Bennington Water System, Inc.

Water Facilities Planning Study

April 2013

KELLER associates

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Bennington Water System, Inc.

Water Facilities Planning Study

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STATE OF IDAHO
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Table of Contents

LIST OF TABLES III
LIST OF FIGURES IV
AUTHORIZATION 1
CHAPTER 1 EXECUTIVE SUMMARY 2
1.1 Project Purpose & Need 2
1.2 Capital Improvement Plan 2
1.3 Project Implementation 3
CHAPTER 2 INTRODUCTION 5
2.1 System Summary 5
2.2 Report Organization 5
2.3 Scope 5
2.4 Study Funding & Completion 6
2.5 Abbreviations 7
2.6 Definition of Terms 7
CHAPTER 3 DESIGN CRITERIA 11
3.1 General 11
3.2 Water Supply & Delivery 11
3.3 Water Storage 11
3.4 Distribution System 12
3.5 Fire Protection 13
3.6 Water Quality 13
3.7 Reliability & Emergency Operation 15
CHAPTER 4 EXISTING ENVIRONMENTAL CONDITIONS 16
4.1 Physiography, Topography, Geology, and Soils 16
4.2 Surface & Ground Water Hydrology 16
4.3 Fauna, Flora, and Natural Communities 19
4.4 Housing, Industrial, and Commercial Development 19
4.5 Cultural Resources (Historical & Archaeological) 19
4.6 Utility Use 19
4.7 Floodplains/Wetlands 19
4.8 Wild & Scenic Rivers 20
4.9 Public Health & Water Quality Considerations 20
4.10 Important Farmlands Protection 20
4.11 Proximity to a Sole Source Aquifer 20
4.12 Land Use & Development 20
4.13 Precipitation, Temperature and Prevailing Winds 20
4.14 Air Quality & Noise 21
4.15 Energy Production & Consumption 21
4.16 Socioeconomic Profile/Population Statistics 21
4.17 Maps, Site Plans, Schematics, Tables, & Letters from Consulted Agencies 22
4.18 Public Participation 22
CHAPTER 5 EXISTING FACILITIES' CONDITION AND EVALUATION 29
5.1 Water Sources 29

5.2 Water Quality 30
5.3 Distribution System 31
5.4 Water Production/Consumption 34
5.5 Peaking Factors 35
5.6 Existing Water Usage Rates 36
5.7 Water Balance 36
5.8 Water Rights versus Demand 37
5.9 Water Storage Evaluation 37
5.10 Hydraulic Model 40
5.11 System Improvement Alternatives 42
5.12 Sanitary Survey 43
5.13 Summary of Existing Issues 45
CHAPTER 6 FUTURE CONDITIONS 48
6.1 Community Comprehensive Plans 48
6.2 Water Demand Projections 49
6.3 Water Rights versus Demand 49
6.4 Future Distribution Conditions 50
6.5 Storage Needs 50
6.6 Disinfection Needs 50
6.7 Nitrate 50
CHAPTER 7 DEVELOPMENT AND EVALUATION OF ALTERNATIVES 51
7.1 Optimum Operation of Existing Facilities 51
7.2 Regionalization 52
7.3 Water Supply 52
7.4 Water Storage 55
7.5 Distribution Improvements 58
7.6 Bacteriological Treatment Improvements 59
7.7 Nitrate Treatment Alternatives 62
7.8 System Classification & Operator Licensure 63
7.9 Final Screening & Preferred Alternatives 65
CHAPTER 8 IMPLEMENTATION AND FUNDING ANALYSIS 68
8.1 Capital Improvement Plan 68
8.2 Funding Analysis 71
8.3 Rate Analysis 71
8.4 Project Implementation and Schedule 73
REFERENCES 74
APPENDIX A: PUBLIC PARTICIPATION ..... A
APPENDIX B: WELL LOGS ..... B
APPENDIX C: HYDRAULIC ANALYSIS C
APPENDIX D: BUDGET & USER CHARGE ORDINANCE ..... D
APPENDIX E: WATER QUALITY TEST RESULTS ..... E
APPENDIX F: SANITARY SURVEY ..... F
APPENDIX G: CROSS-CONNECTION CONTROL ..... G

List of Tables

Table 1-1 Projected User Rate Impacts 4
Table 3-1 Fire Protection Requirements 13
Table 4-1: Climatic Data 21
Table 4-2: Public Participation 22
Table 5-1: Water Distribution Pipe Size Summary 31
Table 5-2: Bennington Water Consumption 34
Table 5-3: Existing Water Usage Rates 36
Table 5-4: Water Right Summary 37
Table 5-5: Water Storage Evaluation 39
Table 5-6: Fire Hydrant Calibration Results 41
Table 5-7: Existing System Fire Flow Improvements 42
Table 5-8: Available Fire Flow Comparison (8-inch vs. 12-inch) 43
Table 6-1: Regional Population Growth Rates 48
Table 6-2: Population Estimates 49
Table 6-3: Water Demand Projections 49
Table 6-4: Future Storage Requirements 50
Table 7-1 Flow Rate Scenarios 58
Table 7-2 DEQ Distribution System Classification 63
Table 7-3 Changes in System Classification from Alternatives 64
Table 7-4 Water Supply Alternatives Cost Evaluation 65
Table 7-5 Water Storage Alternatives Cost Evaluation 66
Table 7-6 Distribution System Improvements Cost Evaluation 66
Table 7-7 Disinfection Alternatives Cost Evaluation 67
Table 7-8 Nitrate Treatment Alternatives Cost Evaluation 67
Table 8-1 Capital Improvement Plan 72
Table 8-2 Funding Scenarios 72
Table 8-3 Preliminary Project Schedule 73

List of Figures

Figure 1-1: Annual Water Fund Revenues and Expenditures 3
Figure 2-1: Vicinity Map 9
Figure 2-2: Proposed Project Planning Area 10
Figure 3-1: Water Tank Storage 12
Figure 4-1: Topographic Map 17
Figure 4-2: Bennington Area Earthquake Probability Mapping 18
Figure 4-3: Eastern Bear Lake Fault 18
Figure 4-4: Landcover Map 23
Figure 4-5: Wetland Map 24
Figure 4-6: Prime Farmlands Map 25
Figure 4-7: Eastern Snake River Plain Aquifer Map 26
Figure 4-8: Bear Lake County Zoning Map 27
Figure 4-9: Administrative Boundaries for Areas with Sensitive Air Quality 28
Figure 5-1: Well 1 29
Figure 5-2: CRI Well 29
Figure 5-3: Bennington Source Nitrate Concentrations 30
Figure 5-4: Existing Water System 33
Figure 5-5: Bennington Monthly Water Consumption 35
Figure 5-6: Water Model Calibration Locations 46
Figure 5-7: Fire Flow Deficiencies 47
Figure 8-1: System Improvements 70

Authorization

In December 2010, the Bennington Water System contracted with Keller Associates to prepare a Drinking Water Facilities Planning Study (WFPS) and Environmental Information Document (EID) in accordance with IDAPA 58.01.22 to evaluate the water supply and distribution system, address nitrate and coliform issues, and develop a plan to meet future capabilities. This Study has been funded in part by a grant from the Idaho Department of Environmental Quality (DWG-115-2011-8).

Chapter 1 Executive Summary

1.1 Project Purpose & Need

The purpose of this study is to identify existing distribution system deficiencies, determine future needs, and develop a vision of the future water system with an implementation strategy for Bennington.

According to the water system Board of Directors, this study initially began because the system tested higher than 5 mg/L of nitrate on their main well. The MCL is 10 mg/L but DEQ puts communities on their radar if their nitrate levels exceed 5 mg/L and recommend that the system talk with a consultant engineer to write a study for the case in which their nitrate levels increase above the MCL, they will have an approved path to correct the problem to follow.

During the course of this study, it has been found that there are numerous other deficiencies that the water system experiences. These include:

- insufficient water storage to meet maximum day demand and fire flow demands;
- inadequately sized main transmission line from their tank to the community to allow the recommended fire flow to accommodate all residents;
- there is a need for occasional disinfection at their springs;
- there are no access agreements in place to access the system's springs and tank;
- there is no emergency backup power to compensate for their lack of storage;
- dead-end lines;
- no means to address nitrate levels;
- inaccurate flow meter readings from their springs due to the current tank piping configuration;
- meager source production records due to an inconsistent schedule of reading their meters;
- and insufficient water rights for the amount of water able to be produced by their sources.

The water system is interested in mitigating these issues over time without incurring a substantial amount of debt. Several alternatives that address these issues are discussed in more detail in later sections of this study. The water system put together a Community Advisory Committee (CAC) to help direct Keller Associates in the most desired direction that solves the current and future problems in a safe, effective, and economical manner. The final recommendation was presented to the public by the CAC during an advertised Public Hearing on June 27, 2012. The decision was reconfirmed by a vote by shareholders held April 3, 2013. The presentations, meeting minutes, and sign in pages are available in Appendix A.

1.2 Capital Improvement Plan

The Capital Improvement Plan (CIP) outlines priority improvements necessary to ensure sufficient water and fire service to the Community, both now and in the future. The improvements are needed now to correct existing deficiencies, correct existing fire protection and water storage deficiencies, and will also provide needed water supply, storage, and distribution improvements for that should accommodate growth for the next 40 years. Table 8-1

summarizes the water system capital improvements and provides cost estimates for these improvements.

1.3 Project Implementation

The Community only has one type of connection, residential. The current residential water rate structure includes a base rate of $40 per connection per month for a regular service which allows up to 30,000 gallons of water consumption per month. Water consumption above the base 30,000 gallons is charged at a rate of $1.00 per 1,000 gallons. The average monthly water bill for residential customer is about $45 per month (April through September). The water system does not meter through the winter due to large amounts of snow and inaccessible meters.

Monthly user rate revenue versus system operation, maintenance, and replacement costs were compared over the last three years. Figure 1-1 illustrates the comparison between the revenues and expenses from 2004 to 2011.

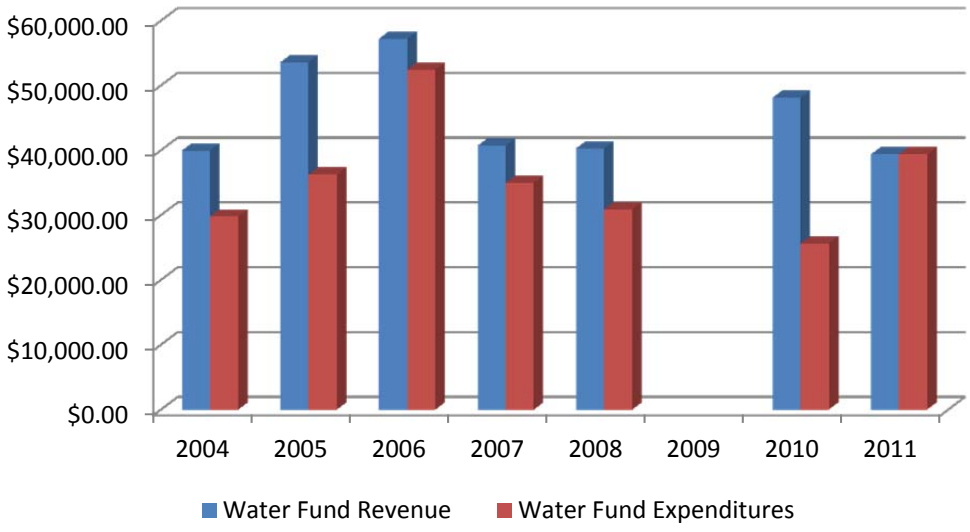

Figure 1-1: Annual Water Fund Revenues and Expenditures

Notes:
1. Years reflect the ending of the fiscal year.
2. Data for 2011 reflects budgeted values.

If revenue patterns in 2012 continue based on the new water rates passed in 2010, user rates should be sufficient to cover the existing operation and maintenance expenditures in addition to setting aside some funds for infrastructure replacement when needed.

However, completion of improvements in the capital improvement plan will likely require increases to the Water Company's water rates to repay bond payments and operation and maintenance costs. The bond payment will depend on the improvements that are constructed, the source of funding, the interest rate, the term of the loan, and the final construction cost. Table 8-2 illustrates a few different funding scenarios and their associated impacts to the system's water

rates. It is recommended that the Bennington Water System, Inc. reevaluate user rates once final funding arrangements are made. It is further recommended that Bennington Water System, Inc. implement rate increases at least one year prior to the first annual bond payment in order to establish a one year annual payment reserve fund.

Table 1-1 illustrates projected user rate impacts. The change in monthly debt service will change depending on the final funding arrangement. This table is based on values from Scenario 4 in Table 8-2.

Table 1-1 Projected User Rate Impacts

A	Current Average Monthly User Charge per EDU	$40
B	Change in O&M Monthly Charge per EDU	$3
C	Change in Debt Service Monthly Change per EDU	$17
D	Future Average Monthly User Charge per EDU (A+B+C)	$60

Chapter 2 Introduction

Bennington is an unincorporated community located approximately 5 miles north of Montpelier, Idaho along Highway 30. The area's economic base consists of agriculture and ranching related activities. Bennington Water System Incorporated owns and operates a water distribution system to provide both potable and fire suppression water demands to the residents in the area.

Bennington Water System Inc. is committed to maintaining a quality system and providing adequate service for all residential and commercial areas. This report evaluates the existing water supply and distribution system and makes recommendations to address existing deficiencies and future needs.

2.1 System Summary

The Bennington Water System provides water for the residents of Bennington through 82 metered service connections but only 77 active. Figure 2-1 shows a vicinity map for Bennington which is located 5 miles north of Montpelier, Idaho. Figure 2-2 illustrates the study area with the project planning area delineated. Essentially, the study area is within Section 9, Township 12S, Range 44E. The system consists of two (2) wells, two (2) springs, and one (1) storage reservoir. One of the springs, Spring 2, is not in service because it is suspected to be influenced by surface water. Spring 1 is the primary water source for the community and both springs are located approximately 1 mile east of town. The spring flows by gravity into the 50,000 gallon storage reservoir located about ½ mile east of town. Well 1 is located on 1st South about a half block east of the highway. This well feeds the distribution system when demand increases above the capacity of the spring via a solar telemetry system.

The transmission and distribution system is composed 6 inch PVC pipe. The majority of this piping was installed in the early 1970's. In 1997 the community acquired an existing irrigation well and connected it to their water system with 8 inch PVC. In the summers of 1997 and 1998 a majority of the water lines were replaced.

2.2 Report Organization

This report is intended to methodically describe Bennington Water System, Inc.'s complete water system including the five (5) main components: source water, storage, transmission, delivery, and treatment. Design criteria is outlined in Chapter 3, existing environmental conditions are presented in Chapter 4, existing system facility conditions and identified system deficiencies will be discussed in Chapter 5, future conditions are discussed in Chapter 6, alternatives to mitigate the deficiencies to meet current and future demands are evaluated in Chapter 7, and Chapter 8 will cover the selected alternatives, project implementation and funding.

2.3 Scope

The Scope of this study includes the following:

- Existing Facilities Condition and Evaluation
  - Compilation of data concerning the age and condition of the existing water system, including but not limited to pipelines, valves, the reservoir, wells, and other facilities
  - Evaluation of the existing water system components
  - Outline of prioritized recommended improvements
- Model Existing Water Facilities
  - Compile and review in the model:
    - Study area boundaries
    - Inventory of existing facilities
    - Type and amount of water consumption and production
    - Existing and projected land use and population
  - Evaluate standards, recommendations, and design criteria for:
    - Water supply
    - Storage
    - Pressure requirements
    - Fire Protection
  - Review existing water system condition, including:
    - System pressures
    - Pressure zones
    - Facility and pipe capacities
    - Available fire protection
    - Well supply
    - Water storage
    - Transmission and delivery
  - Develop alternative solutions to address potential system deficiencies
- Water Supply and Storage Analysis
  - Review current and future water supply and storage needs
  - Evaluate available water quality information and make recommendations to improve quality
  - Evaluate reservoir mixing and recommend improvements
- Master Planning and Capital Improvement Plan
  - Prepare Master Plan including:
    - Future facility needs
    - Replacement and pipeline extensions
  - Develop an estimated schedule for capital improvements and a summary of potential impacts on rates and/or funding sources
- Report Preparation
  - Submit to Bennington Water System, Inc. for their review and approval
  - Submit to Idaho Department of Environmental Quality for review and approval
- Public Participation, Presentations, and Meetings

2.4 Study Funding & Completion

Approximately 50% of the cost to complete the master plan was funded by the Bennington Water System water fund, and the other 50% was funded by a Drinking Water Planning Grant from the Department of Environmental Quality. Funds from local, state, and federal funding

sources will be pursued to implement the identified projects which are discussed in more detail in Chapter 8. The community effectively created the public drinking water system in the early 1980s and has operated and maintained it since then. The community will follow state and federal requirements and standards as they operate the existing system and expand it to meet future system demands.

2.5 Abbreviations

- ADD average day demand
- AWWA American Water Works Association
- bgs below ground surface
- cfs cubic feet per second
- DEQ Idaho Department of Environmental Quality
- EPA United States Environmental Protection Agency
- FFD fire flow demand
- ft foot
- fps feet per second
- gal gallons
- gpcd gallons per capita per day
- gpm gallons per minute
- Hp horsepower
- IDWR Idaho Department of Water Resources
- IOC inorganic chemical
- kW kilowatt
- MCL maximum contaminant level
- MDD maximum day demand
- mg/L milligrams per liter
- MG million gallons
- PHD peak hour demand
- POD point of diversion
- ppb parts per billion
- ppm parts per million
- psi pounds per square inch
- SDWA Safe Drinking Water Act
- SOC synthetic organic chemical
- VOC volatile organic chemicals
- WFPS Water Facilities Planning Study

2.6 Definition of Terms

- Average Day Demand (ADD) – the volume of water supplied to the system in a year divided by 365 days
- Consumption – refers to the volume of water customer's use. Consumption is generally measured with a water meter installed at each consumer's connection to the water system. In cases where a water system is not equipped with water meters at individual connections, consumers are charged a flat rate for water usage.

- Demand – refers to the water needed to meet residential, commercial, industrial, and public water needs over a period of time, as well as the system losses that are associated with the demand. Demands on the water system vary by the time of day and season. Due to varying consumer needs, system condition, and other factors, individual communities have unique water demand patterns. Volumetric rates (gpm or cfs), volumes (gal or MG), and per capita demand (gpcd) are often used to quantify the demand placed on a system.
- Demand Factors – also referred to as peaking factors. Demand factors define the relationships between ADD, MDD, and PHD.
- Fire Flow (FFD) – flow required to supply a sufficient quantity of water to fight a fire. The *International Fire Code* establishes fire flow requirements and is the accepted code in the State of Idaho.
- Firm Pumping Capacity – the total pumping capacity that a pump system can deliver with the largest pump out of service.
- Maximum Contaminant Level (MCL) – refers to the greatest concentration of a contaminant allowed in drinking water often reported in ppm, ppb, mg/L, or µg/L.
- Maximum day Demand (MDD) – the maximum volumetric rate or volume of water supplied to the system in one day during a year.
- Peak Hour Demand (PHD) – the maximum volumetric rate or volume of water supplied to the system in one hour during a year.
- Safe Drinking Water Act (SDWA) – United States regulation passed by Congress in 1974 to protect public health by regulating public drinking water. The Act was amended in 1986 and 1996 and is enforced by the EPA.
- Total Pumping Capacity – the total pumping capacity of all pumps within a pumping system.

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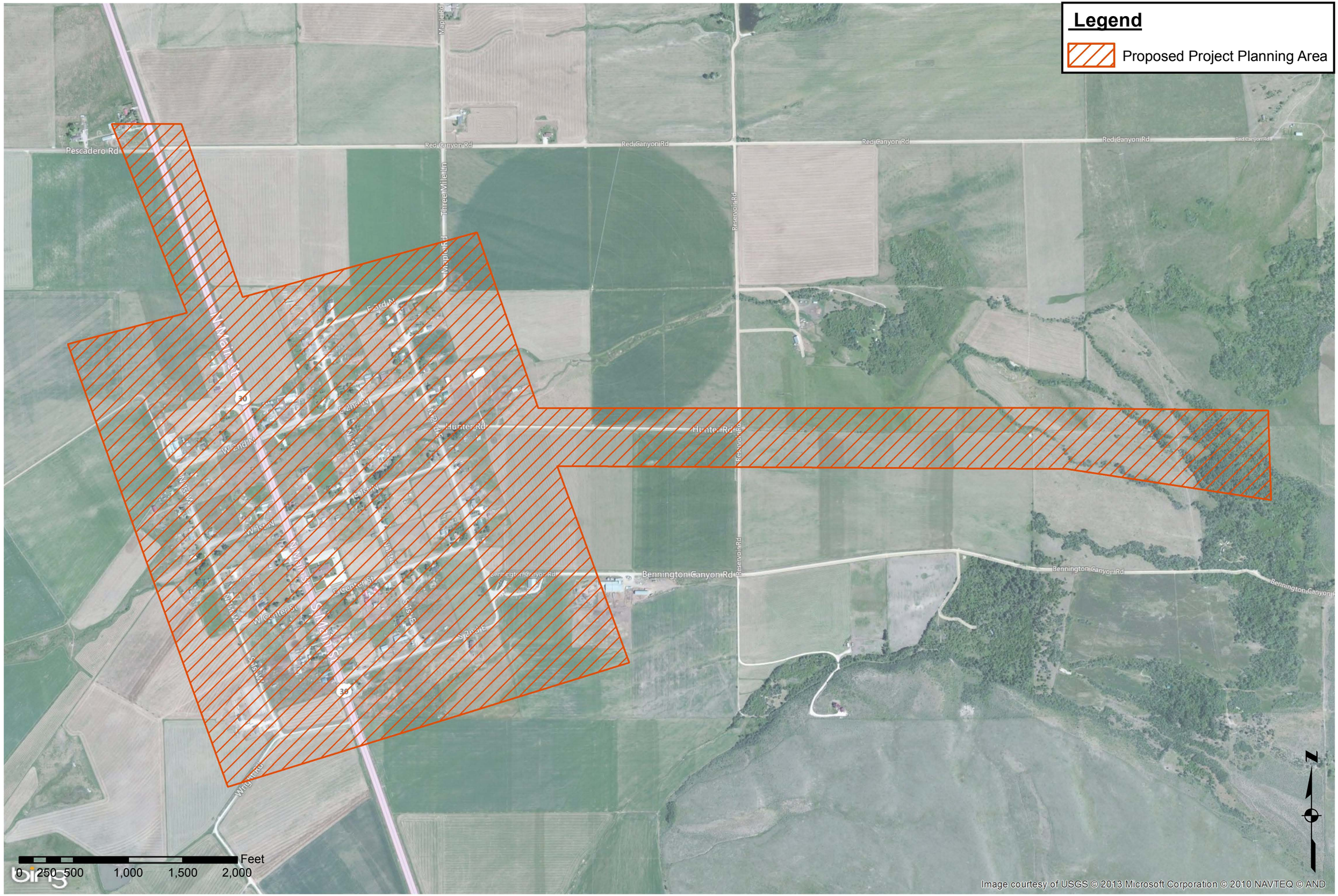
Vicinity Map

FIGURE NO. 2-1



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Proposed Project Planning Area

FIGURE NO. 2-2

Chapter 3 Design Criteria

3.1 General

This section summarizes the design criteria, study area, and regulatory requirements as they pertain to the community's water distribution system.

3.2 Water Supply & Delivery

The Idaho Rules for Public Drinking Water Systems, IDAPA 58.01.08, section 501.17 states that new community water systems served by ground water and constructed after July 1, 1985, or existing community water served by ground water that are substantially modified after July, 2002, shall have a minimum of two (2) sources if they are intended to serve more than twenty-five (25) homes or equivalent. With any source out of service, the remaining source or sources shall be capable of providing the peak hour demand of the system or maximum daily pumping demand plus equalization storage.

3.3 Water Storage

Figure 3-1 describes pictorially the following descriptions related to water storage reservoirs.

- **Freeboard:** Space above overflow pipe and below the tank roof.
- **Operational Storage:** Storage that supplies water when, under normal conditions, the sources are off. This component is the larger of:
  - The volume required to prevent excess pump cycling and ensure that the equalization, fire suppression, and standby storage components are full and ready for use when needed
  - The volume needed to compensate for the sensitivity of the water level sensors
  - Keller Associates recommends a volume of 10 – 15% of total storage volume.
- **Peaking Storage:** Peaking or equalization storage refers to the additional storage required to meet peak hour demands and fluctuations in the water demand during the day. The needed peaking storage will increase as the community grows.
- **Fire Storage:** The water needed to support fire flow in those systems that provide it (A typical recommended fire protection volume is 120,000 gallons reserved to fight a 1,000 gpm fire for 2 hours). This provides fire protection to meet FFD demands as recommended by the local Fire Marshall.
- **Emergency Storage:**
  - DEQ requires a minimum of 8 hours of average day demand.
  - May consider average summer day demand.
  - Can be offset by standby power
- **Dead Storage:** Storage that is either not available for use in the system or can provide only substandard flows and pressures

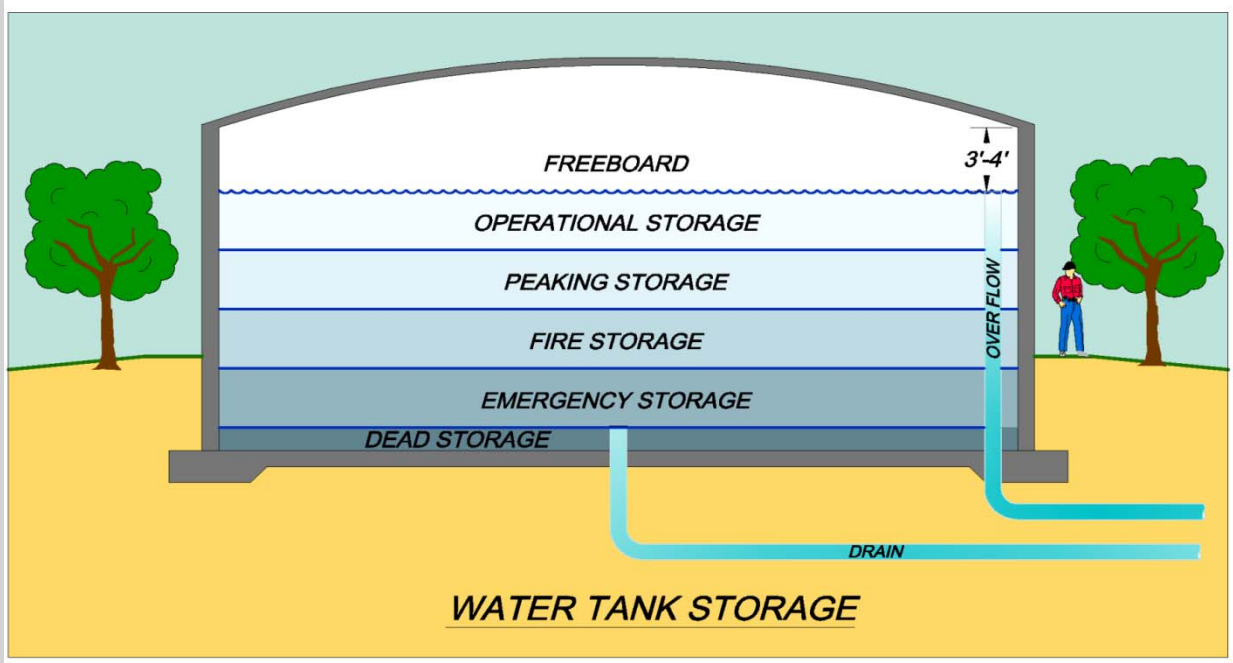


Figure 3-1: Water Tank Storage

3.4 Distribution System

3.4.1 System Pressures

The Idaho Administrative Rules requires public water systems to maintain a minimum system pressure of 20 psi during PHD and FFD conditions to prevent contamination of the drinking water. Normal operating pressures should range between 60 and 80 psi, but not less than 40 psi.

3.4.2 Sizing Future Pipelines

Pipeline design is based upon meeting PHD and fire protection while maintaining required system pressures. The following design criteria should be addressed:

- Water lines where FFD is not supplied should not be smaller than three inches in diameter[1].
- Dead end lines should be equipped with a means of flushing at a velocity of at least 2.5 fps[2].
- Dead end mains should be minimized by looping the system when practical.
- Valves should be located to minimize the amount of the system exposed to contamination due to loss of pressure during repairs
- Fire hydrants should be connected to lines that are at least six inches in diameter[1].
- Fire hydrants should be placed 250 to 500 ft apart, depending upon the area served.

[1] IDAPA 58.01.08 – Idaho Rules for Public Drinking Water Systems, § 542.06
[2] IDAPA 58.01.08 – Idaho Rules for Public Drinking Water Systems, § 542.09

- System pipe sizing should reduce the velocity head to reduce friction loses. Typical pipeline velocities should be between 2.5 ft/sec and 5 ft/sec and should not exceed 10 ft/sec under any circumstance.
- Pipelines may be oversized to allow for flexibility in future growth.

3.4.3 Water Meters

Manufacturers recommend that residential water meters be replaced every 15-20 years. The community of Bennington operates meters on their services. However, this is limited due to weather. They only read meters on their services during the months of April through September due to the snow. The source meters are read periodically on no particular schedule.

3.5 Fire Protection

Fire fighting in Bennington depends upon the Community's potable water supply drawn from the fire hydrants on the distribution system to fight fires. Providing adequate fire protection in residential, commercial and industrial zones often governs distribution pipeline sizes, pipe looping requirements, and reservoir storage needs. Because Bennington is not an incorporated City of Idaho, the Idaho Surveying and Rating Bureau does not have any recommended or required FFD for the Community. However, the Bear Lake County Fire Marshall stated that Bennington was required to be able to provide 1,000 gpm for a minimum of 2 hours. See the letter included in Appendix C. Should Bennington become an incorporated City, this FFD requirement may change. Table 3-1 describes the general rule of thumb for sizing required fire flows.

Table 3-1 Fire Protection Requirements

Building Type	Building Size (ft^2)	Flow (gpm)	Duration (hr)	Storage (gal)
One- & Two Family Residential	<3,600	1000	2	120,000
Multi- & One-Family Residential	<3,600	1500	2	180,000
Multi- & One-Family Residential	3,600 – 4,800	1750	2	210,000
Multi- & One-Family Residential	4,801 – 6,200	2000	2	240,000
Non-Residential	5,901 – 7,900	1,750	2	210,000
Non-Residential	15,401 – 18,400	2,750	2	330,000
Non-Residential	18,401 – 21,800	3,000	3	540,000
Non-Residential	21,801 – 25,900	3,250	3	585,000
Non-Residential	25,901 – 29,300	3,500	3	630,000
Non-Residential	>25,901	3500	4	840,000

3.6 Water Quality

The United States Government through the Safe Drinking Water Act has established drinking water quality standards for public drinking water systems in an effort to ensure public health. Primary drinking water standards, which are enforced by the U.S. Environmental Protection Agency (EPA) and the Idaho Department of Environmental Quality (DEQ), set limits on contaminants posing a risk to life and health such as total coliform, nitrates, and arsenic. In planning for water treatment facilities, sufficient elimination of these regulated contaminants is the chief concern. These primary constituents are required to be measured and reported on a regular basis.

3.6.1 Ground Water Rule

The Ground Water Rule (October 2006) addresses the risks of exposure to fecal contamination from community water systems that are supplied by ground water. Viral and bacterial pathogens are found in fecal matter which can be introduced to ground water sources from leaking septic systems, leaking sewer systems, and potentially through open flow paths in the ground. This rule addresses risk through a risk-targeting approach using four components. These components are:

1. Periodic sanitary surveys
2. Source water monitoring
3. Corrective actions
4. Compliance monitoring

3.6.2 Nitrate Rule

The Phase II Rule, the regulation for nitrate, became effective in 1992. The MCL for nitrate is 10 mg/L or 10 ppm. Nitrates themselves are fairly nontoxic and are primarily used as fertilizer for agriculture. However when nitrates are ingested they are converted to nitrites. Nitrites basically do not allow oxygen to bind to the blood cells, thus decreasing the transportation of oxygen throughout the body, a condition known as methemoglobinemia. The ingestion of nitrates is especially harmful to infants. (Argonne National Laboratory, 2005) Infants below six (6) months of age who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome. (EPA)

3.6.3 Arsenic Rule

Long-term exposure to arsenic in drinking water has been linked to cancer of the bladder, lungs, skin, kidney, nasal passages, liver, and prostate. Other effects of ingesting arsenic include cardiovascular, pulmonary, immunological, neurological, and endocrine effects. The Arsenic Rule was published in January 2001 and changed the MCL from 50 ppb to 10 ppb (~0.01 mg/L).

3.6.4 Nuisance Contaminants

Some of the nuisance contaminants found in municipal water systems are Hydrogen Sulfide, Ammonia, Iron, and Manganese. Where applicable, contaminants have been compared to the National Secondary Drinking Water Regulations as set by the EPA. These are non-enforceable guidelines regulating aesthetic water quality parameters. The EPA does not have suggested guidelines for hydrogen sulfide and ammonia.

The presence of hydrogen sulfide adversely affects the smell and taste of the water. Hydrogen sulfide causes the “rotten egg” taste and odor problems commonly encountered in many wells in the area. At concentrations of 1 mg/L, hydrogen sulfide may tarnish some metals, and leave black stains on laundry and porcelain fixtures.

Ammonia is found naturally in groundwater supplies or as a result of agricultural and industrial processes. According to the studies performed by the World Health

Organization, natural levels of ammonia are usually below 0.2 mg/L in groundwater. Ammonia does not usually affect anything other than the taste and smell of the water. Toxilogical effects from ammonia do not become an issue until concentrations of 200 mg/kg of body weight are reached.

Iron is a naturally occurring contaminant in drinking water and is typically found in concentrations ranging from 0.5 mg/L to 50 mg/L depending on the geologic characteristics of the area. Excessive iron in drinking water can cause discoloration and taste problems.

Manganese is a metal found naturally in ground and surface water supplies at concentrations ranging from 1µg/L to 10 mg/L. Its presence in drinking water is not considered a health risk, but it can lead to discoloration and precipitate deposition on water fixtures. Iron and Manganese are responsible for the "hard" taste in many waters and can be treated by adding a polyphosphate when iron and manganese levels are low to moderate.

A chlorine residual of 0.2 mg/L in a water distribution system can be used to eliminate the growth of bacteria and other contaminants throughout the distribution system. Chlorination is used to oxidize constituents such as hydrogen sulfide which causes "rotten egg" taste and odor problems.

3.7 Reliability & Emergency Operation

The Idaho Rules for Public Drinking Water Systems, IDAPA 58.01.08, section 501.07 requires that water system improvements constructed after April 2007 be equipped with dedicated standby power with automatic switch-over capability or standby storage volume. During power outage, water systems must be capable of providing average day water demands at adequate operating pressures for 8 hours plus fire flow protection where provided.

Chapter 4 Existing Environmental Conditions

This portion of the report presents a general overview of existing environmental conditions within the study area. An Environmental Information Document (EID) for improvements will be prepared in conjunction with this study. The EID contains descriptions of environmental conditions in the planning area, with the intent of identifying potential environmental impacts that may arise when implementing the proposed improvements.

4.1 Physiography, Topography, Geology, and Soils

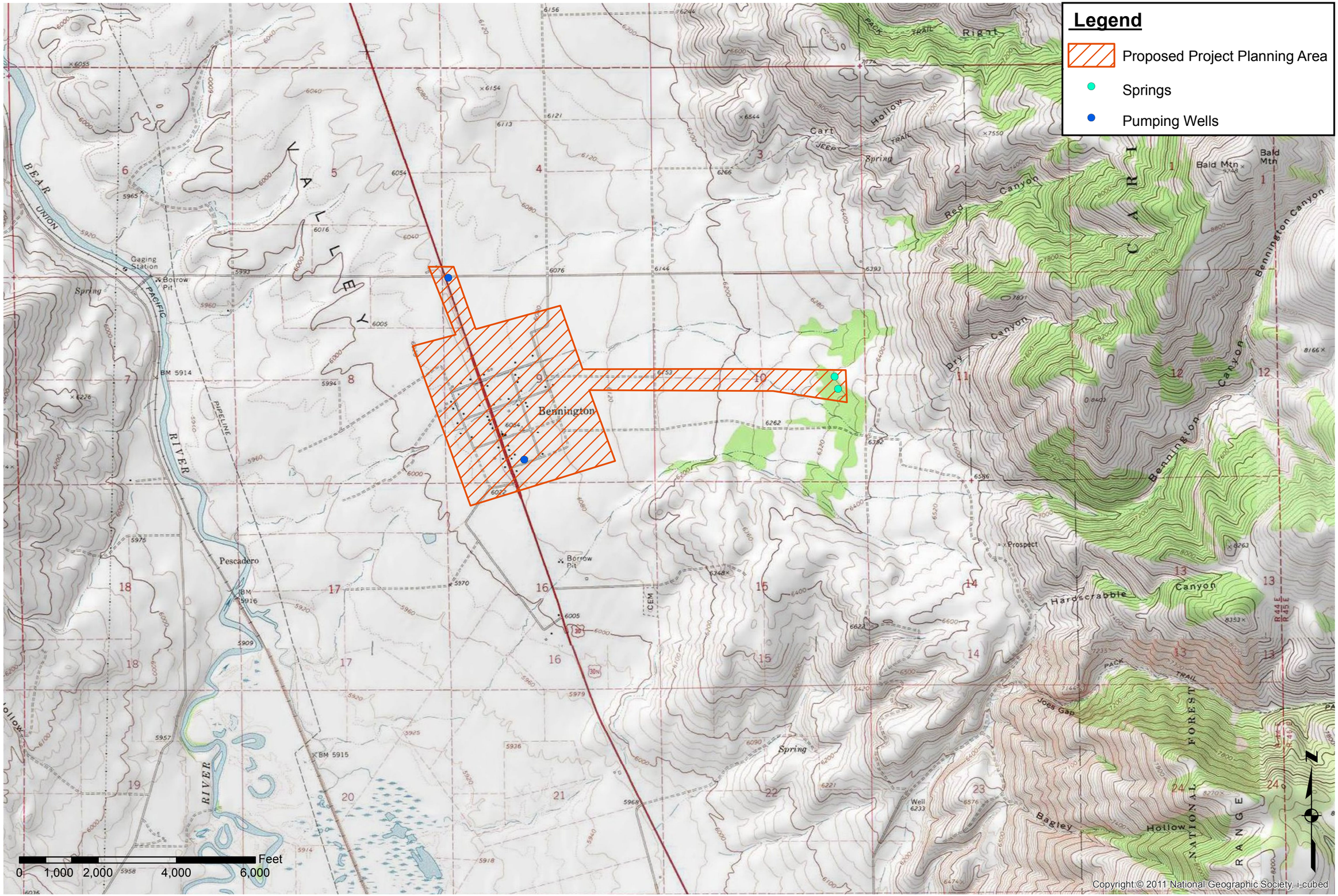
The Community of Bennington and the surrounding area gradually slopes downward toward the Bear River to the west, with elevations in the community ranging from approximately 6103 to 6025 feet above sea level. The highest elevations are north and east of the community, with the elevation dropping to the south and west. A topographic map of the area is shown in Figure 4-1.

The primary soil units in the Bennington study area include Buist gravelly silt loam, Buist-Arbone complex, Wursten silt loam, Benning silt loam, and Rexburg-Iphil complex. All of the soils in the study area pose a low risk of corrosion to concrete, but a moderate to high risk of corrosion to steel (approximately 80% of the soil area is rated with a moderate risk of corrosion to steel). The soils are characterized as very limited in their use and may result in poor performance and increased maintenance. The depth is generally greater than 6½ feet (NRCS, 1961).

The State of Idaho is ranked 5th in the Nation for earthquake hazard. It has experienced 2 of the largest earthquakes in the nation within the last 30 years. The Community is located along the Eastern Bear Lake Fault that runs through the Bear River Valley. This fault is classified as a Major Quaternary Fault and is known to have moved within the last 1.6 million years (Idaho Geological Survey). See Figure 4-2 and Figure 4-3.

4.2 Surface & Ground Water Hydrology

The Bear River is the largest river in the region. It begins in the Uinta Mountains of Utah and flows through Wyoming and Utah before entering Idaho. It is fed by numerous tributaries and small streams before it reaches the Bennington area. Several small creeks originate in the mountains east of the planning area and flow west to the Bear River near Bennington. An unnamed creek originates east of the planning area and is the only water body in the planning area. The community is located over an unconsolidated-deposited aquifer. Water supply comes primarily from the surrounding mountains as it is a valley-filled aquifer. The depth to nonflowing wells is usually about 60 feet with a flow rate ranging between 10 – 1,800 gpm (USGS).



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Topographic Map

FIGURE NO. 4-1

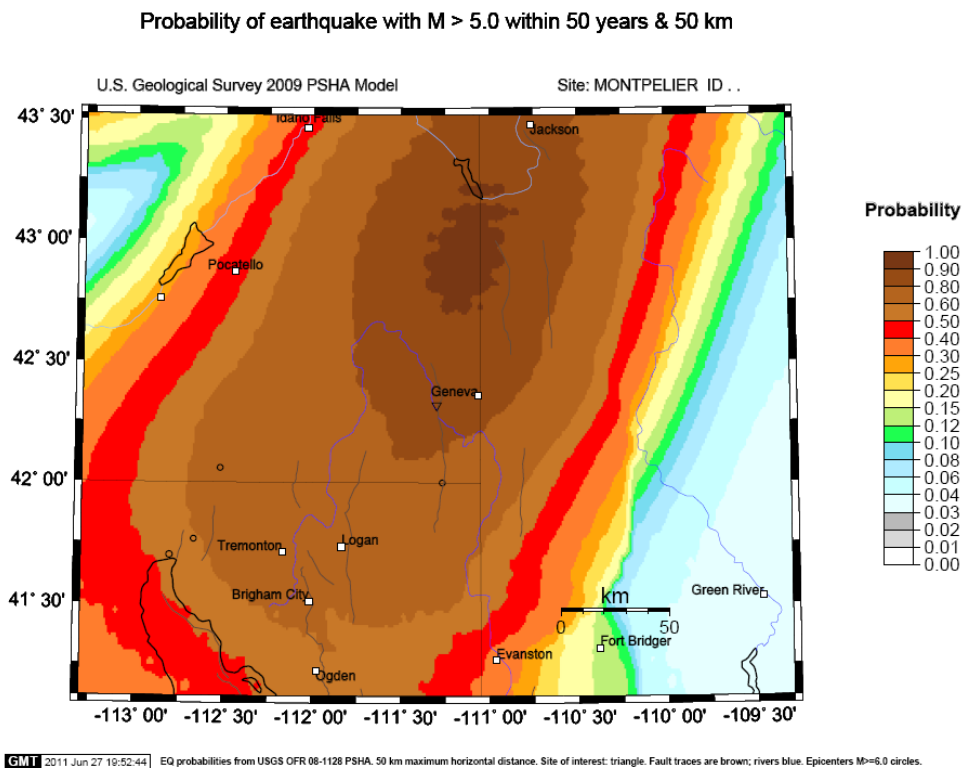


Figure 4-2: Bennington Area Earthquake Probability Mapping

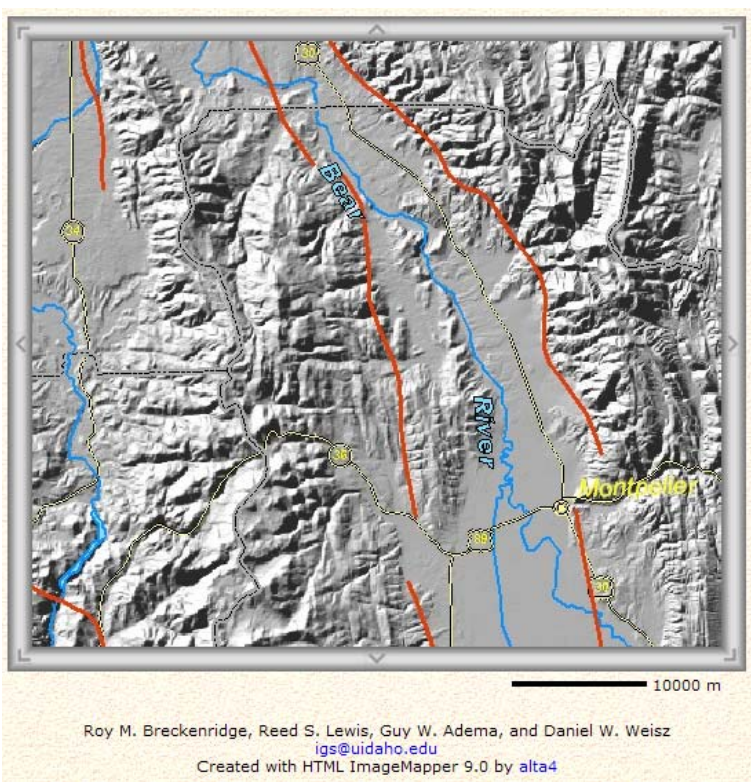


Figure 4-3: Eastern Bear Lake Fault

4.3 Fauna, Flora, and Natural Communities

The species documented in Bear Lake County that are listed as endangered, threatened, proposed, and candidate species by the US Fish and Game are listed below (US Fish and Wildlife Service, 2012):

Threatened: Canada lynx, Bliss Rapids Snail
Endangered: none
Candidate: Greater Sage-Grouse, North American Wolverine, Snake River Physa Snail
Experimental Population, Non-Essential: Gray Wolf

These species are not anticipated to be found within the Bennington urban area where most of the proposed improvements would be constructed. The Bennington area is not shown to be critical habitat for any of the above listed species (U.S. Fish & Wildlife Service, 2012).

The area around Bennington is primarily farmland. To the east near the spring sources, there are more wooded areas. Further to the east the foothill and mountains begin to rise. The Bear River is located to the west with its riparian habitat. See Figure 4-4.

4.4 Housing, Industrial, and Commercial Development

The community is mostly residential housing. There is one church building and no businesses. See also Section 4.12.

4.5 Cultural Resources (Historical & Archaeological)

There are no places in Bennington currently listed in the National Register of Historic Places. (Office, 1997)

A letter will be sent to the State Historical Preservation Office (SHPO) to investigate the potential impacts of the priority improvements.

This region is under the ancestral jurisdiction of the Shoshone-Bannock, Shoshone-Paiute Tribes and the Northwestern Band Shoshone Tribes.

4.6 Utility Use

Culinary water is provided to the residents of Bennington primarily by springs which flow by gravity into the storage reservoir. In the summer months when demand increases, there are two wells which pump into the system. Water usage is discussed in Section 5.6 of this report. Currently all of the connections are metered. The meters are read during the months April through September due to the long winters that prevent consistent water meter readings.

4.7 Floodplains/Wetlands

Bear Lake County has no FIRM mapping from FEMA. Thus, there are no mapped floodplains in Bennington. The only surface water that passes through Bennington is a small unnamed tributary to the Bear River.

The nature of the climate and waterways in Bennington is such that there are very few wetlands in the study area. For any projects that involve disturbances to jurisdictional wetlands, formal

consultation with the U.S. Army Corps of Engineers and the Idaho Department of Water Resources will be required to obtain nationwide 404 permits for stream crossings or wetland alteration. See Figure 4-5.

4.8 Wild & Scenic Rivers

There are no designated or proposed wild and scenic rivers in Bennington or within the vicinity of the proposed projects (National Wild and Scenic Rivers, 1968).

4.9 Public Health & Water Quality Considerations

Nitrate and Coliform have been recurring issues related to the potable water supply for Bennington. In July and August 2010 there were two samples that came back positive for coliform. Samples tested for nitrate consistently are positive and vary between 2 mg/L and 7.9 mg/L. The MCL listed by the EPA is 10 mg/L. (Drinking Water Contaminants, 2009) There is currently no continuous treatment/disinfection system. If needed, the operator disinfects at the springs or tank with chlorine.

4.10 Important Farmlands Protection

Nearly all of the non-urban land in the Bennington planning area is designated by the NRCS as prime farmland if irrigated. The priority improvements are anticipated to be located within areas previously disturbed by development. If a new storage reservoir is constructed, a small amount of farmed property would likely be affected near the existing reservoir. Most future pipeline improvements are anticipated to be located within existing or future right-of-ways. See Figure 4-6.

4.11 Proximity to a Sole Source Aquifer

Bennington is located over an unconsolidated-deposited aquifer. The closest Sole Source Aquifer is the Eastern Snake River Plane Aquifer. The nearest source area boundary for this aquifer is located approximately 7.5 miles northeast of Bennington, while the closest aquifer boundary area is approximately 70 miles northwest. See Figure 4-7. (Sole Source Aquifer Maps, 2011).

4.12 Land Use & Development

Bennington is not an incorporated city of Idaho. They are referenced as a “rural community” by Bear Lake County. See Figure 4-8.

The majority of the properties within the community have 1-5 acres. The majority of the development will be on the outskirts of town until the current property owners decide to subdivide their properties. This is not a foreseeable event of the near future.

