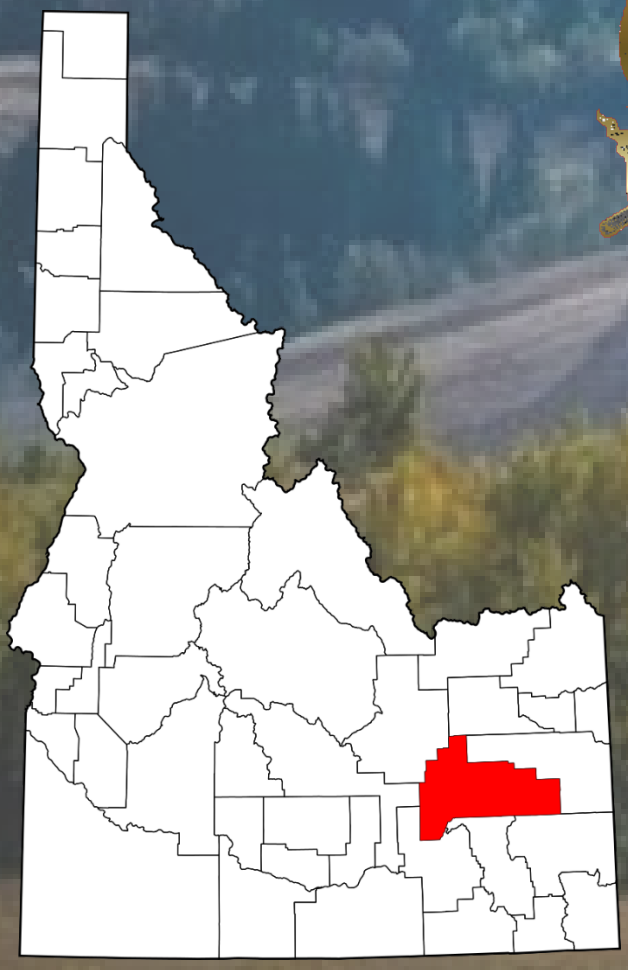
BINGHAM COUNTY

Atomic City Water System
Facility Planning Study

April 2022



Bingham County, Idaho
501 N. Maple
Blackfoot, ID 83221
(208) 782 3160

April 19, 2022

HLE, Inc.
800 West Judicial
Blackfoot ID, 83221

Bingham County Commissioners
501 N. Maple
Blackfoot, ID 83221

RE: Atomic City Water System Facility Plan

This Plan is the product of a collaborative planning process with the previous Atomic City Water System staff. HLE, Inc. collected system data and identified improvement needs.

The study is set up so that it can be used as a planning, development, and maintenance guide for the water system management.

Sincerely,

Spence L. Ward, P.E.
HLE, Inc.

CIVIL & STRUCTURAL ENGINEERING
MATERIALS TESTING & LAND SURVEYING
101 S. Park Avenue, Idaho Falls, ID 83402, (208)524-0212
800 W. Judicial Street, Blackfoot, ID 83221, (208)785-2977

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AUTHORIZATION

In August 2020, the City of Atomic City (potable water system (PWS) #6060003) contracted with HLE, Inc. to complete a Water Facility Planning Study (WFPS) in accordance with IDAPA 58.01.22 to evaluate the City's water supply and distribution system and develop a plan to meet future system demands. The study was funded by a 50/50 grant through the Idaho Department of Environmental Quality (Grant # DWG-216-2020-12).

In November 2020 the City of Atomic City residents voted to disincorporate and as such the water system and components thereof are now under the jurisdiction of Bingham County. The Department of Environmental Quality (DEQ) grant has since been renegotiated to be with Bingham County.

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CHAPTER 1 INTRODUCTION

1.1 PROJECT PURPOSE & NEED

This report presents the findings and recommendations relating to the Atomic City Water Facility Planning Study. This study was commissioned by the City/Bingham County in an effort to determine the current state of the water system and to plan for future needs. HLE has worked with key staff to understand the challenges currently facing the system and develop practical, cost-effective solutions. HLE gratefully recognizes the administrative and support staff, and all others involved for their support and assistance in the completion of this study.

Due to the disincorporation of the City of Atomic City and the water system jurisdiction being assumed by Bingham County the Atomic City Water System will for the purpose of this study will be referred to as the Atomic City Area Water System or the Water System as there is no water district formed at this time for the water system.

1.2 SCOPE

The Scope of this study includes the following:

- Identify and evaluate standards, recommendations, and design criteria for:
  - Water supply
  - Storage
  - Pressure requirements
  - Fire protection
- 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
    - System pressures
    - Facility and pipe capacities
    - Available fire protection
    - Water supply
    - Water storage
    - Transmission and delivery
  - Outline of prioritized recommended improvements
- Identify and describe environmental conditions within the planning area
- Model Existing Water Facilities
  - Compile and review in the computer model:
    - Study area boundaries
    - Inventory of existing facilities
    - Type and amount of water consumption and production
    - Existing and projected land use and population
  - Develop alternative solutions to address potential system deficiencies
- Master Planning and Capital Improvement Plan
  - Develop population projections (20-yr and 40-yr)
  - Review current and future water supply and storage needs
  - Develop an estimated schedule for capital improvements and a summary of potential impacts on rates
  - Discuss funding sources and options
- Report Preparation
  - Submit to Bingham County for their review and approval
  - Submit to Idaho Department of Environmental Quality for review and approval

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1.3 REPORT ORGANIZATION

This report is intended to methodically describe the Atomic City's complete water system including the five (5) main components: source water, storage, transmission, delivery, and treatment. The report is organized to address these items in regard to the current and future conditions. The table of contents breaks down the chapters and lists the appendices. List of tables and figures are included after the table of contents. Chapters in the report include:

- Chapter 1 – Introduction
- Chapter 2 – Existing Environmental Conditions
- Chapter 3 – Existing Facilities Condition & Evaluation
- Chapter 4 – Future Conditions
- Chapter 5 – Development & Evaluation of Alternatives
- Chapter 6 – Implementation & Funding Analysis

Existing environmental conditions are presented in Chapter 2, design criteria, existing system facility conditions and identified system deficiencies will be discussed in Chapter 3, future conditions are discussed in Chapter 4, alternatives to mitigate the deficiencies to meet current and future demands are evaluated in Chapter 5, and Chapter 6 will cover the selected alternatives, project implementation and funding.

