☐	☐	☐	☐	18. Are floor surfaces smooth and impervious, slip-proof and well drained? *(Recommended)*	
☐	☑	☐	☐	☑	19. Are vents from feeders, storage facilities and equipment exhaust discharged to the outside atmosphere above grade and remote from air intakes?	Vent from hypochlorite is very close to air conditioning intake
☑	☐	☐	☐	☐	20. Are chemical shipping containers fully labeled to include chemical name, purity, concentration, supplier name and address, and evidence of ANSI/NSF certification?	
☑	☐	☐	☐	☐	21. Are acids and caustics kept in closed corrosion-resistant shipping containers or storage units?	
☑	☐	☐	☐	☐	22. Are at least one pair of rubber gloves, a dust respirator of a type certified by NIOSH for toxic dusts, an apron or other protective clothing and goggles or face mask provided for each operator as required by the reviewing authority?	
☑	☐	☐	☐	☐	23. Is a deluge shower and/or eyewashing device installed where strong acids and alkalis are used or stored?	

DISINFECTION - PG. 1 - Systems Using Only Groundwater

Survey Date	1/0/1900	PWS #
5/10/2010	*(mm/dd/yyyy)*	4010201

A separate form must be filled out for **each** disinfection unit in the PWS.

Treatment Facility Name:	Treatment Facility Location:	Date Online: ☐ Unk	Treated Water (GPD): ☐ Unk
Well #1 Lexington Disinfection	Lexington Well House		

Select all disinfection types used:

☐ Gas cl2 ☐ UV Light ☑ Sodium Hypochlorite ☐ Calcium Hypochlorite ☐ Miox ☐ Ozone ☐ Chlorine Dioxide ☐ Other

yes	no	n/a	unk	note	DISINFECTION
☑	☐	☐	☐	☐	1. Is disinfection used on a voluntary basis to prevent bacterial contamination of the distribution system?
☐	☑	☐	☐	☐	2. Any interruptions in disinfection in the past year? If yes, comment.
☑	☐	☐	☐	☑	3. Have any changes been made to this treatment facility since the last ESS?
☑	☐	☐	☐	☐	4. If yes, were plans and specs submitted to DEQ? Date approved: **2008**
☑	☐	☐	☐	☐	5. Does the system have a means of measuring the residual disinfectant concentrations of free chlorine, combined chlorine (chloramines), and/or chlorine dioxide?
☑	☐	☐	☐	☐	6. Is a smooth nosed sample tap provided before and after treatment?
☑	☐	☐	☐	☐	7. Is a chlorine residual being recorded when all compliance total coliform samples are being taken?

yes	no	n/a	unk	note	VOLUNTARY DISINFECTION
☑	☐	☐	☐	☐	8. Is a measurable free chlorine residual maintained throughout the distribution system? *(Recommended)*
☑	☐	☐	☐	☐	9. Is the free chlorine residual being measured daily? *(Recommended)*
☑	☐	☐	☐	☐	10. Is an automatic proportioning chlorinator being used where the rate of flow is not reasonably constant?
☑	☐	☐	☐	☐	11. Is the analysis for free chlorine residual being made at a frequency that is sufficient to detect variations in chlorine demand or changes in water flow?

yes	no	n/a	unk	note	REQUIRED DISINFECTION
☐	☐	☑	☐	☐	12. Is the free chlorine residual being measured daily at a location prior to the first service connection?
☐	☐	☑	☐	☐	13. Is the daily free chlorine residual being recorded and kept on file for a minimum of 1 year?
☐	☐	☑	☐	☐	14. Is a detectable chlorine residual maintained throughout the distribution system?
☐	☐	☑	☐	☐	15. Is an automatic proportioning chlorinator being used where the rate of flow is not reasonably constant?
☐	☐	☑	☐	☐	16. Where chlorination is required for protection of the supply, is there standby equipment of sufficient capacity available to replace the largest unit?
☐	☐	☑	☐	☐	17. If primary disinfection is accomplished using ozone or some other chemical that does not provide a residual disinfectant, is chlorine added to provide a residual disinfectant?