4.13 Precipitation, Temperature and Prevailing Winds

The climate summary (June 1914 through June 1991) for Montpelier (the closest station with similar weather) shows average minimum temperatures ranging from 6°F to 48°F and average maximum temperature ranging from 29°F to 85°F. Over the same period, the total annual precipitation averaged 14.5 inches with an average snowfall of 62.0 inches. The coldest month is January, the wettest month is April, and the hottest and driest month is July. (Western Regional Climate Center, 2006). See Table 4-1. The prevailing wind direction is southwest as reported by local residents.

Table 4-1: Climatic Data

Month	Average Maximum Temp (°F)	Average Minimum Temp (°F)	Average Precipitation (inches)	Average Total Snowfall (inches)
January	29.4	6.0	1.17	13.2
February	33.5	8.6	1.22	12.9
March	40.3	16.2	1.28	8.8
April	53.0	26.8	1.47	4.1
May	64.7	34.6	1.38	0.9
June	74.7	41.2	1.37	0.2
July	85.1	47.3	0.81	0.0
August	83.4	44.9	0.91	0.0
September	73.0	36.2	1.18	0.3
October	60.4	27.8	1.21	2.1
November	43.0	18.5	1.07	7.1
December	32.2	10.4	1.14	12.6
Annual	56.1	26.5	14.5	62.0

4.14 Air Quality & Noise

No existing air quality or noise issues have been identified for Bennington. DEQ typically monitors criteria air pollutants in areas of high population such as the Treasure Valley, and in areas where there are localized pollutant sources. DEQ has not monitored air quality in Bennington. A map of areas with sensitive air quality is shown on Figure 4-9.

There are no anticipated long-term adverse impacts to the air quality and noise levels from any proposed improvements. Proposed improvements may have a temporary local impact on noise and air quality (dust) during construction. Best Management Practices during construction can mitigate against airborne dust during construction.

4.15 Energy Production & Consumption

The existing water system utilizes electrical energy for pumping water from the two wells within the distribution system when the demand is more than the springs can meet. Additional storage facilities and distribution lines and increased transmission lines will reduce the head loss in the system and increase overall efficiency reducing energy consumption.

4.16 Socioeconomic Profile/Population Statistics

Official estimates from the 2010 census for economic characteristics are not yet available for Bennington. The American Community Survey (ACS) produces population demographic and housing unity estimates. Based on ACS data, 66.7 % of the population 16 years and over are in the labor force. The median household income is reported to be $36,786 (U.S. Census Bureau, 2011). Information on the number of people under the poverty level is not available at this time. Historical and projected populations are found in Section 6.1.3 of this report.

4.17 Maps, Site Plans, Schematics, Tables, & Letters from Consulted Agencies

General mapping of environmental conditions are presented in this chapter, however any detailed information and agency consultation is included in the Environmental Information Document (EID) which is bound separately.

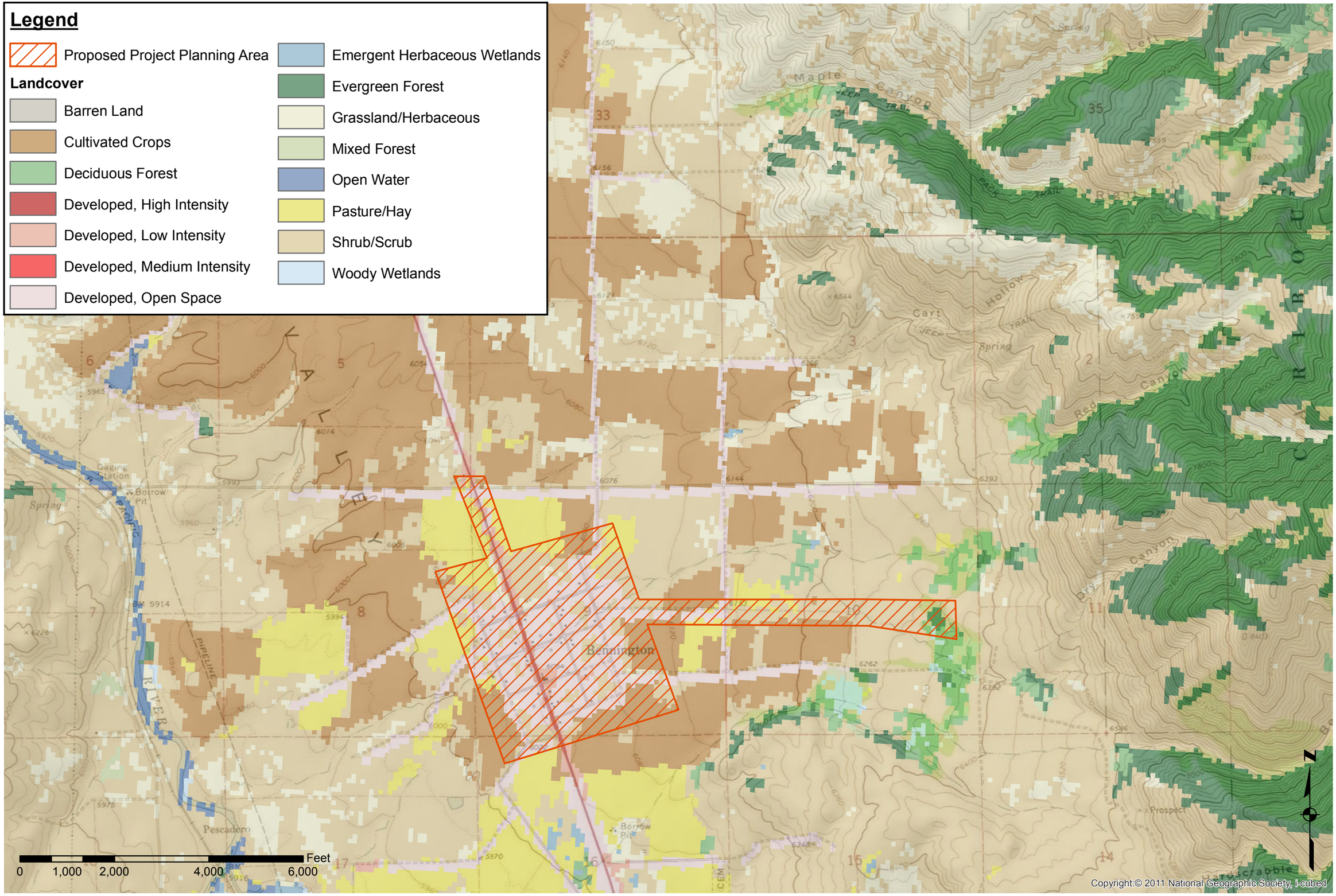
4.18 Public Participation

40 CFR Part 25 discusses objectives and requirements for public participation. The public refers to, in the broadest sense, the general populace. This may include any special interest groups. This process helps responsible officials become aware of public attitudes by allowing the public to communicate their views.

The Board members heading the Bennington Water System have been involved in the details of the study by participating in the Community Advisory Committee (CAC) responsible for review and development of alternatives for proposed improvements through the study process. In addition, periodic presentations have been made at board and public meetings throughout the study process in an effort to include the general public. Public participation information and documentation is included in Appendix A. Table 4-2 summarizes the dates of the various meetings.

Table 4-2: Public Participation

Public Meetings	CAC Meetings	Public Hearing
4/16/2011	9/14/2011	6/27/2012
4/18/2012	10/19/2011	--
4/3/2013	11/16/2011	--
--	4/18/2012	--



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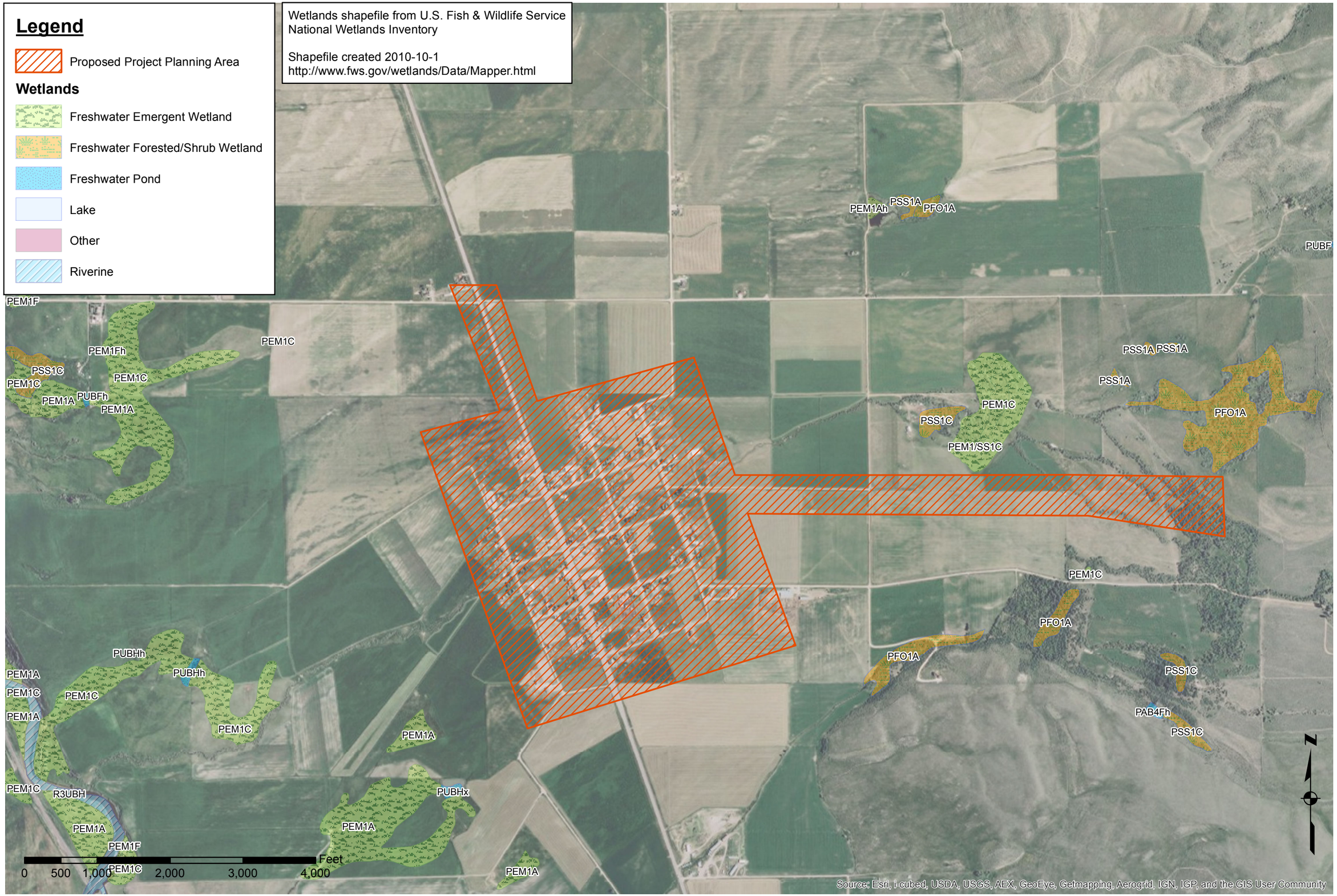
Landcover Map

FIGURE NO. 4-4



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Wetlands Map

FIGURE NO. 4-5

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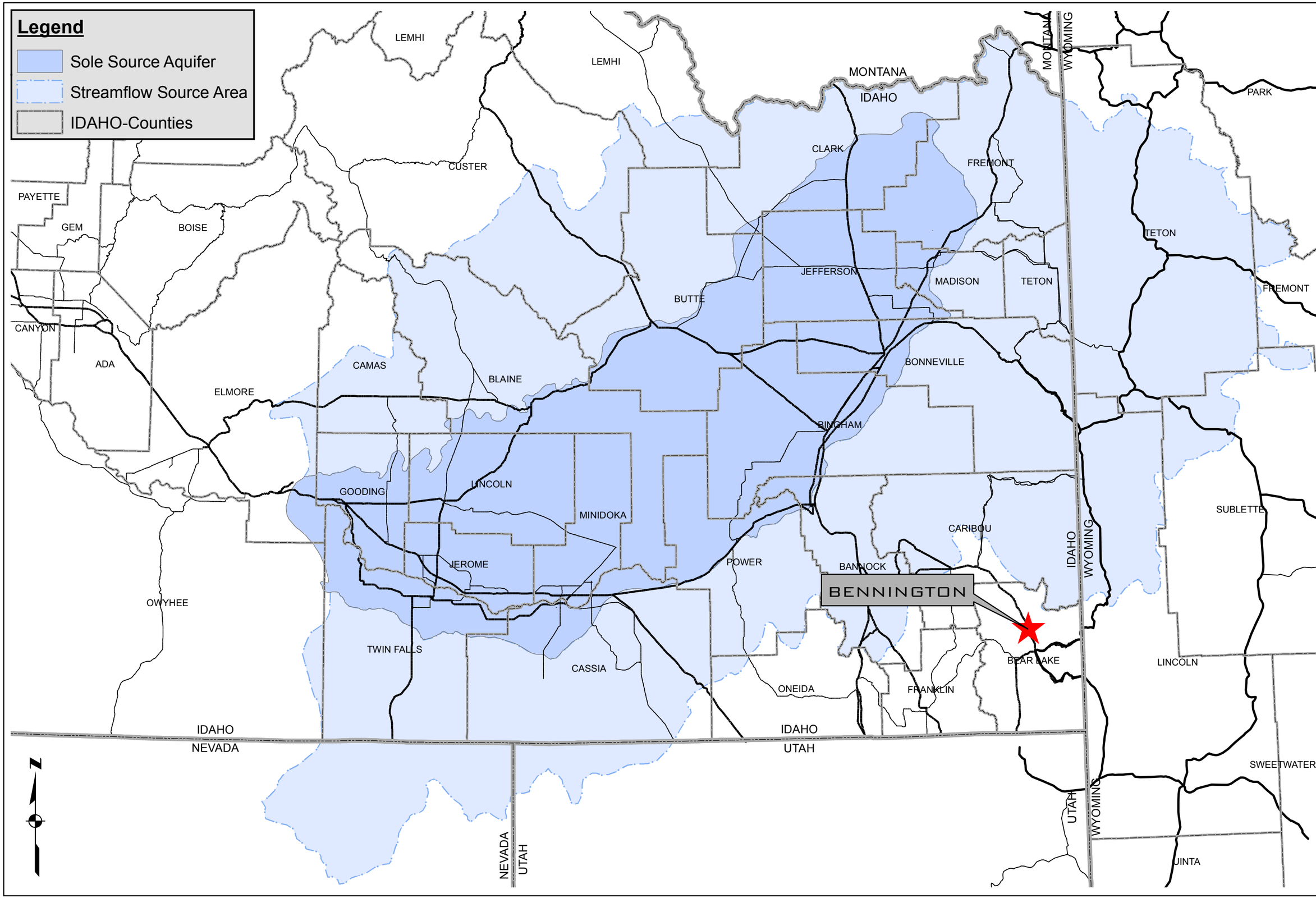
Prime Farmlands Map

FIGURE NO. 4-6



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Eastern Snake River Plain Aquifer

FIGURE NO. 4-7

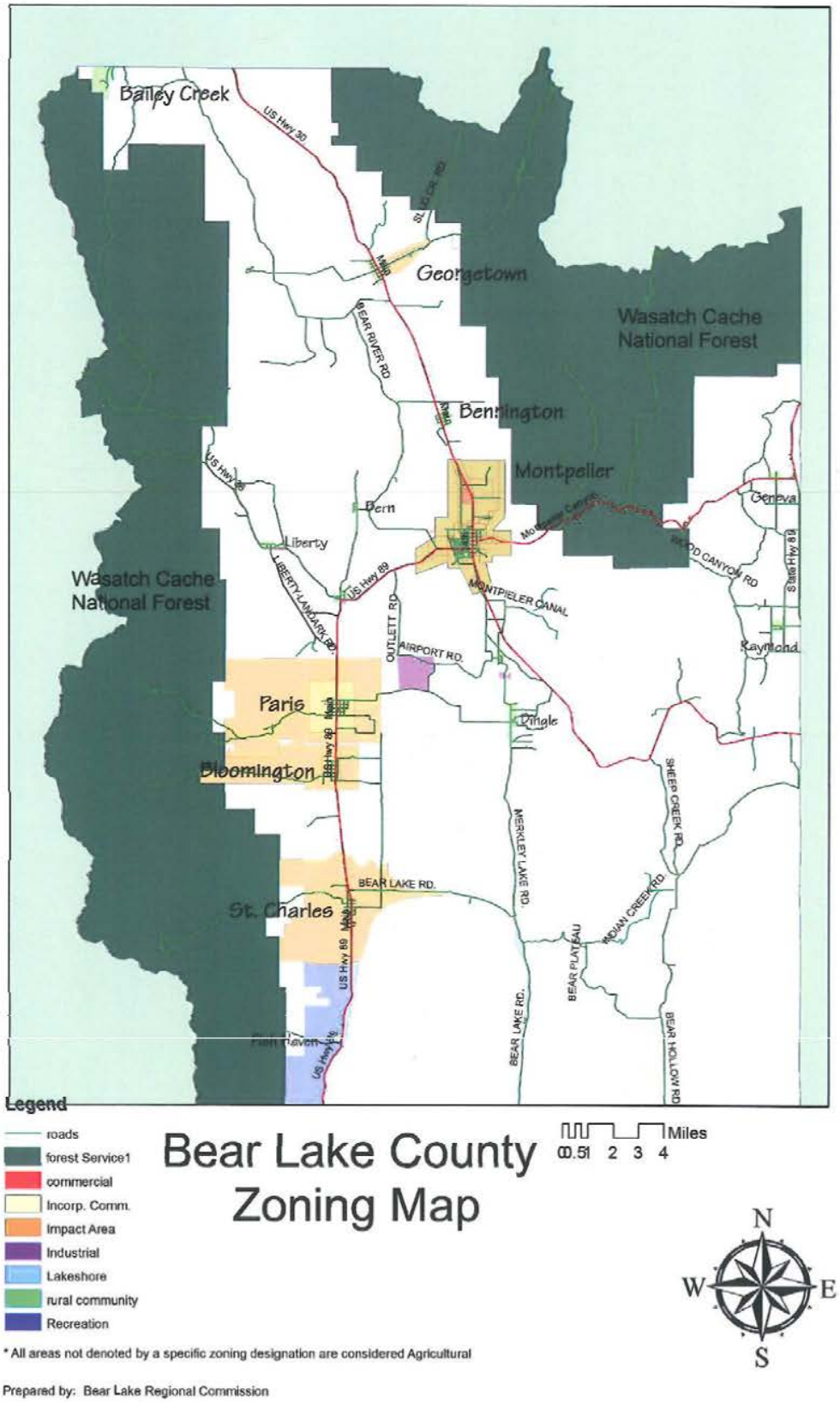

Figure 4-8: Bear Lake County Zoning Map

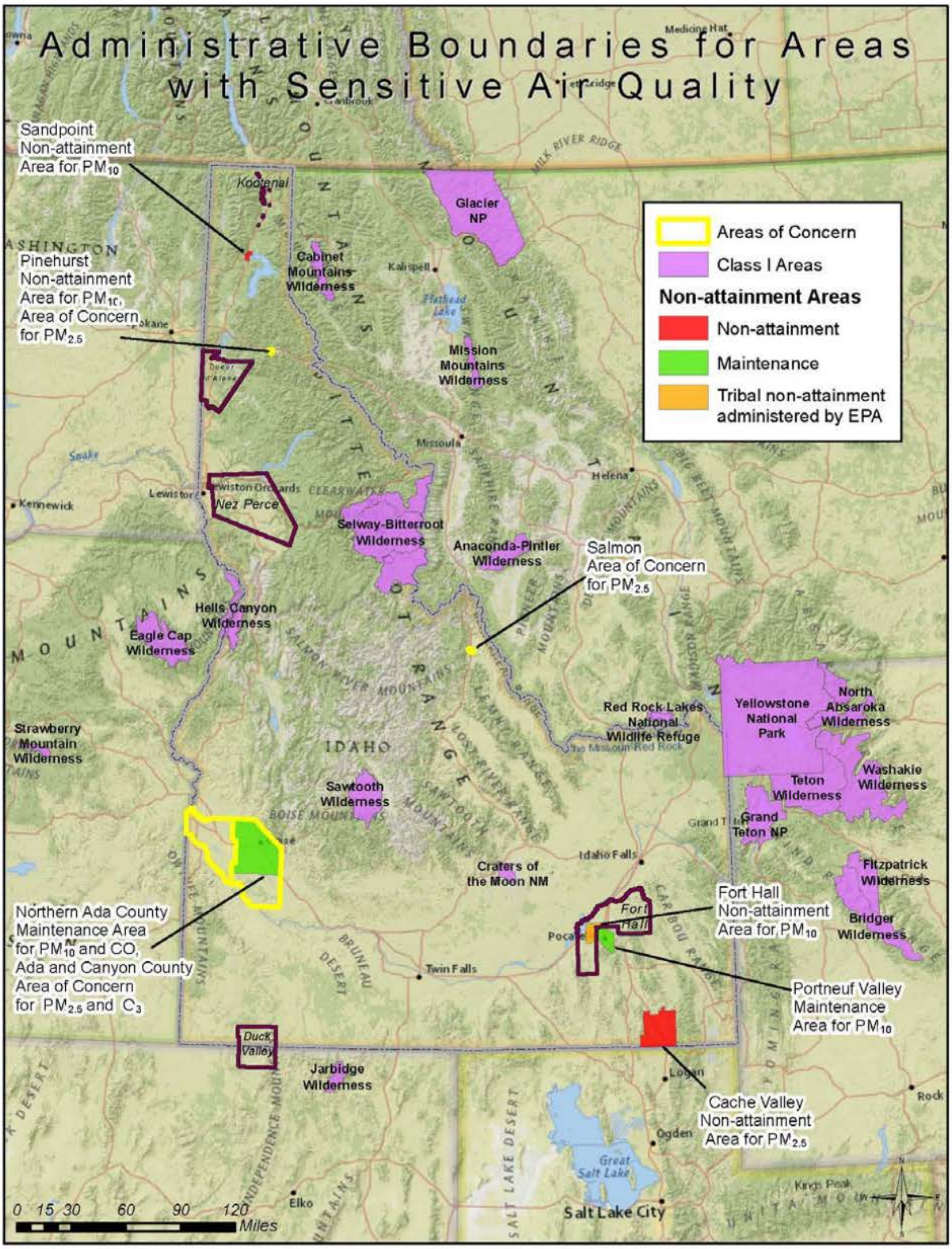

Figure 4-9: Administrative Boundaries for Areas with Sensitive Air Quality

Chapter 5 Existing Facilities' Condition and Evaluation

This chapte1 summarizes existing well and water storage facility conditions. In addition, an overview of the water distribution system condition is presented.

5.1 Water Sources

Bennington has two wells, two springs and services a population of 279 with 77 active connections or equivalent dwelling units (EDUs). An overview of each source is provided below.

5.1.1 Well 1

The well is located on the south end of town and was constructed in the early 1990. The well house is shown in Figure 5-1. It has an 8" casing pipe down the full depth of the well to 180 ft. The well log is included in Appendix B along with a field report and proof of beneficial use report from IDWR for the well. The casing is perforated from 105-150 ft and is sealed with cement grout to 80 ft. The static water level was at 61 feet and has an estimated pumping volume of 110 gpm at 80 psi. The well is equipped with a 15 HP submersible pump that pumps into a 6-inch transmission line that supplements the water to the residents when the demand is greater than what the spring is producing. The operation of this well is controlled by the level in the storage reservoir via radio telemetry. There is no disinfection at this facility. Static water pressure at the pump house is approximately 85 psi.

Figure 5-1: Well 1

Figure 5-2: CRI Well

5.1.2 CRI Well (Well 2)

The well, formerly an irrigation well owned by Ted Crane, is located approximately ¾ of a mile north of town along US Highway 30 and was improved to be a potable well in 1997. No well log is available for this well. The well house for the CRI Well is shown in Figure 5-2. After review of TV inspection, it appears that a 12-inch casing extends the full depth of the well to 149 ft and is perforated from 65-149 ft. The estimated pumping volume is 450 gpm through a 50 HP turbine pump that pumps into an 8 inch PVC line that connects to the water system. The operation of this well is also controlled by the level in the storage reservoir via radio telemetry. There is no disinfection at this facility. The static water pressure at the pump house is approximately 110 psi.

5.1.3 Spring 1 (Old Spring)

Constructed around 1975, this spring is the main water source for the system. A 12-inch perforated vertical collection pipe about 15 feet down into the spring captures approximately 0.09 cfs or 40 gpm. A clay layer is installed around the pipe. A cover is welded over the top of the perforated pipe as a cover. A 6-inch pipe is connected to the perforated pipe and the captured water is carried by a 6 inch main to the storage reservoir. A sample tap has been installed downgradient of the spring for sample collection. The site is fenced with a 4 strand barbed wire fence.

5.1.4 Spring 2 (New Spring)

This spring was constructed in 1990 and delivers approximately 0.13 cfs or 58 gpm through a buried perforated pipe that is covered in clay and a synthetic liner. There is no spring box or sample tap for this spring. Spring 2 had regular positive coliform samples and use of the spring for the water system was discontinued in the late 1990's and is currently being diverted to waste. The site is fenced with a 4 strand barbed wire fence. The water board desires to mitigate the issues so that they can again utilize this source.

5.2 Water Quality

The Community's groundwater lies within a nitrate area. The MCL for nitrate concentration is 10 mg/L. The wells and springs are all sampled. The wells have had higher concentrations than the springs. Well 1 was sampled on June 21, 2011 and reported 7.01 mg/L. The CRI Well was sampled on June 21, 2011 and reported 6.42 mg/L. Unlike the two wells in town, Spring 1 is not impacted by nitrates. The most recent sample reported 0.39 mg/L on June 21, 2011. See Figure 5-3 for a graph of sampled nitrate concentrations since 2007.

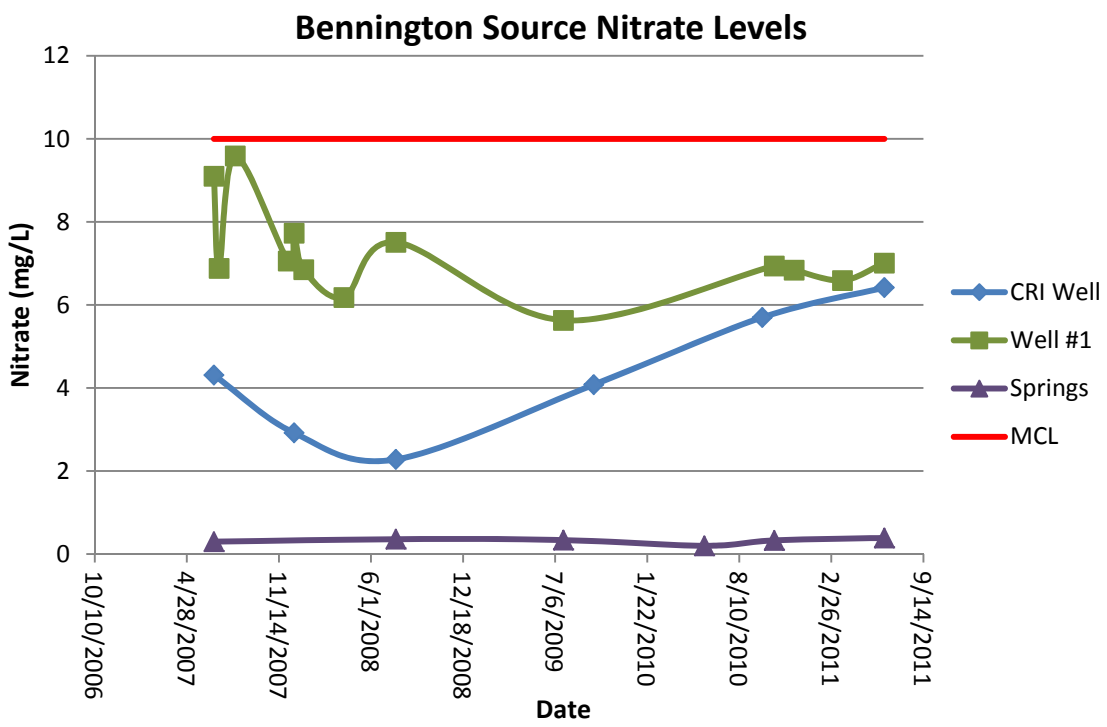

Figure 5-3: Bennington Source Nitrate Concentrations

The Bennington Water System board of directors indicated that occasionally their quarterly samples have indicated that coliforms are present. There is no permanent disinfection system to quickly mitigate this issue. The typical procedure used by the operator to address this situation has been to add 1 gallon of liquid chlorine (bleach) at Spring 1 or directly into the storage tank. Chlorine residuals are not measured in the system.

Tap samples from the distribution system report very low concentrations of lead and copper. Levels for IOCs and SOCs are typically non-detectable in the system. Radiological testing for the CRI Well was reported to have low levels of radiologicals.

Laboratory analyses for each of the currently used sources are included in Appendix E.

5.3 Distribution System

This section outlines the distribution system pipe materials, pipe conditions, meter conditions, valve, and fire hydrant needs. A hydraulic analysis of the distribution system is presented in Section 5.10 of this report.

The Community's water distribution system is composed of a network of 160 psi PVC water pipes totaling approximately 5 miles, and ranging from 6 to 8 inches in diameter illustrated in Figure 5-4. Table 5-1 lists the length of pipe and percent of total for each pipe size. Approximately 1.2 miles of the 6 inch piping is the transmission line from the springs to the Community's distribution system.

Table 5-1: Water Distribution Pipe Size Summary

Size (in)	Length (ft)	% of Total
6	22,825	86%
8	3,600	14%
Total	**26,425 Feet**	**5 Miles**

Figure 5-4 illustrates the waterline network and the location of the wells, springs, and reservoir. The Community's existing water system utilizes a single pressure zone that has typical pressures that range from 78 psi to 92 psi.

5.3.1 Water Meters

A flow meter is located in a vault immediately upstream of the storage reservoir to measure flows from the springs. However, because the pipeline from the springs does not always flow full, the flow meter does not accurately report the amount of water from the spring.

Each service has an existing water meter. However, the Community is unable to read the meters each month throughout the year due to the cold climate and significant snowfall that they receive. The water operator reads the meters the 1st of each month (April – September) and checks them annually and replaces as necessary. Typical residential water meters should be tested every 5-10 years and have a typical useful life of 25 years.

There are some high water users in the community. The water operator, Robert Holjeson, reported that roughly ¾ of the residents have irrigation rights and the remainder water their lawns, gardens, etc through the use of the potable system.

The Community meters irrigation on their parks. Bennington Park East measured 5,000 gallons in May 2010 but drastically increased to 71,000 gallons in the hotter months of July-August.

5.3.2 Fire Hydrants

The age of the valves and fire hydrants generally corresponds to the age of the adjacent water lines. The system has approximately 18 triple-port fire hydrants and flushes them annually. There are a few fire hydrants that are in need of replacement. It is recommended that a fire hydrant replacement program be initiated which would be composed of replacing two fire hydrants every year. Assuming that each hydrant costs $2,000 (installed), this program would require $4,000 annually for the next 8 years to implement.

5.3.3 Water Valves

There are isolation valves at crosses and tees throughout the system to allow isolation of portions of the system to allow work to be completed as needed. There is an air relief valve and/or PRV where the CRI Well connects to the water system.

5.3.4 Cross-Connection Control Program

IDAPA 58.01.543 outlines requirements for cross-connection control. This control program should take reasonable and prudent measures to prevent unsafe or contaminating materials from being discharged or drawn into the drinking water system. This can occur from pipes, pumps, hydrants, water loading stations, or tanks. The cross-connection control program should include provisions for evaluating the existing system and connections, addressing connections without backflow prevention, controlling new connections, testing of backflow preventers by a licensed backflow tester, and ensuring enforcement of the program is met.

Bennington does not have a formalized cross-connection control program in place. There is a filling station provided by the system. This is one area that needs to be enforced to ensure that use of the filling station is conducted in an appropriate manner to protect and provide safe drinking water. The site is used by farmers and others. An air gap is used to prevent backflow or siphoning.

EPA has published a Best Practices Guide for cross-connection control. It helps to explain where they can occur, what a control program involves, and how to implement a cross-connection control program. This guide can be found at:

http://www.epa.gov/safewater/smallsystems/pdfs/guide_smallsystems_crossconnectioncontrol.pdf

A copy of the guide is also included for reference in Appendix G.

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Fire Flow Deficiencies

FIGURE NO. 5-7

5.4 Water Production/Consumption

The water source for the system is groundwater. The total water production capacity of the system equals the pumping capacity of the two existing wells and the production rate of the spring. Spring 1 produces 40 gpm, Well 1 can produce an additional 110 gpm, and the CRI Well can produce an additional 450 gpm. Thus the total production water production capacity of the currently used sources is 600 gpm.

Water production data is recorded during the warmer months of April-September with meters at each service. The spring has a meter but the operator does not believe that it is accurate because the pipe is never full and the installed propeller meter has high tolerances. The wells have flow meters but are not monitored and logged on a consistent basis. It is important to note that the consumption data presented below in Figure 5-5 and Table 5-2 reflect the consumed metered volumes. There are likely some losses in the system that are not accounted for.

As illustrated in Figure 5-5, peak month flows correspond to the summer months (June through September) during which demands are more than double average annual demands and more than three times the winter demands in recent years. This peak in production is primarily a result of irrigation.

Summer demands have also remained fairly constant in the last three years except in 2009. It is unclear the reasoning behind this 2009 increase in water usage because the pump meters were not read consistently. In fact, CRI well was not logged at all in 2009, only Well 1 was logged periodically. However, there was once service meter that experienced very high consistent flows all summer, this could be a result of a bad meter.

Beginning January 2011, the Bennington Water System increased their rates from $27.50 to $40, which may reduce irrigation demands on the potable water system.

Water users include residential, irrigation, and church customers. The system's current water billing structure is not set-up to track these different categories. However, it has the capability to track both consumption and revenues generated by all water users. The largest water users are homes that do not have irrigation rights. The other large water user is the park. Table 5-2 illustrates the total and per capita monthly water consumption patterns.

Table 5-2: Bennington Water Consumption

	Water Usage*					
				Average		
Statistic:	2008 (gpd)	2009 (gpd)	2010 (gpd)	(gpd)	(gpm)	(gpcd)**
Average Annual Day	NA	NA	23,832	23,800	17	86
Average Winter Day	NA	NA	16,848	16,800	12	61
Average Summer Day	32,260	41,333	34,405	36,000	25	130
Max Month Ave. Day	54,267	54,900	49,345	52,800	37	190

* Based on metered usage, not produced volume
** Based on 77 connections, 3.6 people per connection

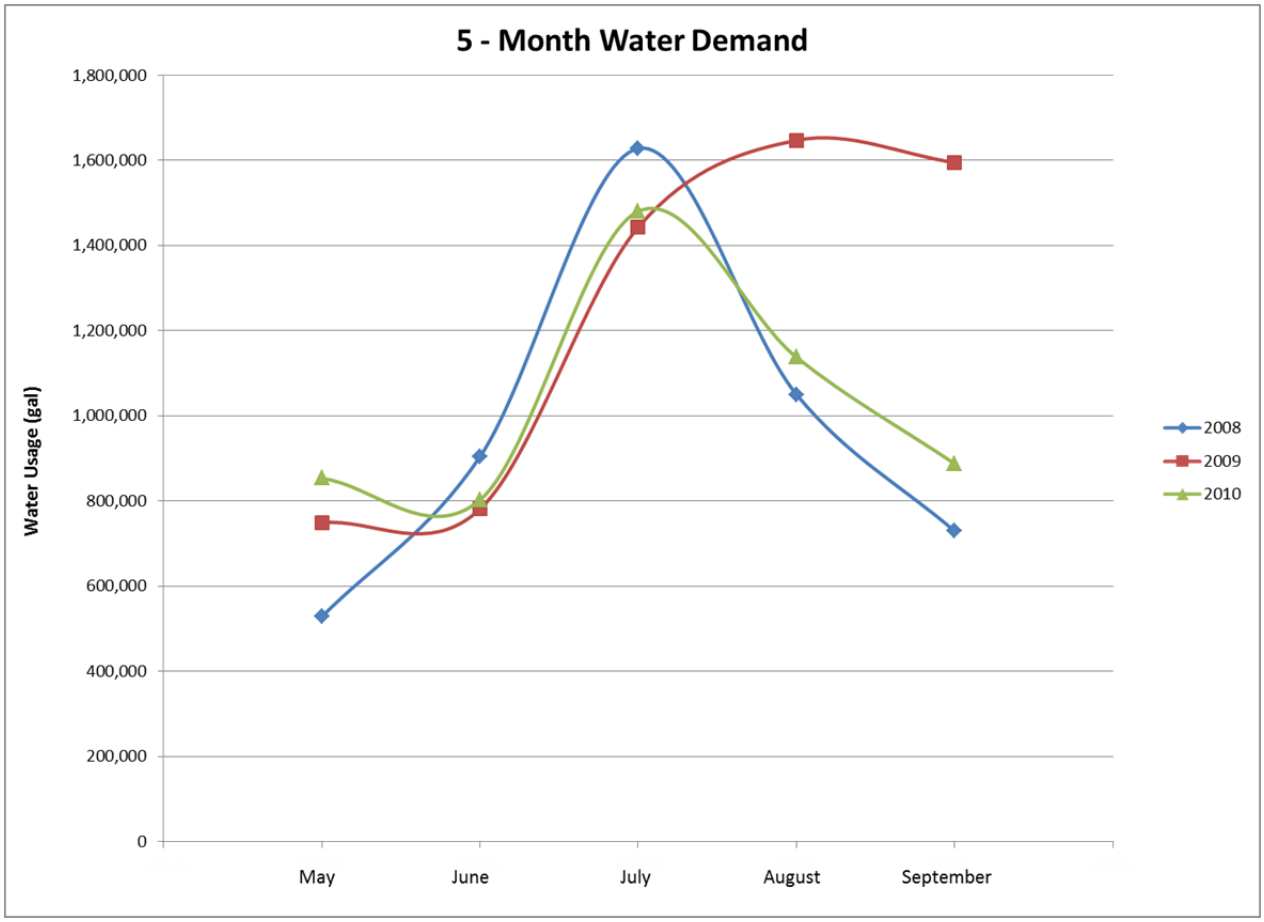

Figure 5-5: Bennington Monthly Water Consumption

5.5 Peaking Factors

Because of the variation of water use on an annual and daily basis, peaking factors are used in evaluating water system operating characteristics. Peaking factors are multipliers applied to standard demands. The Average Day Demand (ADD), Maximum Day Demand (MDD), and Peak Hour Demand (PHD) can be related using peaking factors. Where detailed water usage records exist, these factors can be determined directly from the collected data and compared to typical values. Where detailed water use data is not available, peaking factors used are based available data, the size of the community, and usage in the area and region.

The ADD is estimated as the total volume of water used during a year divided by 365 days. To estimate future demands based on population projections, the ADD is expressed in terms of gallons per capita per day (gpcd). In Bennington, the only available data is from the water meters which are read only from May to September.

The MDD is the highest daily water use rate for the year. For larger cities a peaking factor of 1.5 to 2.0 times the ADD is typical. In smaller cities, a larger peaking factor is appropriate. For small communities, the peaking factor can be much higher. Where daily data is not available, the data from the maximum month average day can be related to the MDD. Using a factor of 2.5 times

the maximum month average day has been found in Keller Associates' experience to approximate the maximum day demand in small communities.

The PDH is the highest hourly water use rate during the year. This factor is difficult to determine unless very detailed data is available from the system. Typically, engineering judgment must be used based on past experience for similar sized communities. It is typical to see the PHD be 1.5 times the MDD.

5.6 Existing Water Usage Rates

Based the ADD and maximum month average day demand calculated, the following flow rates were used for the hydraulic analysis of the existing system. The gpcd usage rate was increased slightly from the calculated value based on meter data to account for some system losses.

Table 5-3: Existing Water Usage Rates

Flow	gpcd	gpm
Average Day Demand (ADD)	95	18
Maximum Month Average Day	190	37
Maximum Day Demand (MDD)	475	92
Peak Hour Demand (PHD)	713	138

5.7 Water Balance

The water operator reported that they do not believe that the outputs from the spring flow meter are accurate since the pipe is not full and it is a propeller meter that is not precise in its readings. CR1 and Well 1 have manual read flow meters and are logged manually on an irregular schedule. The schedule was so sporadic that there were times when the meters were not logged for months and not at all in 2009 for the CRI well.

It is unclear if there is loss in the system because of the inaccurate production logs. Due to the age of sections of the distribution system, it is likely that there is some water loss. Factors that could contribute to system water loss include:

- **Inaccurate water meters:** Generally, water meters underestimate flows as they age. A residential water meter in a groundwater system (generally hard, more corrosive water) should be replaced every 15 years. The existing water meters were installed in 1997-1998 and approximately half have been replaced. There are many that are more than 10 years old and could likely account for some water loss.

- **Leaky pipelines and services:** While the majority of the pipelines are only 13 years old, pipeline deterioration, improper installation, post installation interties, and other utility work can also create leaks.

- **Unaccounted water use:** All uses in the system are metered except for the designated filling station located on the east side of town. This is primarily used during the spring, summer, and fall months when the farmers need to fill their water

tanks. The water system does not meter this station. The farmers paid for the filling station to be installed and pay their monthly water bill so the water system does not charge for its use. However, its location causes large trucks to limit the accessibility of nearby properties. The water system is considering relocating the stilling station. It is recommended that this service be metered to help accurately log water produced versus water consumed.

5.8 Water Rights versus Demand

A summary of Bennington's water rights is presented in Table 5-4 below. All the water rights are for groundwater. It appears that during the purchase of the CRI well, previously an irrigation well, that the associated water rights were not transferred at the same time. However, Bennington did apply and receive a water right transfer that allowed a 2nd point of diversion to water right 11-07377, for Well 1.

Table 5-4: Water Right Summary

Licensed Water Right			Source Ability (gpm)
Source	(cfs)	(gpm)	
Spring 1	0.09	40	40
Spring 2	0.13	58	58
Well 1	0.4	180	110
CRI (2nd point of diversion)	Shared	Shared	450
Total	**0.62**	**278.2**	**658**

Bennington's existing water rights are sufficient for the current ADD, figured to be approximately 17 gpm. However, additional water rights need to be acquired to allow for the use of the CRI Well.

In conversations with IDWR, the ownership of the well has not been transferred, and thus the water rights cannot be transferred. A Notice of Change in Water Right Ownership form needs to be submitted. After ownership of the well has been documented from the Northside Pipeline Co. to the Bennington Water System and established with IDWR, an Application for Transfer of Water Right form needs to be submitted. The transfer application will need to modify: (1) the beneficial use from irrigation to municipal supply, (2) the dates when the water can be used, and (3) the place of use.

5.9 Water Storage Evaluation

The water storage tank was constructed in 1989 and is the only source of water storage for the Community. It is a partially buried, 50,000-gallon square (23'8" x 23'8" - outside dimensions) concrete tank that is 16-feet tall. However, the actual volume measured to the overflow is approximately 54,000 gallons. The overflow drains through an 8-inch pipe to a ditch. The tank has a hollow core precast roof slab with access through a hatch opening. A tee is installed on the pipeline from the springs to the rest of the distribution system which allows the tank to be filled through a common inlet/outlet pipe. When the wells turn on the tank is filled through the same inlet/outlet. There is a gate valve on the branch leg of the tee to isolate the tank from rest of the water system. The tank was cleaned and inspected by a diving company in the summer of 2005 and they found it to be in good condition with very little sediment buildup.

A pressure transducer in the tank controls the two well pumps via radio telemetry. There is no power at the tank site, so a solar panel and battery provide power to the transducer and radio system.

Idaho Rules for Drinking Water Systems (IDAPA 58.01.08) require that a system has sufficient capacity and standby power to meet several demand scenarios. Storage is intended to provide fire protection demand, operational, peaking/equalization, and some emergency standby storage. A brief description of these components is given in Section 3.3.

The following comments are given for each of the components as they apply specifically to Bennington:

- **Fire Storage** – The Bear Lake County Fire Marshall stated that the required fire flow for the system is 1,000 GPM for 2 hours. This equates to 120,000 gallons.
- **Peaking/Equalization Storage** – This component of storage is so that the peak hour demands can be met. Peaking storage needs are determined from local demand patterns which represent the variation in hourly demand. In cases where detailed data is not available, the peaking/equalization storage can be estimated as 12-15% of the MDD. Because Bennington's system has enough source capacity to meet the PHD, this storage component is not necessary.
- **Emergency Standby Storage** – Assuming an extended power failure occurs, this volume of water will supply the ADD for 8 hours. Standby generators with sufficient fuel for 8 hours can eliminate or reduce the need for this component of storage. Bennington does not have any generators, but Spring 1 exceeds the ADD, therefore this component of storage is not absolutely necessary. If a power outage occurred during a time when the pipelines from the springs were inoperable, a generator would be needed to supply water. This volume of water would be 26,500 gallons.
- **Operational Storage** – This is typically 10-15% of the total volume of the storage reservoir. Lower percentages start to have issues with water age and stagnant water. The actual volume represents the difference between pump ON and OFF settings. Well 1 turns ON when the reservoir drops below 10 feet (6 feet read by probe) and turns OFF at 14 feet (10 feet read by probe). CRI Well turns ON when the reservoir continues to drop below what Well 1 can produce at 8 feet (4 feet read by probe) and turns OFF at 14 feet (10 feet read by probe). This equates to an operational volume of 14,000 gallons. Having Spring 1 flow into the reservoir constantly and the excess spilling from the tank is a benefit in reducing the water age and can reduce the requirement for operational storage.

5.9.1 Recommended vs. Existing Storage Volumes

Table 5-5 presents the minimum recommended storage volumes and compares the actual amount of storage currently in the system.

Table 5-5: Water Storage Evaluation

Storage Component	Minimum Recommended	Existing
Fire Storage	120,000	36,000
Peaking/Equalization Storage	0	0
Emergency Standby Storage	0	0
Operational Storage	15,000	14,000
Total	**135,000**	**50,000**

From this evaluation of storage capacity, the system has a shortage of at least 85,000 gallons (135,000 – 50,000 = 85,000). There is sufficient storage for normal operation, even during peak summer demands; however, there is not sufficient storage for fire fighting activities. Additional storage for peaking/equalization storage and emergency storage could benefit the system.

IDAPA 58.01.08.501.18.a requires that systems providing FFD to a public water system meet Redundant Fire Flow Capacity which must provide MDD plus fire flow with the largest pumping source out of service. This assumes a mechanical issue with the pump, not a power supply issue so installing a generator does not meet this requirement. The water system must meet 1,092 gpm for a 2 hour time period (131,000 gallons) to meet the required amount of redundant fire flow capacity. CRI well is able to produce 450 gpm, Well 1 is able to produce 110 gpm, and Spring 1 produces about 40 gpm year round. All of the sources combined are able to produce 600 gpm or 72,000 gallons in 2 hours. However, with the largest source unavailable in the "worst case" situation, (as defined by Redundant Fire Flow Capacity) the sources can only provide 150 gpm or 18,000 gallons of the 131,000 gallons required. The rest must come from storage. Assuming the entire 50,000 gallon tank could be utilized for firefighting; there is still a 63,000 gallon deficiency.

In addition to minimum storage capacity, the Community may also consider providing standby emergency storage for events such as power outages, extended pump or well failure, or other unanticipated events. Chapter 6 discusses future water storage needs.

5.9.2 Average Tank Residence Times

Tank residence time is the duration water remains in the tank which is a function of the incoming flow rate and the tank volume. Because water demands are much lower in the winter, residence times are generally higher during winter months. With Spring 1 flowing year round at a rate of 40 gpm, the water in the 50,000 gallon tank is replaced daily, which reduces the water age.

If additional storage is built, tank residence times will need to be reevaluated. The two wells could be operated regularly to flush water in the tanks and maintain residence times which help eliminate stagnant water and odor problems. Tank residence times can also be decreased by increasing the difference between the ON/OFF set points for the well(s) to force better tank circulation.

5.10 Hydraulic Model

Haestad Methods' WaterCAD v8i was used to create the hydraulic model for the Bennington water distribution, storage and delivery system. The software applies the Hazen-Williams formula in an iterative manner for complex networks to determine system pressures based on various flow scenarios. The software also has the ability to determine FFD available to each node by methodically analyzing each node (pipe junction) at different flow rates, and checking every node to determine the maximum amount of water available without drawing the pressure levels below 20 psi at any node in the system.

Information regarding pipe diameters, network connectivity, and material types were determined through available mapping and consultations with staff familiar with the water system. Elevation data was obtained from Google Earth. Demands (flows) were distributed based upon July 2010 water meter data for individual addresses within the community of Bennington.

5.10.1 Model Calibration

Model calibration refers to the process of adjusting model parameters, so that model outputs match observed field conditions. For this study, fire hydrant flow tests served as the basis for model calibration. A series of FFD tests were conducted on July 1, 2011 by Keller Associates and Bennington Water System maintenance staff. Static and residual pressures (i.e. pressures before and during the FFD tests), and flows were recorded for each of the tests. Well 1 was manually turned off, so all water to the system was supplied from the water tank and the CRI Well. Locations of the fire flow testing are shown in Figure 5-6.

There was significant variation between the information gathered on the system and initial modeling results. It was reported that the line from the storage reservoir to the distribution system was a 6" PVC line; however in order to replicate the modeled FFD pressures and flows, the model was calibrated with an 8-inch PVC pipe for a portion of the transmission line. Also, pressures on the west side of the highway were not matching fire flow test results unless a third crossing was added. Table 5-6 describes the recorded boundary conditions and FFD test results.

A comparison of model versus field pressures was conducted to determine the accuracy of the model in replicating the water system conditions. Table 5-6 shows the results of the comparison between the field observed values and the modeled values. The "error" column represents the pressure difference between the field measurement and the model result. A positive difference means the model under predicts the pressure drop, and a negative difference means the model over predicts the pressure drop.

The calibration resulted in a model that reflects the actual conditions of the water system. For 85% of the tests, the error was less than or equal to 4 psi. This illustrates that the water model is well calibrated and will serve as a tool for evaluation and planning in Bennington.

Discrepancies in the FFD tests are believed to be a result of inaccuracies in the gauge and pitot measurements (hydrant flow measured with a pitot gage), pump house flow meter

inaccuracies, and small variations in system boundary conditions. Partially closed valves and inaccurate record drawings may also result in discrepancies between model and field results. Conflicts between the record drawings, operator reports, and model results were numerous for the system.

Development of a well calibrated model not only serves as a planning tool for future development, but can also be very useful for regular management of the existing system. It is recommended that the Community update the model every one to three years to reflect changes in physical attributes and usage patterns of the water system. This would help the Community quickly identify possible causes for problems they are seeing in the system.

Table 5-6: Fire Hydrant Calibration Results

		Site 1			Site 2	Site 3	ERROR		
		Static	Residual	Drop	Residual	Residual	Site 1	Site 2	Site 3
Test 1	Field (psi)	111	70	41	52	65	-4	-2	-2
	Model (psi)	108	66	42	50	63			
Test 2	Field (psi)	111	74	37	48	59	3	3	1
	Model (psi)	110	77	33	51	60			
Test 3	Field (psi)	110	72	38	50	65	5	3	3
	Model (psi)	109	77	32	53	68			
Test 4	Field (psi)	108	70	38	46	58	2	1	4
	Model (psi)	108	72	36	47	62			
Test 5	Field (psi)	110	78	32	55	68	4	2	-5
	Model (psi)	109	82	27	57	63			

5.10.2 Existing Distribution System Hydraulic Evaluation

For the hydraulic evaluation of the existing system, the MDD was estimated to be 92 gpm. Peak hour demands were estimated to be 138 gpm. With the calibrated model, the current distribution system has been evaluated for compliance with the pressure and flow standards. The following sections summarize the results. Appendix C contains model results.

Maximum Day Demand (MDD) plus Fire Flow Demands (FFD):
The model was populated with FFD identified by the local fire authority. For all areas in the planning area 1,000 gpm at 20 psi was selected as the minimum flow and residual pressure for the model evaluation. Service lines or dead end lines without hydrants or within 300 ft of another node capable of providing FFD were eliminated from the FFD evaluation. Under maximum day demands (92 gpm) with the largest pump offline (CRI Well), and the FFD requirements stated, the system was tested with criterion of pressure not dropping below 20 psi and maximum velocities not exceeding 10 fps. The sources of water when evaluating the FFD's were Well 1 and the 50,000 gallon storage tank.

The water model evaluates each of the nodes individually under the previously stated criteria, while considering pressure at other nodes in the system. The analysis is steady state and assumes adequate fire storage is provided to support the design durations. It is important to note that there is not sufficient storage volume currently to provide the flows required by the model. Figure 5-7 shows the modeled nodes in the water system that cannot meet MDD plus FFD requirements. Appendix C contains the detailed model results report for this and all other model evaluations discussed in this section.

Peak Hour Demand:
The system was modeled under peak hour demands (138 gpm) to check for pressures in the system dropping below 40 psi. Model results indicate that all of the distribution system nodes are above 60 psi, with none of the pumps in operation.

Maximum System Pressures:
Because potable demands decrease during the winter season, a lower demand scenario was evaluated to determine whether or not any of the distribution system pressure are over 90 psi, while others are at normal operating pressures. The model results indicate that areas west of Main Street experience the highest pressures in the system, approaching 97 psi.

5.11 System Improvement Alternatives

Improvements to Address MDD + FFD Shortfalls:
If the Community were to do nothing to improve the FFD in the system, the points not currently meeting design criteria will remain to be an issue. If the community grows in population and more demand is added to the system, the condition would worsen. The potential result of doing nothing is that in the event of a fire at any of these locations, the full specified FFD would not be available from the system and the fire fighters would have to rely on other means. Additionally, where FFD is not provided, DEQ requires that the affected parties be notified.

With minor pipeline improvements, most of the flow restrictions can be eliminated in the system. See Table 5-7. Currently the two fire hydrants that are not meeting the recommended 1,000 gpm could be satisfied if loops to each of them were completed. To meet the required 1,000 gpm for 2 hours would require additional storage capacity than what is currently available.

Table 5-7: Existing System Fire Flow Improvements

6” PVC line on 2nd East from 1st South to Center Street
6” PVC line on Wright Road from Main Street to 1st West
6” PVC line on Main Street from 1st South to Wright Road

Improvements to Increase MDD + FFD Supply:
Increasing the diameter of the transmission line from the storage tank to the Community along 1st North and terminating at 1st West would increase supply availability to the system during fire flow demands. Increasing this transmission line from the current 6 and 8-inch PVC line to a 12-inch PVC line would greatly enhance the supply capability of the storage tank. Table 5-6 demonstrates the comparison of fire flow availability of the calibrated existing transmission line

and a proposed 12-inch transmission line with the previously mentioned restraints in place. Additional model results can be found in Appendix C.

Table 5-8: Available Fire Flow Comparison (8-inch vs. 12-inch)

Node Address	8-inch PVC Trans. Line (gpm)	12-inch PVC Trans. Line (gpm)
3rd N. 2nd E.	1027	1506
1st N. 2nd E.	1018	3342
2nd N. 1st W.	1028	1438
Center St. 1st W.	1030	1456
1st S. 1st E.	1041	1712

Increasing Well 1 Capacity:
Increasing the capacity of Well 1 would help to minimize the necessary increase of storage. During MDD plus FFD, 1,092 gpm is currently required by the Community. If the capacity of Well 1 were to be increased the amount of water required from the tank could potentially decrease. The well casing for Well 1 is only 8" so that limits the size of the pump and therefore capacity that can be generated from this well. The current water right allows up to 180 gpm from this well.

5.12 Sanitary Survey

A sanitary survey is typically conducted by DEQ every three years for community water systems. As stated on DEQ's website (DEQ, 2011):

> 'A sanitary survey is onsite review of a public water system's water source, facilities, equipment, operation, and maintenance. The purpose of a sanitary survey is to evaluate and document the capabilities of a water system's sources, treatment, storage, distribution system, operation and maintenance, and overall management and financial capacity to continually provide safe drinking water and to identify any deficiencies that might adversely impact a public water system's ability to provide a safe, reliable water supply. The survey also seeks to identify systems that need technical or capacity development.'

The survey evaluates the following areas:

1. Source
2. Treatment
3. Finished water storage
4. Distribution system
5. Pumps/pump facility and controls
6. Monitoring, reporting and data verification
7. Water system management and operations
8. System Compliance
9. Security
10. Financial

An important part of this Facility Planning Study is to address deficiencies and recommendations in assisting the Community in making plans to correct identified issues. Items identified on the sanitary survey are based on the federal Safe Drinking Water Act and the state Rules for Public Drinking Water Systems (IDAPA 58.01.08). Three classifications are developed for issues identified. They are:

- A **Significant Deficiency** is defined in IDAPA 58.01.08.003.88. that states: As identified during a sanitary survey, any defect in a system's design, operation, maintenance, or administration, as well as any failure or malfunction of any system component, that the Department determines to cause, of have the potential to cause, risk to health and safety, or that could affect the reliable delivery of safe drinking water.

- A **Deficiency** states: As identified during a sanitary survey, the systems design, operation, maintenance, or administration, as well as any failure or malfunction of any system component, that the Department determines are not in compliance with the drinking water rules and do not cause or do not have the potential to cause, risk to health or safety, or that could not affect the reliable delivery of safe drinking water.

- **Recommendations** are made as an item to consider in order to improve the overall operation of the water system.

The last sanitary survey conducted for the Bennington water system was on July 18, 2011. A copy of the sanitary survey letter dated August 10, 2011 can be found in Appendix F. No significant deficiencies were found in the sanitary survey, however DEQ recommended the following:

Deficiencies:

1. Install a smooth nosed type sample tap for Well 1.
2. Install a new pressure gauge for Well 1.
3. Install a water pressure relief valve on Well 1
4. Extend overflow/drain pipe on storage reservoir down to an elevation between 12"-24" above the ground surface.
5. Implement a cross connection control program for the PWS.
6. Incomplete operation and maintenance manual.
7. Implement a total coliform rule (TCR) sample site plan.

Recommendations:

1. An independent financial audit be completed of the PWS.
2. A leak detection program be put in place and utilized.
3. A routine maintenance schedule be established and adhered to.
4. All mains, hydrants, and appurtenances of the separate non-potable irrigation system are easily identified as non-potable.
5. All valves are exercised at least semiannually.
6. Secure additional property around Well 1.

Items 1 through 4 of the identified deficiencies are items that can feasibly addressed by the water operator with assistance from board members. Items 5 through 7 of Deficiencies can be addressed by members of the board or can be professionally contracted out.

Items 1 through 6 of the Recommendations can be addressed by the water system putting together and adhering to an operation and maintenance procedure. It is recommended that all PWSs complete annual financial audits, which can be budgeted and completed in 2013.

Recommendations from the 2011 Sanitary Survey and system deficiencies addressed in this study have been incorporated into the system improvements presented in Section 8.1. Specific compliance issues should be addressed to bring the water system into compliance with State and Federal requirements. Recommendations found in this study have been developed to help bring the water system into compliance with current regulatory requirements and to provide necessary maintenance to system components to avoid future non-compliance issues.

5.13 Summary of Existing Issues

A summary of the existing system issues are summarized below:

- Insufficient water rights for the amount of water able to be pumped and the volume needed for fire protection without increasing storage.
- No check valve on pipeline from springs to prevent water from the wells from backfeeding up the springs pipelines into the springs.
- Insufficient storage to provide recommended FFD.
- There is not a consistent logging schedule for the wells or springs to know run times and production quantities.
- Flow meter at springs receives backflow from the reservoir.
- High nitrate production at CRI Well and Well 1.
- No disinfection system and no means to do so without estimating dosage into the tank.
- Transmission line from reservoir to town in insufficient to provide FFD.
- There is no connection under Highway along 1st North.
- Dead-end lines.
- There are not full time access agreements and access routes to springs and reservoir.
- There are not any back-up power supply sources (i.e. generators) to provide FFD during a power outage.

PROJECT NO. 210076-000

FILENAME F5.6 - Calibration.mxd

305 N. 3rd Avenue
Pocatello, ID 83201
208.238.2146
www.kellerassociates.com
KELLER associates

BENNINGTON

Water Facilities Planning Study

Water Model Calibration Locations

FIGURE NO. 5-6

PROJECT NO. 210076-000

FILENAME F5.7 - FFD Issues.mxd

305 N. 3rd Avenue
Pocatello, ID 83201
208.238.2146
www.kellerassociates.com
KELLER associates

BENNINGTON

Water Facilities Planning Study

Fire Flow Deficiencies

FIGURE NO. 5-7

Chapter 6 Future Conditions

6.1 Community Comprehensive Plans

6.1.1 Existing Land Use

Bennington does not have designated areas such as general residential, business, and light industrial inside its limits.

6.1.2 Future Land Use

Community staff and officials anticipate future residential lands will have an average density of one home per acre which was used to develop an estimated build-out population for the study area as shown in Table 6-2. Presently there is limited commercial development and residents stated that they do not anticipate there being much in the future as well; at least not substantial businesses that will be high water users.

However, due to the Community's close proximity to Montpelier, the area's commercial hub, there is a chance that Montpelier will expand outwards enough to begin encompassing Bennington. This is not expected to occur within the next 20 year planning period.

6.1.3 Population Trends

The population in Bennington has been assumed to have increased one household every 2 years as was reported by the water system, approximately 0.8% per year. However, a decreasing population trend is common throughout communities in Bear Lake County and neighboring Caribou County. Table 6-1 shows population growth rates for various communities in the region. Of the communities considered, Soda Springs and Bloomington were the only communities with flat or positive growth rates. From 2000 to 2009, all of the communities considered saw declining growth (US Census Bureau, 2010).

Table 6-1: Regional Population Growth Rates

Community	1990-2000	2000-2009	1990-2009
Georgetown	-0.4%	-1.5%	-0.9%
St. Charles	-1.7%	-1.9%	-1.6%
Montpelier	0.5%	-1.7%	-0.6%
Soda Springs	0.9%	-0.9%	0.0%
Bloomington	2.7%	-1.2%	0.7%

At this time, it is not prudent to plan for a negative growth rate. Two cases are considered. One is to assume that the population in Bennington will hold steady at current levels, for which the evaluation made on the existing system would be the basis for design. The other case is to assume that some growth takes place. A modest positive growth rate of 0.8% per year was used to estimate population for the 20- and 40-year design horizons and the associated water demand.

Using this growth rate, Table 6-2 contains population and equivalent dwelling unit (EDU) estimates for Bennington. This is based on the current population to EDU ratio of 3.6.

Table 6-2: Population Estimates

Year	Population	EDUs
2011	279	78
2032 (20-year projection)	330	92
2052 (40-year projection)	387	108

6.2 Water Demand Projections

For purposes of this study the following water demands were used.

Table 6-3: Water Demand Projections

	Year 2011	Year 2032 (20-year design)	Year 2052 (40-year design)
Population	279	330	387
Average Day Demand	95 gpcd	95 gpcd	95 gpcd
	26,505 gpd	31,350 gpd	36,765 gpd
	18 gpm	22 gpm	26 gpm
Maximum Month Average Day Demand	190 gpcd	200 gpcd	200 gpcd
	53,010 gpd	66,000 gpd	77,400 gpd
	37 gpm	46 gpm	54 gpm
Maximum Day Demand	Peaking Factor: 2.5 x Max Month		
	475 gpcd	500 gpcd	500 gpcd
	132,525 gpd	165,000 gpd	193,500 gpd
	92 gpm	115 gpm	134 gpm
Peak Hour Demand	Peaking Factor: 1.5 x MDD		
	713 gpcd	750 gpcd	750 gpcd
	138 gpm	172 gpm	202 gpm
Total Annual Demand	9.67 MG	11.44 MG	13.42 MG

Future demands were assumed to be the same as current average water demands for the following reasons: 1) future development of lots may not have irrigation rights so potable water would be used would for irrigation water, 2) continued metering of water usage will assist in keeping demands in check, and 3) technology has made it so household appliances are becoming less intrusive on water use.

6.3 Water Rights versus Demand

As stated in Section 5.8, an additional 1 cfs or 450 gpm minimum of additional water rights is recommended for use with the CRI well. There are sufficient water rights for the maximum day demand without the use of Spring 2.

6.4 Future Distribution Conditions

The distribution system was evaluated to determine if the existing water mains were capable of delivering future peak day demands and fire protection in the Community and the areas of future development.

The demands from the 20-yr projection of 330 people and the 40-yr projection of 387 people were used to evaluate the future needs and conditions of the distribution system. The system can adequately provide the MDD for future populations, however, the system cannot currently meet fire flow requirements and in the future, this state will remain the same. To handle build-out densities, a grid with a 12-inch water mains and 6-inch distribution lines are recommended. Chapter 7 of this report discusses the recommended improvements that will provide adequate water distribution, storage, and pressures for the future conditions of Bennington.

6.5 Storage Needs

Table 6-4 shows the recommended future water storage volumes for different population thresholds. The following table includes the existing 50,000 gallon storage reservoir.

Table 6-4: Future Storage Requirements

Storage Component	20-yr	40-yr
Fire Storage	120,000	120,000
Peaking/Equalization Storage	0	0
Emergency Standby Storage	0	0
Operational Storage	18,000	20,000
Total	**138,000**	**140,000**

Future growth does not have a significant impact on the required storage. If future commercial development enters into Bennington, it is recommended that the FFD be increased to 1,500 gpm for 2 hours. This would require 180,000 gallons for firefighting. However, commercial development is not expected to occur in the next 10-15 years.

6.6 Disinfection Needs

There is currently no dedicated way to disinfect the water if there is a coliform issue. It is recommended to install a disinfection system to allow better methods to disinfect the water.

6.7 Nitrate

The Bennington water system is currently operating beneath the MCL for nitrate levels. However, nitrate levels are high and a plan of mitigation needs to be in place should they rise and exceed the MCL. There are a few different methods of removing or limiting nitrate within a water system. Each of the following options will be discussed further in Chapter 7.

- drill existing wells deeper to an aquifer not influenced by nitrate,
- drill new wells in an area historically not influenced by nitrate,
- blend good water with nitrate infused water to reduce the total nitrate levels,
- connect to an adjacent community's water system, or
- install an ion exchange unit to mechanically remove nitrate.

Chapter 7 Development and Evaluation of Alternatives

The Bennington Water System, Inc. is in need of several upgrades to their water system. Upgrades will improve the operation of the system, increase reliability, protect water quality, reach compliance with all State and Federal standards, and meet the future demands of the residents. In order to do this, a thorough discussion of system improvements, estimated costs including available grant monies, timelines, and evaluation of all upgrades is required. Improvements will address excessive water use, system losses and inefficiencies, compliance with State and Federal standards, efficient system operation, and recommendations to improve the health and safety of the water system. A summary of problems/deficiencies is discussed in Section 5.13.

Per the Idaho DEQ requirements, each of the design alternatives are engineered to meet the needs for a minimum of a 20-year period for facilities, and a minimum of a 40-year period for the piping distribution system, or the equivalent development benchmarks. It is important to note that 40-year and 20-year period design rest on the assumption of certain demands and populations occurring within each time period. These timing assumptions for populations and demands are only projections which may or may not be accurate due to the unpredictable nature of development. Equivalent development benchmarks could reasonably occur earlier or later than the proposed time periods. Distribution lines will be constructed as needed to serve areas around the community as the Board sees fit.

With supporting data from population projections presented in Chapter 6 and the hydraulics analysis, the water system would be out of compliance with public drinking water standards including deficiencies in available FFD protection, deficiencies in reliability and emergency operation standards, deficiencies in water rights, and water storage shortages. Consequently, the Community could be unable to approve any additional new water connections until these issues are resolved to remain in compliance with State Regulations. Furthermore, the Community could be subject to various enforcement actions by the Department of Environmental Quality.

Various alternatives exist to correct system problems and deficiencies. The various alternatives presented in the following chapter are evaluated on cost, environmental impacts, and operation and maintenance requirements. The estimated capital costs presented are concept level cost estimates which are used to provide enough accuracy for planning purposes. These estimates include costs associated with engineering services, contractor overhead and profit, legal fees, funding fees, and a concept level factor to compensate for changes in the cost of construction.

7.1 Optimum Operation of Existing Facilities

The existing system operation strategy is efficient given the physical constraints of the existing infrastructure. The existing springs and wells convey water to the tank which feeds the distribution system by gravity thereby eliminating continuous pumping. The wells' status are controlled based on tank levels. The two wells operate during summer months when demand is high. The problems and deficiencies that Bennington is experiencing cannot be corrected with operational corrections. This alternative by itself will not be considered further. With proposed improvements, optimization of facilities will be a goal.

Environmental Impacts: This alternative would have no impacts on the surrounding environment.

7.2 Regionalization

Regionalization of the Bennington Water System with the City of Montpelier water system was considered to be a viable option. During the CAC meeting, conducted on September 14th, 2011, it was explained that they had approached Montpelier in the late 1990's regarding the possibility to connect water systems prior to completing the most recent upgrades to the system in 1998. Unfortunately, Montpelier did not want to pursue this option further. It is possible that the City of Montpelier would consider the pursuit of this option now with only 1.5 miles separating their two water systems.

During the October 19, 2011 CAC meeting, the Board informed Keller Associates that Montpelier are experiencing their own water shortages as they are periodically on a summer watering schedule. The Board adamantly expressed their desire to remain separate from Montpelier. The President, Wynn Olsen, said, "Two deficits don't make an abundance." The Board decided to remain autonomous, knowing that the benefits would be more one sided. This alternative will not be considered further.

Environmental Impacts: Construction of this alternative would affect a significant amount of property to connect the two water systems. Most of the improvements would be along Highway 30 in previously disturbed property. Bennington is located higher in elevation than Montpelier so pumping would be required to provide water to Bennington. It would not be an energy conserving approach.

7.3 Water Supply

A water supply and distribution system must be designed to meet the PHD or the MDD with FFD requirements, whichever is greater. The entire water volume can be delivered to the system directly from the source during peak demand or it can be delivered from a combination of supply sources and storage. In the case of Bennington, the spring source can exceed the ADD of 18 gpm but lacks at meeting the PHD of the estimated 138 gpm, in which case the storage reservoir must contribute flow or wells turn on to help supplement required flows.

Due to limitations in storage, the required fire flow duration of 2 hours cannot be met. To meet the fire flow requirements of 1,092 gpm for 2 hours the system can either add another high capacity source or they can add additional storage. Both options are further discussed.

The well sources for the system are good producing, reliable, and have overall good water quality. That being said, the nitrate concentrations for these two sources approach the MCL of 10 mg/L. There are several alternatives which will be further discussed in Section 7.7.

7.3.1 No Action Alternative

Bennington has sufficient capacity from their sources to supply water to the system. The redevelopment of Spring #2 is not required, but would provide additional water with low cost rather than pumping to meet demands in summer months. However, there are some issues with water rights that should be resolved. Because of potential problems which

could arise with IDWR and water rights, the no action alternative is not recommended in regard to Bennington's water supply.

Environmental Impacts: This alternative would have no direct environmental impacts.

7.3.2 Water Supply Improvement 1 – Apply for Additional Water Rights

After review of the system's existing water rights, it was found that when the Bennington Water Company purchased the CRI Well they purchased the land, the well, and the associated water rights of 3.26 cfs. The associated water rights, however, were never transferred to their name. This is a very large source and the community is reapplying for these rights as they have the purchase documentation. IDWR initially informed the water system that they may not receive all of the water right but they will most likely be allocated a portion because the Bear River Valley has been over-allocated. At the beginning stages of the Study it was estimated that the community would need an additional 1 cfs of water rights. If IDWR allows, the community will have sufficient rights to supply their current demands. With the additional water rights, they may be able to be distributed to the other groundwater sources.

If both well sources are not reconstructed to both have the capacity to supply FDD plus MDD during an emergency event with emergency backup generators, then the water system is still deficient on storage.

If an application to IDWR is all that is required then the costs are minimal. If there are complications in obtaining these rights with IDWR then the water system may have to hire a water rights attorney and the associated costs can dramatically increase.

Environmental Impacts: This alternative would have no direct environmental impacts. If the water rights could be secured, construction or development of sources would need to be evaluated for environmental impacts.

7.3.3 Water Supply Improvement 2 – Leak Detection Program

The second system improvement option is to establish a leak detection program. DEQ recommended in their enhanced sanitary survey (ESS) that a leak detection program be implemented to determine if there are losses in the water distribution system. Instituting a leak detection program would require that the meters on the sources be calibrated, or replaced, to ensure a correct read out and then the source and resident meters be routinely monitored. If there is a difference between the amounts of water produced versus the amount of water consumed, then there is an issue that requires further investigation. Through a leak detection program, sections of pipe could be identified for repair and replacement, improving the distribution systems integrity and recovering water lost due to leaking pipes and/or meters. The leak detection program will also allow the Community to focus resources on the sections of the system that are in the most need of repair. Through the identification of leaking system piping, Bennington will be able to develop a distribution repair plan based upon the extent of the leak.

This improvement does not apply a significant amount of additional costs for the water system due to it being an addition to the operator's work load and time from the board to analyze the data. The distribution piping was replaced in 1997-1998 and is not expected to have a significant amount of leaks or cracks. Therefore, it is not recommended that the water system employ a professional leak detection service but rather increase monitoring to identify problems internally.

This improvement could potentially reduce the water consumption of the system depending upon the extent and number of leaks identified. Also, the information provided in a leak detection survey would provide the water system operators with information to optimize the operation of the current system.

This alternative could increase the water available to the system, decrease system head losses, and increase system pressures through pipe replacement and leak repair.

Environmental Impacts: Minimal impacts would be caused by this alternative. This alternative is mostly operational in nature. Any improvements would be at locations already developed by the water system such as adding or replacing existing meters.

7.3.4 Spring 2 Rehabilitation

Spring 2 is not currently in use because it is suspected of being influenced by surface water. According to the operator, the spring is in a slight bowl that makes surface water pool in the area. He described the area as being swamp-like. It is suspected that the surface seal on the spring has been disturbed and is no longer operating as intended. Spring sources are beneficial as they are generally free sources of water once constructed therefore, the water system would like to redevelop the spring and begin using it as a main source again. Use of the springs as source water reduces the amount of water that needs to be provided by the pumps, thereby minimizing effects from cost escalation from energy use. The current waterline from the spring to the reservoir has not been used in several years and is suspected of being in poor operational shape. We recommend that this water line be replaced concurrently with the redevelopment of the spring.

Environmental Impacts: Redevelopment of Spring 2 would have a minor impact on the area around the spring. The site is not classified as wetland and is fenced off to prevent wildlife from using the site as habitat. Use of the spring would reduce the need for pumping, thus reducing energy usage.

7.3.5 Water Supply Improvement 3 – Separate Irrigation System

The construction of a separate irrigation system for people to water their lawns and gardens could extend the potable water supply. However, approximately 2/3 of the residents already have surface water rights through the Bennington Ditch Company. The Ditch Company has expanded its water rights as far as it is able without pumping to reach other residents. Therefore, it appears that the present irrigation situation is ideal for this small community.

Many of the current lots are large (1-4 acres) and have large farm animals that require water all year round. Drilling a separate well to accommodate for those that do not have

surface water will not be cost effective until a larger demand is required from the potable water system.

As a measure to ensure the long-term viability of the Community, any water rights that are associated with future annexations will be pursued to supplement their current water rights. If land is annexed that does contain surface water rights then those rights could be converted to ground water rights through the Idaho Department of Water Resources making them useful rights for the Bennington Water System, Inc.

At this time the current surface irrigation through the ditch company is sufficient and it is not recommended to pursue this alternative further.

Environmental Impacts: The construction of a separate irrigation system throughout the community would affect a significant amount of property. Connection to a new or different source would also affect property.

7.4 Water Storage

Water storage is needed when the source supply does not meet the system demand. In addition, water storage typically provides water for fire protection and emergency needs. Because wells are expensive to construct compared to their relative capacity, storage helps meet PHD and fire flow demands without needing to develop expensive water sources.

Bennington has balanced storage during normal operation. There is adequate pressure provided to the system during normal operation. However, for current and projected emergency water demands Bennington exceeds the capacity of the system. Therefore, Bennington needs to consider adding additional water storage to the water system. An evaluation of the systems storage needs is discussed in Section 5.9.

The existing storage reservoir in Bennington has a storage capacity of 50,000 gallons. The reservoir was last inspected in 2010 and it was found to be in good operating condition.

As shown in Chapter 6, the storage requirements for today and in 40 years are comparable. Therefore, Keller Associates would recommend the addition of a 150,000 gallon storage reservoir at the same elevation as the existing reservoir.

Water alternatives that will help mitigate the systems issues to provide adequate storage during an emergency event are presented in the following Sections.

7.4.1 No Action Alternative

The system is sized appropriately to serve the Community during normal operation. However, it is not capable of providing the required flow (1,000 gpm) for 2 hours to suppress a fire in an emergency fire event plus provide MDD. This is a DEQ requirement for any system providing FFD. Should the system choose to do nothing, they are opening themselves up for legal suits should a fire event occur and the fire could not be contained because the water system could not provide the minimum recommended flow for the minimum duration. This alternative will not be considered further.

Environmental Impacts: This alternative would not have any direct environmental impacts. The inability of the system to fight a fire could cause a fire to spread through the community and into the surrounding environment.

7.4.2 Storage Improvement 1 – Reduction in Fire Flow

To reduce the risk for legal suits, IDAPA 58.01.08.501.18.b includes provisions for a reduction in the required fire suppression storage. This is accomplished by obtaining, in writing, from the local fire authority 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*.' Notification of water system customers is required to describe '*the design of the system's fire fighting capability and explain how it differs from the requirements of Subsection 501.18.a. The notice shall indicate that the local fire authority has provided written acceptance of the system's fire flow capacity*.'

This alternative does not improve the current situation but would help to protect the system from legal action if a fire were to occur.

Environmental Impacts: This alternative would not have any direct environmental impacts. Similar to the Do Nothing alternative, the inability of the system to fight a fire could cause a fire to spread through the community and into the surrounding environment.

7.4.3 Storage Improvement 2 – New 0.15 MG Storage Reservoir

As described in detail in Section 3.3, there are several types of storage that need to be accounted for to have a successful water system. The current storage system provides operational storage, peaking storage, standby emergency storage, and fire storage. The current system is deficient in meeting DEQ storage requirements.

It is possible to reduce storage capacity needs by adding a new source to supply additional flows when needed. However, over a period of time it becomes cost prohibitive. To implement a new well the costs include: land purchase, drill well, pump house construction, continuous site maintenance, power costs, annual building maintenance, pump services, pump replacement, valve replacement, etc. The amount of storage available can also reduce future impacts from cost escalation for energy use associated with wells. Once a storage reservoir is installed, there is very little maintenance required. Items to budget when considering a new reservoir include: land purchase, continuous site maintenance, repainting of steel tanks every 20 years, concrete tank repair every 30-50 years, inspections every 5 years, sand removal as needed.

There are several material options to consider when deciding to construct a new tank and also its amount of visibility. Should this alternative to construct a new reservoir be selected, the definitive material type and location will be determined in the design phase. However, the common tank types are concrete (cast-in-place, or prestressed), steel (welded, bolted, or glass lined), fiberglass, and plastic.

For Bennington, concrete and steel would be the considered materials because the fiberglass and plastic tanks are for very small systems needing large pressure tanks or little storage (less than 100,000 gallons). The Community's existing tank is a partially buried cast-in-place concrete tank. If cost is a concern, a steel tank is generally more cost effective for smaller tanks and become cost prohibitive for larger tanks (over 500,000 gallons). The location and the expected use are the primary factors when choosing the appropriate material for a community's new reservoir.

Environmental Impacts: This alternative could have some environmental impacts. The new tank would likely be located near the existing tank so the property would have been previously disturbed. A small amount of farmland would be affected by the construction of a new tank. The tank would have a positive effect in reducing required pumping and associated energy usage.

7.4.4 Storage Improvement 3 – Increase Well Capacity

As shown in Table 7-1, the current sources do not meet MDD plus FFD. In order to meet MDD plus FFD there are two viable options that may be considered: add an additional high capacity well or increase the well capacity of both the existing wells. These alternatives assume that a new storage reservoir will not be constructed. It is assumed that the existing 50,000 gallons reservoir will contribute it entire volume to the fire flow event. When considering these two options, it is important to remember that during an emergency event, according to IDAPA Redundant Fire Flow Capacity as discussed in previous chapters, the largest source is considered to be out of service.

3.a Develop New Well

If the system developed a new 450 gpm emergency well then in an emergency situation either the CRI Well or the new well would become the largest available source. With the available sources and the 50,000 gallons in the tank, the system could meet the MDD plus FDD. Additional water rights would need to be acquired or transferred to cover the use of the new well. This alternative would have operational and maintenance costs to run the pump, maintain the pump and motor, and heating and cooling costs for building. Also, while the Bennington Water System was trying to locate a 2nd well, that is now the CRI Well, there was disputes as to where they were allowed to drill. The final verdict was to purchase an existing well. Drilling a new well is more of a battle than an option, as was stated in the October 19, 2011 CAC meeting. Obtaining a new water right to drill a new well from IDWR is unlikely since the local aquifer is over-allocated. An existing water right would have to be secured and transferred to the new well. This alternative will not be considered further.

Environmental Impacts: Construction of a new well would require the acquisition of a well lot with appropriate setbacks. Construction would not affect a large area during well drilling. There would be minor impact to groundwater and the aquifer with a new well drawing water.

3.b Increase Existing Well Capacities

The system could also increase the capacity of both Well 1 and the CRI well to being each 635 gpm. The minimum flow with the largest pump out of service needs to be able to provide 635 gpm. By doing this it wouldn't matter which well went down, the Redundant Fire Flow Capacity would be met. Neither of the well's current configurations meets this demand. Therefore, increasing the current capacity of both wells would be required to meet the requirements of IDAPA for an emergency event.

Table 7-1 Flow Rate Scenarios

Water Source	Current with FFD (gpm)	New Well, FFD (gpm)	Increase Wells, FFD (gpm)
Reservoir	415	415	415
Spring 1	40	40	40
Well 1	150	150	635
CRI Well	largest out of service	500	largest out of service
New Well	---	largest out of service	---
Total Flow	**605**	**1,105**	**1,090**

If the Community intends to pursue this option, it would be necessary to concurrently apply for additional water rights to allow either Well 1 or the CRI well to operate without exceeding current water rights. It may not be feasible to develop the existing Well 1 to produce 635 gpm without redrilling the well and installing larger casing. The existing casing is only 8 inches in diameter. This alternative will not be considered further.

Environmental Impacts: Increasing the pumping capacity would not require construction, just retrofitting the existing wells with larger pumps. The impacts from this alternative would be increased energy usage.

7.5 Distribution Improvements

As discussed in Chapter 5, there are areas within the transmission and distribution systems that would greatly benefit from either increasing line sizes or adding additional pipe to loop the system to allow for better circularization. The initial step to solving deficiencies in volume of water available will be to increase the transmission line from the tank congruently while constructing a larger tank. Adding storage capacity requires a better delivery system to transfer the required volume to the customers. Likewise, upsizing the transmission line will allow greater volumes to be delivered but it is not beneficial unless sufficient storage is available. The following pipelines were identified by the hydraulic model as candidates for improvements.

- New transmission line from water tanks 2nd East
- Bore under Highway 30 along 1st North and install a new transmission line

- New 6-inch pipeline along 2nd East connecting Center Street and 1st South
- New 6-inch pipeline connecting 1st South to 1st West

These sections of pipeline will be considered separately as transmission line and distribution lines.

7.5.1 No Action Alternative

The distribution system operates sufficiently during normal operation but is not able to meet fire flow requirements as previously discussed. Not replacing the transmission line would be an acceptable alternative if the fire flow requirement was met with additional well capacity rather than storage. Not connecting the dead end distribution lines limits fire flow capacity slightly and does not provide as much circulation in the distribution system. There are fire hydrants or a flushing hydrant at the end of each dead end line. The lines are flushed every six months. As long as the lines are flushed regularly, this is a feasible alternative.

Environmental Impacts: This alternative would not have any direct environmental impacts.

7.5.2 New Transmission Line

This alternative will be required if a new storage reservoir is constructed to meet fire flow requirements. A bore under Highway 30 will be required to connect to 1st West. The hydraulic model showed a 12-inch transmission line would be needed to convey the required flow.

Environmental Impacts: Impacts from this alternative would be minor since all of the work would take place where the ground has been previously disturbed. The transmission line work would affect the most property outside of the townsite.

7.5.3 Connect Dead End Distribution Lines

The Board discussed, during the October 19th, 2011 CAC meeting (meeting minutes can be viewed in Appendix A), the possibility of looping the distribution system where dead-end lines occur. They had passed a resolution years prior stating that the developer must pay for the installation of new water lines. They agreed that to loop these two dead-end lines would violate this rule that other developers have had to abide. There are only two homes that are located on these two dead-end lines so the benefit is not great enough for the water system to spend the additional money. <u>This alternative will not be considered further.</u>

Environmental Impacts: Impacts from this alternative would be minor since all of the work would take place where the ground has been previously disturbed. The transmission line work would affect the most property outside of the townsite.

7.6 Bacteriological Treatment Improvements

Currently there is no means to control disinfection in the system except flushing, which depending on the situation can be just as effective as using a chemical disinfectant. The system has occasional total coliform hits on their spring source. Disinfection is not required on a

groundwater source for public water systems in the State of Idaho at this time, but the ability to disinfect, if needed, is beneficial. The following alternatives are means to mitigate any bacteriological contamination within the Bennington water system.

Three different disinfection alternatives were evaluated for the Bennington water system, including: ultraviolet radiation (UV), chlorination, and hypochlorination. Disinfection would take place at the storage reservoir(s). There are no services or water users above the storage reservoir. Other alternatives such as ozone, and chlorine dioxide, were not considered due to costs and operational difficulties.

7.6.1 No Action Alternative

The water system has an occasional need to disinfect their entire system due to some bacteria entering their system and causing positive sample results. At this time, they add chlorine to their tank and hope to achieve a residual. However, there is no way to monitor the rate at which the chemical is entering the system and how much water it is mixing with. Also, the location of the reservoir is not easy to access which is the only location that disinfection can be added to their system. This alternative would not benefit the water system and limits their capabilities to provide good quality water to their customers. This alternative will not be considered further.

Environmental Impacts: Water quality and public health would continue to be at risk of bacteriological contamination.

7.6.2 UV Radiation

UV radiation is a powerful bactericide and virucide that has become a proven disinfection method. UV is advantageous over other methods because no potential harmful chemical by-products are created because UV disinfection does not require the addition of any chemicals. While UV is a powerful disinfectant it provides no residual disinfection. If there are other sources of contamination within the system, this method will not be prudent because there is no residual disinfection. The system had coliform hits in October 2011 that are believed to be introduced into the system by a resident's home. This option will not be considered further as it does not mitigate the system issues that have recently occurred.

Environmental Impacts: Construction of a UV radiation disinfection facility would have only minor effects on the environment. Construction would likely take place in a previously developed area. Energy usage would increase as the UV light is generated through bulbs. Water quality and public health would improve as the risk of bacteriological contamination would be decreased.

7.6.3 Chlorination (Gas)

Chlorination is a common and effective method to disinfect drinking water. Chlorine disinfection systems are relatively inexpensive to install and operate. But, there are risks to chlorine systems, including the formation of disinfection byproducts (DBP's) and the potential leakage of chlorine gas which is potentially lethal. Because of these and other reasons chlorination is being phased out in many locations and being replaced by other disinfection alternatives. Chlorination is not considered a good alternative for Bennington

due the potential hazards that chlorine gas presents. The system operator is a part-time employee with his primary employment out of town and is unable to oversee the system. Therefore this option will not be considered further.

Environmental Impacts: Construction of a gas chlorination disinfection facility would have only minor effects on the environment. Construction would likely take place in a previously developed area. Water quality and public health would improve as the risk of bacteriological contamination would be decreased.

7.6.4 Hypochlorination

Hypochlorination is a method of chlorination that utilizes calcium hypochlorite or sodium hypochlorite rather than chlorine gas to chlorinate. These chemicals are much less dangerous than chlorine gas, reducing the security risk posed by chlorination, but are still effective as disinfectants. Calcium hypochlorite is generally available as a solid tablet. Calcium hypochlorite tablets are allowed to dissolve, creating a liquid solution that is then metered into the water to be disinfected. Sodium hypochlorite is available as a liquid that is metered into the water to be disinfected. Sodium hypochlorite is commercially available as liquid bleach, which is 3% to 6% sodium hypochlorite, or solutions containing 12.5% to 15% sodium hypochlorite which are more commonly used for water disinfection than liquid bleach.

Both hypochlorite systems have shortcomings. Calcium scaling develops in calcium hypochlorite tablet solution basins. Scale deposits must be regularly cleaned in order for the system to continue to operate. Additionally, operation of tablet systems is complicated by dissolving tablets to form a liquid solution making it difficult to monitor the strength of the feed solution. One problem with using sodium hypochlorite is the loss of available chlorine with time, solution stability is affected by pH, light, and exposure to heavy metal cations (iron, nickel, copper) (Kawamura, 2000). The loss of available chlorine can be minimized by using a more dilute solution (12.5% rather than 15%), maintaining cool temperatures, and reducing the solutions exposure to light. Because sodium hypochlorite is a liquid solution freezing potential must be considered, freezing temperatures range from -8°F to 2°F for 15% and 12.5% solutions respectively. Sodium hypochlorite solution is generally less expensive to purchase than calcium hypochlorite. Both hypochlorite alternatives are readily available and can be purchased on an as needed basis.

Both systems would need power to operate the metering pump and to keep the building heated to prevent freezing in winter months. A flow paced metering pump will be needed to match disinfection to the amount of water used by the system which varies significantly. A solar powered system could be considered but would likely be extremely large to be able to power a heater. A buried electrical cable would be a more desirable source of power.

Environmental Impacts: Construction of a hypochlorination disinfection facility would have only minor effects on the environment. Construction would likely take place in a previously developed area. Water quality and public health would improve as the risk of bacteriological contamination would be decreased.

7.7 Nitrate Treatment Alternatives

7.7.1 No Action Alternative

Because the system does not have nitrate concentrations above the MCL at this time, it is not required that treatment be implemented. However, it would be a wise idea to have an alternative selected should the MCL be exceeded.

Environmental Impacts: This alternative would not have any direct environmental impacts. Public health a water quality could be affected if nitrate levels in the wells were to increase.

7.7.2 Drill New Primary Well

Bennington is located in a historically high nitrate area and it is found primarily in the lower valley areas. It is assumed that a well located further east, closer to the springs, could produce lower nitrate concentrated water. However, due to the risk involved in successfully locating an adequate location, this alternative will not be further pursued. This option will not be considered further.

Environmental Impacts: Construction of a new well would require the acquisition of a well lot with appropriate setbacks. Construction would not affect a large area during well drilling. There would be minor impact to groundwater and the aquifer with a new well drawing water. Water quality could be increased if a source water had lower nitrates than the existing wells.

7.7.3 Blending

Blending is a viable option to reduce nitrates as this can be accomplished by blending high nitrate concentrated water from the wells with low nitrate concentrated water from the springs, thus producing water with nitrate below the MCL. The problem Bennington will face is that their high nitrate sources are located in the valley and the low nitrate sources, their springs, are in the highland areas east of town. In order to have a complete mix, a separate transmission line would have to be run from the wells to the tank to allow adequate blending with the spring waters. The cost could be reduced should the water system decide to complete the main transmission line from the reservoir because the existing 6” transmission line could be reused as the well blending line to the tanks. Some piping from the wells to the blending line would be needed.

Environmental Impacts: Impacts from this alternative would be minimal since construction would take place in previously developed ground. Water quality and public health would be positively impacted as the concentration of nitrate would be decreased.

7.7.4 Mechanical Treatment

The removal of nitrate by the adsorption process using granular activated carbon would be one treatment process to improve water quality. Another process would be a reverse osmosis filtration system. These processes would be costly to construct and operate. A separate filter for each well or a pipeline connecting the two sources may also be required. Also, this process generates a waste stream of concentrated nitrates which would need to be disposed of. Bennington does not have a sewer system since the houses

are on large lots with septic tanks and drain fields. There would not be a good place to dispose of the waste stream. For these reasons, this treatment alternative will not be pursued further.

Environmental Impacts: Impacts from this alternative would be minimal since construction would take place in previously developed ground. Water quality and public health would be positively impacted as the concentration of nitrate would be decreased.

7.8 System Classification & Operator Licensure

DEQ classifies drinking water systems on two levels: treatment and distribution. The complexity of each system is evaluated separately. The classification worksheets can be found on DEQ's website (Idaho Dept. of Environmental Quality, 2011). The distribution system is evaluated based on population served by the system. The breakdown of population is shown in Table 7-2.

Table 7-2 DEQ Distribution System Classification

Classification	Population
Very Small Public Drinking Water System	* See definition below
Class I	1,500 or less
Class II	1,501 to 15,000
Class III	15,001 to 50,000
Class IV	50,001 and greater

*** Very Small Public Drinking Water System –** A Community or Non-transient Non-community Public Water System that serves five hundred (500) persons or less and has no treatment other than disinfection** or has only treatment which does not require any chemical treatment, process adjustment, backwashing or media regeneration by an operator (e.g. calcium carbonate filters, granular activated carbon filters, cartridge filters, ion exchangers.) (IDAPA 58.01.08.003.79)

**** Disinfection –** Introduction of chlorine or other agent or process approved by the Department of Environmental Quality, in sufficient concentration and for the time required to kill or inactivate pathogenic and indicator organisms. (IDAPA 58.01.08.003.22)

The treatment system classification is based on the following eight criteria:

- System Size
- Water Supply Source
- Average Raw Water Quality
- Treatment Process
- Disinfection
- Sludge/Backwash Water Disposal
- Bacteriological / Biological Laboratory Control
- Chemical / Physical Laboratory Control

The effects that the above discussed alternatives would have on the system classification for distribution or treatment are summarized in Table 7-3 below.

Table 7-3 Changes in System Classification from Alternatives

Alternative	Classification		Comments
	Distribution	Treatment	
7.1 – Optimization	No change	No change	--
7.2 – Regionalization	No longer needed	No longer needed	If the system were to be connected to the Montpelier water system, Bennington would not be required to have licensed operators.
7.3.1 – No Action for Water Supply	No change	No change	--
7.3.2 – Water Rights	No change	No change	--
7.3.3 – Leak Detection	No change	No change	--
7.3.4 – Spring #2 Rehab	No change	No change	--
7.3.5 – Separate Irrigation System	No change	No change	--
7.4.1 No Action for Storage	No change	No change	--
7.4.2 – Reduction in Fire Flow	No change	No change	--
7.4.3 – New Reservoir	No change	No change	--
7.4.4.a – New Well	No change	No change	--
7.4.4.b – Increase Existing Wells Capacities	No change	No change	--
7.5.1 – No Action for Distribution Piping	No change	No change	--
7.5.2 – New Transmission Line	No change	No change	--
7.5.3 – Connect Dead End Distribution Lines	No change	No change	--
7.6.1 – No Action for Disinfection	No change	No change	--
7.6.2 – UV Radiation	No change	Increase Disinfection by 10 points	This type of disinfection would add some complexity to the system. However, it would not be enough to change the system's treatment classification to a Class II
7.6.3 – Chlorination (Gas)	No change	Increase Disinfection by 10 points	This type of disinfection would add some complexity to the system. However, it would not be enough to change the system's treatment classification to a Class II
7.6.4 – Hypochlorination	No change	Increase Disinfection by 5 points	This type of disinfection would add some complexity to the system. However, it would not be enough to change the system's treatment classification to a Class II
7.7.1 – No Action for Nitrate Treatment	No change	No change	--
7.7.2 – New Well	No change	No change	--
7.7.3 - Blending	No change	No change	--
7.7.4 – Mechanical Treatment	No change	Increase Treatment 10-15 points and Backwash Water Disposal by 5 points	This type of treatment would add complexity to the system. If a disinfection process were also added, it may be enough to move the system to a Class II, requiring additional licensure by operators.

7.9 Final Screening & Preferred Alternatives

Alternatives that were not initially screened as unsuitable were further evaluated. Capital costs, O&M costs, and environmental effects are used to compare alternatives for system improvements and to select the preferred alternatives. Alternatives were compared on a 20-yr or 50-yr basis.

7.9.1 Final Screening of Water Supply Alternatives

Three alternatives were considered to address water supply issues for Bennington. These alternatives are not exclusive in that none or all of the alternatives may be selected. Table 7-4 compares capital costs and operation and maintenance costs.

Table 7-4 Water Supply Alternatives Cost Evaluation

	Water Supply Alternatives		
Description	**Apply for Additional Water Rights**	**Establish a Leak Detection Program**	**Spring #2 Rehabilitation**
Life (yrs)	50	20	20
Interest Rate	3.5%	3.5%	3.5%
Capital Cost (Initial $)	$1,000	$5,000	$400,000
O&M costs ($/yr)	$0/yr	$500/yr	$250/yr
Equivalent Annual Cost	**$42.63**	**$851.81**	**$28,394.43**

The first two alternatives would have little or no environmental impacts and no impact on system classification and operator licensure. The Spring 2 Rehabilitation alternative would have some environmental impacts during construction, but no long term adverse impacts. There would also not be any changes to the system classification or operator licensure.

During the June 27, 2012 hearing, support was expressed for securing water rights for the CRI Well and to rehabilitate Spring 2. These two alternatives will be part of the capital improvements plan. Attendance and meeting minutes are included in Appendix A.