Comments:
(Please indicate the question number)

3. Hypochlorite generation installed

DISINFECTION - PG. 1 - Systems Using Only Groundwater

A separate form must be filled out for **each** disinfection unit in the PWS.

Survey Date	1/0/1900	PWS #
5/10/2010	*(mm/dd/yyyy)*	4010201

Treatment Facility Name:	Treatment Facility Location:	Date Online: ☐ Unk	Treated Water (GPD): ☐ Unk
Brookwood Disinfection	Brookwood Well House		

Select all disinfection types used:

☐ Gas cl2 ☐ UV Light ☑ Sodium Hypochlorite ☐ Calcium Hypochlorite ☐ Miox ☐ Ozone ☐ Chlorine Dioxide ☐ Other

yes	no	n/a	unk	note	DISINFECTION
☑	☐	☐	☐	☐	1. Is disinfection used on a voluntary basis to prevent bacterial contamination of the distribution system?
☐	☑	☐	☐	☐	2. Any interruptions in disinfection in the past year? If yes, comment.
☑	☐	☐	☐	☐	3. Have any changes been made to this treatment facility since the last ESS?
☑	☐	☐	☐	☐	4. If yes, were plans and specs submitted to DEQ? Date approved: **2008**
☑	☐	☐	☐	☐	5. Does the system have a means of measuring the residual disinfectant concentrations of free chlorine, combined chlorine (chloramines), and/or chlorine dioxide?
☑	☐	☐	☐	☐	6. Is a smooth nosed sample tap provided before and after treatment?
☑	☐	☐	☐	☐	7. Is a chlorine residual being recorded when all compliance total coliform samples are being taken?

yes	no	n/a	unk	note	VOLUNTARY DISINFECTION
☑	☐	☐	☐	☐	8. Is a measurable free chlorine residual maintained throughout the distribution system? *(Recommended)*
☑	☐	☐	☐	☐	9. Is the free chlorine residual being measured daily? *(Recommended)*
☑	☐	☐	☐	☐	10. Is an automatic proportioning chlorinator being used where the rate of flow is not reasonably constant?
☑	☐	☐	☐	☐	11. Is the analysis for free chlorine residual being made at a frequency that is sufficient to detect variations in chlorine demand or changes in water flow?

yes	no	n/a	unk	note	REQUIRED DISINFECTION
☐	☐	☑	☐	☐	12. Is the free chlorine residual being measured daily at a location prior to the first service connection?
☐	☐	☑	☐	☐	13. Is the daily free chlorine residual being recorded and kept on file for a minimum of 1 year?
☐	☐	☑	☐	☐	14. Is a detectable chlorine residual maintained throughout the distribution system?
☐	☐	☑	☐	☐	15. Is an automatic proportioning chlorinator being used where the rate of flow is not reasonably constant?
☐	☐	☑	☐	☐	16. Where chlorination is required for protection of the supply, is there standby equipment of sufficient capacity available to replace the largest unit?
☐	☐	☑	☐	☐	17. If primary disinfection is accomplished using ozone or some other chemical that does not provide a residual disinfectant, is chlorine added to provide a residual disinfectant?

Comments:
(Please indicate the question number)

State of Idaho
Department of Environmental Quality
Photo Log

Name of Facility:		Inspection Date		PWS#
Eagle, City of (Eastern Zone)		5/10/2010	*(mm/dd/yyyy)*	4010201
Camera Type: ☑ Digital ☐ 35mm ☐ Other:	Camera Brand: Nikon	Camera Model:		Camera ID#:

Photo:	Date:	By: (initials)	Direction: (N,S,E,W, etc.)	File Name:	Description:
1	5/10/2010	BL		DSCN1558	Well #3 Brookwood well house
2	5/10/2010	BL		DSCN1559	Brookwood well and chlorination equipment
3	5/10/2010	BL		DSCN1560	Brookwood piping to distribution and pump to waste
4	5/10/2010	BL		DSCN1562	Brookwood hypochlorite generation system
5	5/10/2010	BL		DSCN1563	Brookwood hypochlorite generation pumps
6	5/10/2010	BL		DSCN1564	Well #1 Lexington pump house
7	5/10/2010	BL		DSCN1565	Lexington well and chlorination equipment
8	5/10/2010	BL		DSCN1573	1 million gallon storage tank

The photographers signature below signifies that the images identified on this photo log have not been tampered with and are representative of what was seen in the field.