7.9.2 Final Screening of Storage Alternatives

Two alternatives were given final consideration to address storage issues. Table 7-5 compares capital costs and operation and maintenance costs. The alternative selected was to construct a new storage reservoir and address the issue rather than prevention of legal action and hoping that nothing goes wrong.

Table 7-5 Water Storage Alternatives Cost Evaluation

Description	Storage Alternatives	
	Reduction in Fire Flow	New Storage Reservoir
Life (yrs)	50	50
Interest Rate	3.5%	3.5%
Capital Cost (Initial $)	$2,000	$250,000
O&M costs ($/yr)	$0/yr	$1,000/yr
Equivalent Annual Cost	**$85.27**	**$11,658.43**

7.9.3 Final Screening of Distribution Alternatives

The no action alternative was considered as well as two phases of improvements to the distribution system. Table 7-6 compares capital costs and operation and maintenance costs.

Table 7-6 Distribution System Improvements Cost Evaluation

Description	Distribution System Improvements		
	No Action	New Transmission Line	Connect Dead End Lines
Life (yrs)	50	50	50
Interest Rate	3.5%	3.5%	3.5%
Capital Cost (Initial $)	$0	$390,000	$20,000
O&M costs ($/yr)	$500/yr	$600/yr	$100/yr
Equivalent Annual Cost	**$500.00**	**$17,227.15**	**$952.67**

The no action alternative will require continued regular flushing of dead end lines but does not improve the fire flow situation. Since the alternative to construct a storage reservoir was selected, a new transmission line will be needed to make use of the additional storage. The alternative to connect the dead end lines was not selected.

7.9.4 Final Screening of Disinfection Alternatives

Because of the cost, complexity, and operational considerations, three of the four preliminary alternatives were eliminated. The remaining alternative is hypochlorination. Table 7-7 outlines capital costs and operation and maintenance costs for a disinfection system.

Table 7-7 Disinfection Alternatives Cost Evaluation

	Disinfection
Description	**Hypochlorite**
Life (yrs)	20
Interest Rate	3.5%
Capital Cost (Initial $)	$20,000
O&M costs ($/yr)	$1,000/yr
Equivalent Annual Cost	**$2,407.22**

7.9.5 Final Screening of Nitrate Treatment Alternatives

Two alternatives were given final consideration to address nitrate issues. Table 7-8 compares capital costs and operation and maintenance costs for the nitrate alternatives.

Table 7-8 Nitrate Treatment Alternatives Cost Evaluation

	Nitrate Treatment	
Description	**No Action**	**Blending**
Life (yrs)	50	50
Interest Rate	3.5%	3.5%
Capital Cost (Initial $)	$0	$85,000
O&M costs ($/yr)	$0/yr	$100/yr
Equivalent Annual Cost	**$0.00**	**$3,723.87**

At this time, the blending alternative has been selected by Bennington. Although nitrate levels are not exceeding the MCL, the water system has elected to move forward with the alternative to blend the well water with the water from the springs.

7.9.6 Public Participation

Public participation was discussed in section 4.18 and documentation is included in Appendix A. Alternatives were presented in the annual meeting held April 4, 2012. These were further refined in the April 18, 2012 CAC meeting. The preferred alternatives were selected in the June 27, 2012 public hearing/shareholders meeting. There were 19 people present at the meeting. Discussion ensued for over 2 ½ hours over the preferred alternatives. Another public meeting was held April 4, 2013 in which the shareholders voted in support of the project 33 for and 1 against.

Chapter 8 Implementation and Funding Analysis

8.1 Capital Improvement Plan

The Bennington Water System selected the following alternatives for improvements to their system. A map showing the location of the proposed improvements is shown in Figure 8-1. No change in operator licensing will be required with the selected improvements.

8.1.1 Preferred Source Alternative

It was selected to resolve water rights for the CRI Well and to redevelop Spring 2. The work on Spring 2 will provide low nitrate water. Facilities will be designed to convey 58 gpm which is the amount that is covered by the water right for the spring. A 6-inch PVC pipe should be sufficient. Work will consist of improving the collection piping at the spring, replacement of the surface seal, and some grading work to prevent surface water from standing on the site.

8.1.2 Preferred Storage Alternative

The alternative selected for storage was to construct a new storage reservoir to enable the system to meet fire flow requirements. This alternative was not the least expensive alternative, but the other alternatives do not meet the community's needs. Environmental impacts will not be significant for the construction of the new reservoir.

It is proposed to locate the new reservoir adjacent to the existing 50,000 gallon reservoir. A small parcel of land will need to be secured. The new reservoir will likely be a bolted steel or concrete reservoir.

8.1.3 Preferred Distribution System Improvements

The following pipelines have been selected, to be replaced to help improve current and future water distribution and transmission from the sources to the end users. Because the new storage reservoir alternative was selected, the new transmission line needed to be built to convey the water from the new storage reservoir. The transmission line will be constructed to 2nd East a new bore under Highway 30 on 1st North will also be completed. The new pipe will be 5,400 ft of 12-inch PVC.

8.1.4 Preferred Bacteriological Disinfection Alternative

Sodium hypochlorite disinfection using a 12.5% to 15% solution is the preferred disinfection method for Bennington should the system need to maintain a residual to disinfect within the distribution system. This alternative was the least expensive to operate and maintain.

The new disinfection system is proposed to be constructed near the tank site. A small building will be constructed to house the equipment. Power will be needed at the tank site to power the flow meter, metering pump, and to heat and vent the building. A buried electrical line is the proposed source for power. Chlorination will take place after the storage reservoirs allowing excess water from the springs to spill before it is chlorinated. At the 40-year peak hour demand (PHD) flow rate of 202 gpm, there would be 146 minutes of contact time in the 5,300 ft of 12-inch pipe to the distribution system. The

chlorination system will be flow paced utilizing the flow meter to match demand in the system which varies between 18 gpm for the current ADD and 202 gpm for the 40-yr PHD.

If connections are proposed to be made on the transmission line before it reaches the distribution system, the contact time would need to be evaluated to ensure proper contact time for disinfection to occur before the first service, or the Water System could require a new pipe be built by the developer connecting to the distribution system rather than tapping the transmission line. This would preserve the contact time for the system.

8.1.5 Preferred Nitrate Treatment Alternative

The blending scenario is the preferred alternative. Because the new 12-inch transmission line alternative was selected, the existing 6" transmission line will be used for a dedicated pipe for the wells to pump into the tanks to be blended with the low nitrate water from the springs. Some piping will be required from the Well 1 to the blending line to the tanks. The CRI Well will be disconnected where it connects to the distribution system and some piping will be required to connect to the blending line.

A piping manifold system will be required to allow each of the tanks to be filled with water from the springs or from the wells, to allow each of the tanks to feed the new 12-inch transmission line, and for each tank to be isolated from the system without affecting the operation of the other tank.

This alternative will also allow the water from the wells to be chlorinated. Uncertainty in maintaining chlorine residual levels when the wells run and pump directly into the system will be eliminated.

PROJECT NO. 210076-000

FILENAME F8.1 - Improvements.mxd

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BENNINGTON

Water Facilities Planning Study

System Improvements

FIGURE NO. 8-1

8.2 Funding Analysis

Funding for implementing the system improvements may come from several sources. The primary source of funds for the recommended system improvements will come from low interest loans through DEQ's State Revolving Fund (SRF) loan program and USDA-Rural Development. Remaining monies may come from other sources the community may be eligible for. These include grants from USDA-Rural Development, Idaho Department of Commerce [Community Development Block Grant Program (CDBG)], Special Congressional Appropriations, and Homeland Security Grant Programs.

The selection process for water and wastewater project funding is competitive. To be eligible for DEQ SRF money, a letter of interest must be submitted for the fiscal year to receive funds. DEQ ranks all of the submitted applications and awards funds accordingly. In addition to the loan, DEQ may offer some principle subsidy (grant) money.

Eligilbity for USDA-Rural Development funds is based partially on the median household income for the community. In order for the community to be competitive for grant funds the minimum water user rate must be approximately $40.00. In addition to user rates, water systems must have water meters on all service connections or be installing water meters to be eligible for USDA-RD monies.

Bennington can apply for a maximum of $350,000 in Idaho Department of Commerce CDBG monies. To be eligible for CDBG funds, the community must have a "low to moderate income" (LMI) of 51% or higher. To determine eligibility for CDBG funds, the community would need to determine grant eligibility by performing a door-to-door survey.

Special Congressional Appropriations vary in amount and are difficult to predict. Homeland Security Grants are a new source of funds with special regulations for eligibility, therefore eligibility and amount are difficult to predict.

8.3 Rate Analysis

Beginning January 2011, the Bennington Water System increased their rates from $27.50 to $40. The current residential water rate structure includes a base rate of $40 per connection per month which allows up to 30,000 gallons of water consumption per month. Water consumption above the base 30,000 gallons is charged at a rate of $1.00 per 1,000 gallons. In order to afford the proposed water improvement projects, Bennington will need to increase water usage rates. Water rates should be set based upon the loan amounts that the system will receive and operation and maintenance costs. Table 8-1 summarizes the costs of the selected alternatives and Table 8-2 illustrates the funding source scenarios and associated users rates to fund the improvements.

In order to be able to complete the projects shown in Table 8-1, Bennington would likely need to raise monthly user rates to the $60 range based on Scenario 4 in Table 8-2. In addition to raising user rates, it is recommended that the connection fee of $2,500 be increased 3% per year to keep up with inflationary changes. Connection fees should be added to a capital improvements fund to be used for future improvement projects.

Table 8-1 Capital Improvement Plan

Improvement	Estimated Cost
Redevelop Spring #2	$ 400,000
Additional Storage Reservoir	$ 250,000
Transmission Line (12-inch)	$ 390,000
Disinfection System	$ 20,000
Well Blending Lines	$ 85,000
Construction and Materials Subtotal	**$ 1,145,000**
Construction Contingency	$ 114,500
Construction Total	**$ 1,259,500**
Pay off USDA Loan	$ 164,370
Easements/Water Rights/Land/Power	$ 59,130
Professional Services (Eng/Legal/Funding)	$ 282,000
Total Cost	**$ 1,765,000**

Table 8-2 Funding Scenarios

Scenarios / Funding Sources	Scenario 1: IDEQ loan at 1.25% for 30 yrs	Scenario 2: IDEQ grant/loan at 1.25% for 30 yrs	Scenario 3: IDEQ grant/loan at 0% for 30 yrs	Scenario 4: IDEQ grant/loan at 1.25% for 30 yrs & RD grant/loan at 2.75% for 40 yrs
Project Funding	**$1,765,000**	**$1,765,000**	**$1,765,000**	**$1,765,000**
Idaho Department of Environmental Quality (**IDEQ**) SRF Loan	$1,765,000	$1,538,463	$1,538,463	$523,463
IDEQ SRF Principle Subsidy	$0	$226,537	$226,537	$226,537
IDEQ Annual Payment	$70,915	$61,813	$51,282	$21,032
USDA Rural Development (**RD**) Loan (Bond)	$0	$0	$0	$415,000
RD Grant	$0	$0	$0	$600,000
RD Annual Payment	$0	$0	$0	$17,236
Total Annual Debt Payment	**$70,915**	**$61,813**	**$51,282**	**$38,268**
Annual Debt Service reserve*	$7,092	$6,181	$5,128	$3,827
Annual Operation & Maintenance	$9,500	$9,500	$9,500	$9,500
Annual Equipment Replacement Fund (Reserves)	$3,500	$3,500	$3,500	$3,500
Total Annual System Cost	**$91,007**	**$80,995**	**$69,410**	**$55,094**
Monthly Base User Rate, with 80 EDUs	**$94.80**	**$84.37**	**$72.30**	**$57.39**
Total debt cost for life of loan(s)	**$2,127,454**	**$1,854,396**	**$1,538,463**	**$1,320,383**

8.4 Project Implementation and Schedule

Keller Associates' staff has worked closely with maintenance staff and board members in analyzing the water system and developing improvements that will have lasting impacts on the community. The Bennington Water Board and shareholders are in support of the proposed project.

A loan application has been submitted to DEQ to receive State Revolving Fund money for $750,000. An estimated $226,537 of principal forgiveness from DEQ is anticipated. Bennington has consulted with USDA-RD on additional funding totaling $1,015,000 that application will need to be completed this summer. To be considered for CDBG funds, an income survey will need to be conducted.

Developing a schedule to implement system improvements provides a timeline that will help motivate project development, find funding sources, educate the general public, and establish deadlines for major project milestones. A preliminary project schedule is presented in Table 8-3.

Table 8-3 Preliminary Project Schedule

Event	Date
EID Approval	June 2013
Finalize Funding w/ Agencies	September 2013
Begin Design of Improvements	October 2013
DEQ Review	September 2013
Bid	April 2013
Begin Construction	May 2014
Water Usage Evaluation	Yearly

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Appendix A: Public Participation

Bennington Water System, Inc.

Water Facilities Planning Study
Citizen's Advisory Committee Meeting
September 14, 2011

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1

BENNINGTON WATER FACILITIES PLANNING STUDY

09/14/2011 Community Advisory Committee Meeting

Discussion Outline

2

1. Introductions (Please Sign In)
2. Background
   A. Water Facilities Planning Study
   B. Water System Overview
   C. Summary of System Deficiencies
   D. Summary of Regulatory Issues
3. Solutions
   A. Distribution System
   B. Treatment System
   C. Storage System
   D. Source Evaluation
4. Assignments

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The CAC's Role

3

- CAC Works with Keller Associates to Make a Recommendation to the City
- Help Educate the Public
- Assignment – Consider the Following Questions
  1. What kinds of solutions are Bennington interested in pursuing?
  2. Would the water system like to pursue water treatment alternatives?
  3. Is there interest in increasing storage capacity to meet City flow and fire flow requirements?
  4. Is there interest in improving water circulation?

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Water Facilities Planning Study

4

- Inventory Existing Water System
- Evaluate Existing Systems Condition & Performance
- System Analysis
  - Assess Capacity
  - Identify Deficiencies
  - Evaluate Future Facility Needs
  - Anticipate Future Regulatory Requirements
- Develop Capital Improvement Plan
  - Evaluate Current & Future Needs
  - Identify the Preferred Alternative Solution
  - Assess the Financial Impacts of the Preferred Alternative

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Water Storage Purpose?

5

- Water storage
- Emergency storage
- Fire protection storage
- Equalization
- Establish water pressure (hydraulic grade line)
- Disinfection contact time
- Surge relief

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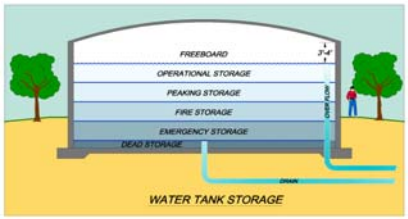
Storage Components

6



Freeboard: Space above overflow pipe below tank roof.

Operational Storage: 10% of total storage volume (Pump ON/OFF levels). (15,000 gallons)

Peaking Storage: Storage required to meet peak hour demands. In lieu of peaking storage, some cities install additional well capacity. (23,000 gallons)

Fire Storage: Determined by International Fire Code (or local fire authority) and the size and type of largest structure within system. (120,000 gallons)

Emergency Storage:

- DEQ requires a minimum of 8 hours of average day demand (15,360 gallons)
- May consider average summer day demand
- Somewhat arbitrary decision – additional above required emergency is political decision
- Can be offset by standby power
- Based on vulnerability – Ontario, OR & source water quality

Dead storage: Amount that can't be taken from tank

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Water System Overview

7

- System Consists of:
  - Distribution System
    - Distribution Piping
    - Transmission Line
  - Storage System
    - 50,000 gallon reservoir
  - Sources
    - 1 spring (40 gpm)
    - Well #1 (100 gpm)
    - CRI well (450 gpm)
- Most recent system upgrades (1997-1998)

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Water System Issues

8

- Distribution Piping
  - Poor circulation due to dead-end lines (1st North and 1st South)
  - Inadequately sized transmission line to meet fire flow demands
- Treatment System
  - High Nitrate concentrations in wells (6-7 mg/L) MCL=10 mg/L
  - Occasional Coliform at springs
- Storage
  - Insufficient storage to meet fire flow and max day demands
  - Develop full time access agreement and access route
  - Reservoir water can backfeed into spring line
- Sources
  - Apply for additional water rights – using more than water rights permit
  - Develop full time access agreement and access route to springs
  - Spring totalizing flow meter suspected to be inaccurate due to backfeed from reservoir
  - Develop consistent production log records
  - Spring disinfection

Licensed Water Right	(cfs)	(gpm)	Source Ability (gpm)
Spring 1	0.09	40.4	40
Spring 2	0.13	58.3	58
Well 1 & CR1	0.4	179.5	535

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Flow Analysis Scenario

9

- Fire flow requirements = 1,000 gpm as reported by the Bennington Fire Marshall
- MDD = 80 gpm
- Maximum fluid velocity = 10 ft/sec – head loss
- Using a 6" trunk line (reported)
  - Available Flow = 862-1,130 gpm
- Using an 8" trunk line (model agrees with recorded fire flows)
  - Available Flow = 881-1,593 gpm
- Using a 12" trunk line with recommended improvements
  - Maximum Available Flow = 1,158-3,341 gpm
- (See attached table)

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Distribution System Solution Path

10

1. Improve water transfer (storage to town)
   - Run new 12" transmission line through town to establish system "backbone"
   - Bore under Highway
2. Improve water circulation (in town)
   - New 6" line across Highway along 1st North
   - New 6" line along 2nd E between Center St. and 1st S.
3. Do Nothing

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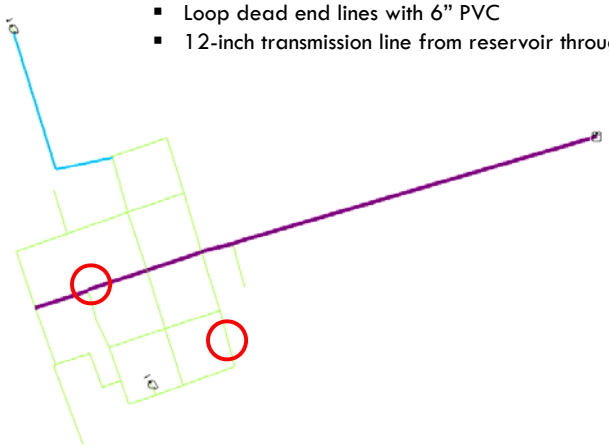
Recommended Distribution System Improvements

11

- Loop dead end lines with 6" PVC
- 12-inch transmission line from reservoir through town



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Treatment System Solution Paths

12

1. Springs Re: Coliform
   - Install solar powered chlorinator at source
2. Wells Re: Nitrate
   - Install ion-exchange
   - Drill wells deeper to enter a different aquifer
   - Move wells upstream of nitrate area
   - Install Point-of-Use systems at each main water tap in each home.
   - Connect to the Montpelier water system (max reported Nitrate = 2 mg/L)
3. Do Nothing

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Storage Solution Paths

13

- New Tank
- New Well
- Do Nothing

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Solution Path Evaluation

14

Distribution & Storage

- Distribution Cost
  - Connect dead-end lines
  - New transmission line
- Storage Cost
  - 200,000 gallon tank
  - Road/Access
- Estimated project costs $970,000 to $1,100,000

Source & Treatment

- Regulated by DEQ
  - Sanitary survey items
- Ion exchange
- Spring chlorinator
- Spring Development
- Rehab/New Well
- Estimated Project Costs $570,000 to $700,000

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Questions

15

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Bennington Water System

September 13, 2011; water board meeting with Keller Associates. Meeting was called to order

at 6:35 p.m., by Wynn Olsen. Members present were, Robert Holjeson, McKay Crane, Linda Crane, and Stuart Crane. Michael Jaglowski, and Hailey Barnes, from Keller Associates were also present.

The CAC's Role Discussion:

Keller's, purpose to us: To complete a study to document options to improve our water system. DEQ, suggested a facilities study, because of the high readings such as the nitrates. Plus the study provides us the information we need to proceed to improve the water system, in the coming years ahead. To correct any water problems and bring it up to DEQ requirements, and also state requirements. Keller's, will also advise us of what grants are available, and to help us get funding. To help us as clients reach the next step in correcting any problems with the water system. What kinds of solutions or water treatment alternatives we would like to pursue, also options to increase storage capacity to meet the city flow and fire flow requirements.

Discussion:

Suggestion to make the CRI Well, the primary water source, and Well 1, would become the emergency water source. The above could eliminate the nitrate problems we have been having. Note: (Nitrate samples were taken 9-26-11 from three sources. Source one was 026 E. 300 N., results were 0.38. Source two was Well #1, results were 6.60. Third source CRI Well, results were 6.31.) Discussion followed with the suggestion of possible blending of water from sources to help lower nitrate levels.

Discussion on flow meters on springs going into tank. The one now is not working correctly. Storage for Bennington: Operation storage..(15,000 gallons)..Peaking storage..(23,000 gallons)..Fire storage,..(120.000 gallons). Emergency storage required by DEQ is (15,360 gallons). Our system now is as follows: Spring (40 gpm)..Well #1 (100 gpm)..CRI Well (450gpm). Study suggests we have poor circulation due to dead-end lines and inadequately sized transmission line to meet the fire flow demands. We say it is 6 inch, the study says this does not work with their model. Also a full time access agreement and access route needs to be done and recorded. Reservoir water can back feed into spring line. This needs a design change and should be incorporated into the treatment system.

Storage Solutions: New tank, above ground is recommended, new well, or do nothing. New tank 200,000 gallon tank.

Discussion:

Disinfect at source. Look into permanent disinfection unit that can be turned on and off by radio control. Also spring chlorinators.

We need the actual costs for storage tanks, transmission line, chlorinators and water rights access.

Kellers request next meeting DEQ, will be here, October 19, 2011. And the next one will be CAC., and us on November 16, 2011.

Meeting was adjourned.

Bennington Water System, Inc.

Water Facilities Planning Study
Citizen's Advisory Committee Meeting
October 19th, 2011

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1

BENNINGTON WATER FACILITIES PLANNING STUDY

10/19/2011 Community Advisory Committee Meeting

Discussion Outline

2

1. Introductions (Please Sign In)
2. Background
   A. Water Facilities Planning Study
   B. Water System Overview
   C. Summary of System Deficiencies
   D. Summary of Regulatory Issues
3. **Solutions**
   A. **Distribution System**
   B. **Treatment System**
   C. **Storage System**
   D. **Source Evaluation**
4. **Project Costs/Funding Scenarios**
5. **Assignments**

KELLER associates

The CAC's Meeting Role

3

- CAC works with Keller Associates to find solution paths
- CAC works with Keller Associates to make recommendations to the Community
- Help Educate the Public
- Assignments

KELLER associates

Water Facilities Planning Study

4

- ~~Inventory Existing Water System~~ Complete
- ~~Evaluate Existing Systems Condition & Performance~~ Complete
- System Analysis
  - ~~Assess Capacity~~ Complete
  - ~~Identify Deficiencies~~ Complete
    - Treatment/disinfection
    - Storage
  - ~~Evaluate Future Facility Needs~~ Complete
  - Anticipate Future Regulatory Requirements
    - Treatment/Disinfection
- Develop Capital Improvement Plan
  - ~~Evaluate Current & Future Needs~~ Complete
  - Identify the Alternative Solutions – Need to further discuss and identify
  - Assess the Financial Impacts of the Preferred Alternative

KELLER associates

Water System Overview

5

- System Consists of:
  - Sources
    - 1 spring (40 gpm)
    - Well #1 (100 gpm)
    - CRI well (450 gpm)
  - Storage System
    - 50,000 gallon reservoir
  - Distribution System
    - Distribution Piping
    - Transmission Line
- Most recent system upgrades (1997-1998)

KELLER associates

Water System Issues

6

- Sources
  - Apply for additional water rights – wells produce more than water rights permit
  - Develop full time access agreement and access route to springs
  - Spring totalizing flow meter suspected to be inaccurate due to backfeed from reservoir
  - Address Sanitary Survey issues
  - Develop consistent production log records
  - Backup Power
- Storage
  - Insufficient storage to meet MMD and FFD
  - Develop full time access agreement and access route
  - Reservoir water can backfeed into spring line
- Treatment System
  - High Nitrate concentrations in wells (6-7 mg/L) MCL=10 mg/L
  - Occasional Coliform at springs
- Distribution Piping
  - Poor circulation due to dead-end lines (1st North and 1st South)
  - Transmission line is sufficient to meet MDD plus FFD for all but 2 lines

Licensed Water Right	(cfs)	(gpm)	Source Ability (gpm)
Spring 1	0.09	40.4	40
Spring 2	0.13	58.3	58
Well 1 & CR1	0.4	179.5	535

KELLER associates

Flow Analysis Scenario

7

- Fire flow requirements = 1,000 gpm for 2 hours as reported by the Bennington Fire Marshall
- MDD = 80 gpm
- Maximum fluid velocity = 10 ft/sec – head loss
- Current Conditions
  - Available Flow = 881-1,593 gpm
- Using an 10" transmission line
  - Available Flow = Up to 2,134 gpm (2 fire hydrants do not meet FFD)
- Using a 12" transmission line
  - Available Flow = Up to 3,341 gpm

KELLER associates

Source Solution Alternatives

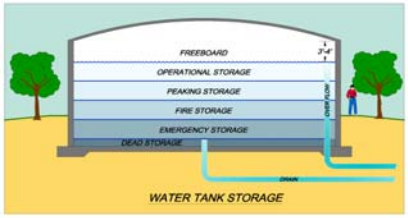
8

- Apply for additional water rights
- Add storage
- Drill new well
- Rehabilitate existing well(s)
- Add back-up generators

KELLER associates

Storage Components

9



Freeboard: Space above overflow pipe below tank roof.

Operational Storage: 10% of total storage volume (Pump ON/OFF levels). (14,050 gallons)

Peaking Storage: Storage required to meet peak hour demands. In lieu of peaking storage, some cities install additional well capacity. (9,600 gallons)

Fire Storage: Determined by International Fire Code (or local fire authority) and the size and type of largest structure within system. (111,600 gallons)

Emergency Storage:

- DEQ requires a minimum of 8 hours of average day demand (15,360 gallons)
- May consider average summer day demand
- Somewhat arbitrary decision – additional above required emergency is political decision
- Can be offset by standby power
- Based on vulnerability – Ontario, OR & source water quality

Dead storage: Amount that can't be taken from tank

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Storage Solution Alternatives

10

- Do Nothing – Does not meet MDD plus FFD
- New 0.15 MG Tank
- New Well – Need 600 gpm
- Rehabilitate existing wells – 625 gpm each

IDAPA requires Redundant Fire Flow Capacity – Emergency situation must meet MDD plus FFD with largest source out of service.

KELLER associates

Treatment System Solution Alternatives

11

1. Springs Re: Coliform
   - Install solar powered disinfection at source
   - Do Nothing
2. Wells Re: Nitrate – Testing Results???
   - ~~Install ion-exchange/wastewater~~ – Not Feasible
   - New/Rehab Well(s)
   - Blend water from wells and springs (Well #1 and spring = 4.7 ppm) – Transmission Line from well to tank
   - Move wells upstream of nitrate area – New Well
   - ~~Install Point-of-Use systems at each main water tap in each home~~ – Not feasible for Bennington
   - Connect to the Montpelier water system (max reported Nitrate = 2 mg/L) - Questionable
3. Do Nothing

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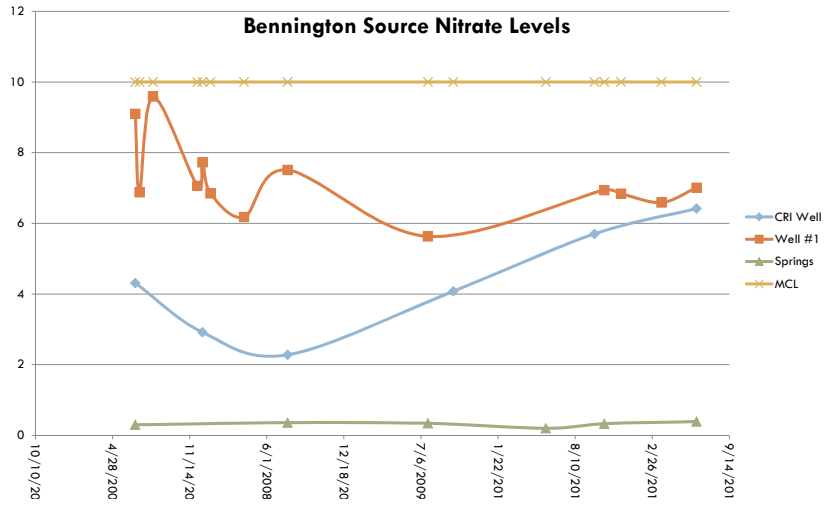
Nitrate Concentrations

12



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Distribution System-Solution Path Alternatives

13

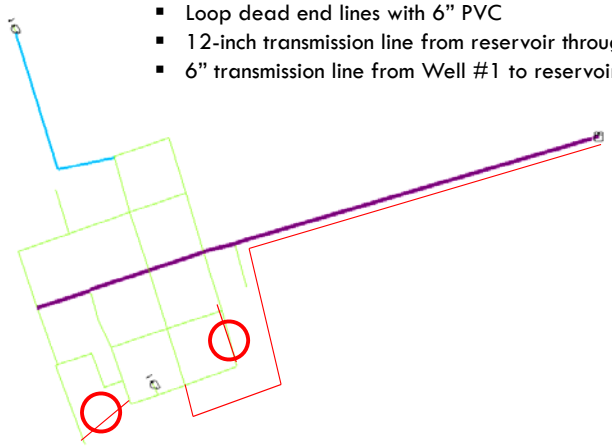
1. Improve water transfer (storage to town)
   - Run new 12" transmission line through town to establish system "backbone"
   - Bore under Highway
2. Improve water circulation (in town)
   - Connect 2nd E. and 1st S. = 1,699 gpm
   - Connect South end of 1st W. = 1,745 gpm
- Transmission line from well #1 to reservoir
1. Do Nothing

KELLER associates

Recommended Distribution System Improvements

14

- Loop dead end lines with 6" PVC
- 12-inch transmission line from reservoir through town
- 6" transmission line from Well #1 to reservoir



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Solution Path Evaluation

15

Distribution & Storage

- Distribution Cost
  - Connect dead-end lines
  - New transmission line
- Storage Cost
  - 150,000 gallon tank
  - Road/Access
- Estimated project costs $970,000 to $1,100,000

Source & Treatment

- Regulated by DEQ
  - Sanitary survey items
- Ion exchange
- Spring disinfection
- Spring Development
- Rehab/New Well
- Estimated Project Costs $570,000 to $700,000

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Cost Estimates

16

Item Description	Probable Cost Estimate
New 0.15 MG Storage Reservoir	$620,000
Transmission Line/Distribution	$720,000
New Well	$375,000
Rehab wells	$250,000
Spring Treatment	$30,000
Blending Transmission Line	$200,000
Generator Well #1	$75,000
Generator CRI	$125,000

- Costs Include:
  - Construction
  - Engineering
  - Land
  - Funding Administration
  - Legal/Audit/Interest
- 1-2 Year Cost Estimate

KELLER associates

Funding Alternatives

17

Loans

- DEQ – 20 year loan @ 2-3% interest
- USDA-RD – 40 year loan @ 3-4% interest

Grants

- IDOC-CDBG – Depends on LMI Eligibility
- USDA-RD – Depends on MHI Eligibility

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Questions

18

KELLER associates

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KELLER associates

Bennington Water System, Inc.

Water Facilities Planning Study
Citizen's Advisory Committee Meeting
November 16th, 2011

Name (Please Print)	Address	Phone	Email Address
1.Hailey Barnes	305 N. 3rd Avenue, Suite A	238-2146	hbarnes@kellerassociates.com
2.Michael Jaglowski	305 N. 3rd Avenue, Suite A	238-2146	mjaglowski@kellerassociates.com
3.Wynn Olsen	98 E. 1st N. Bennington	847-2098	
4.Stuart Crane	87 S. 1st E. Bennington	847-0299	sdcrane@dcdi.net
5.Craig Borrenpohl	444 Hospital Way #300, Pocatello	236-6160	Craig.Borrenpohl@deq.idaho.gov
6.Robert Holjeson	38 N. 2nd E. Bennington	709-2837	holjeson@dcdi.net
7. McKay Crane	274 E. Center, Bennington	847-2069	jmckayc@hotmail.com
8. Linda Crane	026 E. 300 N., Bennington	847-1743	thecsranch@yahoo.com
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19.			

KELLER associates

1

BENNINGTON WATER FACILITIES PLANNING STUDY

11/16/2011 | Community Advisory Committee Meeting

Discussion Outline

2

1. Introductions (Please Sign In)
2. Background
   A. Water Facilities Planning Study
   B. Water System Overview
   C. Summary of System Deficiencies
   D. Summary of Regulatory Issues
3. **Solutions**
   A. **Distribution System**
   B. **Treatment System**
   C. **Storage System**
   D. **Source Evaluation**
4. **Project Costs/Funding Scenarios**
5. **Assignments**

KELLER associates

Water System Overview

3

- System Consists of:
  - Sources
    - 1 spring (40 gpm)
    - Well #1 (100 gpm)
    - CRI well (450 gpm)
  - Storage System
    - 50,000 gallon reservoir
  - Distribution System
    - Distribution Piping
    - Transmission Line
- Most recent system upgrades (1997-1998)

Licensed Water Right	(cfs)	(gpm)	Source Ability (gpm)
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Well 1 & CR1	0.4	179.5	535

KELLER associates

Water System Issues

4

- Sources
  - Reapply for CRI well water rights
  - Disinfection
  - Develop full time access agreement and access route to springs
  - Spring totalizing flow meter suspected to be inaccurate due to backfeed from reservoir
  - Address Sanitary Survey issues
  - Develop consistent production log records
  - Backup Power
- Storage
  - Insufficient storage to meet MDD and FFD
  - Develop full time access agreement and access route
  - Reservoir water can backfeed into spring line
- Treatment System
  - High Nitrate concentrations in wells (6-7 mg/L) MCL=10 mg/L
  - Occasional Coliform – suspected to be sampling error
- Distribution Piping
  - Poor circulation due to dead-end lines (2 locations)
  - Transmission line is sufficient to meet MDD plus FFD with wells but for less than 1 hour

KELLER associates

Source Solution Alternatives

5

- Resolve CRI Well water rights (3.26 cfs were not transferred)
- Add storage/Add water source capacity
  - Rehabilitate existing well(s)
  - Rehabilitate Springs
- Add back-up generators @ wells

KELLER associates

Storage Solution Alternatives

6

- Do Nothing – Does not meet MDD plus FFD
- New 0.15 MG Tank
- Rehabilitate existing wells – 625 gpm each

IDAPA requires Redundant Fire Flow Capacity – Emergency situation must meet MDD plus FFD with largest source out of service.

KELLER associates

Treatment System Solution Alternatives

7

1. Springs Re: Coliform
   - Install solar powered disinfection at source (install port now for future use, if needed)
   - Redevelop Spring #2
   - Do Nothing
2. Wells Re: Nitrate
   - Drill wells deeper
   - Blend water from wells and springs (Well #1 and spring = 4.7 ppm) – Transmission Line from well to tank
3. Do Nothing

KELLER associates

Distribution System-Solution Path Alternatives

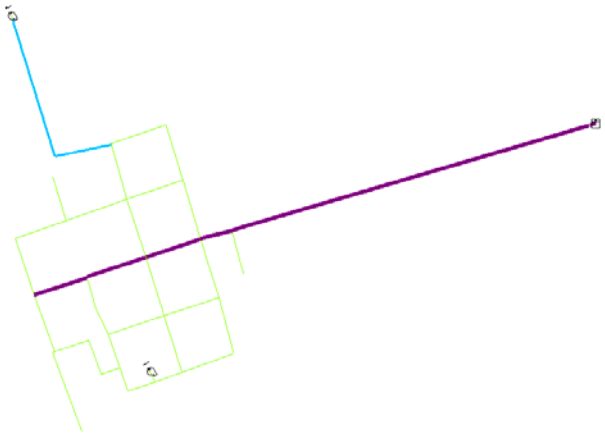
8

1. Improve water transfer (storage to town)
   - Run new 12" transmission line through town to establish system "backbone"
   - Bore under Highway
2. Improve water circulation (in town)
   - Connect 2nd E. and 1st S. = 1,699 gpm
   - Connect South end of 1st W. = 1,745 gpm
   - To be completed upon further development
3. Transmission line from well #1 to reservoir
4. Do Nothing

KELLER associates

System Map

9



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Cost Estimates

10

System Components	Alternatives	Estimated Costs	Ranking
Source	CRI Water Rights	$10,000	
	Additional Storage	$620,000	
	Rehabilitate Wells	$250,000	
	Rehabilitate Springs	$300,000	
	Back-up Generators	$200,000	
	Do Nothing	$0	
Storage	New 0.15 MG Tank	$620,000	
	Rehabilitate Wells	$250,000	
Treatment	Disinfection Port	$20,000	
	Redevelop Springs	$300,000	
	Source Protection	$45,000	
	Drill Wells Deeper	$250,000	
	Blend Water	$200,000	
	Do Nothing	$0	
Distribution	New 12" Transmission Line	$650,000	
	Connect Deadend Lines	$70,000	
	Blending Transmission Line	$200,000	
	Do Nothing	$0	

- Costs Include:
  - Construction
  - Engineering
  - Land
  - Funding Administration
  - Legal/Audit/Interest
- 1-2 Year Cost Estimate

KELLER associates

Funding Alternatives

11

Loans

- DEQ – 30 year loan @ 4-5% interest
- USDA-RD – 30 year loan @ 3-4% interest

Grants

- DEQ Principle Subsidy - Depends on MHI Eligibility
- USDA-RD – Depends on MHI Eligibility
- IDOC-CDBG – Depends on LMI Eligibility

KELLER associates

Questions

12

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Bennington Water System, Inc.

Water Facilities Planning Study
Annual Meeting
April 4, 2012

Name (Please Print)	Address	Phone	Email Address
1. Lyle Lewis	113 E. Center	390-4519	
2. David & Ann Kitchen	13 N. 100 W.	801-299-9687	ann@trucktrim.com
3. Evan Alleman	91 N. 1st W.	801-393-9426	
4. Stephan Crane	66 N. 2nd East	208-847-0439	scrane@digis.net
5. Bruce Brown	2 N. 2nd East	208-847-3534	brucebrown@dcdi.net
6. Stuart Crane	87 S. 1st E.	208-847-0299	sdcrane@dcdi.net
7. Wynn Olsen	98 E. 1st N.	208-847-2098	
8. Mike Pierce	077 N. Main	208-847-0036	pierce@dcdi.net
9. Jocelyn Nield	419 Main	208-847-2019	jinield@dcdi.net
10. Kevin Neild	419 Main	208-847-2019	
11. Brent Hunter	426 N 2 E.	208-847-0809	Bchunter49@yahoo.com
12. Jory Hunter	274 N. 2 E.	801-361-5963	joryhunter@gmail.com
13. Shaun D. Tobler	277 N. 2 E.	208-479-6693	Shaun.tobler@blmhospital.com
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15. William Hunter	130 N. 1st E.	208-847-0738	mhunter@dcdi.net
16. Tamara Tarbet	423 N. 2nd E.	208-847-3265	arron@dcdi.net
17. Scott Crane	026 E. 300 N.	208-847-1743	thecsranch@aol.com
18. Lisa Olsen	98 E. 1st N.	208-847-2098	Leola562001@yahoo.com
19. Ann Hunter	347 N. 2nd E.	208-847-1753	mkhunter@dcdi.net

KELLER associates

Bennington Water System, Inc.

Water Facilities Planning Study
Annual Meeting
April 4, 2012

20. Morton Hunter	347 N. 2nd E.	208-847-1753	mkhunter@dcdi.net
21. Linda Crane	026 E. 300 N.	208-847-1743	thecsranch@yahoo.com
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KELLER associates

Scott

Attention Bennington Culinary Water Customers:

ANNUAL CULINARY WATER MEETING WILL BE HELD: WEDNESDAY, APRIL 4th, 2012,
@ APPRPXOMATELY 7:45 P.M., directly after the Bennington Irrigation Co. water meeting.
The meeting will be held at the BENNINGTON WARD BUILDING.

Bennington Water Customers:

According to our Bennington Culinary Water by-laws, we are required to hold an annual meeting. The board has planned to hold this meeting on April 4, 2012, @ the Bennington Ward building. We encourage all shareholders to attend this meeting, so that you may all hear and receive the information on the future of our water system. Keller & Associates, will be there to tell us where we are in our water planning study, and what needs to be done to meet the future water needs of our community. Our WATER SOURCE PROTECTION PLAN, will also be discussed. We urge all of you to attend so that if you have any questions , they can be addressed at this time. This could be a lengthy meeting.

We appreciate all of you and the your continued support to the water board members. Thank you for your timely manner you have used in paying your assessment fees each month. Once again if you have any questions on your billing. Please feel free to call me, Linda Crane @ 847-1743, and I will be glad to help you out.

Thanks

BENNINGTON CULINARY BOARD

I do hereby give my consent to _____(proxy name) to vote in my absence on any items requiring a vote at the April 4, 2012, Bennington Culinary Water Shareholders Meeting.

_____

1

BENNINGTON WATER FACILITIES PLANNING STUDY

4/4/2012

Annual Meeting

Water System Issues

2

- Sources
  - Reapply for CRI well water rights
  - Disinfection for coliform
  - High Nitrate concentrations in wells (6-7 mg/L) MCL=10 mg/L
    - Blending – preferred method
  - Develop full time access agreement and access route to springs
  - Spring totalizing flow meter suspected to be inaccurate due to backfeed from reservoir
  - Address Sanitary Survey issues
  - Develop consistent production log records
  - Backup Power
- Storage
  - Insufficient storage to meet IDEQ Requirements
  - Develop full time access agreement and access route
  - Reservoir water can backfeed into spring line
- Treatment System
  - High Nitrate concentrations in wells (6-7 mg/L) MCL=10 mg/L
    - Blending – preferred method
  - Occasional Coliform Contamination – likely from system contamination
- Distribution Piping
  - Poor circulation due to dead-end lines (2 locations)
  - Transmission line – meets IDEQ requirements with all sources running for less than 1 hour

KELLER associates

Source Solution Alternatives

3

- Resolve CRI Well water rights
  - (0.4 cfs of the purchased 3.26 cfs were transferred)
- Add storage/Add water source capacity
  - Rehabilitate existing well(s)
  - Rehabilitate Springs
- Add back-up generators @ wells

KELLER associates

Storage Solution Alternatives

4

- Do Nothing – Storage does not meet IDEQ Requirements
- New 0.15 MG Tank

IDAPA (State of Idaho) requires Redundant Fire Flow Capacity – Emergency situation must meet MDD plus FFD with largest source out of service.

KELLER associates

Treatment System Solution Alternatives

5

1. Springs Re: Coliform
   - Install solar powered disinfection at source (install port now for future use, if needed)
   - Redevelop Spring #2
   - Do Nothing
2. Wells Re: Nitrate
   - Blend water from wells and springs (Well #1 and spring = 4.7 ppm) – Transmission Line from well to tank
3. Do Nothing

KELLER associates

Distribution System-Solution Path Alternatives

6

1. Improve water transfer (storage to town)
   - Run new 12" transmission line from reservoir through town along 1st North to establish system "backbone"
   - Bore under Highway
2. Transmission line from well #1 to reservoir
3. Do Nothing

KELLER associates

Cost Estimates

7

System Components	Solutions	Estimated Costs
Source	CRI Water Rights/Easements	$50,000
	Redevelop Spring	$345,000
	Additional Storage	$500,000
	Back-up Generators	$200,000
	Do Nothing	$0
Storage	New 0.15 MG Tank	$500,000
Treatment	Disinfection Port	$20,000
	Source Protection	$45,000
	Redevelop Spring	$345,000
	Blend Water	$300,000
	Do Nothing	$0
Distribution	New 12" Transmission Line	$525,000
	Blending Transmission Line	$200,000
	Do Nothing	$0

- Costs Include:
  - Construction
  - Engineering
  - Land
  - Funding Administration
  - Legal/Audit/Interest
- 1-2 Year Cost Estimate

KELLER associates

Available DEQ Funding

8

Total Project Budget	$750,000
IDEQ Principle Subsidy (Grant)	$226,537 (30.2%)
Loan Amount	$523,463
Interest Rate	1.25%
Loan Term	30 Years
Principle & Interest Payment	$21,031.98
Annual 10% Reserve	$2,103.20
Annual Operation & Maintenance Increase	$1,000
Estimated Monthly Fee Increase	$24.52
Estimated New Monthly Fee	$64.52

The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates can not and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the costs presented herein.

KELLER associates

Questions

9

Michael Jaglowski, PE, CPESC
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Hailey Barnes, EI
hbarnes@kellerassociates.com

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Bennington Water System, Inc.

Water Facilities Planning Study
Citizen's Advisory Committee Meeting
April 18, 2012

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2.Michael Jaglowski	305 N. 3rd Avenue, Suite A	238-2146	mjaglowski@kellerassociates.com
3Linda Crane	026 E. 300 N.	847-1743	thecsranch@yahoo.com
4.McKay Crane	274 E. Center	847-2069	jmckayc@hotmail.com
5.Wynn S. Olsen	98 E. 1st N.	847-2098	leo19562001@yahoo.com
6.Stuart Crane	87 S. 1st E.	847-0299	sdcrane@dcdi.net
7.Robert Holjeson	38 N. 2nd E.	709-2837	holjeson@dcdi.net
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KELLER associates

Bennington Water Facilities Planning Study

CAC Meeting

4/18/2012

1

KELLER associates

Water System Issues

- Sources
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2

KELLER associates

Source Solution Alternatives

- Resolve CRI Well water rights
  - (0.4 cfs of the purchased 3.26 cfs were transferred)
- Add storage/Add water source capacity
  - Rehabilitate existing well(s)
  - Rehabilitate Springs
- Add back-up generators @ wells

3

KELLER associates

Storage Solution Alternatives

- Do Nothing – Storage does not meet IDEQ Requirements
- New 0.15 MG Tank

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KELLER associates

Treatment System Solution Alternatives

1. Springs Re: Coliform
   - Install solar powered disinfection at source (install port now for future use, if needed)
   - Redevelop Spring #2
   - Do Nothing
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   - Blend water from wells and springs (Well #1 and spring = 4.7 ppm) – Transmission Line from well to tank
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5

KELLER associates

Distribution System-Solution Path Alternatives

1. Improve water transfer (storage to town)
   - Run new 12" transmission line from reservoir through town along 1st North to establish system "backbone"
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6

KELLER associates

Cost Estimates

System Components	Solutions	Estimated Costs
Source	CRI Water Rights/Easements	$50,000
	Redevelop Spring	$345,000
	Additional Storage	$500,000
	Back-up Generators	$200,000
	Do Nothing	$0
Storage	New 0.15 MG Tank	$500,000
Treatment	Disinfection Port	$20,000
	Source Protection	$45,000
	Redevelop Spring	$345,000
	Blend Water	$300,000
	Do Nothing	$0
Distribution	New 12" Transmission Line	$525,000
	Blending Transmission Line	$200,000
	Do Nothing	$0

- Costs Include:
  - Construction
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KELLER associates

Available DEQ Funding

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Estimated Monthly Fee Increase	$24.52
Estimated New Monthly Fee	$64.52

The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates can not and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the costs presented herein.

8

KELLER associates

Questions

Michael Jaglowski, PE, CPESC
mjaglowski@kellerassociates.com
Hailey Barnes, EI
hbarnes@kellerassociates.com

305 N. 3rd Ave. Suite A
Pocatello, ID 83201
208.238.2146

9

Bennington Culinary Water Shareholders Meeting Minutes
June 27, 2012
Bennington Ward Culture Hall

Meeting was called to order at 7:00 p.m., by president Wynn Olsen. Shareholders present and holding proxy's were as follows.

Linda Crane, present ---(proxy for Scott Crane and Jason Crane)
Mike Pierce, present--- 2 shares
Scoobie Williams, present---(proxy for Kennon Crane, Stephen Crane, and Shirley Dunn)
Mick Merritt, present---- (proxy, 4 for the LDS Church)
Tracy Walker, present
Sharon Proctor
Morton Hunter, present,--(proxy for Lane Mecham, home & rental) *--proxy's not handed over
William Hunter, present,---(proxy for Brent Hunter) *--proxy not handed over
Pam Higley, present
Randy Pitchford, present
Kalen Phelps, present
Ron Reed, present
Stuart Crane, present---(proxy for Kevin Nield, Travis Crane, Reha Westlake, Richard Crane, and 2 for McKay Crane)* McKay's proxy's were not handed over.
Dorthy Eck, present
Arlen Alleman, present
Bruce Brown, present
Leola Wagner, present—(proxy for Don Burdick and Melva Sparks, but declined to vote the proxys)
Wynn Olsen, present---(proxy for Shaun Tobler, Robert Holjeson, and Mike Robbins)

Total 41 shareholders present or by proxy

Wynn, reported that nine meters have been replaced this month. On June 11th, Well # 1, started pumping. Water use is up this year. One of the reasons we are having this meeting and going through this process is because of our water sources testing high for nitrates. Results of nitrates test taken 6-11-12, were as follows. Spring 1—0.36, CRI Well—6.39, Well # 1—6.70. We also have occasional hits of coliform in our system.

The water source protection plan has been approved by the state so we will be moving forward with this. We will need to meet with the County as well as the planning and zoning committee.

We have been approved for a loan of $500,463.00, at 1.25 % interest, and a grant of $226,537.00, through DEQ. The loan would be for 30 years. At this time this would be in addition to the USDA, loan we are currently paying on. Loan payment # 14, in the amount of $15,392.00, will be paid this fall, this is also a 30 year loan.

DEQ, suggestions are redevelop or rehabilitate Spring 2. It hasn't been used for years because of the coliform. As it is now it is nothing but a bog hole with a lot of surface water. Spring #1 is in better condition, with less surface water. Their suggestions are to redevelop these springs. But Spring #1, has tested positive for coliform. So both area would need disinfectionports. Other cities have discontinued using wells because of their high nitrate testings, such as ours, and have gone to just using springs.

As board we are going to move forward with the water rights and easements. We are going to get them in order and recorded.

Michael Jaglowski, of Keller Associates who was also present at this meeting, then took the time to review the Bennington Water Facilities Planning Study and their suggestions. Cost estimates were discussed.

Wynn, said the suggestions for this project are:

Redevelop Spring
Additional Storage
Disinfection Ports
Possible new transmission line

On page 7, of the hand out from Keller's, additional costs such as construction costs, surveying, engineering, funding legal costs would also need to be added.

DEQ, would like too see the wells just pump into the storage tank.

The floor was opened for discussion and questions. Mr. Jaglowski and Wynn answered questions and provided information to the shareholders present as to the project that is being put before them.

Wynn, said we have to send a letter of intent to DEQ., by June 30, that we would like to accept this loan and grant, or not. Just because we send this letter of intent does not mean we have to go ahead with any part or all of the proposed project. If we spend less money then what they have allowed us for the loan, the grant money will also go down accordingly. The monthly water rate would be approx.. $65.00/month. It was brought up as to the possibility of consolidating this project loan with the USDA. In other words if more money becomes advailable through DEQ, we might be eligible to aquire it and pay off or down the loan with USDA, so as not to have two loan payments. Discussion followed.

Randy Pitchford, made the motion to accept and sign the letter of intent for loan and grant and sent it to DEQ. Mike Pierce, second it. The vote was unanimous.

Meeting was adjourned at 8:40 p.m.

Copy of Hand Out from Kellers is in files, along with a hard copy of these minutes. Linda Crane.

Bennington Water Facilities Planning Study

Public Hearing

6/27/2012

1

KELLER associates

Water System Issues

- Sources
  - Reapply for CRI well water rights
  - Disinfection for coliform
  - High Nitrate concentrations in wells (6-7 mg/L) MCL=10 mg/L
    - Blending – preferred method
  - Develop full time access agreement and access route to springs
  - Spring totalizing flow meter suspected to be inaccurate due to backfeed from reservoir
  - Address Sanitary Survey issues
  - Develop consistent production log records
  - Backup Power
- Storage
  - Insufficient storage to meet IDEQ Requirements
  - Develop full time access agreement and access route
  - Reservoir water can backfeed into spring line
- Treatment System
  - High Nitrate concentrations in wells (6-7 mg/L) MCL=10 mg/L
    - Blending – preferred method
  - Occasional Coliform Contamination – likely from system contamination
- Distribution Piping
  - Poor circulation due to dead-end lines (2 locations)
  - Transmission line – meets IDEQ requirements with all sources running for less than 1 hour

2

KELLER associates

Source Solution Alternatives

- Resolve CRI Well water rights
  - (0.4 cfs of the purchased 3.26 cfs were transferred)
- Add storage/Add water source capacity
  - Rehabilitate existing well(s)
  - Rehabilitate Springs
- Add back-up generators @ wells

3

KELLER associates

Storage Solution Alternatives

- Do Nothing – Storage does not meet IDEQ Requirements
- New 0.15 MG Tank

IDAPA (State of Idaho) requires Redundant Fire Flow Capacity – Emergency situation must meet MDD plus FFD with largest source out of service.

4

KELLER associates

Treatment System Solution Alternatives

1. Springs Re: Coliform
   - Install solar powered disinfection at source (install port now for future use, if needed)
   - Redevelop Spring #2
   - Do Nothing
2. Wells Re: Nitrate
   - Blend water from wells and springs (Well #1 and spring = 4.7 ppm) – Transmission Line from well to tank
3. Do Nothing

5

KELLER associates

Distribution System-Solution Path Alternatives

1. Improve water transfer (storage to town)
   - Run new 12" transmission line from reservoir through town along 1st North to establish system "backbone"
   - Bore under Highway
2. Transmission line from well #1 to reservoir
3. Do Nothing

6

KELLER associates

Cost Estimates

System Components	Solutions	Estimated Costs
Source	CRI Water Rights/Easements	**($50,000) to $8,500**
	Redevelop Spring	**($345,000) to $400,000**
	Additional Storage	**($500,000) to $250,500**
	Back-up Generators	**($200,000) to $144,900**
	Do Nothing	**$0**
Storage	New 0.15 MG Tank	**($500,000) to $250,500**
Treatment	Disinfection Port	**($20,000) to $15,000**
	Source Protection	**$45,000**
	Redevelop Spring	**($345,000) to $400,000**
	Blend Water	**$300,000**
	Do Nothing	**$0**
Distribution	New 12" Transmission Line	**($525,000) to $405,000**
	Blending Transmission Line	**($300,000) to $85,000**
	Do Nothing	**$0**

Sub-Total Construction Costs =	$1,079,000
Construction Contingency (~10%) =	$110,000
Total Estimated Construction Cost =	**$1,189,000**
Surveying / Engineering / Approvals / Const Eng =	$175,000
Funding Administration =	$30,000
Legal, Financing, Application Fees =	$25,000
Total Estimated Project Cost =	**$1,419,000**

- **Priority Improvements from Last Meeting: (4/18/12)**
  - Easements
  - Spring Development
  - 150K Gallon Storage
  - Disinfection Ports
  - 12-Inch Transmission Line
- **12 Month Construction Costs Estimate**

7

KELLER associates

Available DEQ Funding

Total Project Budget	$750,000
IDEQ Principle Subsidy (Grant)	$226,537 (30.2%)
Loan Amount	$523,463
Interest Rate	1.25%
Loan Term	30 Years
Principle & Interest Payment	$21,031.98
Annual 10% Reserve	$2,103.20
Annual Operation & Maintenance Increase	$1,000
Estimated Monthly Fee Increase	$24.52
Estimated New Monthly Fee	$64.52

The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates can not and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the costs presented herein.

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KELLER associates

Questions

Michael Jaglowski, PE, CPESC
mjaglowski@kellerassociates.com

305 N. 3rd Ave. Suite A
Pocatello, ID 83201
208.238.2146

9

Mike.

Here is a copy of Shareholders And Proxy's present at our Shareholders Meeting - 4-3-13.

Letter of Notice for meeting.
Copy includes proxy form.

37. Shareholders there in person or by Proxy.

Vote - 33 yes 1 no

If you need anything else - Just call.

Thanks
Linda Crane
847-1743
Fax - 847-3759

Total 37- present or by Proxy

	NAME	PROXY
1	Mike Pierce	
2	Teresa Merritt	
	Mick Merritt	LDS Church
3	Keven Nield	
4	STEPHEN CRANE	
5	Bill Hunter	
6.7.	AARON TARBET	Monte Tarbet
8.9	BRENT HUNTER	Paul & Kristin Day
10	Jory Hunter	
11	Robert Holjeson	
12-13-14	Scott Crane (3)	DON Crane Jason Crane
15-16	Wynn Olson	Williams
17	[illegible]	
18	DAVID & ANN KITCHEN	
19-20-21	McKay Crane (2)	Wilma Crane
22-23-24-25	Stuart H. Crane 2	Travis Crane 2
26	Kalen Phelps	
27	Lyona Burdick	
28	Ann Hunter (1)	
29.30.31	Morton –	Janette Mecham 2
32	Dorothy Peck	
33.	Danielle Lux	
34-35 36-37	Church by Bishop mick merritt (4)	

4

Attention Bennington Water Shareholders
Annual Culinary Water Meeting To Be Held April 3, 2013, @ 7:30 p.m.
Place: Bennington Ward Culture Hall

Shareholders:

This is a very important meeting for shareholders to attend as the Board Members, will explain the direction that our water company will need to take to insure the quality of our drinking water in the future. As shareholders, you have all received the notices of our coliform issues. Even though, they are at acceptable levels at this time, higher coliform levels will most likely reoccur, and we will have to deal with them again. The same goes for our high nitrates in our wells. These are just a few of our issues that we as a water company need to find solutions for to be able to insure the quality of our water.

Thank you for you continued support of your Bennington Water Board Members. And we appreciate the timely manner you have used in paying your assessment fees. As a reminder, each month as you are paying your water, remember you are paying for water used the previous month.

We hope all who can, will attend. If you are unable to attend, below is a proxy vote. Please fill it out and have a person whom you have chosen to represent you, bring it to the meeting with them, or get it to one of the Board of Directors, before the night of the meeting.

Thank You

Bennington Water Board Members

I do here by give my consent to _____to vote my # ___shares, in my absence on any items requiring a vote at the April 3, 2013, Bennington Water Shareholders Annual Meeting.

_____Your Signature

Appendix B: Well Logs

Form 258-7
9/82

RECEIVED
AUG 13 1990
Department of Water Resources
Eastern District Office

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

USE TYPEWRITER OR PRINT CLEARLY

RECEIVED
AUG 24 1990
Department of Water Resources

1. WELL OWNER

Name: Town of Bennington, Idaho
26 E. 2 N.
Address: Montpelier, Idaho 83254
11-90-E-009
Owner's Permit No. 11-07577

2. NATURE OF WORK

[X] New well [ ] Deepened [ ] Replacement
[ ] Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)

3. PROPOSED USE

[ ] Domestic [ ] Irrigation [X] Test [X] Municipal
[ ] Industrial [ ] Stock [ ] Waste Disposal or Injection
[ ] Other _____ (specify type)

4. METHOD DRILLED

[X] Rotary [ ] Air [ ] Hydraulic [ ] Reverse rotary
[ ] Cable [ ] Dug [ ] Other _____

5. WELL CONSTRUCTION

Casing schedule: [X] Steel [ ] Concrete [ ] Other _____

Thickness	Diameter	From	To
¼ inches	8 ID inches +	1½ feet	180 feet
inches	inches	feet	feet
inches	inches	feet	feet
inches	inches	feet	feet

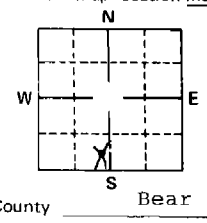
Was casing drive shoe used? [X] Yes [ ] No
Was a packer or seal used? [ ] Yes [X] No
Perforated? [X] Yes [ ] No
How perforated? [ ] Factory [X] Knife [ ] Torch
Size of perforation 1/8 inches by 1¼ inches

Number		From		To	
210	perforations	105	feet	112	feet
600	perforations	130	feet	150	feet
	perforations		feet		feet

Well screen installed? [ ] Yes [X] No
Manufacturer's name _____
Type _____ Model No. _____
Diameter ___ Slot size ___ Set from ___ feet to ___ feet
Diameter ___ Slot size ___ Set from ___ feet to ___ feet
Gravel packed? [ ] Yes [X] No [ ] Size of gravel _____
Placed from _____ feet to _____ feet
Surface seal depth 80 Material used in seal: [X] Cement grout [ ] Bentonite [ ] Puddling clay [ ] _____
Sealing procedure used: [ ] Slurry pit [X] Temp. surface casing [ ] Overbore to seal depth
Method of joining casing: [ ] Threaded [X] Welded [ ] Solvent Weld [ ] Cemented between strata
Describe access port: Well cap

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name _____
Lot No. _____ Block No. _____
County Bear Lake
SE ¼ SW ¼ Sec. 9, T. 12 [X]S, R. 44 E/[ ].

APPROVED
APR 02 1992

7. WATER LEVEL

Static water level 61 feet below land surface.
Flowing? [ ] Yes [ ] No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: [ ] Valve [ ] Cap [ ] Plug
Temperature ___ °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA

[ ] Pump [ ] Bailer [X] Air [ ] Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
85	120	6

9. LITHOLOGIC LOG 023385

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
12	0	4	soil clay		
10	4	75	cobbles gravel clay		
	75	83	gravel	X	
8	83	98	cobbles clay		X
	98	100	clay		
	100	105	cobbles clay		
	105	112	cobbles gravel clay	X	
	112	132	clay cobbles		X
	132	140	gravel	X	
	140	143	gravel clay		
	143	149	gravel	X	
	149	162	clay Brown & White		
	162	165	clay & gravel		
	165	180	clay greenish		

10.
Work started 7/11/90 finished 7/19/90

11. DRILLERS CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Westlake Drilling Firm No. 114
184 N. 7st
Address Montpelier, Ida. Date 7/27/90
Signed by (Firm Official) E Ray Westlake
and
(Operator) E Ray Westlake

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

Well #1

Form No. 217
7/94

FOR OFFICE USE ONLY
Amt. of Fee $: 100.00
Receipt No. 103850
Receipt By: [illegible]
Date Receipted: 5/22/97

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

RECEIVED
MAY 22 1997
Department of Water Resources

PROOF OF BENEFICIAL USE

The Idaho Department of Water Resources considers this form a statement that the permit holder(s) has/have completed all development that will occur under this permit and that water has been applied according to the provisions of the permit for the beneficial use(s) described below. This form must be accompanied by a license examination fee, when necessary, or be accompanied by a completed field examination report prepared by a certified water right examiner who has been appointed by the department.

1. Permit No. 11-07377 Telephone No. (208)847-2843

2. Name(s) of Permit Holder(s): Bennington Water Systems, Inc.

3. Mailing Address: 38 North Second East Montpelier ID. 83254

4. Source of Water: Well If GROUNDWATER (well), Date Drilled: mo. Sept. / yr. 1990

a. Well Driller: Westlake Drilling Drilling Permit Number: 11 - 90 - E - 009

b. *OPTIONAL:*
Pump Horsepower: 15hp Pressure (psi): 80 Dynamic pumping level (ft): 120

5. Use(s) (as authorized by the water right permit):

Domestic (No. of households): 70 Stockwater (No. and type of stock): _____

Irrigation (No. of acres): _____ Other: _____

6. Total rate of diversion and/or volume for which proof is submitted: 0.40 cfs OR _____ acre feet

7. Measuring Device Requirement: **(refer to the approval conditions on your permit and respond accordingly)**
(This question is not optional. Please check either yes or no. Proofs returned not checked accordingly, will be considered incomplete)

Measuring Device: Is a measuring device required? Yes ____ or No ____
Has the measuring device been installed? Yes ____ or No ____
Flow Measurement Port: Is a flow measurement port required? Yes ____ or No ____
Has the measurement port been installed? Yes ____ or No ____

8. Fee Enclosed: $ 100.00 (See Fee Schedule on back of the instructions for filing proof of beneficial use)

9. Person to contact to accompany the Department representative during field examination of the water system.

Name: Robert Holjeson Telephone Number: (208) 847-2843

Address: 38 North Second East Montpelier ID. 83254

10. The information given on this form is my true statement of the extent to which the above numbered permit has been developed and I relinquish any undeveloped portion of the permit to the State of Idaho.

Signature of permit holder: Wayne Stoll, Bennington Engineer Date: May 13, 1997
(include your title, if on behalf of company or organization)

MICROFILMED
AUG 12 1997

State of Idaho
Department of Water Resources

Permit To Appropriate Water

NO. 11-07377

Proposed Priority: June 27, 1989 Maximum Diversion Rate: 0.40 CFS

This is to certify, that BENNINGTON WATER SYSTEM INC.
26 E. 2ND N.
MONTPELIER, ID 83254
has applied for a permit to appropriate water from: GROUNDWATER
and a permit is APPROVED for development of water as follows:

BENEFICIAL USE	PERIOD OF USE	RATE OF DIVERSION
DOMESTIC	01/01 to 12/31	0.40 CFS

LOCATION OF POINT(S) OF DIVERSION: SENESW Sec. 9, Township 12S, Range 44E
BEAR LAKE County

PLACE OF USE: DOMESTIC

TWN	RGE	SEC			
12S	44E	9	SENW SWSW	NESW SESW	NWSW

CONDITIONS/REMARKS:

1. Proof of construction of works and application of water to beneficial use shall be submitted on or before November 1, 1990.
2. Subject to all prior water rights.
3. The issuance of this permit in no way grants any right-of-way or easement across the land of another.
4. Permit holder shall comply with the drilling permit requirements of Section 42-235, Idaho Code.
5. The maximum rate of diversion for domestic purposes under this permit shall not exceed 0.40 cfs.
6. Domestic use is for 70 homes.

This permit is issued pursuant to the provisions of Section 42-204, Idaho Code. Witness the seal and signature of the Director, affixed at Boise, this 5th day of October, 1989

for R. Keith Higginson, Director

Form 202
6/85

Ident. No. 11 7377

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

APPLICATION FOR PERMIT

To appropriate the public waters of the State of Idaho

1. Name of applicant Bennington Water ~~Users Association~~ System Inc. Phone 847-0341

   Post office address 26 E. 2nd N., Bennington, Montpelier, Idaho 83254

2. Source of water supply Well which is a tributary of N/A

3. Location of point of diversion is SE ¼ of NE ¼ of SW ¼, Govt. Lot

   Sec. 9 Township 12 S. Range 44 E. B.M. Bear Lake County; additional points of diversion if any:

4. Water will be used for the following purposes:

   Amount ~~2cfs~~ 0.40 (cfs ~~or acre-feet per annum~~) for ~~Culinary~~ Domestic purposes from Jan 1 to ~~Jan 1~~ Dec 31* (both dates inclusive)

   Amount _____ (cfs or acre-feet per annum) for _____ purposes from _____ to _____ (both dates inclusive)

   Amount _____ (cfs or acre-feet per annum) for _____ purposes from _____ to _____ (both dates inclusive)

   Amount _____ (cfs or acre-feet per annum) for _____ purposes from _____ to _____ (both dates inclusive)

5. Total quantity to be appropriated is (a) ~~2cfs~~ .40 (cubic feet per second) and/or (b) _____ (acre feet per annum)

6. Proposed diverting works:

   a. Description of ditches, flumes, pumps, headgates, etc. 12" DIA well with Submersible Pump - Pump directly into Distribution System

   b. Height of storage dam _____ feet; active reservoir capacity _____ acre-feet; total reservoir capacity _____ acre-feet; period of year when water will be diverted to storage: _____ to _____ inclusive.

   c. Proposed well diameter is 12" inches; proposed depth of well is 200 feet.

   d. Is ground water with a temperature of greater than 90°F being sought? no

7. Time required for the completion of the works and application of the water to the proposed beneficial use is 1 year years (*minimum 1 year*).

*tw 9/26/89

8. Description of proposed uses (*if irrigation only, go to item 9*):

a. Hydropower; show total feet of head and proposed capacity in KW. _____

b. Stockwatering; list number and kind of livestock. _____

c. Municipal; show name of municipality. _____

d. Domestic; show number of households. Bennington Water Users Association 70 Connections

e. Other; describe fully. _____

9. Description of place of use:

a. If water is for irrigation, indicate acreage in each subdivision in the tabulation below.

b. If water is used for other purposes, place a symbol of the use (*example: D for Domestic*) in the corresponding place of use below. See instructions for standard symbols.

TWP	RANGE	SEC.	NE¼				NW¼				SW¼				SE¼				TOTALS
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
12 S.	44 E.	9								~~20~~	~~40~~	~~40~~	~~40~~	~~40~~					~~180~~
										D	D	D	D	D					

Total number of acres to be irrigated _____

10. Describe any other water rights used for the same purposes as described above. Spring Supply

11. a. Who owns the property at the point of diversion? Will be owned by Bennington Water ~~Users Assoc.~~ System Inc

b. Who owns the land to be irrigated or place of use? _____

c. If the property is owned by a person other than the applicant, describe the arrangement enabling the applicant to make this filing. In the process of purchasing the property.

12. Remarks: _____

Form 2ad-7
9/82

RECEIVED
AUG 13 1990
Eastern Region Office

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

USE TYPEWRITER OR BALL POINT PEN.

RECEIVED
AUG 24 1990
Department of Water Resources

11-07377

1. WELL OWNER

Name: Town of Bennington, Idaho
26 E. 2 N.
Address: Montpelier, Idaho 83254
11-90-E-009
Owner's Permit No. ~~11-07577~~ 11-07377

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)

3. PROPOSED USE

☐ Domestic ☐ Irrigation ☒ Test ☒ Municipal
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

☒ Rotary ☐ Air ☐ Hydraulic ☐ Reverse rotary
☐ Cable ☐ Dug ☐ Other _____

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
¼ inches	8 ID inches +	1½ feet	180 feet
	inches	feet	feet
	inches	feet	feet
	inches	feet	feet

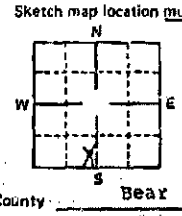
Was casing drive shoe used? ☒ Yes ☐ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☒ Yes ☐ No
How perforated? ☐ Factory ☒ Knife ☐ Torch
Size of perforation 1/8 inches by 1½ inches

Number	From	To
210 perforations	105 feet	112 feet
600 perforations	130 feet	150 feet
perforations	feet	feet

Well screen installed? ☐ Yes ☒ No
Manufacturer's name _____
Type _____ Model No. _____
Diameter ___ Slot size ___ Set from ___ feet to ___ feet
Diameter ___ Slot size ___ Set from ___ feet to ___ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet
Surface seal depth 80 Material used to seal: ☒ Cement grout ☐ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit ☒ Temp. surface casing ☐ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld ☐ Cemented between strata
Describe access port: Well cap

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name _____
Lot No. _____ Block No. _____
County: Bear Lake
SE ¼ SW ¼ Sec. 9 T. 12 N/S, R. 44 E/W.

7. WATER LEVEL

Static water level 61 feet below land surface.
Flowing? ☐ Yes ☐ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature ___ °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA

☐ Pump ☐ Bailer ☒ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
85	120	6

9. LITHOLOGIC LOG

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
12	0	4	soil clay		
10	4	75	cobbles gravel clay		
	75	83	gravel	X	
8	83	98	cobbles clay		X
	98	100	clay		
	100	105	cobbles clay		
	105	112	cobbles gravel clay	X	
	112	132	clay cobbles		X
	132	140	gravel	X	
	140	143	gravel clay		
	143	149	gravel	X	
	149	162	clay Brown & White		
	162	165	clay & gravel		
	165	180	clay greenish		

10.

Work started 7/11/90 finished 7/19/90

11. DRILLERS CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Westlake Drilling Firm No. 114
184 N. 7st
Address Montpelier, Ida. Date 7/27/90
Signed by (Firm Official) E Ray Westlake
and
(Operator) E Ray Westlake

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

Well #1 1.2 acre-ft purchase

Form 219
6/92

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AUG 25 1997
Department of Water Resources

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No. 11-07377

1. Owner: BENNINGTON WATER SYSTEM INC. Phone No. (208) 847-2843

Current Address: 38 N 2ND E BENNINGTON, MONTPELIER ID 83254

2. Accompanied by: ROBERT HOLTSON EXAM DATE: 7-30-97

Address: SAME Phone No. SAME

Relationship to Permit Holder: PRESIDENT

3. Source: GROUNDWATER tributary to

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 11-04226, 11-07317

2. Other water rights with the same point of diversion: —

C. DIVERSION AND DELIVERY SYSTEM

1. **Point(s) of Diversion:**

Ident No.	Gov't Lot	¼	¼	¼	Sec.	Twp.	Rge.	County	Method of Determination/Remarks
			SE	SW	9	12S	44E	BEAR LAKE	USGS, GPS, ONSITE

2. **Place(s) of Use:** Indicate Method of Determination USGS, TRACT INFO

TWP	RGE	SEC	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
12S	44E	9			2/D*				6/D*	12/D*	11/D*	14/D*	5/D*	14/D*		6/D*			70/D*
* NUMBER IN TRACT COLUMNS INDICATES * DOMESTIC HOOKUPS																			

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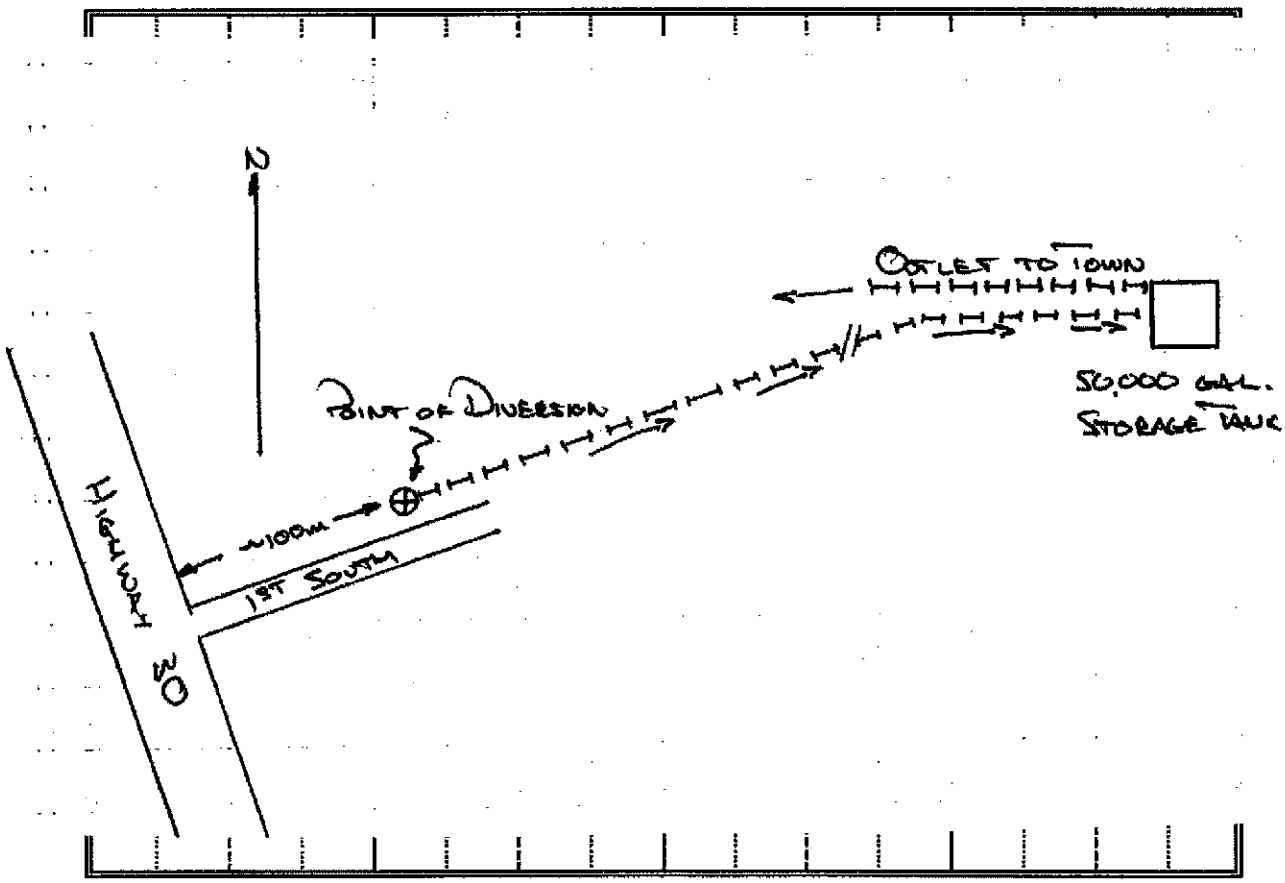
3. **Delivery System Diagram**: Indicate all major components and distances between components. Indicate weir size/ditch size/pipe i.d. as applicable.



Scale: 1" = _____.

____ Copy of USGS Quadrange Attached Showing location(s) of point(s) of diversion and place(s) of use (required).

____ Aerial Photo Attached (required for irrigation of 10+ acres)

____ Photo of Diversion and System Attached

4.

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
	FRANKLIN	15	236 6136 020		

**Code to correspond with No. on map and aerial photo*

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
———						

2. **Measurements:** NO MEASUREMENT POSSIBLE. OPERATING PSI ~ 70-75 PSI AS PER DISCUSSIONS WITH MITCH GREER

OCT 20 1997

E. NARRATIVE/REMARKS/COMMENTS

WELL WITH SUB. PUMP TO MAINLINE TO 50,000 GAL TANK FOR DISTRIBUTION TO 70 SMALL DOMESTIC HOMES WITHIN BOUNDARY OF TOWNSITE OF BENNINGTON. STORAGE TANK IS ALSO SUPPLIED BY SPRING SOURCE AS PER LICENSE 11-07317.

ACCOMPANIED BY ROBERT HOLJESON, PRESIDENT OF COMPANY AND MITCH GREER, SHEPARD ENGINEERING

GPS TAG NO. A0000205

FROM WELL LOG, STATIC WATER = 61'

*AMEND POINT OF DIVERSION AND PLACE OF USE AS NOTED.

*PLEASE NOTE THAT DUE TO INTERMITTENT FLOW FROM WELL AND INACCESSABILITY OF PIPELINES, NO FLOW MEASUREMENT WAS POSSIBLE.

Have conditions of permit approval been met? ___ yes ___ no

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F. FLOW CALCULATIONS _____ Additional Computation Sheets Attached

Measured Method: As FLOW MEASUREMENT NOT POSSIBLE,

$$Q_{THEOR} = \frac{15\ HP\ (8.814)\ .7\ EFF}{61'\ LIFT + (70\ PSI * 2.308)} = 0.42\ CFS$$

CFS LIMITED BY PERMIT TO 0.40 CFS

ASSUME: 70% EFF, 70-75 PSI, STATIC H_2O @ 61', HP = 15

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$V_{I.R}$ = (Acres Irrigated) x (Irrigation Requirement) = _____

$V_{D.R.}$ = [Diversion Rate (cfs)] x (Days in Irrigation Season) x 1.9835 = _____

V = Smaller of $V_{I.R}$ and $V_{D.R.}$ = _____

2. Volume Calculations for Other Uses:

IDWR STD FOR SINGLE FAMILY DOMESTIC USE W/ LAWN EQUALS 1.20 AFA

70 HOMES * 1.20 AFA = 84.0 AFA

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use From	Period of Use To	Rate of Diversion Q (cfs)	Annual Volume V (afa)
DOMESTIC	1-1	12-31	0.40	84.0
		Totals:	0.40	84.0

2. Recommended Amendments

X Change P.D. as reflected above ___ Add P.D. as reflected above ___ None

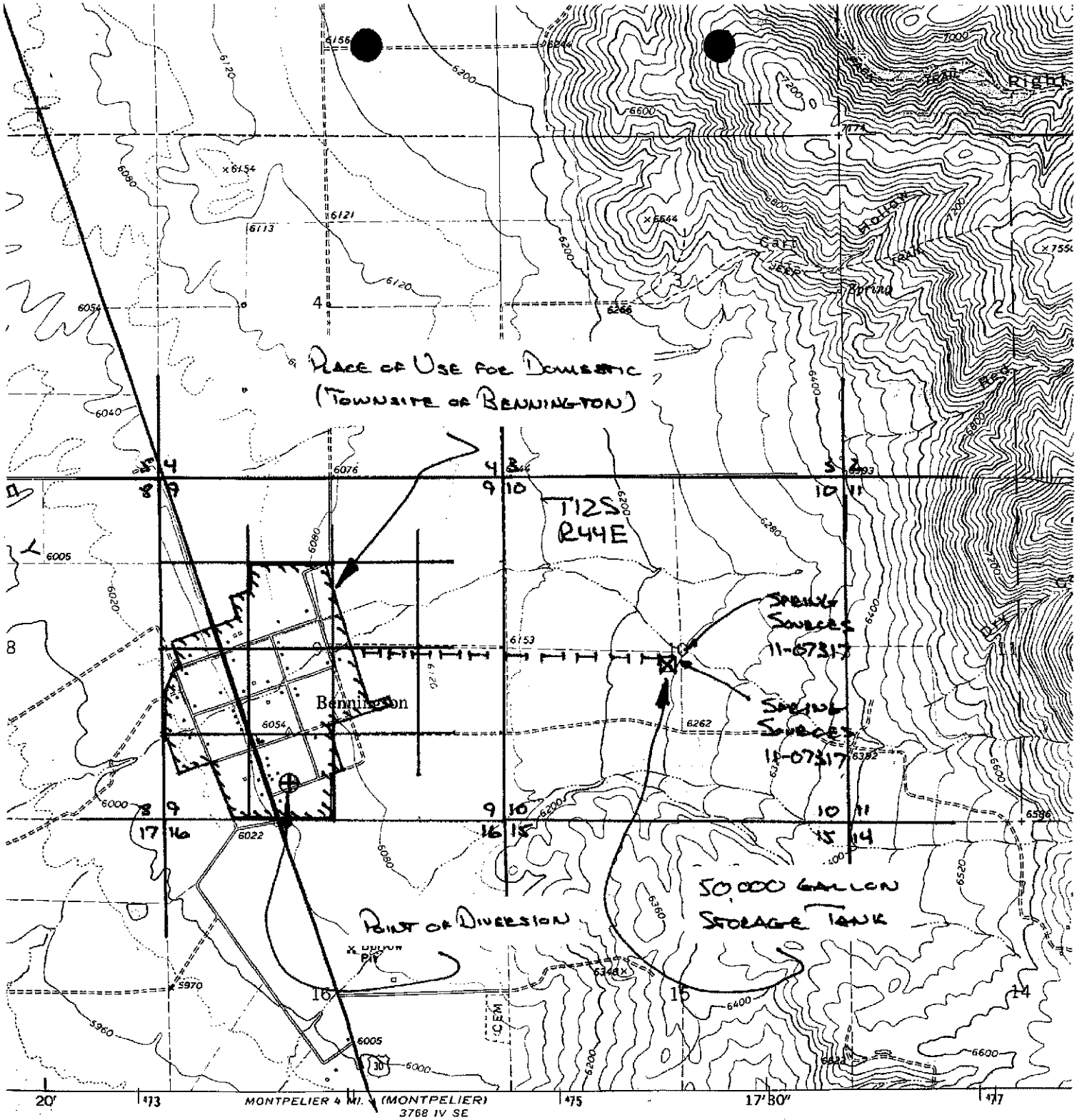
___ Change P.U. as reflected above X Add P.U. as reflected above ___ Other

I. AUTHENTICATION

Field Examiner's Name [signature] Date 8-13-97

Reviewer _____ Date _____ SEAL

OCT 28 1997



11-07877

AGT 2 0 1997

CONTOUR INTERVAL 40 FEET
DOTTED LINES REPRESENT 20-FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

QUADRANGLE LOCATION

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

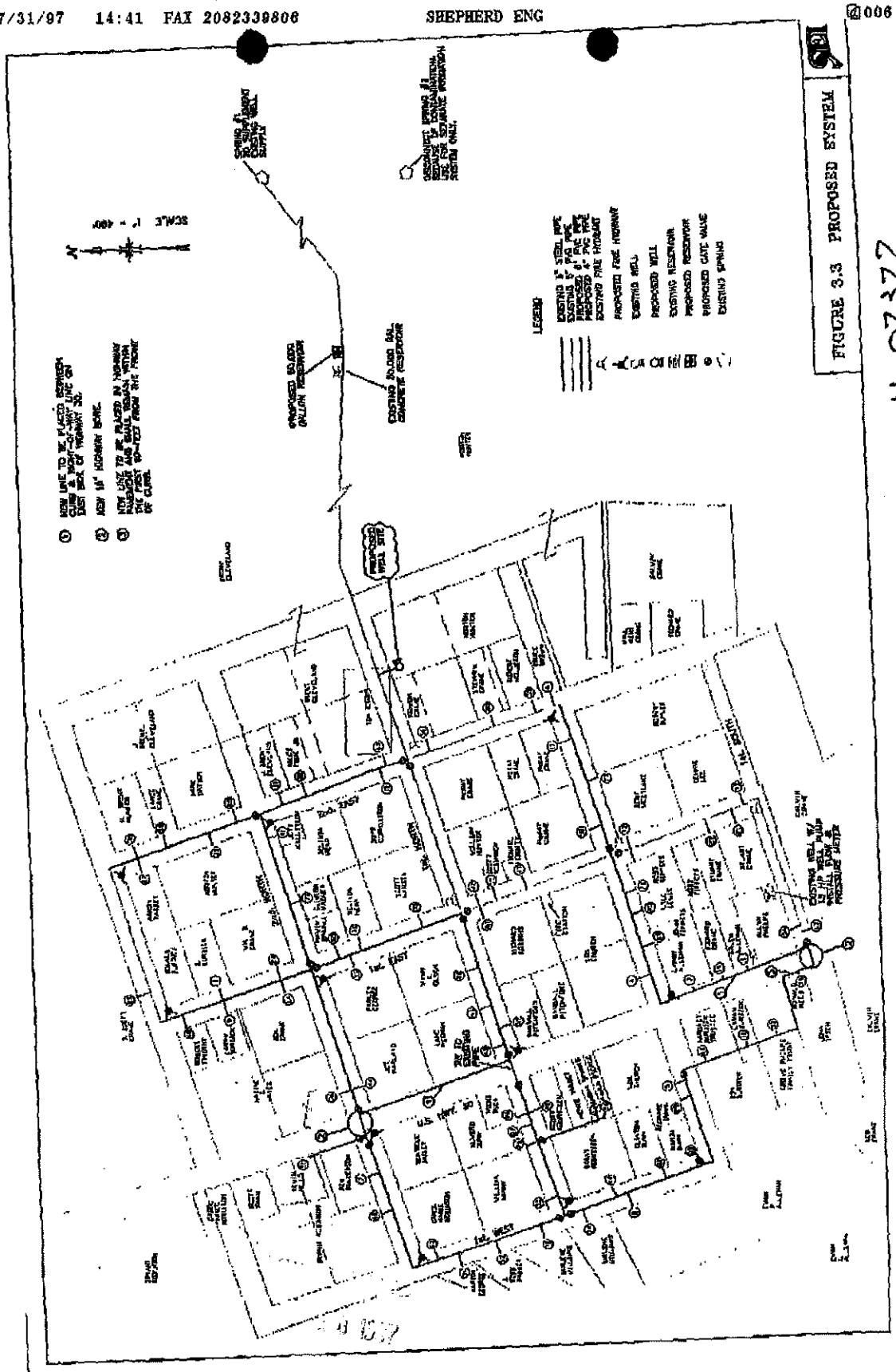


FIGURE 3.3 PROPOSED SYSTEM
LEGEND
EXISTING 6" STEEL PIPE
EXISTING 6" PVC PIPE
PROPOSED 6" PVC PIPE
PROPOSED 8" PVC PIPE
EXISTING FIRE HYDRANT
PROPOSED FIRE HYDRANT
EXISTING WELL
PROPOSED WELL
EXISTING RESERVOIR
PROPOSED RESERVOIR
PROPOSED GATE VALVE
EXISTING SPRING
SCALE 1" = 400'
EXISTING 20,000 GAL CONCRETE RESERVOIR
PROPOSED 20,000 GAL (NEW) RESERVOIR
PROPOSED WELL SITE
EXISTING WELL TO BE TIED INTO WELL PUMP & PRESSURE METER
NEW LINE TO BE PLACED BEHIND CURB & WORK TO THAT LINE ON EAST SIDE OF HIGHWAY 30.
NEW 16" HIGHWAY BORE.
NEW LINE TO BE PLACED IN HIGHWAY ROADWAY AND SHALL REMAIN WITHIN THE FIRST 60-FEET FROM THE FRONT OF CURB.
EAST CLEVELAND
WEST CLEVELAND
ALBION
ZEBULON
ALBION ROAD
EAST
WEST
MAIN
ELM
PINE
OAK
CHERRY
BLACK
WHITE
GREEN
BLUE
YELLOW
ORANGE
PURPLE
SILVER
GOLD
BRONZE
COPPER
IRON
STEEL
ALUMINUM
TIN
LEAD
ZINC
NICKEL
COBALT
MANGANESE
CHROMIUM
TITANIUM
VANADIUM
TUNGSTEN
MOLYBDENUM
PLATINUM
PALLADIUM
RHODIUM
IRIDIUM
OSMIUM
RUTHENIUM
RHENIUM
HAFNIUM
TANTALUM
NIOBIUM
ZIRCONIUM
YTTRIUM
LANTHANUM
CERIUM
PRASEODYMIUM
NEODYMIUM
PROMETHIUM
SAMARIUM
EUROPIUM
GADOLINIUM
TERBIUM
DYSPROSIUM
HOLMIUM
ERBIUM
THULIUM
YTTERBIUM
LUTETIUM
ACTINIUM
THORIUM
PROTACTINIUM
URANIUM
NEPTUNIUM
PLUTONIUM
AMERICIUM
CURIUM
BERKELIUM
CALIFORNIUM
EINSTEINIUM
FERMIUM
MENDELEVIUM
NOBELIUM
LAWRENCIUM
RUTHERFORDIUM
DUBNIUM
SEABORGIUM
BOHRIUM
HASSIUM
MEITNERIUM
DARMSTADTIUM
ROENTGENIUM
COPERNICIUM
NIHONIUM
FLEROVIUM
MOSCOVIUM
LIVERMORIUM
TENNESSINE
OGANESSON

11-07377

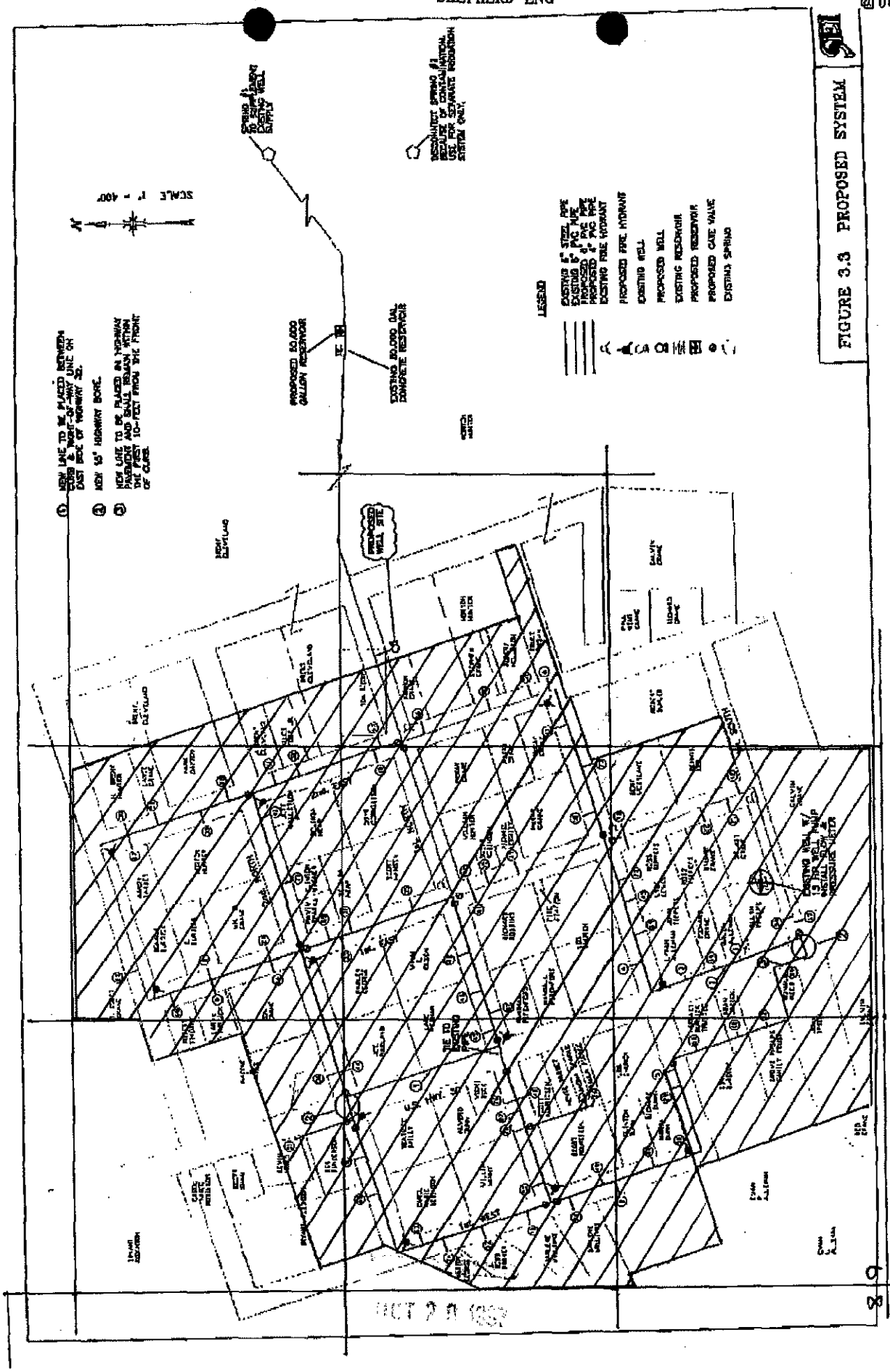


FIGURE 3.3 PROPOSED SYSTEM

11-07377

8 9
17 16

Plate 1. - Point of diversion.

Plate 2. - 50,000 gallon storage tank
for Townsite of Bennington.

OCT 2 0 07

11-07377

State of Idaho
DEPARTMENT OF WATER RESOURCES
1301 North Orchard Street, P.O. BOX 83720, Boise, Idaho 83720-0098
Phone: (208) 327-7900 FAX: (208) 327-7866

PHILIP E. BATT
GOVERNOR

KARL J. DREHER
DIRECTOR

July 7, 1997

BENNINGTON WATER SYSTEM INC
38 N 2ND E
MONTPELIER ID 83254

PROOF ACKNOWLEDGMENT LETTER

RE: PERMIT NO. 11-07377

Dear Permit Holder:

The department acknowledges receipt of the proof of beneficial use form submitted for the above referenced permit.

Enclosed is an order reinstating your permit since proof was submitted after the proof due date of November 1, 1990. Please note that the priority date has been advanced to May 22, 1997.

Section 42-248, Idaho Code, which became affective on July 1, 1996, requires you or the owner of this water right 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. Failure to maintain current records with the department could result in the assessment of a monetary penalty.

The next step in the process of developing a water right is for the department to conduct a field examination to determine and confirm the use being made of the water. If you have questions concerning the field examination, contact the **EASTERN** Regional Office in Idaho Falls at (208)525-7161.

Sincerely,

JULIE L. YARBROUGH
Senior Secretary

Enclosure

C: IDWR - Region

MICROFILMED
AUG 12 1997

Appendix C: Hydraulic Analysis

BEAR LAKE COUNTY FIRE DISTRICT
P.O. Box 367
Montpelier, Idaho 83254

DEC 03 2012

November 30, 2012

To Whom It May Concern:

The current required fire flow for the city of Bennington Culinary water system is 1,000 gallons per minute.