Photographer(s) Signature(s): Date:

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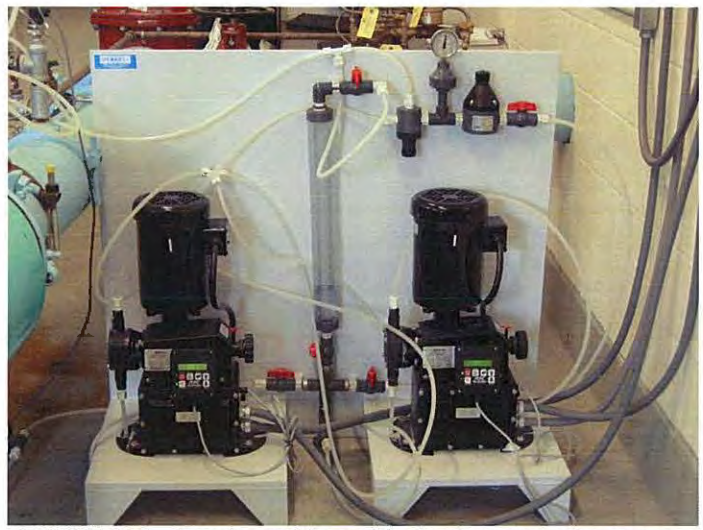
DSCN1558 – Well #3 Brookwood pump house


DSCN1559 – Brookwood well


DSCN1560 – Brookwood piping to distribution and pump to waste

DSCN1562 – Brookwood hypochlorite generation system


DSCN1563 – Brookwood hypochlorination generation pumps


DSCN1564 – Well #1 Lexington pump house

DSCN1565 – Lexington well, piping and chlorination

DSCN1573 – 1 Million Gallon Storage

Enhanced Sanitary Survey
Preliminary Inspection Findings Form

Facility Name: City of Eagle (Eastern Zone) PWS #: 4010201

Inspection Date: 5/10/10 Time Closing Conference Begins: 10:35 Time Closing Conference Ends: ______

Inspector: Brandon Lowder Phone #: ______
(Print Name)

Inspector: [signature]
(Signature)

Facility Representative: Brent Arte E-mail: barte@cityofeagle.org
(Print Name)

Title: Lead operator Facility Representative: [signature]
(Signature)

Note: *Your signature indicates you have received this document and does not imply agreement with the violations noted.*

Yes ☐ No ☑ I would like to be contacted by ☐ Idaho Rural Water ☐ Rural Community Assistance Corp,

☐ Environmental Finance Center for no cost technical assistance at the following phone #: ______

Significant Deficiencies Noted at the Time of the Inspection:

In accordance with IDAPA 58.01.08.008.02., the health hazards identified below must be mitigated as required by the Department and terminated within a time schedule established by the Department.

	Correction Time Frame
1. Screen air/vacuum relief on Beechwood well	☐ **24 hours** ☒ **7 days** ☐ **Corrective action plan within 30 days**
2.	☐ **24 hours** ☐ **7 days** ☐ **Corrective action plan within 30 days**
3.	☐ **24 hours** ☐ **7 days** ☐ **Corrective actiou plan within 30 days**
4.	☐ **24 hours** ☐ **7days** ☐ **Corrective action plan within 30 days**
5.	☐ **24 hours** ☐ **7 days** ☐ **Corrective action plan within 30 days**
6.	☐ **24 hours** ☐ **7 days** ☐ **Corrective action plan within 30 days**

Potential Violations Pending Further Review:

1. Measurement capability for chemical usage
2.
3.
4.
5.
6.

Original stays with inspector for scanning and filing. Copy stays with Public Water System Owner/Operator.