Donald Burdick, Fire Chief

Bennington Water Model Fire Flow Results (FFD + MDD)

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Junction w/ Minimum Pressure (Zone)	Junction w/ Minimum Pressure (System)	Velocity (Upper Limit) (ft/s)	Velocity of Maximum Pipe (ft/s)
J-13	TRUE	1,000.00	1,205.20	20	31.6	J-22	J-45	10	9.44
J-15	TRUE	1,000.00	1,246.26	20	28.1	J-22	J-45	10	9.83
J-16	TRUE	1,000.00	1,261.93	20	28.7	J-22	J-45	10	9.98
J-17	TRUE	1,000.00	1,176.63	20	25.2	J-22	J-45	10	10
J-18	TRUE	1,000.00	1,058.24	20	46.2	J-58	J-45	10	10
J-19	TRUE	1,000.00	1,273.24	20	26.3	J-20	J-45	10	10
J-20	TRUE	1,000.00	1,246.34	20	20	J-19	J-45	10	9.67
J-21	TRUE	1,000.00	1,161.07	20	42.6	J-20	J-45	10	10
J-23	TRUE	1,000.00	1,130.85	20	29.1	J-22	J-45	10	8.74
J-24	TRUE	1,000.00	1,265.80	20	34.7	J-22	J-45	10	10
J-25	TRUE	1,000.00	1,275.19	20	34.8	J-22	J-45	10	10
J-26	TRUE	1,000.00	1,266.74	20	28.9	J-22	J-45	10	10
J-29	TRUE	1,000.00	1,266.57	20	30.5	J-22	J-45	10	10
J-30	TRUE	1,000.00	1,268.28	20	38.7	J-22	J-45	10	10
J-31	TRUE	1,000.00	1,269.61	20	31.2	J-22	J-45	10	10
J-32	TRUE	1,000.00	1,270.52	20	27.1	J-39	J-45	10	10
J-22	FALSE	1,000.00	870.32	20	23.4	J-23	J-45	10	10
J-38	FALSE	1,000.00	878.2	20	37	J-22	J-45	10	10
J-12	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-14	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-27	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-28	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-33	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-34	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-35	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-36	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-37	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)

J-39	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-40	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-41	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-42	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-43	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-44	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-45	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-46	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-48	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-49	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-57	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-58	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-59	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-60	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)
J-61	(N/A)	1,000.00	(N/A)	20	(N/A)	(N/A)	(N/A)	10	(N/A)

Appendix D: Budget & User Charge Ordinance

K 3

Bennington Water System

Rate Chart

1st 30,000 gals.----------$40.00 /month

Each additional 1000 gals.----------$1.00

New Hook Up Fee----------$2500.00

Reconnect Fee----------$250.00

BENNINGTON WATER SYSTEM, INC.
ANNUAL REPORT – Actual Fiscal Jan. 1, 2010 – Dec. 31- 2010

Operating income:

	Deposit Assessments	38,416.13
	Interest on Checking	30.36
	Re-deposit	81.00
	Reimbursed Expense	339.56
	Beginning Bank Balance	9,278.52
	Total	**$48,145.57**
Int.on CD	To C.D. account in 2010	79.89
	Money Market C.D.IrelandBank	$16,879.16

Operating Expenses – from our checking account

Certified Operator	$1,000.00
Cell Phone	476.98
Coupon Booklets (10 Years)	1,380.00
Digline	73.00
Dues IRWA, DEQ	625.00
Insurance - State insurance	300.00
Liability	717.87
Fidelity	100.00
Maintenance	669.57
Office	112.34
Postage - Assessments	360.62
Postage - Sampling	275.67
President Duties	300.00
Radio License	45.00
Returned Check	81.00
Rocky Mountain Power	1,413.72
Taxes	51.56
Treasurer	600.00
Typing	50.00
USDA Loan #12	15,392.00
Water Sampl	1,619.00
Ending Balance	22,502.24
TOTAL	**$48,145.57**

BENNINGTON WATER SYSTEM, INC.

Proposed Budget for Fiscal January 1, 2011 – December 31, 2011

82 Shareholders X 40.00 =	3,280.00
X	12
	$39,360.00
Interest +	30.00
TOTAL	**$39,390.00**

Working budget not counting USDA loan $23,998.00

PROPOSED EXPENSES

Cert. Operator	1,000
Digline	75
Dues	625
Insurance	1,100
Maintenance & Upgrade	15,898
Office	300
Postage-sampling	300
Postage-other	100
Pres. Duties	300
Radio License	50
Rocky Mtn. Power	1,800
Taxes	50
Treasurer	600
USDA Loan #13	15,392
Water Sampling	1,800
Total	**$39,390.00**

Appendix E: Water Quality Test Results

LAB FEDERAL ID#: ID 00911	LAB SAMPLE # 1100801
DATE LAB REC'D SAMPLE: 3/15/2011	DATE REPORTED BY LAB: 3/22/2011
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: 3/14/2011	COLLECTION TIME: 12:15:00 PM
SAMPLE TYPE ☐ CO-confirmation ☐ RP-repeal ☐ SP-special ☐ OTHER:_____ ☒ RT-routine ☐ DU-duplicate	
PWS#: 6040006	PWS NAME: BENNINGTON WATER SYSTEM
SAMPLING POINT/LOCATION: WELL #1	TAG #/FACILITY ID:
COLLECTOR'S NAME:	JURISDICTION:

MAGIC VALLEY LABS
210 ADDISON AVE, PO BOX 1867
TWIN FALLS, ID 83301
(208) 733-4250

PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT

Phase II								Phase V							
FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst	FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst
1010	Barium		2	0.5	3111D			1024	Cyanide		0.2				
1015	Cadmium		0.005	0.0005	3113B			1036	Nickel		N/a	0.01	3113B		
1020	Chromium		0.1	0.005	3113B			1074	Antimony		0.006	0.005	200.9		
1035	Mercury		0.002	0.001	245.1			1075	Beryllium		0.004	0.0005	200.9		
1038	Ttl (N02/NO3)		10					1085	Thallium		0.002	0.002	200.9		
1040	Nitrate	6.59	10	0.30	300.0	3/15/2011	JB	Other IOCs							
1041	Nitrite		1.0	0.20	300.0			1005	Arsenic		0.010	0.005	200.9		
1045	Selenium		0.05	0.005	200.9			1025	Fluoride		4.0	0.02	300.0		
1094	Asbestos		7 MFL	0.18	100.1☆			1052	Sodium		N/a	0.5	3111B		

*Reported in mg/L unless otherwise noted † = formerly FRDS No. 1926 PQL = Process Qualitivity limit --- = No analysis performed ND = Not detected within sensitivity of instrument

Brenda Ellis 3-23-11
Signature of Laboratory Supervisor Date

RECEIVED
MAR 25 2011
IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

BENNINGTON WATER SYSTEM
026 EAST 300 NORTH
BENNINGTON, ID 83254

BENNINGTON WATER SYSTEM
026 EAST 300 NORTH
BENNINGTON, ID 83254

LAB FEDERAL ID#: ID 00911	LAB SAMPLE # 1123901
DATE LAB REC'D SAMPLE: 6/15/2011	DATE REPORTED BY LAB: 6/21/2011
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: 6/14/2011	COLLECTION TIME: 11:00:00 AM
SAMPLE TYPE ☐ CO-confirmation ☐ RP-repeat ☐ SP-special ☐ OTHER:_____ ☒ RT-routine ☐ DU-duplicate	
PWS#: 6040006	PWS NAME: BENNINGTON WATER SYSTEM
SAMPLING POINT/LOCATION: WELL #1 #E0007721	TAG #/FACILITY ID:
COLLECTOR'S NAME: ROBERT HOLJESON	JURISDICTION:

MAGIC VALLEY LABS
210 ADDISON AVE, PO BOX 1867
TWIN FALLS, ID 83301
(208) 733-4250

PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT

Phase II								Phase V							
FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst	FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst
1010	Barium		2	0.5	3111D			1024	Cyanide		0.2				
1015	Cadmium		0.005	0.0005	3113B			1036	Nickel		N/a	0.01	3113B		
1020	Chromium		0.1	0.005	3113B			1074	Antimony		0.006	0.005	200.9		
1035	Mercury		0.002	0.001	245.1			1075	Beryllium		0.004	0.0005	200.9		
1038	Tll (N02/NO3)		10					1085	Thallium		0.002	0.002	200.9		
1040	Nitrate	7.01	10	0.30	300.0	6/15/2011	JB	Other IOCs							
1041	Nitrite		1.0	0.20	300.0			1005	Arsenic		0.010	0.005	200.9		
1045	Selenium		0.05	0.005	200.9			1025	Fluoride		4.0	0.02	300.0		
1094	Asbestos		7 MFL	0.18	100.1☆			1052	Sodium		N/a	0.5	3111B		

*Reported in mg/L unless otherwise noted † = formerly FRDS No. 1926 PQL = Process Qualitivity limit --- = No analysis performed ND = Not detected within sensitivity of instrument

Brenda Ellis 6-22-11
Signature of Laboratory Supervisor Date

RECEIVED
JUN 28 2011
IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

BENNINGTON WATER SYSTEM
026 EAST 300 NORTH
BENNINGTON, ID 83254

BENNINGTON WATER SYSTEM
026 EAST 300 NORTH
BENNINGTON, ID 83254

LAB FEDERAL ID#: ID 00911	LAB SAMPLE # **1019221**
DATE LAB REC'D SAMPLE: **5/18/2010**	DATE REPORTED BY LAB: **5/26/2010**
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: **5/17/2010**	COLLECTION TIME: **2:45:00 PM**
SAMPLE TYPE ☐ CO-confirmation ☐ RP-repeat ☐ SP-special ☐ OTHER:_____ ☒ RT-routine ☐ DU-duplicate	
PWS#: **6040006**	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: **WELL #1**	TAG #/FACILITY ID:
COLLECTOR'S NAME: **MIKE PIERCE**	JURISDICTION:

MAGIC VALLEY LABS
210 ADDISON AVE, PO BOX 1867
TWIN FALLS, ID 83301
(208) 733-4250

PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT

Phase II								*Phase V*							
FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst	FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst
1010	Barium		2	0.5	3111D			1024	Cyanide		0.2				
1015	Cadmium		0.005	0.0005	3113B			1036	Nickel		N/a	0.01	3113B		
1020	Chromium		0.1	0.005	3113B			1074	Antimony		0.006	0.005	200.9		
1035	Mercury		0.002	0.001	245.1			1075	Beryllium		0.004	0.0005	200.9		
1038	Ttl (N02/NO3)		10					1085	Thallium		0.002	0.002	200.9		
1040	Nitrate		10	0.30	300.0			Other IOCs							
1041	Nitrite	<0.20	1.0	0.20	300.0	5/19/2010	JF	1005	Arsenic		0.010	0.005	200.9		
1045	Selenium		0.05	0.005	200.9			1025	Fluoride		4.0	0.02	300.0		
1094	Asbestos		7 MFL	0.18	100.1☆			1052	Sodium		N/a	0.5	3111B		

*Reported in mg/L unless otherwise noted † = formerly FRDS No. 1926 PQL = Process Qualitivity limit --- = No analysis performed ND = Not detected within sensitivity of instrument

Brenda Ellis 6-4-10
Signature of Laboratory Supervisor **Date**

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IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

LAB FEDERAL ID#: ID 00911	LAB SAMPLE # **1058911**
DATE LAB REC'D SAMPLE: **9/22/2010**	DATE REPORTED BY LAB: **10/25/2010**
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: **9/21/2010**	COLLECTION TIME: **8:30:00 AM**
SAMPLE TYPE ☐ CO-confirmation ☐ RP-repeat ☐ SP-special ☐ OTHER:_____ ☒ RT-routine ☐ DU-duplicate	
PWS#: **6040006**	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: **WELL #1**	TAG #/FACILITY ID:
COLLECTOR'S NAME:	JURISDICTION:

MAGIC VALLEY LABS
210 ADDISON AVE, PO BOX 1867
TWIN FALLS, ID 83301
(208) 733-4250

PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT

Phase II								*Phase V*							
FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst	FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst
1010	Barium		2	0.5	3111D			1024	Cyanide		0.2				
1015	Cadmium		0.005	0.0005	3113B			1036	Nickel		N/a	0.01	3113B		
1020	Chromium		0.1	0.005	3113B			1074	Antimony		0.006	0.005	200.9		
1035	Mercury		0.002	0.001	245.1			1075	Beryllium		0.004	0.0005	200.9		
1038	Ttl (N02/NO3)		10					1085	Thallium		0.002	0.002	200.9		
1040	Nitrate	6.94	10	0.30	300.0	9/22/2010	JF	Other IOCs							
1041	Nitrite	.	1.0	0.20	300.0			1005	Arsenic		0.010	0.005	200.9		
1045	Selenium		0.05	0.005	200.9			1025	Fluoride		4.0	0.02	300.0		
1094	Asbestos		7 MFL	0.18	100.1☆			1052	Sodium		N/a	0.5	3111B		

*Reported in mg/L unless otherwise noted † = formerly FRDS No. 1926 PQL = Process Qualitivity limit --- = No analysis performed ND = Not detected within sensitivity of instrument

Gary L. Fenwick 11/1/10
Signature of Laboratory Supervisor **Date**

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IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

LAB FEDERAL ID#: ID 00911	LAB SAMPLE # **1058911**
DATE LAB REC'D SAMPLE: **9/22/2010**	DATE REPORTED BY LAB: **10/25/2010**
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: **9/21/2010**	COLLECTION TIME: **8:30:00 AM**
SAMPLE TYPE ☐ CO-confirmation ☒ RT-routine ☐ DU-duplicate ☐ RP-repeat ☐ SP-special ☐ OTHER:_____	
PWS#: **6040006**	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: **WELL #1**	TAG #/FACILITY ID:
COLLECTOR'S NAME:	JURISDICTION:

MAGIC VALLEY LABS
210 ADDISON AVE, PO BOX 1867
TWIN FALLS, ID 83301
(208) 733-4250

PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT

Phase II								*Phase V*							
FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst	FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst
1010	Barium		2	0.5	3111D			1024	Cyanide		0.2				
1015	Cadmium		0.005	0.0005	3113B			1036	Nickel		N/a	0.01	3113B		
1020	Chromium		0.1	0.005	3113B			1074	Antimony		0.006	0.005	200.9		
1035	Mercury		0.002	0.001	245.1			1075	Beryllium		0.004	0.0005	200.9		
1038	Tll (N02/NO3)		10					1085	Thallium		0.002	0.002	200.9		
1040	Nitrate	6.94	10	0.30	300.0	9/22/2010	JF	Other IOCs							
1041	Nitrite	.	1.0	0.20	300.0			1005	Arsenic		0.010	0.005	200.9		
1045	Selenium		0.05	0.005	200.9			1025	Fluoride		4.0	0.02	300.0		
1094	Asbestos		7 MFL	0.18	100.1/r			1052	Sodium		N/a	0.5	3111B		

*Reported in mg/L unless otherwise noted † = formerly FRDS No. 1926 PQL = Process Qualitivity limit --- = No analysis performed ND = Not detected within sensitivity of instrument

Gary J. Fenwick 11/1/10
Signature of Laboratory Supervisor Date

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NOV 04 2010
IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

LAB FEDERAL ID#: ID00911	LAB SAMPLE # 1077271
DATE LAB REC'D SAMPLE: 12/1/2010	DATE REPORTED BY LAB: 12/7/2010
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE: ☐
COLLECTION DATE: 11/30/2010	COLLECTION TIME: 12:00:00 PM
SAMPLE TYPE: ☐ CO-confirmation ☐ RP-repeat ☐ SP-special ☐ OTHER: ☒ RT-routine ☐ DU-duplicate	
PWS#: 6040006	PWS NAME: BENNINGTON WATER SYSTEM
SAMPLING POINT/LOCATION: WELL #1	TAG #/FACILITY ID:
COLLECTOR'S NAME: ROBERT HOLJESON	JURISDICTION:

MAGIC VALLEY LABS
210 ADDISON AVE, PO BOX 1867
TWIN FALLS, ID 83301
(208) 733-4250

PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT

Phase II								Phase V							
FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst	FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst
1010	Barium		2	0.5	3111D			1024	Cyanide		0.2				
1015	Cadmium		0.005	0.0005	3113B			1030	Nickel		N/a	0.01	3113B		
1020	Chromium		0.1	0.005	3113B			1074	Antimony		0.006	0.005	200.9		
1035	Mercury		0.002	0.001	245.1			1075	Beryllium		0.004	0.0005	200.9		
1038	Tot (NO2/NO3)		10					1085	Thallium		0.002	0.002	200.9		
1040	Nitrate	6.94	10	0.30	300.0	12/1/2010	JF	Other IOCs							
104†	Nitrite		1.0	0.20	300.0			1005	Arsenic		0.010	0.005	200.9		
1045	Selenium		0.05	0.005	200.9			1025	Fluoride		4.0	0.02	300.0		
1094	Asbestos		7 MFL	0.18	100.1/2			1052	Sodium		N/a	0.5	3111B		

*Reported in mg/L unless otherwise noted † = formerly FRDS No. 1926 PQL = Process Qualifivity limit -- = No analysis performed ND = Not detected within sensitivity of instrument

Brenda Ellis 12-9-10
Signature of Laboratory Supervisor Date

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IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

LAB FEDERAL ID#: **ID00911**	LAB SAMPLE #: **1058921**
DATE LAB REC'D SAMPLE: **9/22/2010**	DATE REPORTED BY LAB: **11/11/2010**
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: **9/21/2010**	COLLECTION TIME: **8:30:00 AM (24 hour clock)**
SAMPLE TYPE ☐ CO-confirmation ☐ RP-repeat ☐ SP-special ☐ OTHER:_____ ☒ RT-routine ☐ DU-duplicate	
PWS#: **6040006**	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: **WELL #1**	TAG #/FACILITY ID:
COLLECTOR'S NAME:	CONTACT PHONE #:

MAGIC VALLEY LABS, INC.
210 Addison Ave., P.O. Box 1867
Twin Falls, ID 83301

PUBLIC DRINKING WATER SYSTEM SYNTHETIC ORGANIC CHEMICAL (SOC) ANALYSIS REPORT:

FRDS	Contaminant Name	Result*	Method	MCL*	MDL*	Analysis Date	Analyst	FRDS	Contaminant Name	Result*	Method	MCL*	MDL*	Analysis Date	Analyst
2005	Endrin		508.1	2.0	0.0099			2046	Carbofuran		531.1	40	0.50		
2010	Lindane		508.1	0.2	0.0099			2050	Atrazine	ND	525.2	3.0	0.099	10/3/2010	**
2015	Methoxychlor		508.1	40.0	0.0099			2051	Alachlor	ND	525.2	2.0	0.071	10/3/2010	**
2020	Toxaphene		50	3.0	0.099			2066	Heptachlor		508.1	0.4	0.0099		
2031	Diquapon		515.4	200	1.0			2067	Heptachlor epoxide		508.1	0.2	0.0099		
2032	Diquat		549.2	20	0.40			2105	2,4-D		515.4	70	1.0		
2033	Endothall		548.1	100	5.0			2110	2,4,5-TP		515.4	50	0.05		
2034	Glyphosate		547	700	6.0			2274	Hexachlorobenzene	ND	525.2	1.0	0.099	10/3/2010	**
2035	Di(2-ethylhexyl)adipate	ND	525.2	400	0.59	10/3/2010	**	2306	Benzo[a]pyrene	ND	525.2	0.2	0.02	10/3/2010	**
2036	Oxamyl		531.1	200	0.50			2326	Pentachlorophenol		515.4	1	0.04		
2037	Simazine	ND	525.2	4.0	0.05	10/3/2010	**	2383	PCBs		508.1	0.5	0.099		
2039†	Di(2-ethylhexyl)phthalate	ND	525.2	6.0	0.59	10/3/2010	**	2931	DBCP		504.1	0.2	0.02		
2040	Picloram		515.4	500	0.1			2946	EDB		504.1	0.05	0.01		
2041	Dinoseb		515.4	7	0.2			2959	Chlordane		508.1	2.0	0.099		
2042	Hexachlorocyclopentadiene	ND	525.2	50	0.099	10/3/2010	**								

† Formerly FRDS code 2298 *Reported in µg/L unless otherwise noted ND = Not detected within sensitivity of instrument -- = No analysis performed
MDL = Method detection limit **Test Performed by Columbia Analytical Services, Inc. (Reserved for comments/notations)

Brunda Ullas 11/15/10
Signature of Laboratory Supervisor Date

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

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IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

LAB FEDERAL ID#: ID00911	LAB SAMPLE #: 1058901
DATE LAB REC'D SAMPLE: 9/22/2010	DATE REPORTED BY LAB: 11/11/2010
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: 9/21/2010	COLLECTION TIME: 8:30:00 AM (24 hour clock)
SAMPLE TYPE ☐ CO-confirmation ☐ DU-duplicate ☒ RT-routine	☐ RP-repeat ☐ SP-special ☐ OTHER:_____
PWS#: 6040006	PWS NAME: BENNINGTON WATER SYSTEM
SAMPLING POINT/LOCATION: WELL #1	TAG #/FACILITY ID:
COLLECTOR'S NAME:	CONTACT PHONE #:

MAGIC VALLEY LABS, INC.
210 Addison Ave., P.O. Box 1867
Twin Falls, ID 83301
(208) 733-4250

PUBLIC DRINKING WATERSYSTEM VOLATILE ORGANIC CHEMICAL (VOC) ANALYSIS REPORT:

METHOD: 524.2 | ANALYSIS DATE: 09/30/10 | ANALYST: COLUMBIA ANALYTICAL SERVICES

FRDS	Contaminant Name	Result*	MCL*	MDL*	FRDS	Contaminant Name	Result*	MCL*	MDL*
2378	1,2,4-Trichlorobenzene	ND	70.0	0.50	2979	trans-1,2-Dichloroethylene	ND	100.0	0.50
2380	cis-1,2-Dichloroethylene	ND	70.0	0.50	2980	1,2-Dichloroethane	ND	5.0	0.50
2950	Trihalomethanes - Total	ND	100.0	0.50	2981	1,1,1-Trichloroethane	ND	200.0	0.50
2941	Chloroform	To be reported on new DBP form			2982	Carbon Tetrachloride	ND	5.0	0.50
2942	Bromoform				2983	1,2-Dichloropropane	ND	5.0	0.50
2943	Bromodichloromethane				2984	Trichloroethylene	ND	5.0	0.50
2944	Dibromochloromethane				2985	1,1,2-Trichloroethane	ND	200.0	0.50
2955	Xylenes - Total	ND	10000	0.50	2987	Tetrachloroethylene	ND	5.0	0.50
2964	Dichloromethane	ND	5.0	0.50	2989	Monochlorobenzene	ND	100.0	0.50
2968	o-Dichlorobenzene	ND	600.0	0.50	2990	Benzene	ND	5.0	0.50
2969	p-Dichlorobenzene	ND	75.0	0.50	2991	Toluene	ND	1000.0	0.50
2976	Vinyl chloride	ND	2.0	0.50	2992	Ethylbenzene	ND	700.0	0.50
2977	1,1-Dichloroethylene	ND	7.0	0.50	2996	Styrene	ND	100.0	0.50

*Reported in µg/L unless otherwise noted ND = Not detected within sensitivity of instrument — = No analysis performed MDL = Method detection limit

(Reserved for comments/notations)

Brenda Allen 11/15/10

Signature of Laboratory Supervisor Date

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

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IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

LAB FEDERAL ID#: ID 00911	LAB SAMPLE # 1058891
DATE LAB REC'D SAMPLE: 9/22/2010	DATE REPORTED BY LAB: 10/25/2010
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: **9/21/2010**	COLLECTION TIME: **8:30:00 AM** (24 hour clock)
SAMPLE TYPE ☐ CO-confirmation ☒ RT-routine ☐ DU-duplicate	☐ RP-repeat ☐ SP-special ☐ OTHER:_____
PWS#: **6040006**	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: **WELL #1**	TAG #/FACILITY ID:
COLLECTOR'S NAME:	CONTACT PHONE #:

MAGIC VALLEY LABS
210 ADDISON AVE, PO BOX 1867
TWIN FALLS, ID 83301
(208) 733-4250

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IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT

Phase II								*Phase V*							
FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst	FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst
1010	Barium		2	0.05	200.7	10/05/10		1024	Cyanide		0.2				
1015	Cadmium		0.005	0.001	200.8			1036	Nickel		N/a	0.05	200.7		
1020	Chromium		0.1	0.001	200.8			1074	Antimony		0.006	0.001	200.8		
1035	Mercury		0.002	0.0001	200.8			1075	Beryllium		0.004	0.001	200.8		
1038	Ttl (N02/NO3)		10					1085	Thallium		0.002	0.001	200.8		
1040	Nitrate		10					Other IOCs							
1041	Nitrite		1.0					1005	Arsenic	**<0.001**	0.010	0.001	200.8	10/12/10	**
1045	Selenium		0.05	0.001	200.8			1025	Fluoride		4.0	0.02	300.0		
1094	Asbestos		7 MFL	0.18	100.1☆			1052	Sodium	**6.44**	N/a	0.5	200.7	10/14/10	JB
Secondary IOCs (optional)															
1002	Aluminum		0.05-0.2	0.01	200.8			1050	Silver		0.1	0.001	200.8		
1003	Ammonia as N			0.05	4500NH3			1055	Sulfate		250	0.1	300.0		
1016	Calcium			0.1	200.7			1095	Zinc		5	0.001	200.8		
1017	Chloride		250	0.1	300.0			1905	Color		15c.u.	5	110.2		
1022	Copper		1.0	0.001	200.8			1915	Hardness as CaCO3			1	200.7		
1026†	Conductivity µg/cm				120.1			1920	Odor (threshold #)		3	1	140.1		
1027	Hydrogen Sulfide			0.1	4500S2F			1925	pH		6.5-8.5		150.1		
1028	Iron		0.3	0.01	200.7			1927	Alkalinity as CaCO3			1	2320B		
1031	Magnesium			0.1	200.7			1930	Dissolved Solids		500	10	160.1		
1032	Manganese		0.05	0.001	200.8			1997	Langlier Index				Calculation		
1042	Potassium			0.01	200.7			2905	Surfactants			0.05	5540C		
1049	Silica as SiO2			0.1	200.7			1030	Lead		0.015	0.001	200.8		

*Reported in mg/L unless otherwise noted † = formerly FRDS No. 1926 PQL = Process Qualitivity limit --- = No analysis performed ND = Not detected within sensitivity of instrument
☆EPA 600/4-83-043 **Test performed by ANATEK LABS, INC

COMMENTS:

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

Gary J. Fenwick 11/1/10
Signature of Laboratory Supervisor **Date**

LAB FEDERAL ID#: ID00911	LAB SAMPLE #: 1058921
DATE LAB REC'D SAMPLE: 9/22/2010	DATE REPORTED BY LAB: 11/11/2010
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: 9/21/2010	COLLECTION TIME: 8:30:00 AM (24 hour clock)
SAMPLE TYPE ☐ CO-confirmation ☒ RT-routine ☐ DU-duplicate	☐ RP-repeat ☐ SP-special ☐ OTHER:_____
PWS#: 6040006	PWS NAME: BENNINGTON WATER SYSTEM
SAMPLING POINT/LOCATION: WELL #1	TAG #/FACILITY ID:
COLLECTOR'S NAME:	CONTACT PHONE #:

MAGIC VALLEY LABS, INC.
210 Addison Ave., P.O. Box 1867
Twin Falls, ID 83301

PUBLIC DRINKING WATER SYSTEM SYNTHETIC ORGANIC CHEMICAL (SOC) ANALYSIS REPORT:

FRDS	Contaminant Name	Result*	Method	MCL*	MDL*	Analysis Date	Analyst	FRDS	Contaminant Name	Result*	Method	MCL*	MDL*	Analysis Date	Analyst
2005	Endrin		508.1	2.0	0.0099			2046	Carbofuran		531.1	40	0.50		
2010	Lindane		508.1	0.2	0.0099			2050	Atrazine	ND	525.2	3.0	0.099	10/3/2010	**
2015	Methoxychlor		508.1	40.0	0.0099			2051	Alachlor	ND	525.2	2.0	0.071	10/3/2010	**
2020	Toxaphene		50	3.0	0.099			2066	Heptachlor		508.1	0.4	0.0099		
2031	Dalapon		515.4	200	1.0			2067	Heptachlor epoxide		508.1	0.2	0.0099		
2032	Diquat		549.2	20	0.40			2105	2,4-D		515.4	70	1.0		
2033	Endothall		548.1	100	5.0			2110	2,4,5-TP		515.4	50	0.05		
2034	Glyphosate		547	700	6.0			2274	Hexachlorobenzene	ND	525.2	1.0	0.099	10/3/2010	**
2035	Di(2-ethylhexyl)adipate	ND	525.2	400	0.59	10/3/2010	**	2306	Benzo[a]pyrene	ND	525.2	0.2	0.02	10/3/2010	**
2036	Oxamyl		531.1	200	0.50			2326	Pentachlorophenol		515.4	1	0.04		
2037	Simazine	ND	525.2	4.0	0.05	10/3/2010	**	2383	PCBs		508.1	0.5	0.099		
2039†	Di(2-ethylhexyl)phthalate	ND	525.2	6.0	0.59	10/3/2010	**	2931	DBCP		504.1	0.2	0.02		
2040	Picloram		515.4	500	0.1			2946	EDB		504.1	0.05	0.01		
2041	Dinoseb		515.4	7	0.2			2959	Chlordane		508.1	2.0	0.099		
2042	Hexachlorocyclopentadiene	ND	525.2	50	0.099	10/3/2010	**								

† Formerly FRDS code 2298 *Reported in µg/L unless otherwise noted ND = Not detected within sensitivity of instrument --- = No analysis performed
MDL = Method detection limit **Test Performed by Columbia Analytical Services, Inc. (Reserved for comments/notations)

Brunder Allen 11/15/10
Signature of Laboratory Supervisor Date

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

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IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

LAB FEDERAL ID#: ID00911	LAB SAMPLE #: 1058901
DATE LAB REC'D SAMPLE: 9/22/2010	DATE REPORTED BY LAB: 11/11/2010
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: 9/21/2010	COLLECTION TIME: 8:30:00 AM (24 hour clock)
SAMPLE TYPE ☐ CO-confirmation ☐ RP-repeat ☐ SP-special ☐ OTHER:_____ ☒ RT-routine ☐ DU-duplicate	
PWS#: 6040006	PWS NAME: BENNINGTON WATER SYSTEM
SAMPLING POINT/LOCATION: WELL #1	TAG #/FACILITY ID:
COLLECTOR'S NAME:	CONTACT PHONE #:

MAGIC VALLEY LABS, INC.
210 Addison Ave., P.O. Box 1867
Twin Falls, ID 83301
(208) 733-4250

PUBLIC DRINKING WATERSYSTEM VOLATILE ORGANIC CHEMICAL (VOC) ANALYSIS REPORT:

METHOD: 524.2 | ANALYSIS DATE: 09/30/10 | ANALYST: COLUMBIA ANALYTICAL SERVICES

FRDS	Contaminant Name	Result*	MCL*	MDL*	FRDS	Contaminant Name	Result*	MCL*	MDL*
2378	1,2,4-Trichlorobenzene	ND	70.0	0.50	2979	trans-1,2-Dichloroethylene	ND	100.0	0.50
2380	cis-1,2-Dichloroethylene	ND	70.0	0.50	2980	1,2-Dichloroethane	ND	5.0	0.50
2950	Trihalomethanes - Total	ND	100.0	0.50	2981	1,1,1-Trichloroethane	ND	200.0	0.50
2941	Chloroform	To be reported on new DBP form			2982	Carbon Tetrachloride	ND	5.0	0.50
2942	Bromoform				2983	1,2-Dichloropropane	ND	5.0	0.50
2943	Bromodichloromethane				2984	Trichloroethylene	ND	5.0	0.50
2944	Dibromochloromethane				2985	1,1,2-Trichloroethane	ND	200.0	0.50
2955	Xylenes - Total	ND	10000	0.50	2987	Tetrachloroethylene	ND	5.0	0.50
2964	Dichloromethane	ND	5.0	0.50	2989	Monochlorobenzene	ND	100.0	0.50
2968	o-Dichlorobenzene	ND	600.0	0.50	2990	Benzene	ND	5.0	0.50
2969	p-Dichlorobenzene	ND	75.0	0.50	2991	Toluene	ND	1000.0	0.50
2976	Vinyl chloride	ND	2.0	0.50	2992	Ethylbenzene	ND	700.0	0.50
2977	1,1-Dichloroethylene	ND	7.0	0.50	2996	Styrene	ND	100.0	0.50

*Reported in µg/L unless otherwise noted ND = Not detected within sensitivity of Instrument --- = No analysis performed MDL = Method detection limit

(Reserved for comments/notations)

Brenda Allen 11/15/10

Signature of Laboratory Supervisor Date

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

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BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

LAB FEDERAL ID#: ID 00911	LAB SAMPLE # 1058891
DATE LAB REC'D SAMPLE: 9/22/2010	DATE REPORTED BY LAB: 10/25/2010
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: **9/21/2010**	COLLECTION TIME: **8:30:00 AM** (24 hour clock)
SAMPLE TYPE ☐ CO-confirmation ☒ RT-routine ☐ DU-duplicate	☐ RP-repeat ☐ SP-special ☐ OTHER:_____
PWS#: **6040006**	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: **WELL #1**	TAG #/FACILITY ID:
COLLECTOR'S NAME:	CONTACT PHONE #:

MAGIC VALLEY LABS
210 ADDISON AVE, PO BOX 1867
TWIN FALLS, ID 83301
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PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT

Phase II								*Phase V*							
FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst	FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst
1010	Barium		2	0.05	200.7	10/05/10		1024	Cyanide		0.2				
1015	Cadmium		0.005	0.001	200.8			1036	Nickel		N/a	0.05	200.7		
1020	Chromium		0.1	0.001	200.8			1074	Antimony		0.006	0.001	200.8		
1035	Mercury		0.002	0.0001	200.8			1075	Beryllium		0.004	0.001	200.8		
1038	Ttl (N02/NO3)		10					1085	Thallium		0.002	0.001	200.8		
1040	Nitrate		10					Other IOCs							
1041	Nitrite		1.0					1005	Arsenic	**<0.001**	0.010	0.001	200.8	10/12/10	**
1045	Selenium		0.05	0.001	200.8			1025	Fluoride		4.0	0.02	300.0		
1094	Asbestos		7 MFL	0.18	100.1-¹			1052	Sodium	**6.44**	N/a	0.5	200.7	10/14/10	JB
Secondary IOCs (optional)															
1002	Aluminum		0.05-0.2	0.01	200.8			1050	Silver		0.1	0.001	200.8		
1003	Ammonia as N			0.05	4500NH3			1055	Sulfate		250	0.1	300.0		
1016	Calcium			0.1	200.7			1095	Zinc		5	0.001	200.8		
1017	Chloride		250	0.1	300.0			1905	Color		15c.u.	5	110.2		
1022	Copper		1.0	0.001	200.8			1915	Hardness as CaCO3			1	200.7		
1026†	Conductivity µg/cm				120.1			1920	Odor (threshold #)		3	1	140.1		
1027	Hydrogen Sulfide			0.1	4500S2F			1925	pH		6.5-8.5		150.1		
1028	Iron		0.3	0.01	200.7			1927	Alkalinity as CaCO3			1	2320B		
1031	Magnesium			0.1	200.7			1930	Dissolved Solids		500	10	160.1		
1032	Manganese		0.05	0.001	200.8			1997	Langlier Index				Calculation		
1042	Potassium			0.01	200.7			2905	Surfactants			0.05	5540C		
1049	Silica as SiO2			0.1	200.7			1030	Lead		0.015	0.001	200.8		

*Reported in mg/L unless otherwise noted † = formerly FRDS No. 1926 PQL = Process Qualitivity limit --- = No analysis performed ND = Not detected within sensitivity of instrument
¹EPA 600/4-83-043 **Test performed by ANATEK LABS, INC

COMMENTS:

Gary J. Fenwick 11/1/10
Signature of Laboratory Supervisor **Date**

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

LAB FEDERAL ID#: ID 00911	LAB SAMPLE # **938091**
DATE LAB REC'D SAMPLE: **7/15/2009**	DATE REPORTED BY LAB: **7/24/2009**
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: **7/14/2009**	COLLECTION TIME: **12:15:00 PM**
SAMPLE TYPE ☐ CO-confirmation ☐ RP-repeat ☐ SP-special ☐ OTHER:_____ ☒ RT-routine ☐ DU-duplicate	
PWS#: **6040006**	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: **WELL #1**	TAG #/FACILITY ID:
COLLECTOR'S NAME: **MIKE PIERCE**	JURISDICTION:

MAGIC VALLEY LABS
210 ADDISON AVE, PO BOX 1867
TWIN FALLS, ID 83301
(208) 733-4250

PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT

Phase II								*Phase V*							
FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst	FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst
1010	Barium		2	0.5	3111D			1024	Cyanide		0.2				
1015	Cadmium		0.005	0.0005	3113B			1036	Nickel		N/a	0.01	3113B		
1020	Chromium		0.1	0.005	3113B			1074	Antimony		0.006	0.005	200.9		
1035	Mercury		0.002	0.001	245.1			1075	Beryllium		0.004	0.0005	200.9		
1038	Ttl (N02/NO3)		10					1085	Thallium		0.002	0.002	200.9		
1040	Nitrate	5.63	10	0.30	300.0	7/17/2009	JB	Other IOCs							
1041	Nitrite		1.0	0.20	300.0			1005	Arsenic		0.010	0.005	200.9		
1045	Selenium		0.05	0.005	200.9			1025	Fluoride		4.0	0.02	300.0		
1094	Asbestos		7 MFL	0.18	100.1☆			1052	Sodium		N/a	0.5	3111B		

*Reported in mg/L unless otherwise noted † = formerly FRDS No. 1926 PQL = Process Qualitivity limit --- = No analysis performed ND = Not detected within sensitivity of instrument

7-27-09

Signature of Laboratory Supervisor **Date**

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BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

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MAGIC VALLEY LABS, INC.
210 ADDISON AVE. / BOX 1867
TWIN FALLS, ID 83303-1867
(208) 733-4250
LAB ID #ID00911

PUBLIC DRINKING WATER INORGANIC CHEMICAL ANALYSIS REPORT

ACUTE IOC CONTAMINANTS For Public Drinking Water Systems

FRDS	Contaminant	Results (mg/L)	MCL (mg/L)	MDL	Method	Analysis Date	Analyst	MONITORING REQUIREMENTS
1040	Nitrate	6.18	10	<0.3	EPA 300.0	3/27/2008	JB	Ground water systems with nitrate levels below 5 mg/L must monitor nitrate annually. Surface water systems and systems with nitrate levels of 5 or more mg/L must monitor quarterly, unless otherwise advised in writing.
1041	Nitrite	.	1.0	<0.2	EPA 300.0	12:00:00 AM		Once per nine years unless advised otherwise.
1038	Total (NO_3+NO_2)	---	10					
1055	Sulfate	---	N/A					Sulfate is in the process of becoming a regulated contaminant. Monitoring is not yet required.

LAB RESULT REPORTING CODES:

ND = Not detected within sensitivity of instrument

---- = No analysis performed for this contaminant

Numerical entry = Detection at level indicated

COMMENTS:

PWS #	6040006
Lab Sample Tracking #	81234
Date Collected	3/19/2008
Sample Type	
Date Received	3/20/2008
Time Collected	4:00:00 PM
Location Tag #	
Sample Collection Location	WELL #1
Date Reported by Lab	4/3/2008
Jurisdiction	
PWS Contact Phone (208)	

Brenda Ellis 4-3-08

Signature of Lab Supervisor Date

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

MAGIC VALLEY LABS, INC.
210 ADDISON AVE. / BOX 1867
TWIN FALLS, ID 83303-1867
(208) 733-4250
LAB ID #ID00911

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DEPARTMENT OF ENVIROMENTAL QUALITY
POCATELLO REGIONAL OFFICE

PUBLIC DRINKING WATER INORGANIC CHEMICAL ANALYSIS REPORT

ACUTE IOC CONTAMINANTS For Public Drinking Water Systems

FRDS	Contaminant	Results (mg/L)	MCL (mg/L)	MDL	Method	Analysis Date	Analyst	MONITORING REQUIREMENTS
1040	Nitrate	7.51	10	<0.3	EPA 300.0	7/22/2008	JB	Ground water systems with nitrate levels below 5 mg/L must monitor nitrate annually. Surface water systems and systems with nitrate levels of 5 or more mg/L must monitor quarterly, unless otherwise advised in writing.
1041	Nitrite	.	1.0	<0.2	EPA 300.0	12:00:00 AM		Once per nine years unless advised otherwise.
1038	Total (NO_3+NO_2)	---	10					
1055	Sulfate	---	N/A					Sulfate is in the process of becoming a regulated contaminant. Monitoring is not yet required.

LAB RESULT REPORTING CODES:

ND = Not detected within sensitivity of instrument

---- = No analysis performed for this contaminant

Numerical entry = Detection at level indicated

COMMENTS:

PWS #	6040006
Lab Sample Tracking #	84542
Date Collected	7/15/2008
Sample Type	
Date Received	7/16/2008
Time Collected	8:30:00 AM
Location Tag #	
Sample Collection Location	WELL 1
Date Reported by Lab	7/25/2008
Jurisdiction	
PWS Contact Phone (208)	

Brenda Ellis 7-26-08

Signature of Lab Supervisor Date

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

MAGIC VALLEY LABS, INC.
210 ADDISON AVE. / BOX 1867
TWIN FALLS, ID 83303-1867
(208) 733-4250
LAB ID #ID00911

PUBLIC DRINKING WATER INORGANIC CHEMICAL ANALYSIS REPORT

ACUTE IOC CONTAMINANTS For Public Drinking Water Systems

FRDS	Contaminant	Results (mg/L)	MCL (mg/L)	MDL	Method	Analysis Date	Analyst	MONITORING REQUIREMENTS
1040	Nitrate	6.85	10	<0.3	EPA 300.0	12/27/2008	SK	Ground water systems with nitrate levels below 5 mg/L must monitor nitrate annually. Surface water systems and systems with nitrate levels of 5 or more mg/L must monitor quarterly, unless otherwise advised in writing.
1041	Nitrite	.	1.0	<0.2	EPA 300.0	12:00:00 AM		Once per nine years unless advised otherwise.
1038	Total (NO_3+NO_2)	---	10					
1055	Sulfate	---	N/A					Sulfate is in the process of becoming a regulated contaminant. Monitoring is not yet required.

LAB RESULT REPORTING CODES:

ND = Not detected within sensitivity of instrument

---- = No analysis performed for this contaminant

Numerical entry = Detection at level indicated

COMMENTS:

PWS #	6040006
Lab Sample Tracking #	88765
Date Collected	12/18/2008
Sample Type	
Date Received	12/19/2008
Time Collected	1:00:00 PM
Location Tag #	
Sample Collection Location	WELL #1
Date Reported by Lab	1/7/2009
Jurisdiction	
PWS Contact Phone (208)	

Gary J. Fenwick 1/7/09

Signature of Lab Supervisor Date

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DEPARTMENT OF ENVIROMENTAL QUALITY
POCATELLO REGIONAL OFFICE

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

LAB FEDERAL ID#: **ID00911**	LAB SAMPLE #: **730281**
DATE LAB REC'D SAMPLE: **6/12/2007**	DATE REPORTED BY LAB: **7/13/2007**
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: **6/11/2007**	COLLECTION TIME: **9:00:00 AM** (24 hour clock)
SAMPLE TYPE ☐ CO-confirmation ☒ RT-routine ☐ DU-duplicate	☐ RP-repeat ☐ SP-special ☐ OTHER:_____
PWS#: **6040006**	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: **515 WELL #1**	TAG #/FACILITY ID:
COLLECTOR'S NAME:	CONTACT PHONE #:

MAGIC VALLEY LABS, INC.

210 Addison Ave., P.O. Box 1867
Twin Falls, ID 83301

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IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

PUBLIC DRINKING WATER SYSTEM SYNTHETIC ORGANIC CHEMICAL (SOC) ANALYSIS REPORT:

FRDS	Contaminant Name	Result*	Method	MCL*	MDL*	Analysis Date	Analyst	FRDS	Contaminant Name	Result*	Method	MCL*	MDL*	Analysis Date	Analyst
2005	Endrin		505	2.0	0.03		**	2046	Carbofuran		531.1	40	0.9		**
2010	Lindane		505	0.2	0.02		**	2050	Atrazine		525.2	3.0	0.1		**
2015	Methoxychlor		505	40.0	0.1		**	2051	Alachlor		525.2	2.0	0.1		**
2020	Toxaphene		505	3.0	1		**	2066	Heptachlor		505	0.4	0.04		**
2031	Dalapon	ND	515.3	200	1	6/25/2007	**	2067	Heptachlor epoxide		505	0.2	0.02		**
2032	Diquat		549.2	20	0.4		**	2105	2,4-D	ND	515.3	70	0.1	6/25/2007	**
2033	Endothall		548.1	100	9		**	2110	2,4,5-TP	ND	515.3	50	0.1	6/25/2007	**
2034	Glyphosate		547	700	6		**	2274	Hexachlorobenzene		525.2	1.0			**
2035	Di(2-ethylhexyl)adipate		525.2	400	2		**	2306	Benzo[a]pyrene		525.2	0.2	0.02		**
2036	Oxamyl		531.1	200	1		**	2326	Pentachlorophenol	ND	515.3	1	0.04	6/25/2007	**
2037	Simazine		525.2	4.0	0.07		**	2383	PCBs		505	0.5	0.01		**
2039†	Di(2-ethylhexyl)phthalate		525.2	6.0	0.6		**	2931	DBCP		504.1	0.2	0.02		**
2040	Picloram	ND	515.3	500	0.1	6/25/2007	**	2946	EDB		504.1	0.05	0.01		**
2041	Dinoseb	ND	515.3	7	0.1	6/25/2007	**	2959	Chlordane		505	2.0	0.1		**
2042	Hexachlorocyclopentadiene		525.2	50	0.1		**								

† Formerly FRDS code 2298 *Reported in µg/L unless otherwise noted ND = Not detected within sensitivity of instrument --- = No analysis performed
MDL = Method detection limit **Test Performed by Anatek Labs, Inc. ID00013 **(Reserved for comments/notations)**

Signature of Laboratory Supervisor **Date**

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

LAB FEDE. . ID#: **ID00911**	LAB SAMPLE #: 730341
DATE LAB REC'D SAMPLE: 6/12/2007	DATE REPORTED BY LAB: 6/20/2007
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: 6/11/2007	COLLECTION TIME: 9:00:00 AM (24 hour clock)
SAMPLE TYPE ☐ CO-confirmation ☐ RP-repeat ☐ SP-special ☐ OTHER:_____ ☒ RT-routine ☐ DU-duplicate	
PWS#: 6040006	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: WELL #1	TAG #/FACILITY ID:
COLLECTOR'S NAME:	CONTACT PHONE #:

MAGIC VALLEY LABS, INC.
210 Addison Ave., P.O. Box 1867
Twin Falls, ID 83301
(208) 733-4250

PUBLIC DRINKING WATERSYSTEM VOLATILE ORGANIC CHEMICAL (VOC) ANALYSIS REPORT:

METHOD: 524.2 | ANALYSIS DATE 6/13/07 | ANALYST: GF

FRDS	Contaminant Name	Result*	MCL*	MDL*	FRDS	Contaminant Name	Result*	MCL*	MDL*
2378	1,2,4-Trichlorobenzene	ND	70.0	0.50	2979	trans-1,2-Dichloroethylene	ND	100.0	0.50
2380	cis-1,2-Dichloroethylene	ND	70.0	0.50	2980	1,2-Dichloroethane	ND	5.0	0.50
2950	Trihalomethanes – Total	ND	100.0	0.50	2981	1,1,1-Trichloroethane	ND	200.0	0.50
2941	Chloroform	To be reported on new DBP form			2982	Carbon Tetrachloride	ND	5.0	0.50
2942	Bromoform				2983	1,2-Dichloropropane	ND	5.0	0.50
2943	Bromodichloromethane				2984	Trichloroethylene	ND	5.0	0.50
2944	Dibromochloromethane				2985	1,1,2-Trichloroethane	ND	200.0	0.50
2955	Xylenes – Total	ND	10000	0.50	2987	Tetrachloroethylene	ND	5.0	0.50
2964	Dichloromethane	ND	5.0	0.50	2989	Monochlorobenzene	ND	100.0	0.50
2968	o-Dichlorobenzene	ND	600.0	0.50	2990	Benzene	ND	5.0	0.50
2969	p-Dichlorobenzene	ND	75.0	0.50	2991	Toluene	ND	1000.0	0.50
2976	Vinyl chloride	ND	2.0	0.50	2992	Ethylbenzene	ND	700.0	0.50
2977	1,1-Dichloroethylene	ND	7.0	0.50	2996	Styrene	ND	100.0	0.50

*Reported in µg/L unless otherwise noted ND = Not detected within sensitivity of instrument --- = No analysis performed MDL = Method detection limit

(Reserved for comments/notations)

<<PROVISIONALLY CERTIFICATION>>

Gary T. Fenwick 6/21/07
Signature of Laboratory Supervisor **Date**

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

MAGIC VALLEY LABS, INC.
210 ADDISON AVE. / BOX 1867
TWIN FALLS, ID 83303-1867
(208) 733-4250
LAB ID #ID00911

PUBLIC DRINKING WATER INORGANIC CHEMICAL ANALYSIS REPORT

ACUTE IOC CONTAMINANTS For Public Drinking Water Systems

FRDS	Contaminant	Results (mg/L)	MCL (mg/L)	MDL	Method	Analysis Date	Analyst	MONITORING REQUIREMENTS
1040	Nitrate	9.10	10	<0.03	EPA 300.0	6/12/2007	JH	Ground water systems with nitrate levels below 5 mg/L must monitor nitrate annually. Surface water systems and systems with nitrate levels of 5 or more mg/L must monitor quarterly, unless otherwise advised in writing.
1041	Nitrite	.	1.0	<0.02	EPA 300.0	12:00:00 AM		Once per nine years unless advised otherwise.
1038	Total (NO_3+NO_2)	---	10					
1055	Sulfate	---	N/A					Sulfate is in the process of becoming a regulated contaminant. Monitoring is not yet required.

LAB RESULT REPORTING CODES:

ND = Not detected within sensitivity of instrument

---- = No analysis performed for this contaminant

Numerical entry = Detection at level indicated

COMMENTS:

PWS #	6040006
Lab Sample Tracking #	73030
Date Collected	6/11/2007
Sample Type	
Date Received	6/12/2007
Time Collected	9:00:00 AM
Location Tag #	
Sample Collection Location	WELL #1
Date Reported by Lab	6/26/2007
Jurisdiction	
PWS Contact Phone (208)	

Brenda Ellis 6-26-07

Signature of Lab Supervisor Date

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

LAB FE AL ID#: ID 00911	LAB SAMPLE # 730351
DATE LAB REC'D SAMPLE: 6/12/2007	DATE REPORTED BY LAB: 7/7/2007
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: **6/11/2007**	COLLECTION TIME: **9:00:00 AM** (24 hour clock)
SAMPLE TYPE ☐ CO-confirmation ☒ RT-routine ☐ DU-duplicate	☐ RP-repeat ☐ SP-special ☐ OTHER:_____
PWS#: **6040006**	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: **WELL #1**	TAG #/FACILITY ID:
COLLECTOR'S NAME:	CONTACT PHONE #:

MAGIC VALLEY LABS
210 ADDISON AVE, PO BOX 1867
TWIN FALLS, ID 83301
(208) 733-4250

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PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT

Phase II								Phase V							
FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst	FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst
1010	Barium		2	0.5	3111D			1024	Cyanide		0.2				
1015	Cadmium		0.005	0.0005	3113B			1036	Nickel		N/a	0.01	3113B		
1020	Chromium		0.1	0.005	3113B			1074	Antimony		0.006	0.005	200.9		
1035	Mercury		0.002	0.001	245.1			1075	Beryllium		0.004	0.0005	200.9		
1038	Ttl (N02/NO3)		10					1085	Thallium		0.002	0.002	200.9		
1040	Nitrate		10					Other IOCs							
1041	Nitrite		1.0					1005	Arsenic	**<0.005**	0.010	0.005	200.9	06/23/07	RB
1045	Selenium		0.05	0.005	200.9			1025	Fluoride		4.0	0.02	300.0		
1094	Asbestos		7 MFL	0.18	100.1☆		**	1052	Sodium	**6.88**	N/a	0.5	3111B	06/23/07	RB
Secondary IOCs (optional)															
1002	Aluminum		0.05-0.2	0.1	200.7			1050	Silver		0.1	0.05	3111B		
1003	Ammonia as N			0.05	350.2			1055	Sulfate		250	1	300.0		
1016	Calcium			0.5	3111B			1095	Zinc		5	0.05	3111B		
1017	Chloride		250	0.14	300.0			1905	Color		15c.u.	1	110.2		
1022	Copper		1.0	0.1	3111B			1915	Hardness as CaCO3			5	2340B		
1026†	Conductivity µg/cm			10	120.1			1920	Odor (threshold #)		3	1	140.1		
1027	Hydrogen Sulfide			0.1	8131			1925	pH		6.5-8.5		150.1		
1028	Iron		0.3	0.1	3111B			1927	Alkalinity as CaCO3			5	310.1		
1031	Magnesium			0.2	3111B			1930	Dissolved Solids		500	1	160.1		
1032	Manganese		0.05	0.05	3111B			1997	Langlier Index						
1042	Potassium			0.5	3111B			2905	Surfactants			0.1	5540C		
1049	Silica as SiO2			1	200.8										

*Reported in mg/L unless otherwise noted † = formerly FRDS No. 1926 PQL = Process Qualitivity limit --- = No analysis performed ND = Not detected within sensitivity of instrument
☆EPA 600/4-83-043 **Test performed by Data Chem

Gary J. Fenwick 7/9/07
Signature of Laboratory Supervisor **Date**

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

MAGIC VALLEY LABS, INC.
210 ADDISON AVE. / BOX 1867
TWIN FALLS, ID 83303-1867
(208) 733-4250
LAB ID #ID00911

PUBLIC DRINKING WATER INORGANIC CHEMICAL ANALYSIS REPORT

ACUTE IOC CONTAMINANTS For Public Drinking Water Systems

FRDS	Contaminant	Results (mg/L)	MCL (mg/L)	MDL	Method	Analysis Date	Analyst	MONITORING REQUIREMENTS
1040	Nitrate	9.59	10	<0.3	EPA 300.0	8/11/2007	JB	Ground water systems with nitrate levels below 5 mg/L must monitor nitrate annually. Surface water systems and systems with nitrate levels of 5 or more mg/L must monitor quarterly, unless otherwise advised in writing.
1041	Nitrite	.	1.0	<0.2	EPA 300.0	12:00:00 AM		Once per nine years unless advised otherwise.
1038	Total (NO_3+NO_2)	---	10					
1055	Sulfate	---	N/A					Sulfate is in the process of becoming a regulated contaminant. Monitoring is not yet required.

LAB RESULT REPORTING CODES:

ND = Not detected within sensitivity of instrument

---- = No analysis performed for this contaminant

Numerical entry = Detection at level indicated

COMMENTS:

PWS #	6040006
Lab Sample Tracking #	74747
Date Collected	7/31/2007
Sample Type	Routine
Date Received	8/1/2007
Time Collected	8:00:00 AM
Location Tag #	
Sample Collection Location	WELL #1
Date Reported by Lab	8/14/2007
Jurisdiction	
PWS Contact Phone (208)	

Brendalli 8-16-07

Signature of Lab Supervisor Date

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

MAGIC VALLEY LABS, INC.
210 ADDISON AVE. / BOX 1867
TWIN FALLS, ID 83303-1867
(208) 733-4250
LAB ID #ID00911

PUBLIC DRINKING WATER INORGANIC CHEMICAL ANALYSIS REPORT

ACUTE IOC CONTAMINANTS For Public Drinking Water Systems

FRDS	Contaminant	Results (mg/L)	MCL (mg/L)	MDL	Method	Analysis Date	Analyst	MONITORING REQUIREMENTS
1040	Nitrate	7.06	10	<0.3	EPA 300.0	12/8/2007	JH	Ground water systems with nitrate levels below 5 mg/L must monitor nitrate annually. Surface water systems and systems with nitrate levels of 5 or more mg/L must monitor quarterly, unless otherwise advised in writing.
1041	Nitrite	.	1.0	<0.2	EPA 300.0	12:00:00 AM		Once per nine years unless advised otherwise.
1038	Total (NO_3+NO_2)	---	10					
1055	Sulfate	---	N/A					Sulfate is in the process of becoming a regulated contaminant. Monitoring is not yet required.

LAB RESULT REPORTING CODES:

ND = Not detected within sensitivity of instrument

---- = No analysis performed for this contaminant

Numerical entry = Detection at level indicated

COMMENTS:

PWS #	6040006
Lab Sample Tracking #	78532
Date Collected	12/3/2007
Sample Type	
Date Received	12/4/2007
Time Collected	3:00:00 PM
Location Tag #	
Sample Collection Location	WELL #1
Date Reported by Lab	12/19/2007
Jurisdiction	
PWS Contact Phone (208)	

Brenda Ellis 12-19-07

Signature of Lab Supervisor Date

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IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

MAGIC VALLEY LABS
210 Addison Ave / PO Box 1867
Twin Falls ID 83303-1867
Phone: (208) 733-4250
Fax: (208) 734-2539

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IDAHO DEPARTMENT OF
ENVIRONMENTAL QUALITY

TOM MULLICAN
IDEQ

444 HOSPITAL WAY #300
POCATELLO ID 83201

Collection Date 12/13/2007 **Received Date** 12/14/2007 **Location**
Collection Time 12:26 PM **Received Time** 3:15 PM BENNINGTON WELL #1

Sample #	Test / Method Code	Results in mg/L	Date Analyzed	Analyst
788301	NITRATE/N EPA300.0	7.73	12/17/2007	JH
788302	SODIUM SM3111B	6.68	12/19/2007	JB
788303	POTASSIUM SM3111B	0.72	12/19/2007	JB
788304	CALCIUM SM3111B	79.5	12/20/2007	JB
788305	MAGNESIUM SM3111B	15.4	12/20/2007	JB
788306	CHLORIDE EPA300.0	4.53	12/17/2007	JH
788307	BICARBONATE SM2320B	231	12/18/2007	JD
788308	CARBONATE SM2320B	<1	12/18/2007	JD
788309	SULFATE EPA300.0	38.4	12/17/2007	JH
7883010	TDS SM2540C	283	12/19/2007	JD

Brenda Ellis

Signature **Report Date:** Monday, December 31, 2007

LAB FEDERAL ID#: ID 00911	LAB SAMPLE # 1123911
DATE LAB REC'D SAMPLE: 6/15/2011	DATE REPORTED BY LAB: 6/21/2011
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: 6/14/2011	COLLECTION TIME: 11:00:00 AM
SAMPLE TYPE ☐ CO-confirmation ☐ RP-repeat ☐ SP-special ☐ OTHER:_____ ☒ RT-routine ☐ DU-duplicate	
PWS#: 6040006	PWS NAME: BENNINGTON WATER SYSTEM
SAMPLING POINT/LOCATION: CRI WELL #E0008038	TAG #/FACILITY ID:
COLLECTOR'S NAME: ROBERT HOLJESON	JURISDICTION:

MAGIC VALLEY LABS
210 ADDISON AVE, PO BOX 1867
TWIN FALLS, ID 83301
(208) 733-4250

PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT

Phase II								Phase V							
FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst	FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst
1010	Barium		2	0.5	3111D			1024	Cyanide		0.2				
1015	Cadmium		0.005	0.0005	3113B			1036	Nickel		N/a	0.01	3113B		
1020	Chromium		0.1	0.005	3113B			1074	Antimony		0.006	0.005	200.9		
1035	Mercury		0.002	0.001	245.1			1075	Beryllium		0.004	0.0005	200.9		
1038	Tl (N02/NO3)		10					1085	Thallium		0.002	0.002	200.9		
1040	Nitrate	6.42	10	0.30	300.0	6/15/2011	JB	Other IOCs							
1041	Nitrite		1.0	0.20	300.0			1005	Arsenic		0.010	0.005	200.9		
1045	Selenium		0.05	0.005	200.9			1025	Fluoride		4.0	0.02	300.0		
1094	Asbestos		7 MFL	0.18	100.1†			1052	Sodium		N/a	0.5	3111B		

*Reported in mg/L unless otherwise noted † = formerly FRDS No. 1926 PQL = Process Qualitivity limit --- = No analysis performed ND = Not detected within sensitivity of instrument

Brenda Ellis 6-22-11
Signature of Laboratory Supervisor Date

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BENNINGTON WATER SYSTEM
026 EAST 300 NORTH
BENNINGTON, ID 83254

BENNINGTON WATER SYSTEM
026 EAST 300 NORTH
BENNINGTON, ID 83254

LAB FEDEF D#: **ID00911**	LAB SAMPLE #: 1028221
DATE LAB REC'D SAMPLE: 6/23/2010	DATE REPORTED BY LAB: 7/12/2010
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: 6/22/2010	COLLECTION TIME: 2:35:00 PM (24 hour clock)
SAMPLE TYPE ☐ CO-confirmation ☐ DU-duplicate ☒ RT-routine	☐ RP-repeat ☐ SP-special ☐ OTHER:_____
PWS#: 6040006	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: CRI WELL TAG E0008038	TAG #/FACILITY ID:
OLLECTOR'S NAME: **LINDA CRANE**	CONTACT PHONE #:

MAGIC VALLEY LABS, INC.
210 Addison Ave., P.O. Box 1867
Twin Falls, ID 83301
(208) 733-4250

PUBLIC DRINKING WATERSYSTEM VOLATILE ORGANIC CHEMICAL (VOC) ANALYSIS REPORT:

METHOD: 524.2 | ANALYSIS DATE: 06/24/10 | ANALYST: ANATEK LABS, INC.

FRDS	Contaminant Name	Result*	MCL*	MDL*	FRDS	Contaminant Name	Result*	MCL*	MDL*
2378	1,2,4-Trichlorobenzene	ND	70.0	0.50	2979	trans-1,2-Dichloroethylene	ND	100.0	0.50
2380	cis-1,2-Dichloroethylene	ND	70.0	0.50	2980	1,2-Dichloroethane	ND	5.0	0.50
2950	Trihalomethanes - Total	ND	100.0	0.50	2981	1,1,1-Trichloroethane	ND	200.0	0.50
2941	Chloroform	To be reported on new DBP form			2982	Carbon Tetrachloride	ND	5.0	0.50
2942	Bromoform				2983	1,2-Dichloropropane	ND	5.0	0.50
2943	Bromodichloromethane				2984	Trichloroethylene	ND	5.0	0.50
2944	Dibromochloromethane				2985	1,1,2-Trichloroethane	ND	200.0	0.50
2955	Xylenes - Total	ND	10000	0.50	2987	Tetrachloroethylene	ND	5.0	0.50
2964	Dichloromethane	ND	5.0	0.50	2989	Monochlorobenzene	ND	100.0	0.50
2968	o-Dichlorobenzene	ND	600.0	0.50	2990	Benzene	ND	5.0	0.50
2969	p-Dichlorobenzene	ND	75.0	0.50	2991	Toluene	ND	1000.0	0.50
2976	Vinyl chloride	ND	2.0	0.50	2992	Ethylbenzene	ND	700.0	0.50
2977	1,1-Dichloroethylene	ND	7.0	0.50	2996	Styrene	ND	100.0	0.50

*Reported in µg/L unless otherwise noted ND = Not detected within sensitivity of instrument --- = No analysis performed MDL = Method detection limit

(Reserved for comments/notations)

Gary J. Fennick 7/14/10

Signature of Laboratory Supervisor **Date**

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

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BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

LAB FEDERAL ID#: ID 00911	LAB SAMPLE # **1058961**
DATE LAB REC'D SAMPLE: **9/22/2010**	DATE REPORTED BY LAB: **9/29/2010**
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: **9/21/2010**	COLLECTION TIME: **9:20:00 AM**
SAMPLE TYPE ☐ CO-confirmation ☐ RP-repeat ☐ SP-special ☐ OTHER:_____ ☒ RT-routine ☐ DU-duplicate	
PWS#: **6040006**	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: **CRI WELL**	TAG #/FACILITY ID:
COLLECTOR'S NAME:	JURISDICTION:

MAGIC VALLEY LABS
210 ADDISON AVE, PO BOX 1867
TWIN FALLS, ID 83301
(208) 733-4250

PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT

Phase II								*Phase V*							
FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst	FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst
1010	Barium		2	0.5	3111D			1024	Cyanide		0.2				
1015	Cadmium		0.005	0.0005	3113B			1036	Nickel		N/a	0.01	3113B		
1020	Chromium		0.1	0.005	3113B			1074	Antimony		0.006	0.005	200.9		
1035	Mercury		0.002	0.001	245.1			1075	Beryllium		0.004	0.0005	200.9		
1038	Tl (N02/NO3)		10					1085	Thallium		0.002	0.002	200.9		
1040	Nitrate	5.70	10	0.30	300.0	9/22/2010	JF	Other IOCs							
1041	Nitrite	<0.20	1.0	0.20	300.0	09/22/10	JF	1005	Arsenic		0.010	0.005	200.9		
1045	Selenium		0.05	0.005	200.9			1025	Fluoride		4.0	0.02	300.0		
1094	Asbestos		7 MFL	0.18	100.1/2			1052	Sodium		N/a	0.5	3111B		

*Reported in mg/L unless otherwise noted † = formerly FRDS No. 1926 PQL = Process Qualitivity limit --- = No analysis performed ND = Not detected within sensitivity of instrument

Brenda Ellis 11/15/10
Signature of Laboratory Supervisor **Date**

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BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

LAB FEDERAL ID#: ID 00911	LAB SAMPLE # 1058961
DATE LAB REC'D SAMPLE: 9/22/2010	DATE REPORTED BY LAB: 9/29/2010
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: 9/21/2010	COLLECTION TIME: 9:20:00 AM
SAMPLE TYPE ☐ CO-confirmation ☐ RP-repeat ☐ SP-special ☐ OTHER:_____ ☒ RT-routine ☐ DU-duplicate	
PWS#: 6040006	PWS NAME: BENNINGTON WATER SYSTEM
SAMPLING POINT/LOCATION: CRI WELL	TAG #/FACILITY ID:
COLLECTOR'S NAME:	JURISDICTION:

MAGIC VALLEY LABS
210 ADDISON AVE, PO BOX 1867
TWIN FALLS, ID 83301
(208) 733-4250

PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT

Phase II								Phase V							
FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst	FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst
1010	Barium		2	0.5	3111D			1024	Cyanide		0.2				
1015	Cadmium		0.005	0.0005	3113B			1036	Nickel		N/a	0.01	3113B		
1020	Chromium		0.1	0.005	3113B			1074	Antimony		0.006	0.005	200.9		
1035	Mercury		0.002	0.001	245.1			1075	Beryllium		0.004	0.0005	200.9		
1038	Tll (N02/NO3)		10					1085	Thallium		0.002	0.002	200.9		
1040	Nitrate		10	0.30	300.0	09/22/10		Other IOCs							
1041	Nitrite	<0.20	1.0	0.20	300.0		JF	1005	Arsenic		0.010	0.005	200.9		
1045	Selenium		0.05	0.005	200.9			1025	Fluoride		4.0	0.02	300.0		
1094	Asbestos		7 MFL	0.18	100.1☆			1052	Sodium		N/a	0.5	3111B		

*Reported in mg/L unless otherwise noted † = formerly FRDS No. 1926 PQL = Process Qualitivity limit — = No analysis performed ND = Not detected within sensitivity of instrument

Brenda Ellis 9-30-10
Signature of Laboratory Supervisor Date

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BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

LAB FEDERAL D#: **ID00911**	LAB SAMPLE #: 960031
DATE LAB REC'D SAMPLE: 9/30/2000	DATE REPORTED BY LAB: 10/28/2009
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: 9/28/2009	COLLECTION TIME: 2:55:00 PM (24 hour clock)
SAMPLE TYPE ☐ CO-confirmation ☐ DU-duplicate ☒ RT-routine ☐ RP-repeat ☐ SP-special ☐ OTHER:_____	
PWS#: 6040006	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: CR1 WELL	TAG #/FACILITY ID:
COLLECTOR'S NAME: **MIKE PIERCE**	CONTACT PHONE #:

MAGIC VALLEY LABS, INC.
210 Addison Ave., P.O. Box 1867
Twin Falls, ID 83301
(208) 733-4250

PUBLIC DRINKING WATERSYSTEM VOLATILE ORGANIC CHEMICAL (VOC) ANALYSIS REPORT:

METHOD: 524.2 | ANALYSIS DATE: 10/2/09 | ANALYST: GF

FRDS	Contaminant Name	Result*	MCL*	MDL*	FRDS	Contaminant Name	Result*	MCL*	MDL*
2378	1,2,4-Trichlorobenzene	ND	70.0	0.50	2979	trans-1,2-Dichloroethylene	ND	100.0	0.50
2380	cis-1,2-Dichloroethylene	ND	70.0	0.50	2980	1,2-Dichloroethane	ND	5.0	0.50
2950	Trihalomethanes – Total	ND	100.0	0.50	2981	1,1,1-Trichloroethane	ND	200.0	0.50
2941	Chloroform	To be reported on new DBP form	[redacted]		2982	Carbon Tetrachloride	ND	5.0	0.50
2942	Bromoform				2983	1,2-Dichloropropane	0.00073	5.0	0.50
2943	Bromodichloromethane				2984	Trichloroethylene	ND	5.0	0.50
2944	Dibromochloromethane				2985	1,1,2-Trichloroethane	ND	200.0	0.50
2955	Xylenes – Total	ND	10000	0.50	2987	Tetrachloroethylene	ND	5.0	0.50
2964	Dichloromethane	ND	5.0	0.50	2989	Monochlorobenzene	ND	100.0	0.50
2968	o-Dichlorobenzene	ND	600.0	0.50	2990	Benzene	ND	5.0	0.50
2969	p-Dichlorobenzene	ND	75.0	0.50	2991	Toluene	ND	1000.0	0.50
2976	Vinyl chloride	ND	2.0	0.50	2992	Ethylbenzene	ND	700.0	0.50
2977	1,1-Dichloroethylene	ND	7.0	0.50	2996	Styrene	ND	100.0	0.50

*Reported in µg/L unless otherwise noted ND = Not detected within sensitivity of instrument --- = No analysis performed MDL = Method detection limit

(Reserved for comments/notations)

Gary J. Fenwick 10/29/09
Signature of Laboratory Supervisor **Date**

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

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BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

LAB FEDERAL ID 00911	LAB SAMPLE #: 960221
DATE LAB REC'D SAMPLE: 9/30/2009	DATE REPORTED BY LAB: 12/7/2009
COMPLIANCE SAMPLE ☑ YES ☐ NO	☐ REPLACEMENT SAMPLE
COLLECTION DATE : 9/28/2009	COLLECTION TIME: 3:00:00 PM (24 hour clock)
SAMPLE TYPE: RADS	☐ PRIVATE ☑ PUBLIC
PWS#: 6040006	PWS NAME: BENNINGTON WATER SYSTEM
SAMPLING POINT/LOCATION: CRI WELL	TAG #/FACILITY ID:
COLLECTOR'S NAME: MIKE PIERCE	CONTACT PHONE #:

MAGIC VALLEY LABS, INC.
210 Addison Ave. PO Box 1867
Twin Falls ID 83301
Phone: 208-733-4250
Fax: 208-734-8539

PUBLIC DRINKING WATER SYSTEM RADIOLOGICAL ANALYSIS REPORT:

FRDS	CONTAMINANT	RESULT µg/L	RESULT pCi/L	MCL	ANALYSIS DATE	ANALYST	METHOD
4002	**Gross Alpha Activity** *(includes radium and uranium)*		-0.35		10/17/09	*	E900.0
4006	**Uranium, Combined** convert to activity; multiply concentration in µg/L x 1.0 *(required if gross alpha exceeds 15pCi/L)*	<1		30 µg/L	10/15/09	**	E200.8
4000	**Net Alpha** subtract Uranium activity from Gross alpha activity *(includes radium but excludes uranium)*			15 pCi/L			
4020	**Radium-226** *(required if alpha activity is greater than 5pCilL)*		0.05		10/29/09	*	E903.0
4030	**Radium-228**		0.89		10/27/09	*	E904.0
4010	**Radium, Combined (226 & 228)** add results of Ra-226 and Ra-228			5 pCi/L			
4100	**Gross Beta/Photon Activity** *(required to measure major isotopes if activity exceeds 50pCilL)*			4 mREM		*	E900.0

ND = Not detected within sensitivity of instrument

--- = No analysis performed

Brenda Ellis 12-11-09

Signature of Laboratory Supervisor **Date**

TEST PERFORMED BY
*Benchmark Analytics
**Anatek Labs, Inc

COMPOSITE SAMPLE DATES:
1ST Quarterly Sample:
2nd Quarterly Sample:
3rd Quarterly Sample:
Enter 4th Quarter or latest sample date beside
Collection Date at top of form

(Reserved for comments/notations)

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BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

LAB FEDERAL ID#: ID 00911	LAB SAMPLE # **960021**
DATE LAB REC'D SAMPLE: **9/30/2000**	DATE REPORTED BY LAB: **12:00:00 AM**
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: **9/28/2009**	COLLECTION TIME: **2:50:00 PM**
SAMPLE TYPE ☐ CO-confirmation ☒ RT-routine ☐ DU-duplicate ☐ RP-repeat ☐ SP-special ☐ OTHER:_____	
PWS#: **6040006**	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: **CR1 WELL**	TAG #/FACILITY ID:
COLLECTOR'S NAME: **MIKE PIERCE**	JURISDICTION:

MAGIC VALLEY LABS
210 ADDISON AVE, PO BOX 1867
TWIN FALLS, ID 83301
(208) 733-4250

PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT

Phase II								Phase V							
FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst	FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst
1010	Barium		2	0.5	3111D			1024	Cyanide		0.2				
1015	Cadmium		0.005	0.0005	3113B			1036	Nickel		N/a	0.01	3113B		
1020	Chromium		0.1	0.005	3113B			1074	Antimony		0.006	0.005	200.9		
1035	Mercury		0.002	0.001	245.1			1075	Beryllium		0.004	0.0005	200.9		
1038	Ttl (N02/NO3)		10					1085	Thallium		0.002	0.002	200.9		
1040	Nitrate	4.08	10	0.30	300.0	9/30/2009	JB	Other IOCs							
1041	Nitrite	.	1.0	0.20	300.0			1005	Arsenic		0.010	0.005	200.9		
1045	Selenium		0.05	0.005	200.9			1025	Fluoride		4.0	0.02	300.0		
1094	Asbestos		7 MFL	0.18	100.1☆			1052	Sodium		N/a	0.5	3111B		

*Reported in mg/L unless otherwise noted † = formerly FRDS No. 1926 PQL = Process Qualitivity limit --- = No analysis performed ND = Not detected within sensitivity of instrument

Brenda Ellis 10-8-09
Signature of Laboratory Supervisor **Date**

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BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

LAB FEDERAL ID #ID00911	LAB SAMPLE #: 960221
DATE LAB REC'D SAMPLE: 9/30/2009	DATE REPORTED BY LAB: 12/7/2009
COMPLIANCE SAMPLE ☑ YES ☐ NO	☐ REPLACEMENT SAMPLE
COLLECTION DATE : 9/28/2009	COLLECTION TIME: 3:00:00 PM (24 hour clock)
SAMPLE TYPE: RADS	☐ PRIVATE ☑ PUBLIC
PWS#: 6040006	PWS NAME: BENNINGTON WATER SYSTEM
SAMPLING POINT/LOCATION: CRI WELL	TAG #/FACILITY ID:
COLLECTOR'S NAME: MIKE PIERCE	CONTACT PHONE #:

MAGIC VALLEY LABS, INC.
210 Addison Ave. PO Box 1867
Twin Falls ID 83301
Phone: 208-733-4250
Fax: 208-734-8539

PUBLIC DRINKING WATER SYSTEM RADIOLOGICAL ANALYSIS REPORT:

FRDS	CONTAMINANT	RESULT µg/L	RESULT pCi/L	MCL	ANALYSIS DATE	ANALYST	METHOD
4002	**Gross Alpha Activity** *(includes radium and uranium)*		-0.35		10/17/09	*	E900.0
4006	**Uranium, Combined** convert to activity; multiply concentration in µg/L x 1.0 *(required if gross alpha exceeds 15pCi/L)*	<1		30 µg/L	10/15/09	**	E200.8
4000	**Net Alpha** subtract Uranium activity from Gross alpha activity *(includes radium but excludes uranium)*			15 pCi/L			
4020	**Radium-226** *(required if alpha activity is greater than 5pCi/L)*		0.05		10/29/09	*	E903.0
4030	**Radium-228**		0.89		10/27/09	*	E904.0
4010	**Radium, Combined (226 & 228)** add results of Ra-226 and Ra-228			5 pCi/L			
4100	**Gross Beta/Photon Activity** *(required to measure major isotopes if activity exceeds 50pCi/L)*			4 mREM		*	E900.0

ND = Not detected within sensitivity of instrument

— = No analysis performed

Brenda Ellis 12-11-09

Signature of Laboratory Supervisor **Date**

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

TEST PERFORMED BY
*Benchmark Analytics
**Anatek Labs, Inc

(Reserved for comments/notations)

COMPOSITE SAMPLE DATES:
1ST Quarterly Sample:
2nd Quarterly Sample:
3rd Quarterly Sample:
Enter 4th Quarter or latest sample date beside
Collection Date at top of form

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IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

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210 ADDISON AVE. / BOX 1867
TWIN FALLS, ID 83303-1867
(208) 733-4250
LAB ID #ID00911

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DEPARTMENT OF ENVIROMENTAL QUALITY
POCATELLO REGIONAL OFFICE

PUBLIC DRINKING WATER INORGANIC CHEMICAL ANALYSIS REPORT

ACUTE IOC CONTAMINANTS For Public Drinking Water Systems

FRDS	Contaminant	Results (mg/L)	MCL (mg/L)	MDL	Method	Analysis Date	Analyst	MONITORING REQUIREMENTS
1040	Nitrate	2.28	10	<0.3	EPA 300.0	7/22/2008	JB	Ground water systems with nitrate levels below 5 mg/L must monitor nitrate annually. Surface water systems and systems with nitrate levels of 5 or more mg/L must monitor quarterly, unless otherwise advised in writing.
1041	Nitrite	.	1.0	<0.2	EPA 300.0	12:00:00 AM		Once per nine years unless advised otherwise.
1038	Total (NO_3+NO_2)	---	10					
1055	Sulfate	---	N/A					Sulfate is in the process of becoming a regulated contaminant. Monitoring is not yet required.

LAB RESULT REPORTING CODES:

ND = Not detected within sensitivity of instrument

---- = No analysis performed for this contaminant

Numerical entry = Detection at level indicated

COMMENTS:

PWS #	6040006
Lab Sample Tracking #	84543
Date Collected	7/15/2008
Sample Type	
Date Received	7/16/2008
Time Collected	9:00:00 AM
Location Tag #	
Sample Collection Location	CRI WELL
Date Reported by Lab	7/25/2008
Jurisdiction	
PWS Contact Phone (208)	

Brenda Ellis 7-26-08

Signature of Lab Supervisor Date

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

MAGIC VALLEY LABS, INC.
210 ADDISON AVE. / BOX 1867
TWIN FALLS, ID 83303-1867
(208) 733-4250
LAB ID #ID00911

PUBLIC DRINKING WATER INORGANIC CHEMICAL ANALYSIS REPORT

ACUTE IOC CONTAMINANTS For Public Drinking Water Systems

FRDS	Contaminant	Results (mg/L)	MCL (mg/L)	MDL	Method	Analysis Date	Analyst	MONITORING REQUIREMENTS
1040	Nitrate	4.31	10	<0.03	EPA 300.0	6/12/2007	JH	Ground water systems with nitrate levels below 5 mg/L must monitor nitrate annually. Surface water systems and systems with nitrate levels of 5 or more mg/L must monitor quarterly, unless otherwise advised in writing.
1041	Nitrite	.	1.0	<0.02	EPA 300.0	12:00:00 AM		Once per nine years unless advised otherwise.
1038	Total (NO_3+NO_2)	---	10					
1055	Sulfate	---	N/A					Sulfate is in the process of becoming a regulated contaminant. Monitoring is not yet required.

LAB RESULT REPORTING CODES:

ND = Not detected within sensitivity of instrument

---- = No analysis performed for this contaminant

Numerical entry = Detection at level indicated

COMMENTS:

PWS #	6040006
Lab Sample Tracking #	73031
Date Collected	6/11/2007
Sample Type	
Date Received	6/12/2007
Time Collected	10:00:00 AM
Location Tag #	
Sample Collection Location	CR1 WELL
Date Reported by Lab	6/26/2007
Jurisdiction	
PWS Contact Phone (208)	

Brent Ellis 6-26-07

Signature of Lab Supervisor Date

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

MAGIC VALLEY LABS
210 Addison Ave / PO Box 1867
Twin Falls ID 83303-1867
Phone: (208) 733-4250
Fax: (208) 734-2539

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IDAHO DEPARTMENT OF
ENVIRONMENTAL QUALITY

TOM MULLICAN
IDEQ

444 HOSPITAL WAY #300
POCATELLO ID 83201

Collection Date	12/13/2007	**Received Date**	12/14/2007	**Location**	
Collection Time	1:08 PM	**Received Time**	3:15 PM	BENNINGTON CR 1 WELL	

Sample #	Test / Method Code	Results in mg/L	Date Analyzed	Analyst
788311	NITRATE/N EPA300.0	2.92	12/17/2007	JH
788312	SODIUM SM3111B	6.73	12/19/2007	JB
788313	POTASSIUM SM3111B	0.92	12/19/2007	JB
788314	CALCIUM SM3111B	75.7	12/20/2007	JB
788315	MAGNESIUM SM3111B	21.5	12/20/2007	JB
788316	CHLORIDE EPA300.0	3.07	12/17/2007	JH
788317	BICARBONATE SM2320B	219	12/18/2007	JD
788318	CARBONATE SM2320B	<1	12/18/2007	JD
788319	SULFATE EPA300.0	58.3	12/17/2007	JH
7883110	TDS SM2540C	289	12/19/2007	JD

Signature

Report Date: Monday, December 31, 2007

LAB FEDERAL ID#: ID 00911	LAB SAMPLE # 1123891
DATE LAB REC'D SAMPLE: 6/15/2011	DATE REPORTED BY LAB: 6/21/2011
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: 6/14/2011	COLLECTION TIME: 11:00:00 AM
SAMPLE TYPE ☐ CO-confirmation ☐ RP-repeat ☐ SP-special ☐ OTHER:_____ ☒ RT-routine ☐ DU-duplicate	
PWS#: 6040006	PWS NAME: BENNINGTON WATER SYSTEM
SAMPLING POINT/LOCATION: SPRING #1 #E0007077	TAG #/FACILITY ID:
COLLECTOR'S NAME: ROBERT HOLJESON	JURISDICTION:

MAGIC VALLEY LABS
210 ADDISON AVE, PO BOX 1867
TWIN FALLS, ID 83301
(208) 733-4250

PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT

Phase II								Phase V							
FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst	FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst
1010	Barium		2	0.5	3111D			1024	Cyanide		0.2				
1015	Cadmium		0.005	0.0005	3113B			1036	Nickel		N/a	0.01	3113B		
1020	Chromium		0.1	0.005	3113B			1074	Antimony		0.006	0.005	200.9		
1035	Mercury		0.002	0.001	245.1			1075	Beryllium		0.004	0.0005	200.9		
1038	Ttl (N02/NO3)		10					1085	Thallium		0.002	0.002	200.9		
1040	Nitrate	0.39	10	0.30	300.0	6/15/2011	JB	Other IOCs							
1041	Nitrite		1.0	0.20	300.0			1005	Arsenic		0.010	0.005	200.9		
1045	Selenium		0.05	0.005	200.9			1025	Fluoride		4.0	0.02	300.0		
1094	Asbestos		7 MFL	0.18	100.1†			1052	Sodium		N/a	0.5	3111B		

*Reported in mg/L unless otherwise noted † = formerly FRDS No. 1926 PQL = Process Qualitivity limit — = No analysis performed ND = Not detected within sensitivity of instrument

Brenda Ellis 6-22-11
Signature of Laboratory Supervisor Date

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IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

BENNINGTON WATER SYSTEM
026 EAST 300 NORTH
BENNINGTON, ID 83254

BENNINGTON WATER SYSTEM
026 EAST 300 NORTH
BENNINGTON, ID 83254

LAB FEDERAL ID#: ID 00911	LAB SAMPLE # **1019231**
DATE LAB REC'D SAMPLE: **5/18/2010**	DATE REPORTED BY LAB: **5/26/2010**
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: **5/17/2010**	COLLECTION TIME: **2:25:00 PM**
SAMPLE TYPE ☐ CO-confirmation ☐ RP-repeat ☐ SP-special ☐ OTHER:_____ ☒ RT-routine ☐ DU-duplicate	
PWS#: **6040006**	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: **SPRING #1**	TAG #/FACILITY ID:
COLLECTOR'S NAME: **MIKE PIERCE**	JURISDICTION:

MAGIC VALLEY LABS
210 ADDISON AVE, PO BOX 1867
TWIN FALLS, ID 83301
(208) 733-4250

PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT

Phase II								Phase V							
FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst	FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst
1010	Barium		2	0.5	3111D			1024	Cyanide		0.2				
1015	Cadmium		0.005	0.0005	3113B			1036	Nickel		N/a	0.01	3113B		
1020	Chromium		0.1	0.005	3113B			1074	Antimony		0.006	0.005	200.9		
1035	Mercury		0.002	0.001	245.1			1075	Beryllium		0.004	0.0005	200.9		
1038	Ttl (N02/NO3)		10					1085	Thallium		0.002	0.002	200.9		
1040	Nitrate		10	0.30	300.0			Other IOCs							
1041	Nitrite	<0.20	1.0	0.20	300.0	5/19/2010	JF	1005	Arsenic		0.010	0.005	200.9		
1045	Selenium		0.05	0.005	200.9			1025	Fluoride		4.0	0.02	300.0		
1094	Asbestos		7 MFL	0.18	100.1☆			1052	Sodium		N/a	0.5	3111B		

*Reported in mg/L unless otherwise noted † = formerly FRDS No. 1926 PQL = Process Qualitivity limit — = No analysis performed ND = Not detected within sensitivity of instrument

Brenda Ellis 6-4-10
Signature of Laboratory Supervisor **Date**

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BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

LAB FEDERAL ID#: ID 00911	LAB SAMPLE # **1058941**
DATE LAB REC'D SAMPLE: **9/22/2010**	DATE REPORTED BY LAB: **10/25/2010**
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: **9/21/2010**	COLLECTION TIME: **9:00:00 AM**
SAMPLE TYPE ☐ CO-confirmation ☒ RT-routine ☐ DU-duplicate	☐ RP-repeat ☐ SP-special ☐ OTHER:_____
PWS#: **6040006**	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: **SPRING 1**	TAG #/FACILITY ID:
COLLECTOR'S NAME:	JURISDICTION:

MAGIC VALLEY LABS
210 ADDISON AVE, PO BOX 1867
TWIN FALLS, ID 83301
(208) 733-4250

PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT

Phase II								*Phase V*							
FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst	FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst
1010	Barium		2	0.5	3111D			1024	Cyanide		0.2				
1015	Cadmium		0.005	0.0005	3113B			1036	Nickel		N/a	0.01	3113B		
1020	Chromium		0.1	0.005	3113B			1074	Antimony		0.006	0.005	200.9		
1035	Mercury		0.002	0.001	245.1			1075	Beryllium		0.004	0.0005	200.9		
1038	Ttl (N02/NO3)		10					1085	Thallium		0.002	0.002	200.9		
1040	Nitrate	0.33	10	0.30	300.0	9/22/2010	JF	Other IOCs							
1041	Nitrite	.	1.0	0.20	300.0			1005	Arsenic		0.010	0.005	200.9		
1045	Selenium		0.05	0.005	200.9			1025	Fluoride		4.0	0.02	300.0		
1094	Asbestos		7 MFL	0.18	100.1/N			1052	Sodium		N/a	0.5	3111B		

*Reported in mg/L unless otherwise noted † = formerly FRDS No. 1926 PQL = Process Qualitivity limit — = No analysis performed ND = Not detected within sensitivity of instrument

Gary T. Fenwick 11/1/10
Signature of Laboratory Supervisor **Date**

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BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

LAB FEDERAL ID#: **ID00911**	LAB SAMPLE #: **1058951**
DATE LAB REC'D SAMPLE: **9/22/2010**	DATE REPORTED BY LAB: **11/11/2010**
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: **9/21/2010**	COLLECTION TIME: **9:00:00 AM** (24 hour clock)
SAMPLE TYPE ☐ CO-confirmation ☐ RP-repeat ☐ SP-special ☐ OTHER:_____ ☒ RT-routine ☐ DU-duplicate	
PWS#: **6040006**	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: **SPRING 1**	TAG #/FACILITY ID:
COLLECTOR'S NAME:	CONTACT PHONE #:

MAGIC VALLEY LABS, INC.
210 Addison Ave., P.O. Box 1867
Twin Falls, ID 83301

PUBLIC DRINKING WATER SYSTEM SYNTHETIC ORGANIC CHEMICAL (SOC) ANALYSIS REPORT:

FRDS	Contaminant Name	Result*	Method	MCL*	MDL*	Analysis Date	Analyst	FRDS	Contaminant Name	Result*	Method	MCL*	MDL*	Analysis Date	Analyst
2005	Endrin		508.1	2.0	0.0099			2046	Carbofuran		531.1	40	0.50		
2010	Lindane		508.1	0.2	0.0099			2050	Atrazine	ND	525.2	3.0	0.099	10/3/2010	**
2015	Methoxychlor		508.1	40.0	0.0099			2051	Alachlor	ND	525.2	2.0	0.071	10/3/2010	**
2020	Toxaphene		50	3.0	0.099			2066	Heptachlor		508.1	0.4	0.0099		
2031	Dalapon		515.4	200	1.0			2067	Heptachlor epoxide		508.1	0.2	0.0099		
2032	Diquat		549.2	20	0.40			2105	2,4-D		515.4	70	1.0		
2033	Endothall		548.1	100	5.0			2110	2,4,5-TP		515.4	50	0.05		
2034	Glyphosate		547	700	6.0			2274	Hexachlorobenzene	ND	525.2	1.0	0.099	10/3/2010	**
2035	Di(2-ethylhexyl)adipate	ND	525.2	400	0.59	10/3/2010	**	2306	Benzo[a]pyrene	ND	525.2	0.2	0.02	10/3/2010	**
2036	Oxamyl		531.1	200	0.50			2326	Pentachlorophenol		515.4	1	0.04		
2037	Simazine	ND	525.2	4.0	0.05	10/3/2010	**	2383	PCBs		508.1	0.5	0.099		
2039†	Di(2-ethylhexyl)phthalate	ND	525.2	6.0	0.59	10/3/2010	**	2931	DBCP		504.1	0.2	0.02		
2040	Picloram		515.4	500	0.1			2946	EDB		504.1	0.05	0.01		
2041	Dinoseb		515.4	7	0.2			2959	Chlordane		508.1	2.0	0.099		
2042	Hexachlorocyclopentadiene	ND	525.2	50	0.099	10/3/2010	**								

† Formerly FRDS code 2298 *Reported in µg/L unless otherwise noted ND = Not detected within sensitivity of instrument --- = No analysis performed
MDL = Method detection limit **Test Performed by Columbia Analytical Services, Inc (Reserved for comments/notations)

Brenda Gibbs 11/15/10
Signature of Laboratory Supervisor Date

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

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IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

LAB FEDERAL ID#: ID 00911	LAB SAMPLE # 1058931
DATE LAB REC'D SAMPLE: 9/22/2010	DATE REPORTED BY LAB: 10/25/2010
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: **9/21/2010**	COLLECTION TIME: **9:00:00 AM** (24 hour clock)
SAMPLE TYPE ☐ CO-confirmation ☒ RT-routine ☐ DU-duplicate	☐ RP-repeat ☐ SP-special ☐ OTHER:_____
PWS#: **6040006**	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: **SPRING 1**	TAG #/FACILITY ID:
COLLECTOR'S NAME:	CONTACT PHONE #:

MAGIC VALLEY LABS
210 ADDISON AVE, PO BOX 1867
TWIN FALLS, ID 83301
(208) 733-4250

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PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT

Phase II								*Phase V*							
FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst	FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst
1010	Barium		2	0.05	200.7	10/05/10		1024	Cyanide		0.2				
1015	Cadmium		0.005	0.001	200.8			1036	Nickel		N/a	0.05	200.7		
1020	Chromium		0.1	0.001	200.8			1074	Antimony		0.006	0.001	200.8		
1035	Mercury		0.002	0.0001	200.8			1075	Beryllium		0.004	0.001	200.8		
1038	Ttl (N02/NO3)		10					1085	Thallium		0.002	0.001	200.8		
1040	Nitrate		10								Other IOCs				
1041	Nitrite		1.0					1005	Arsenic	**<0.001**	0.010	0.001	200.8	10/12/10	**
1045	Selenium		0.05	0.001	200.8			1025	Fluoride		4.0	0.02	300.0		
1094	Asbestos		7 MFL	0.18	100.1☆			1052	Sodium	**4.90**	N/a	0.5	200.7	10/14/10	JB
Secondary IOCs (optional)															
1002	Aluminum		0.05-0.2	0.01	200.8			1050	Silver		0.1	0.001	200.8		
1003	Ammonia as N			0.05	4500NH3			1055	Sulfate		250	0.1	300.0		
1016	Calcium			0.1	200.7			1095	Zinc		5	0.001	200.8		
1017	Chloride		250	0.1	300.0			1905	Color		15c.u.	5	110.2		
1022	Copper		1.0	0.001	200.8			1915	Hardness as CaCO3			1	200.7		
1026†	Conductivity µg/cm				120.1			1920	Odor (threshold #)		3	1	140.1		
1027	Hydrogen Sulfide			0.1	4500S2F			1925	pH		6.5-8.5		150.1		
1028	Iron		0.3	0.01	200.7			1927	Alkalinity as CaCO3			1	2320B		
1031	Magnesium			0.1	200.7			1930	Dissolved Solids		500	10	160.1		
1032	Manganese		0.05	0.001	200.8			1997	Langlier Index				Calculation		
1042	Potassium			0.01	200.7			2905	Surfactants			0.05	5540C		
1049	Silica as SiO2			0.1	200.7			1030	Lead		0.015	0.001	200.8		

*Reported in mg/L unless otherwise noted † = formerly FRDS No. 1926 PQL = Process Qualitivity limit --- = No analysis performed ND = Not detected within sensitivity of instrument
☆EPA 600/4-83-043 **Test performed by ANATEK LABS, INC

COMMENTS:

BENNINGTON WATER SYSTEM
077 N MAIN
MONTPELIER ID 83254

Gary T. Fenwick 11/1/10
Signature of Laboratory Supervisor **Date**

LAB FEDERAL ID#: **ID00911**	LAB SAMPLE #: **730271**
DATE LAB REC'D SAMPLE: **6/12/2007**	DATE REPORTED BY LAB: **7/13/2007**
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: **6/11/2007**	COLLECTION TIME: **9:30:00 AM** (24 hour clock)
SAMPLE TYPE ☐ CO-confirmation ☒ RT-routine ☐ DU-duplicate	☐ RP-repeat ☐ SP-special ☐ OTHER:_____
PWS#: **6040006**	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: **515 SPRING**	TAG #/FACILITY ID:
COLLECTOR'S NAME:	CONTACT PHONE #:

MAGIC VALLEY LABS, INC.
210 Addison Ave., P.O. Box 1867
Twin Falls, ID 83301

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IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

PUBLIC DRINKING WATER SYSTEM SYNTHETIC ORGANIC CHEMICAL (SOC) ANALYSIS REPORT:

FRDS	Contaminant Name	Result*	Method	MCL*	MDL*	Analysis Date	Analyst	FRDS	Contaminant Name	Result*	Method	MCL*	MDL*	Analysis Date	Analyst
2005	Endrin		505	2.0	0.03	12:00:00 AM	**	2046	Carbofuran		531.1	40	0.9		**
2010	Lindane		505	0.2	0.02		**	2050	Atrazine		525.2	3.0	0.1		**
2015	Methoxychlor		505	40.0	0.1		**	2051	Alachlor		525.2	2.0	0.1		**
2020	Toxaphene		505	3.0	1		**	2066	Heptachlor		505	0.4	0.04		**
2031	Dalapon	ND	515.3	200	1	6/26/2007	**	2067	Heptachlor epoxide		505	0.2	0.02		**
2032	Diquat		549.2	20	0.4		**	2105	2,4-D	ND	515.3	70	0.1	6/26/2007	**
2033	Endothall		548.1	100	9		**	2110	2,4,5-TP	ND	515.3	50	0.1	6/26/2007	**
2034	Glyphosate		547	700	6		**	2274	Hexachlorobenzene		525.2	1.0	0.1		**
2035	Di(2-ethylhexyl)adipate		525.2	400	2		**	2306	Benzo[a]pyrene		525.2	0.2	0.02		**
2036	Oxamyl		531.1	200	1		**	2326	Pentachlorophenol	ND	515.3	1	0.04	6/26/2007	**
2037	Simazine		525.2	4.0	0.07		**	2383	PCBs		505	0.5	0.01		**
2039†	Di(2-ethylhexyl)phthalate		525.2	6.0	0.6		**	2931	DBCP		504.1	0.2	0.02		**
2040	Picloram	ND	515.3	500	0.1	6/26/2007	**	2946	EDB		504.1	0.05	0.01		**
2041	Dinoseb	ND	515.3	7	0.1	6/26/2007	**	2959	Chlordane		505	2.0	0.1		**
2042	Hexachlorocyclopentadiene		525.2	50	0.1		**								

† Formerly FRDS code 2298 *Reported in µg/L unless otherwise noted ND = Not detected within sensitivity of instrument --- = No analysis performed

MDL = Method detection limit **Test Performed by Anatek Labs, Inc. ID00013 **(Reserved for comments/notations)**

_____

Signature of Laboratory Supervisor **Date**

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

LAB FEDEI .D#: **ID00911**	LAB SAMPLE #: 730331
DATE LAB REC'D SAMPLE: 6/12/2007	DATE REPORTED BY LAB: 6/20/2007
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: 6/11/2007	COLLECTION TIME: 9:30:00 AM (24 hour clock)
SAMPLE TYPE ☐ CO-confirmation ☐ DU-duplicate ☒ RT-routine	☐ RP-repeat ☐ SP-special ☐ OTHER:_____
PWS#: 6040006	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: SPRING	TAG #/FACILITY ID:
COLLECTOR'S NAME:	CONTACT PHONE #:

MAGIC VALLEY LABS, INC.
210 Addison Ave., P.O. Box 1867
Twin Falls, ID 83301
(208) 733-4250

PUBLIC DRINKING WATERSYSTEM VOLATILE ORGANIC CHEMICAL (VOC) ANALYSIS REPORT:

METHOD: 524.2	ANALYSIS DATE: 6/13/07	ANALYST: GF

FRDS	Contaminant Name	Result*	MCL*	MDL*	FRDS	Contaminant Name	Result*	MCL*	MDL*
2378	1,2,4-Trichlorobenzene	ND	70.0	0.50	2979	trans-1,2-Dichloroethylene	ND	100.0	0.50
2380	cis-1,2-Dichloroethylene	ND	70.0	0.50	2980	1,2-Dichloroethane	ND	5.0	0.50
2950	Trihalomethanes – Total	ND	100.0	0.50	2981	1,1,1-Trichloroethane	ND	200.0	0.50
2941	Chloroform	To be reported on new DBP form			2982	Carbon Tetrachloride	ND	5.0	0.50
2942	Bromoform				2983	1,2-Dichloropropane	ND	5.0	0.50
2943	Bromodichloromethane				2984	Trichloroethylene	ND	5.0	0.50
2944	Dibromochloromethane				2985	1,1,2-Trichloroethane	ND	200.0	0.50
2955	Xylenes – Total	ND	10000	0.50	2987	Tetrachloroethylene	ND	5.0	0.50
2964	Dichloromethane	ND	5.0	0.50	2989	Monochlorobenzene	ND	100.0	0.50
2968	o-Dichlorobenzene	ND	600.0	0.50	2990	Benzene	ND	5.0	0.50
2969	p-Dichlorobenzene	ND	75.0	0.50	2991	Toluene	ND	1000.0	0.50
2976	Vinyl chloride	ND	2.0	0.50	2992	Ethylbenzene	ND	700.0	0.50
2977	1,1-Dichloroethylene	ND	7.0	0.50	2996	Styrene	ND	100.0	0.50

*Reported in µg/L unless otherwise noted ND = Not detected within sensitivity of instrument --- = No analysis performed MDL = Method detection limit

(Reserved for comments/notations)

<<PROVISIONALLY CERTIFICATION>>

Gary J. Fenwick 6/21/07

Signature of Laboratory Supervisor **Date**

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

LAB FEI' 'L ID#: ID 00911	LAB SAMPLE # 730361
DATE LAB REC'D SAMPLE: 6/12/2007	DATE REPORTED BY LAB: 7/7/2007
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: **6/11/2007**	COLLECTION TIME: **9:00:00 AM** (24 hour clock)
SAMPLE TYPE ☐ CO-confirmation ☐ RP-repeat ☐ SP-special ☐ OTHER:_____ ☒ RT-routine ☐ DU-duplicate	
PWS#: **6040006**	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: **SPRING**	TAG #/FACILITY ID:
COLLECTOR'S NAME:	CONTACT PHONE #:

MAGIC VALLEY LABS
210 ADDISON AVE, PO BOX 1867
TWIN FALLS, ID 83301
(208) 733-4250

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RECEIVED JUL 1 1 2007 DEQ-IDAHO FALLS

PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT

Phase II								Phase V							
FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst	FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst
1010	Barium		2	0.5	3111D			1024	Cyanide		0.2				
1015	Cadmium		0.005	0.0005	3113B			1036	Nickel		N/a	0.01	3113B		
1020	Chromium		0.1	0.005	3113B			1074	Antimony		0.006	0.005	200.9		
1035	Mercury		0.002	0.001	245.1			1075	Beryllium		0.004	0.0005	200.9		
1038	Ttl (N02/NO3)		10					1085	Thallium		0.002	0.002	200.9		
1040	Nitrate		10					Other IOCs							
1041	Nitrite		1.0					1005	Arsenic	**<0.005**	0.010	0.005	200.9	06/23/07	RB
1045	Selenium		0.05	0.005	200.9			1025	Fluoride		4.0	0.02	300.0		
1094	Asbestos		7 MFL	0.18	100.1☆		**	1052	Sodium	**5.64**	N/a	0.5	3111B	06/23/07	RB
Secondary IOCs (optional)															
1002	Aluminum		0.05-0.2	0.1	200.7			1050	Silver		0.1	0.05	3111B		
1003	Ammonia as N			0.05	350.2			1055	Sulfate		250	1	300.0		
1016	Calcium			0.5	3111B			1095	Zinc		5	0.05	3111B		
1017	Chloride		250	0.14	300.0			1905	Color		15c.u.	1	110.2		
1022	Copper		1.0	0.1	3111B			1915	Hardness as CaCO3			5	2340B		
1026†	Conductivity µg/cm			10	120.1			1920	Odor (threshold #)		3	1	140.1		
1027	Hydrogen Sulfide			0.1	8131			1925	pH		6.5-8.5		150.1		
1028	Iron		0.3	0.1	3111B			1927	Alkalinity as CaCO3			5	310.1		
1031	Magnesium			0.2	3111B			1930	Dissolved Solids		500	1	160.1		
1032	Manganese		0.05	0.05	3111B			1997	Langlier Index						
1042	Potassium			0.5	3111B			2905	Surfactants			0.1	5540C		
1049	Silica as SiO2			1	200.8										

*Reported in mg/L unless otherwise noted † = formerly FRDS No. 1926 PQL = Process Qualitivity limit --- = No analysis performed ND = Not detected within sensitivity of instrument
☆EPA 600/4-83-043 **Test performed by Data Chem

Dave L. Fenwick 7/9/07
Signature of Laboratory Supervisor **Date**

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

LAB FEDERAL ID#: ID 00911	LAB SAMPLE # **938101**
DATE LAB REC'D SAMPLE: **7/15/2009**	DATE REPORTED BY LAB: **7/24/2009**
COMPLIANCE SAMPLE: ☒ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: **7/14/2009**	COLLECTION TIME: **11:16:00 AM**
SAMPLE TYPE ☐ CO-confirmation ☒ RT-routine ☐ DU-duplicate	☐ RP-repeat ☐ SP-special ☐ OTHER:_____
PWS#: **6040006**	PWS NAME: **BENNINGTON WATER SYSTEM**
SAMPLING POINT/LOCATION: **OLD SPRING**	TAG #/FACILITY ID:
COLLECTOR'S NAME: **MIKE PIERCE**	JURISDICTION:

MAGIC VALLEY LABS
210 ADDISON AVE, PO BOX 1867
TWIN FALLS, ID 83301
(208) 733-4250

PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT

Phase II								*Phase V*							
FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst	FRDS	Contaminant	Result*	MCL*	PQL*	Method	Analysis Date	Analyst
1010	Barium		2	0.5	3111D			1024	Cyanide		0.2				
1015	Cadmium		0.005	0.0005	3113B			1036	Nickel		N/a	0.01	3113B		
1020	Chromium		0.1	0.005	3113B			1074	Antimony		0.006	0.005	200.9		
1035	Mercury		0.002	0.001	245.1			1075	Beryllium		0.004	0.0005	200.9		
1038	Ttl (N02/NO3)		10					1085	Thallium		0.002	0.002	200.9		
1040	Nitrate	0.34	10	0.30	300.0	7/17/2009	JB	Other IOCs							
1041	Nitrite	.	1.0	0.20	300.0			1005	Arsenic		0.010	0.005	200.9		
1045	Selenium		0.05	0.005	200.9			1025	Fluoride		4.0	0.02	300.0		
1094	Asbestos		7 MFL	0.18	100.1☆			1052	Sodium		N/a	0.5	3111B		

*Reported in mg/L unless otherwise noted † = formerly FRDS No. 1926 PQL = Process Qualitivity limit --- = No analysis performed ND = Not detected within sensitivity of instrument

Brenda Ellis 7-27-09
Signature of Laboratory Supervisor **Date**

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BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

MAGIC VALLEY LABS, INC.
210 ADDISON AVE. / BOX 1867
TWIN FALLS, ID 83303-1867
(208) 733-4250
LAB ID #ID00911

RECEIVED
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ENVIROMENTAL QUALITY
POCATELLO REGIONAL OFFICE

PUBLIC DRINKING WATER INORGANIC CHEMICAL ANALYSIS REPORT

ACUTE IOC CONTAMINANTS For Public Drinking Water Systems

FRDS	Contaminant	Results (mg/L)	MCL (mg/L)	MDL	Method	Analysis Date	Analyst	MONITORING REQUIREMENTS
1040	Nitrate	0.36	10	<0.3	EPA 300.0	7/22/2008	JB	Ground water systems with nitrate levels below 5 mg/L must monitor nitrate annually. Surface water systems and systems with nitrate levels of 5 or more mg/L must monitor quarterly, unless otherwise advised in writing.
1041	Nitrite	.	1.0	<0.2	EPA 300.0	12:00:00 AM		Once per nine years unless advised otherwise.
1038	Total (NO_3+NO_2)	---	10					
1055	Sulfate	---	N/A					Sulfate is in the process of becoming a regulated contaminant. Monitoring is not yet required.

LAB RESULT REPORTING CODES:

ND = Not detected within sensitivity of instrument

---- = No analysis performed for this contaminant

Numerical entry = Detection at level indicated

COMMENTS:

PWS #	6040006
Lab Sample Tracking #	84544
Date Collected	7/15/2008
Sample Type	
Date Received	7/16/2008
Time Collected	9:30:00 AM
Location Tag #	
Sample Collection Location	JOLD SPRING
Date Reported by Lab	7/25/2008
Jurisdiction	
PWS Contact Phone (208)	

Brenda Ellis 7-26-08

Signature of Lab Supervisor Date

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

MAGIC VALLEY LABS, INC.
210 ADDISON AVE. / BOX 1867
TWIN FALLS, ID 83303-1867
(208) 733-4250
LAB ID #ID00911

PUBLIC DRINKING WATER INORGANIC CHEMICAL ANALYSIS REPORT

ACUTE IOC CONTAMINANTS For Public Drinking Water Systems

FRDS	Contaminant	Results (mg/L)	MCL (mg/L)	MDL	Method	Analysis Date	Analyst	MONITORING REQUIREMENTS
1040	Nitrate	0.30	10	<0.03	EPA 300.0	6/12/2007	JH	Ground water systems with nitrate levels below 5 mg/L must monitor nitrate annually. Surface water systems and systems with nitrate levels of 5 or more mg/L must monitor quarterly, unless otherwise advised in writing.
1041	Nitrite	.	1.0	<0.02	EPA 300.0	12:00:00 AM		Once per nine years unless advised otherwise.
1038	Total (NO_3+NO_2)	---	10					
1055	Sulfate	---	N/A					Sulfate is in the process of becoming a regulated contaminant. Monitoring is not yet required.

LAB RESULT REPORTING CODES:

ND = Not detected within sensitivity of instrument

---- = No analysis performed for this contaminant

Numerical entry = Detection at level indicated

COMMENTS:

PWS #	6040006
Lab Sample Tracking #	73032
Date Collected	6/11/2007
Sample Type	
Date Received	6/12/2007
Time Collected	9:30:00 AM
Location Tag #	
Sample Collection Location	SPRING
Date Reported by Lab	6/26/2007
Jurisdiction	
PWS Contact Phone (208)	

Brenda Ellis 6-26-07

Signature of Lab Supervisor Date

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER ID 83254

Analytical Laboratories, Inc.

Report

1804 North 33rd St. • Boise, Idaho 83703-5814 • Ph: (208) 342-5515 • Fax: (208) 342-5591
Website: http://home.rmci.net/ali • 1-800-574- 5773 • E-mail: ali@rmci.net

Results of the Microscopic Particulate Analysis 17101 for
Bennington Culinary.

A representative of Bennington Culinary filtered this sample on May 20, 2002. Analytical Laboratories, Inc. received the filter May 22, 2001 and began processing it, according to the EPA Consensus Method for the Microscopic Particulate Analysis, on the same day.

One slide of the sediment, equivalent to 500 gallons, was examined for the presence of bioindicators. Two types of primary bioindicators, Algae and Rotifers, were seen in this slide. All bioindicators are quantified as number of organisms per 100 gallons. For an actual count please refer to the enclosed lab worksheet on page three.

Due to the presence of primary bioindicators, the total score for this sample was zero (0). Generally, if a water system receives a score of 0 to 9, repeatedly, it can be considered at low risk of being under the direct influence of surface water. It is important to realize that the determination of direct surface water influence should not be based entirely upon the results of one or two Microscopic Particulate Analyses. Other pertinent information, such as water quality data and on site surveys, should be used in conjunction with these results to make this determination

Thank you for choosing Analytical Laboratories, Inc. for your testing needs. We appreciate your business and look forward to working with you again in the near future.

Sincerely,

Robert L. Voermans
Microbiologist

ANALYTICAL LABORATORIES, INC.
1804 N. 33rd Street
Boise, Idaho 83703
Phone # (208) 342-5515

LABORATORY ANALYSIS REPORT
SAMPLE NUMBER - 17101

Attn. ROBERT HOLJESON

BENNINGTON CULINARY
38 N 2 E
BENNINGTON, ID 83254

Time of Collection: **21:30**
Date of Collection: **05/20/02**

Date Received: **05/22/02**
Date Reported: **06/07/02**

Collected by: **ROBERT HOLJESON**

Submitted by:

PWS: **6040006**

Source of Sample: OLD SPRING

Lab Comment: RISK FACTOR:0

Test Requested	FRDS #	MCL	Analysis Result	Unit	MDL	Method	Date Completed	Analyst Initials
M.P.A.			*			CONSENSUS	06/07/02	RLV

THANK YOU FOR CHOOSING ANALYTICAL LABORATORIES, INC. FOR YOUR TESTING NEEDS.

PLEASE CONTACT ROBERT L. VOERMANS IF YOU HAVE ANY QUESTIONS REGARDING THIS REPORT OR ANY FUTURE ANALYTICAL NEEDS.

MPA CLASSIFICATION AND QUANTITATION OF PARTICULATES

Sample # 17101 **Dilution** 1:1 **Microscopy** DIC, Phase Contrast
Analyst RLV **Magnification** 200-400 **Vol. of final pellet** <20 µL

Primary Particulates	Slide 1	Slide 2	Slide 3	Slide 4	Slide 5	Slide 6	Slide 7	Slide 8	Slide 9	Slide 10	Total	#/100 Gallon	Risk Factor
Giardia													
Coccidia													
Diatoms													
Other Algae	4										4	<1	0
Insect/larvae													
Rotifers	4										4	<1	0
Plant Debris													
Secondary Particulates													
Large Amorphous Debris													
Fine Amorphous Debris													
Minerals													
Plant Pollen													
Nematodes	5										5		
Crustacia													
Amoeba													
Ciliate / Flagellates													
Tardigrade	1										1	1	
Total													0

Table 1. Numerical range of each primary bio-indicator (particulate) counted per 100 gallons water.

Indicators of surface water	EH[3]	H	M	R	NS
Giardia[2]	>30	16-30	6-15	1-5	<1
Coccidia[2]	>30	16-30	6-15	1-5	<1
Diatoms[4]	>150	41-149	11-40	1-10	<1
Other Algae[4]	>300	96-299	21-95	1-20	<1
Insects/Larvae	>100	31-99	16-30	1-15	<1
Rotifers	>150	61-149	21-60	1-20	<1
Plant Debris[4]	>200	71-200	26-70	1-25	<1

1. According to EPA "Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems Using Surface Water Sources", March, 1991 ed.

2. If Giardia cysts or coccidia are found in any sample, irrespective of volume, score as above.

3. Key = **EH** –extremely heavy **H** –heavy **M** –moderate **NS** –not significant **R** -rare

4. Chlorophyll containing

Table 2. Relative surface water risk factors associated with scoring of primary bio-indicators (particulate) present during MPA of subsurface water sources.

Indicators of Surface water[1]	Relative Risk Factor[3]				
	EH[2]	H	M	R	NS
Giardia	40	30	25	20	0
Coccidia	35	30	25	20	0
Diatoms	16	13	11	6	0
Other Algae	14	12	9	4	0
Insects/Larvae	9	7	5	3	0
Rotifers	4	3	2	1	0
Plant Debris	3	2	1	0	0

1. According to EPA "Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems Using Surface Water Sources", March 1991 ed.

2. Refer to Table 1 for range of indicators counted per 100 gallons.
   Key = **EH** -extremely heavy **H** –heavy **M** –moderate **R** –rare **NS**-not significant

3. Risk of surface water contamination:
   $\geq$20 – high risk
   10 – 19 moderate risk
   $\leq$9 - low risk

MAGIC VALLEY LABS
210 ADDISON AVE / POB 1867
TWIN FALLS ID 83303-1867

LEAD/COPPER DISTRIBUTION TAP SAMPLES

Public Drinking Water Chemical Analysis Report

Lab Tracking #	SAMPLE LOCATION	Date of Collection	Collection Time	Lead mg/L (frds # 1030)	Copper mg/L (frds # 1022)
938111	#1 38 NORTH 2ND EAST	7/14/2009	0430	<0.005	0.12
938112	#2 274 EAST CENTER	7/14/2009	0545	<0.005	0.05
938113	#3 109 NORTH MAIN	7/14/2009	0600	0.006	0.11
938114	#4 077 NORTH MAIN	7/14//2009	0615	0.005	0.10
938115	#5 80 NORTH 1ST WEST	7/14/2009	0630	<0.005	0.36

ANALYST	JB
ANALYSIS DATE	7/29/2009

Nitric Acid Preservative Used: X Yes " No

Pb MDL: .005 mg/L Cu MDL: 0.1 mg/L

Lab Tracking Number:

ACTION-LEVEL FAILURE SAMPLES (Water Quality Parameters)

Check if Desired	FRDS Number	ANALYTE	Analyst	Analysis Date	Result	Sample Location (or Tag # if source sample)
	1030	Source Lead (mg/L)				
	1022	Source Copper (mg/L)				
	1925	pH (Standard pH units)				
	1996	Temperature (Degrees Celsius)				
	1016	Calcium Hardness (as $CaCO_3$, mg/L)				
	1927	Alkalinity (as $CaCO_3$, mg/L)				
	1930	Total Dissolved Solids (mg/L)				
	1926	Conductivity (mS)				
	1044	Orthophosphate (as PO_4 mg/L)				
	1049	Silica, (As SiO_2 mg/L)				

NOTE:
Public water systems serving less than 100,000 people need collect water quality parameter samples only if the results of the distribution samples in the block above indicate that the 90%ile level of lead is above .015 mg/L or the 90%ile level of copper is above 1.3 mg/L. See the definition on the back of this form if you wish to calculate the 90%ile level for your own information.

LAB RESULT REPORTING CODES:

ND = Not detected within sensitivity of instrument

---- = No analysis performed for this contaminant

Lead MCL = 0.015 mg/L

Copper MCL = 1.3 mg/L

Comments:

*TEST PERFORMED BY CLIENT

PWS #	6040006
Date Parameters	
Date Received	7/15/2009
Time Collected	
Date Reported by Lab	8/7/2009
# of pages in this report	
DEQ USE ONLY:	
90%ile Lead	0.0055
90%ile Copper	0.24
# Pb/Cu Samples	5
Paperwork Attached?	Yes No

RECEIVED
AUG 13 2009
IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

Gary L. Fenwick 8/12/09
Lab Supervisor's Signature Date

BENNINGTON WATER SYSTEM
38 N 2ND E BENNINGTON
MONTPELIER, ID 83254

MAGIC VALLEY LABS
210 ADDISON AVE / POB 1867
TWIN FALLS ID 83303-1867

LEAD/COPPER DISTRIBUTION TAP SAMPLES

Public Drinking Water Chemical Analysis Report

Lab Tracking #	SAMPLE LOCATION	Date of Collection	Collection Time	Lead mg/L (frds # 1030)	Copper mg/L (frds # 1022)
730291	98 E 1ST N	6/11/07	05:30	<0.005	<0.1
730292	77 N MAIN	6/1107	07:15	<0.005	<0.1
730293	166 S MAIN	6/11/07	06:30	<0.005	<0.1
730294	38 N 2ND E	6/11/07	07:00	<0.005	<0.1
730295	128 N 2ND E	6/11/07	07:00	<0.005	<0.1
730296					
730297					
730298					
730299					
7302910					

ANALYST	RB
ANALYSIS DATE	6/22/07

Nitric Acid Preservative Used: X Yes " No

Pb MDL: .005 mg/L Cu MDL: 0.1 mg/L

Lab Tracking Number:

ACTION-LEVEL FAILURE SAMPLES (Water Quality Parameters)

Check if Desired	FRDS Number	ANALYTE	Analyst	Analysis Date	Result	Sample Location (or Tag # if source sample)
	1030	Source Lead (mg/L)				
	1022	Source Copper (mg/L)				
	1925	pH (Standard pH units)				
	1996	Temperature (Degrees Celsius)				
	1016	Calcium Hardness (as $CaCO_3$, mg/L)				
	1927	Alkalinity (as $CaCO_3$, mg/L)				
	1930	Total Dissolved Solids (mg/L)				
	1926	Conductivity (mS)				
	1044	Orthophosphate (as PO_4 mg/L)				
	1049	Silica, (As SiO_2 mg/L)				

NOTE:
Public water systems serving less than 100,000 people need collect water quality parameter samples only if the results of the distribution samples in the block above indicate that the 90%ile level of lead is above .015 mg/L or the 90%ile level of copper is above 1.3 mg/L. See the definition on the back of this form if you wish to calculate the 90%ile level for your own information.

LAB RESULT REPORTING CODES:

ND = Not detected within sensitivity of instrument

---- = No analysis performed for this contaminant

Lead MCL = 0.015 mg/L

Copper MCL = 1.3 mg/L

Comments:

PWS #	6040006
Date Parameters	
Date Received	6/12/07
Time Collected	
Date Reported by Lab	7/12/07
# of pages in this report	
DEQ USE ONLY:	
90%ile Lead	ND
90%ile Copper	ND
# Pb/Cu Samples	5
Paperwork Attached?	" Yes " No

BENNINGTON CULINARY WATER
38 N 2ND E
BENNINGTON, ID 83254

Gary J. Fenwick 7/12/07

Lab Supervisor's Signature Date

Appendix F: Sanitary Survey

Certified Mail
Return Receipt Requested

August 10, 2011

Robert Holjeson
Bennington Water System
38 N 2nd E
Montpelier, ID 83254

RE: Bennington Water System Sanitary Survey
PWS #6040006

Dear Mr. Holjeson:

On, July 18, 2011, the Department of Environmental Quality (DEQ) conducted a sanitary survey of the Bennington water system. The purpose of the survey was to identify any areas where the system does not meet the requirements of IDAPA 58.01.08 Idaho Rules for Public Drinking Water Systems. We appreciate your cooperation in scheduling the survey. The following paragraphs describe the physical features of the system and identify any significant deficiencies, deficiencies, or recommendations noted during the survey.

General Description

The Bennington water system is located in Bear Lake County, just north of the City of Montpelier. It serves approximately 250 persons through 82 metered connections. The water system consists of two wells, one active spring, and one storage reservoir. Spring #1 is the systems primary source of water. It flows by gravity directly into the 50,000 gallonpartially buried storage reservoir. Water flows through this reservoir and into the distribution system. Well #1 is automatically controlled by the reservoir water level and pumps directly into the distribution system. The CRI well serves as an emergency source and is only used occasionally. It is also controlled by the reservoir level and pumps directly into the distribution system. The water system has an additional spring but it is currently not connected to the system.

Sources

Well 1

Well 1 is housed in a building located on 1st South about a half block east of the highway. This well is a primary source after the spring. When the water level drops in the tank, a signal is sent via a telemetry system to start the well. The well was constructed in 1990 with an 8-inch casing extending the full depth of the well to 180 ft. The casing is perforated from 105 to 150 feet. The well is sealed with cement grout to 80 feet. The static water level at the time it was drilled was 61 feet. It is equipped with a submersible pump. The 6 inch discharge line has a check valve, isolation valve, flow meter, sample tap, and can be pumped to waste. The pressure gauge was not working properly at the time of the inspection and the pump lacked a pressure relief valve. The well house is equipped with a light, roof hatch, heater, and lockable door. The well lot is fenced but does not meet the 50 foot setback in all directions.

CRI Well

This well was formerly an irrigation well owned by Ted Crane, which was revamped to drinking water standards in 1997. There is no well log available, but according to a TV inspection of the well, the 12-inch casing extends the full depth of the well to 149 feet. The casing is perforated from 65 to 149 feet. The well is equipped with a 50-hp turbine pump. The 10-inch discharge line is has a check valve, isolation valve, flow meter, air release valve, pressure gauge, sample tap, and the ability to pump to waste. This well is controlled by the level in the tank and is only used in case of emergency.

Springs

The city has two springs located about 1 mile east of town. The surrounding area is mainly birches and willows with the terrain moderately sloping towards the west. Spring 1 was constructed around 1975. The water is captured about 15 feet deep by a vertical collection pipe with a clay layer mounded up around it. The cover is welded closed. A 6-inch main from the spring carries water to the storage reservoir. The collection area is fenced and a tap has been installed downgradient of the spring for sample collection. A flow meter is located in a vault above the storage reservoir. Because the pipe from the spring is not always flowing full, the flow meter does not accurately represent the total volume of water produced.

Spring 2 was constructed in 1990. This spring is not used because it is believed to be under the influence of surface water and was a source of bacterial problems in the past. The area around the spring is fenced. Water is collected by buried perforated pipe that is covered with clay and a synthetic liner. Trees and willows were observed growing inside the fenced area and the surface was saturated with water. The water system has been periodically testing the spring for coliform bacteria but would be required to complete testing for surface water influence before this source could be considered for use. The water from this spring is currently being diverted to waste.

Storage

The water system has one 50,000- gallon partially buried concrete storage reservoir. It is located about ½ mile east of town and was constructed in 1989. Isolation valves allow the water to bypass the tank if it needs to be cleaned or serviced. The reservoir is vented and screened and has an overflow. The overflow/drain is screened but is not brought down to an elevation between 12 and 24 inches above the ground surface. The tank is inspected annually and appeared to be in good condition.

Treatment

There water system does not utilize any type of treatment facility.

Distribution System

The distribution piping is 6 inch in diameter and is constructed of PVC. Each connection on the system is metered. There are approximately 17 fire hydrants located throughout the system. The system exercises and flushes its hydrants annually and has a no dead end lines remaining. There is a separate pressurized irrigation that supplies water to some lots in the water system. The water system does not have a cross connection control program.

Monitoring/Reporting/Data Verification

Currently, the water system is in compliance with all chemical and bacteriological monitoring and reporting requirements. Well #1 is being monitored quarterly due to elevated levels of nitrate.

Pumps/Pumping Facilities and Controls

Well #1 is equipped with a submersible pump of unknown size. The CRI well is equipped with a turbine pump with a 50-hp motor. No booster pumps are used to transport water throughout the system. The water system has no auxiliary power.

Management/Operator Compliance

The Bennington water system is under the direction of a president and four board members. Robert Holjeson serves as the responsible in charge operator (RIC) and the substitute responsible in charge operator (SubRIC). The water system currently charges a base rate of $ 27.50 per month for the first 30,000 gallons of water and $1.00 per 1,000 gallons additional. A one inch connection pays $40.00 for the first 30,000 gallons and $1.00 per thousand additional.

Ground Water Under the Direct Influence of Surface Water (GWUDI)

The wells and spring #1 have been determined to be groundwater that is not under the direct influence of surface water. Two Microscopic Particulate Analysis (MPA's) were performed on Spring #1 to make this determination. The first sample was collected in September of 2001 and a second sample was completed in May of 2002. Both samples scored a zero (0) for relative risk rating.

You will find a list of the significant deficiencies, deficiencies and recommended improvements for your system summarized below.

A **Significant Deficiency** is defined in IDAPA 58.01.08.003.88. that states: As identified during a sanitary survey, any defect in a system's design, operation, maintenance, or administration, as well as any failure or malfunction of any system component, that the Department determines to cause, of have the potential to cause, risk to health and safety, or that could affect the reliable delivery of safe drinking water.

A **Deficiency** states: As identified during a sanitary survey, the systems design, operation, maintenance, or administration, as well as any failure or malfunction of any system component, that the Department determines are not in compliance with the drinking water rules and do not cause or do not have the potential to cause, risk to health or safety, or that could not affect the reliable delivery of safe drinking water.

Recommendations are made as an item to consider in order to improve the overall operation of the water system.

Significant Deficiencies

No significant deficiencies were found.

Deficiencies

Sources

The discharge pipe for well #1 has a sample tap that is used to collect bacteria samples that is not of the smooth-nosed type without interior or exterior threads, pursuant to IDAPA 58.01.08.501.09.

(A threaded sample tap is approved if it is provided with an appropriate backflow prevention device.)

The existing pressure gauge for well #1 is not properly working, as required by IDAPA

58.01.08.511.03.

Adequate ventilation is not provided in the pump house for dissipation of excess heat and moisture from the equipment, as required by IDAPA 58.01.08.541.01.e. At the time of the inspection there was no evidence of corrosion of metallic and/or electrical components from excessive heat and/or moisture. The requirement of ventilation will be reevaluated every time an ESS is conducted. **(No action required at this time)**

Storage

The storage structure overflow/drain pipe is not brought down to an elevation between 12 and 24 inches above the ground surface, as required by IDAPA 58.01.08.544.06.

(The PWS may need to increase the distance above the ground surface to satisfy air gap requirements – 2X the diameter of the discharge pipe above a basin rim)

Distribution

There is no cross connection control program for the PWS, as required by IDAPA 58.01.08.552.06.

Pumping

Well #1, which is directly connected to the distribution system does not have a water pressure relief valve installed, as required by IDAPA 58.01.08.542.03.

There is no auxiliary power on-site for well #1 or the CRI well, as required by IDAPA 58.01.08.501.07. According to the operator, the power outages experienced by the system are of minimal frequency and duration that auxiliary power will not be required. The need for auxiliary power on-site will be reevaluated every time an ESS is conducted. **(No action required at this time)**

(The primary source of water is a spring and the water system has 50,000 gallons of storage.)

Managerial

An operation and maintenance manual is not provided for the PWS or the operation and maintenance manual is incomplete, not having daily operating instructions and/or operator safety procedures and/or location of valves and other key system features and/or parts list and parts order form and/or information for contacting the water system operator, as required by IDAPA 58.01.08.501.12.

There is no total coliform rule (TCR) sample site plan, as required by IDAPA 58.01.08.100.01.

which incorporates by reference 40 CFR 141.21. **(Action Required)**

Recommendations

DEQ recommends that an independent financial audit be completed of the PWS.

DEQ recommends that a leak detection program be put in place and utilized.

DEQ recommends that a routine maintenance schedule be established and adhered to.

DEQ recommends all mains, hydrants, and appurtenances of the separate non-potable irrigation system are easily identified as non-potable.

DEQ recommends that all valves be exercised at least semiannually.

The city should investigate the possibility of securing additional property around well 1 to protect the well from potential contamination. A waiver was granted in 1998 for both the CRI and well 1 well lots, which stated that the use of chemical spray would not occur within at least 50 feet of the wells.

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. Please consult with DEQ before making any modifications.

Thank you for your time and cooperation in the completion of this survey. If you have any questions, please contact me at 236-6160.

Sincerely,

Barbara J. Jones
Drinking Water Analyst

cc: Tom Hepworth, Regional Engineering Manager, DEQ-PRO

Photo 1. Well house #1

Photo 2. Property adjacent to well #1 on east side

Photo 3. Property adjacent to well #1 on west side.

Photo 4. Well #1

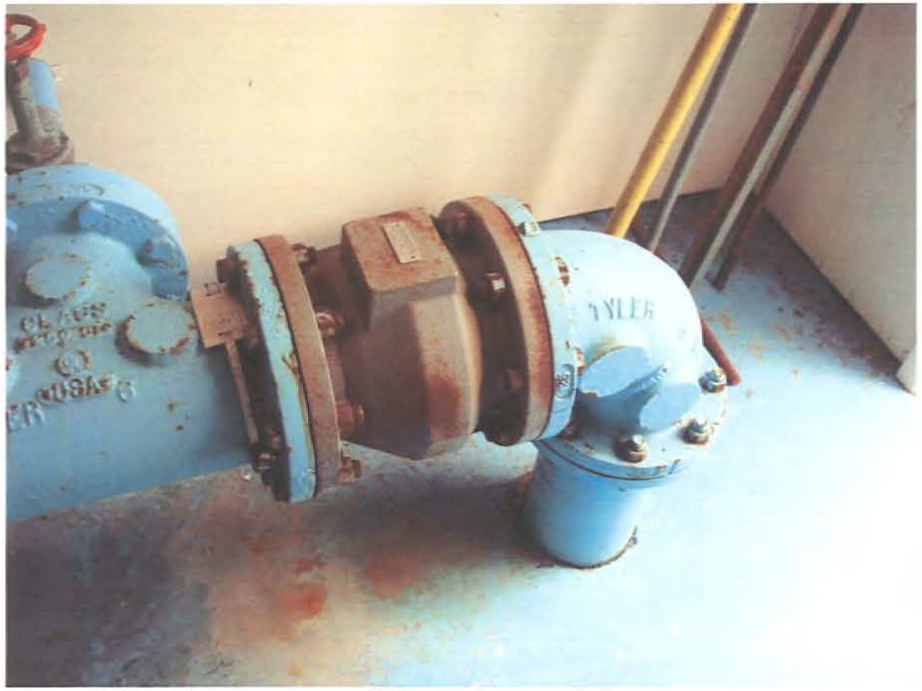


Photo 5. Check valve on well #1 discharge piping

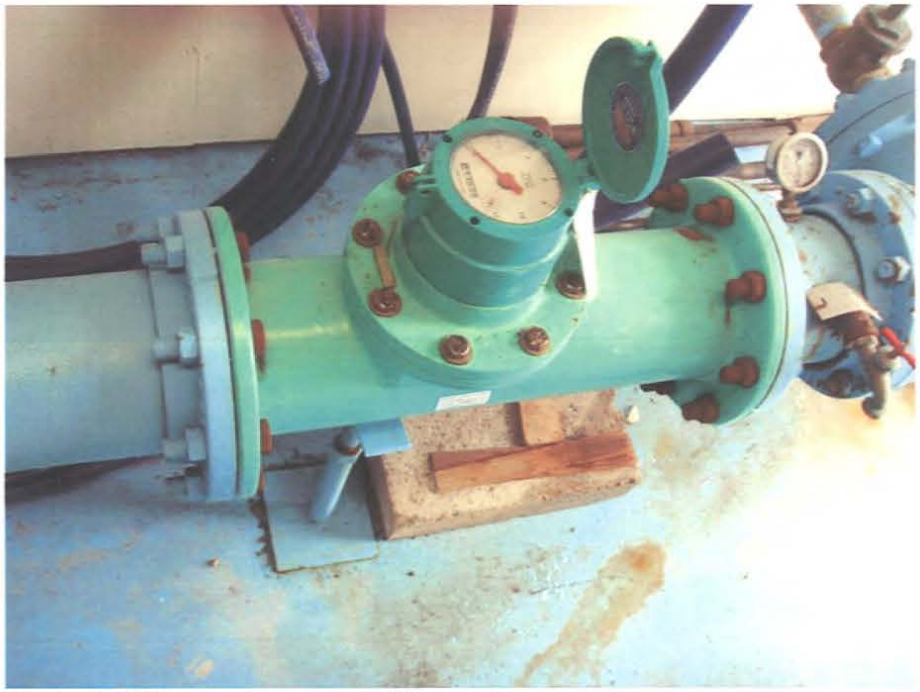


Photo 6. Flow meter on well #1

Photo 7. Isolation valve on well #1 discharge piping

Photo 8. CRI well house

Photo 9. Piping inside CRI well house

Photo 10. CRI well

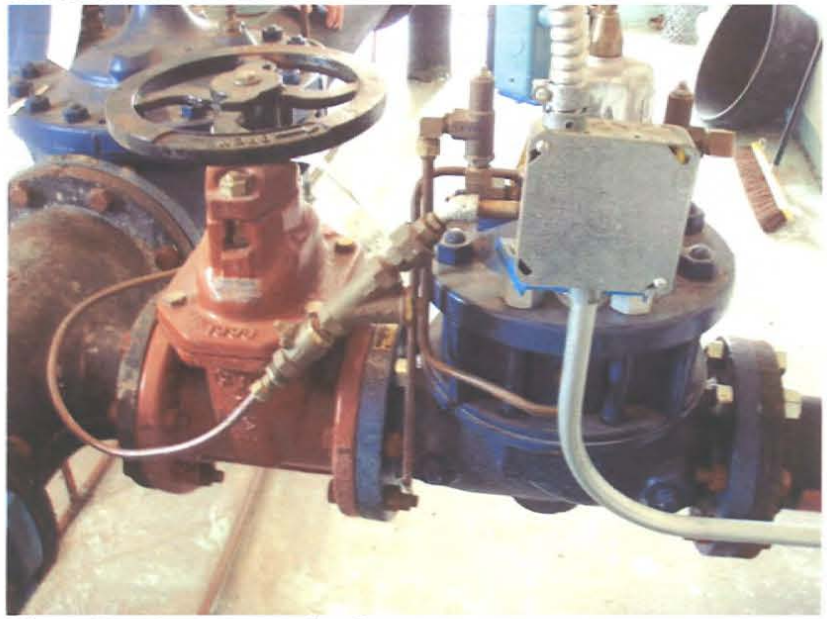


Photo 11. Pump control valve

Photo 12. Pressure gauge and check valve on CRI well discharge

Photo 13. Flow meter on CRI well

Photo 14. CRI well sample tap

Photo 15. Isolation valve on CRI well discharge line

Photo 16. Electrical controls in CRI well house

Photo 17. CRI well pump to waste discharge

Photo 18. Spring 1 collection area

Photo 19. Fencing around spring collection area

Photo 20. Spring collection and valve

Photo 21. Spring sample tap

Photo 22. Spring piping valves

Photo 23. Spring 2 water (not used) discharge

Photo 24. Spring line towards storage reservoir

Photo 25. Ag field surrounding storage reservoir

Photo 26. Storage reservoir with telemetry system

Photo 27. Vent on storage reservoir

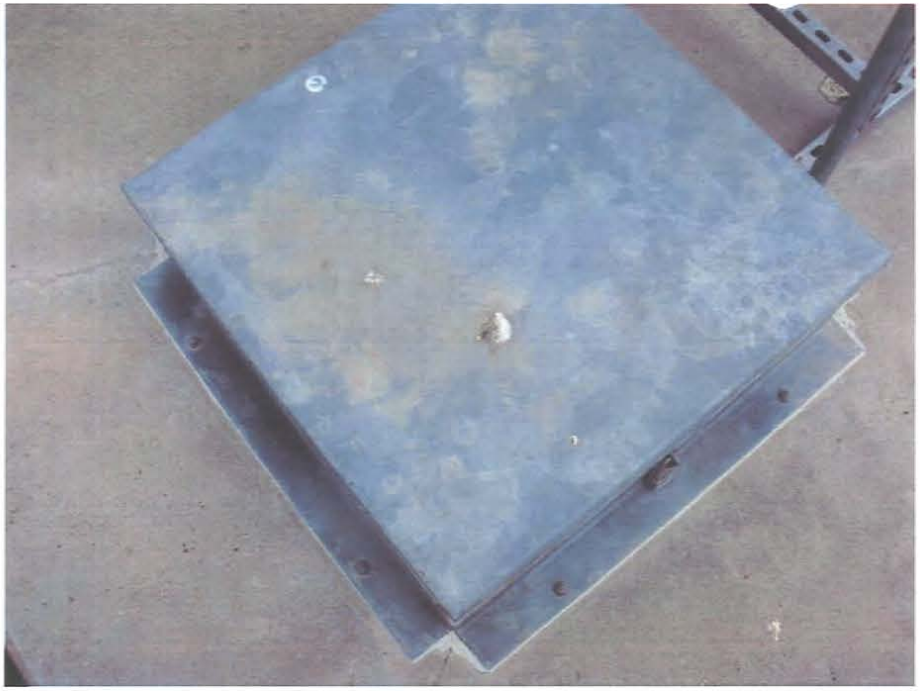


Photo 28. Access hatch on storage reservoir

Photo 29. Water inside storage reservoir

Photo 30. Vault with flow meter on inlet side of storage reservoir

Photo 31. Valving adjacent to storage reservoir

Photo 32. Storage reservoir drain pipe

Appendix G: Cross-Connection Control

United States Environmental Protection Agency

Cross-Connection Control: A Best Practices Guide

Introduction	
Purpose	This Guide discusses the importance of controlling cross-connections and preventing backflow occurrences from unprotected cross-connections in the water system.
Target Audience	This Guide is intended for owners and operators of all public water systems serving fewer than 10,000 persons.

Key Cross-Connection Terms and Definitions

Term	***Definition***
Cross-connection	Any actual or potential connection between the public water supply and a source of contamination or pollution.
Backflow	The flow of water or other liquids, mixtures, or substances into the distributing pipes of a potable supply of water from any source or sources other than its intended source. Backsiphonage is one type of backflow.
Backpressure	Backflow that occurs when the pressure in an unprotected downstream piping system exceeds the pressure in the supply piping.
Backsiphonage	Resulting from negative pressures in the distributing pipes of a potable water supply.

Where Can Cross-Connections Occur?

Cross-connections can occur at many points throughout a distribution system and a community's plumbing infrastructure. Cross-connections can be identified by looking for physical interconnections (or arrangements) between a customer's plumbing and the water system. Some specific examples of backflow incidents that can occur are:

- Lawn chemicals backflowing (backsiphoning) through a garden hose into indoor plumbing and potentially into the distribution system.
- Backsiphonage of "blue water" from a toilet into a building's water supply.
- Carbonated water from a restaurant's soda dispenser entering a water system due to backpressure.
- Backsiphonage of chemicals from industrial buildings into distribution system mains.
- Backflow of boiler corrosion control chemicals into an office building's water supply.

Cross-Connection Control and Backflow Prevention Programs

Why is it Important to Have a Cross-Connection Control and Backflow Prevention Program?

Having a program in place to control cross-connections and prevent backflow is critical to ensuring the safety of the drinking water you provide to your customers:

- Cross-connections are ever-present dangers that exist in most water systems and can result in serious chemical or microbiological contamination events in drinking water systems.
- Cross-connections should be protected in order to prevent backflow, which can be hard to detect.
- In any distribution system, potential cross-connections and therefore sources of contamination can be numerous, varied, and unpredictable.
- Having these programs in place can help you avoid the costs of responding to a contamination incident.

What Do Cross-Connection Control and Backflow Prevention Programs Involve?

Cross-Connection Control and Backflow Prevention Programs vary by state and municipality. For more information, talk with your state primacy drinking water program, state building code or plumbing authority, or health department. Cross-Connection Control Programs may involve:

- Authority to implement and enforce a Cross-Connection Control Program.
- Compliance with state or primacy agency plumbing and building codes or plumbing authority and local ordinances.
- Public education programs.
- Training for water system operators and other personnel on hazard surveys; cross-connection identification; and backflow device installation, testing, repair, and maintenance.
- Record keeping and reporting.
- Installation and testing of devices that prevent backflow consistent with the level of hazard.
- Periodic inspection and testing of devices by certified testers.

How Can I Start Implementing a Cross-Connection Control and Backflow Prevention Program?

You are responsible for ensuring that the water you provide to customers meets all federal and state standards and that its quality is not compromised within your distribution system. Developing a comprehensive Cross-Connection Control and Backflow Prevention Program is one way to ensure the quality of your water and prevent any problems that could occur in your distribution system. If you do not already have a program in place, consider taking the following steps:

- Contact your state primacy or other agency for more information on the basic concepts of cross-connection control and backflow prevention and information on other water systems in your area that have developed a program.
- Determine if you will have to take any legal steps to establish local cross-connection control and backflow prevention ordinances, with assistance from your state and local government.
- List the goals for your program in order of priority. For example, is it more important to develop a public education campaign or to conduct a survey of backflow devices at industrial and commercial facilities served by your system?
- Develop a proposed timeline for implementing your program.
- Review the plan with your local government, state, and any other key stakeholders.
- Hold public meetings and send notices to customers to educate the community about the need for a program and how it may affect them.
- Plan to monitor your progress in implementing your program and protecting public health.
- Conduct initial hazard testing, as required.

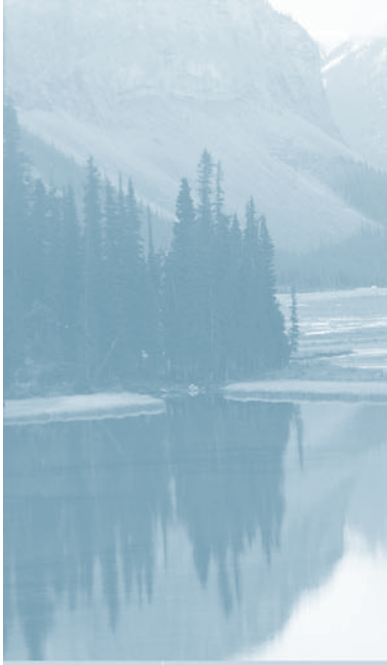
How Can I Reduce and Prevent Cross-Connections?	
Plumbing and Distribution System Operation Practices	◆ Hire approved personnel for the installation of any contaminant backflow prevention devices to ensure that local codes and manufacturer's recommendations are met. ◆ Use only assemblies or devices approved by the appropriate state or local authority. ◆ Test all backflow prevention devices at the frequencies recommended or required by your state. ◆ Provide backflow prevention in new construction through coordination with the local building inspector's office.
Inspections	◆ For existing buildings, develop a program in-house or with plumbing or water system personnel to inspect for the adequacy of cross-connection control. Prioritize inspections based upon the expected degree of risk. ◆ Make sure that a backflow inspector conducts inspections for hazards to be controlled. ◆ For both new construction and existing buildings, require continued inspection and testing of backflow devices.
Fire Hydrant Connection Procedures	◆ Ensure that construction contractors or anyone using a hydrant to fill a tank intended to carry potable water exercises safe fire hydrant connection procedures to prevent backflow.

What Technologies are Available to Control Cross-Connections and Prevent Backflow?

The type of backflow that is most likely to occur in your system (either from backpressure or backsiphonage) and the related health effects will determine which backflow prevention technology is best for your water system. The available technologies are described briefly below.

Technology	***Description***
Atmospheric Vacuum Breaker	◆ Consists of float check, check seat, air inlet port, and possibly a shutoff valve immediately upstream. ◆ Allows air to enter the downstream water connection to prevent backsiphonage. ◆ Used for backsiphonage conditions only.
Pressure Vacuum Breaker Devices	◆ Consist of vacuum breakers with a loaded check valve and a loaded air inlet valve. ◆ Used for backsiphonage conditions only.
Double Check Valve Devices	◆ Consist of two independently acting, tightly closing, resilient seated check valves in series with test ports. ◆ Have tightly closing, resilient seated shutoff valves attached at each end of the assembly. ◆ Prevent backflow under backsiphonage and backpressure conditions. ◆ Typically approved for only low to medium hazards.
Air Gaps	◆ Physical separation between a potable water system and a receiving vessel or source of contamination. ◆ Air gap between the outlet of the potable system and the flood level rim of the receiving vessel or any source of contamination must be at least twice as large as the diameter of the potable water outlet and never smaller than 1 inch. ◆ May require additional pumping downstream of air gap. ◆ Safest and simplest means under backsiphonage and backpressure conditions. ◆ Useful for all hazard levels.
Reduced Pressure Zone Backflow Devices	◆ Similar to the double check valve devices, but also contain an independently acting pressure relief valve between the two check valves (which sits lower than the first check valve). ◆ Protect against high water pollution hazards. ◆ Protect against backsiphonage and backpressure.

What Should I Do in Case of a Backflow Event?	
Step 1	◆ Stop the pressure differential that caused backflow of contamination, if possible. ◆ Identify and remove the cross-connection.
Step 2	◆ Contact appropriate state or local authorities to report the incident. ◆ In areas where public exposure to harmful contaminants is suspected, provide immediate notice to affected consumers regarding water usage and consumption and contact appropriate state or local authorities to report the incident. Public notice should explain the cause of the contamination and corrective actions that are underway and should include any appropriate health effects language. ◆ Provide updated public notification as appropriate during and after removal of contamination from the system.
Step 3	◆ If the contamination is limited to a small area, proceed to step 6. ◆ If the extent of the contamination is unknown or is extensive, proceed to step 4. (If sampling and testing of the water can be arranged immediately, the results could be used to determine the extent of the contaminants involved.)
Step 4	◆ Develop a plan for systematic cleaning or flushing of the system to minimize the risk of drawing contaminants into uncontaminated areas. ◆ The plan should indicate the amount of water and the length of time needed to completely flush the system. The direction of flow should draw clean water through the contaminated site and prevent any contaminated water from entering uncontaminated areas. Depending upon the nature of the contamination, some wastes may be discharged into the sanitary sewer system and some may need special handling or treatment.
Step 5	◆ Throughout the situation, continue to sample within and outside the suspected contaminated area to assess the extent of the damage. Skip step 6.
Step 6	◆ Perform system flushing and, where necessary, cleaning of the customer's system.
Step 7	◆ After flushing and any necessary cleaning, test the drinking water in affected areas to ensure the contamination has been removed.
Step 8	◆ Ensure that the source of contamination has been removed or that the risk of contamination has been eliminated using backflow prevention measures that meet local and state requirements.



For additional information:
Call the Safe Drinking Water Hotline at 1-800-426-4791, visit the EPA Web site at www.epa.gov/safewater/smallsys.html, or contact your State drinking water representative.

Office of Water September 2006 EPA 816-F-06-035