1.4 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

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1.5 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 Demand (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.
- 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.
- Firm Pumping Capacity – the total pumping capacity of the water system with the largest pump out of service

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CHAPTER 2 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 as a separate document. 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 and means to mitigate potential environmental impacts.

2.1 PROPOSED PROJECT PLANNING AREA IDENTIFICATION

The Atomic City Water System is located in Bingham County, Idaho along State Highway 26 in south-eastern Idaho approximately 30 miles west of Blackfoot. The water system is located within Township 1 north Range 31 east Section 03, Boise Meridian. Figure 2-1 shows a map of the vicinity.

Figure 2-1: Vicinity Map

This Water Facilities Planning Study is based on a specific proposed project planning area which incorporates the area and population which the water system could reasonably be expected to serve for the 20-yr planning period (from 2021 to 2041) and 40-yr planning period (from 2021-2061).

The proposed project planning area is shown in Figure 2-2 located at the end of this chapter with the rest of the figures related to this chapter. The delineation of this planning area boundary is developed based on existing water system piping, recent and planned developments, land use regulations (zoning), and topography.

2.2 PHYSIOGRAPHY, TOPOGRAPHY, GEOLOGY, AND SOILS

Atomic City is located in the northwest corner of Bingham County in southeastern Idaho. The area is a semi-arid climate, with elevation in the community is relatively flat at approximately 5024 feet above sea level. There are three buttes in the outskirts of the developed city area, the Big Southern Butte, the Middle Butte, and the East Butte. A topographic map of the area is shown in Figure 2-3.

A soils report for the project area is included in Appendix A (Natural Resources Conservation Service, 2021). The primary soils in the proposed project planning area are Coffee-Nargon-Atom and Atom silt loam.

Southeastern Idaho is seismically active. Most remembered is the 7.2, Mount Borah earthquake in October of 1983, which resulted in serious damage and loss of life. Figure 2-4 shows the Class A Quaternary Faults, categorized by age of last known movement and their corresponding color:

- *Historic* are the most recent, known movement less than about 150 years. (Red)
- *Holocene-Latest Pleistocene* is younger than 15,000 years. (Yellow)
- *Late Quaternary* is younger than 130,000 years. (Green)
- *Mid to Late Quaternary* is younger than 750,000 years. (Blue)
- *Quaternary* are younger than 1,600,000 years. (Black)
- *Class B* is defined as geologic evidence which demonstrates the existence of Quaternary deformation, but either (1) the fault might not extend deeply enough to be a potential source of significant earthquakes, or (2) the currently available geologic evidence is too strong to confidently assign the feature to Class C but not strong enough to assign it to Class A.

According to the United States Geological Survey (USGS), the Quaternary faults are believed to be the sources of earthquakes larger than 6.0 in magnitudes. The Quaternary faults shown on the included map have the most potential for future large earthquakes and provide a fairly accurate picture of earthquake hazards. *U.S. Geological Survey and Idaho Geological Survey Services, Quaternary fault and fold database for the United States, accessed December 27, 2021, at https://www.usgs.gov/natural-hazards/earthquake-hazards/faults.*

2.3 SURFACE & GROUND WATER HYDROLOGY

The Snake 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. The Atomic City water system is located within the aquifer area see Figure 2-7.

2.4 FAUNA, FLORA, AND NATURAL COMMUNITIES

The species documented in the project area that are listed as endangered, threatened, proposed, and candidate species by the US Fish and Game are listed below in Table 2-1 (U.S. Fish & Wildlife Service, 2021):

Table 2-1 Endangered Species Act – Species List

Mammals	Status
None listed	N/A
Insects	**Status**
Monarch Butterfly	Candidate

This species is not anticipated to be found within the area where most of the proposed improvements would be constructed. The water study area is not shown to be critical habitat for any of the above listed species according to the US Fish and Wildlife Critical Habitat Mapper. There are numerous migratory birds that could potentially be affected by activities in the project area. These are shown on the IPaC Trust Resource Report in Appendix A.

2.5 HOUSING, INDUSTRIAL, AND COMMERCIAL DEVELOPMENT

The area is primarily a residential and agricultural community. The county has not zoned the area within what was Atomic City after the vote of disincorporation, but it is anticipated that most of the area is/will be residential with some area of commercial.

2.6 CULTURAL RESOURCES (HISTORICAL & ARCHAEOLOGICAL)

There are no known historical or archaeological sites in the water system planning area.

The Idaho National Laboratory (INL) is located adjacent to the Atomic City area water system. The INL has the Experimental Breeder Reactor-I (EBR-I) atomic museum. The EBR-I atomic museum is the only place in America you can see four nuclear reactors – including two aircraft nuclear propulsion prototypes, a reactor control room, remote handling devices for radioactive materials, radiation detection equipment, and much more.

EBR-I Fast Facts

- On December 20, 1951, EBR-I became the first power plant to produce electricity using atomic energy.
- EBR-I was the first reactor built in Idaho at the National Reactor Testing Station (forerunner to today's INL)
- In 1953, testing at EBR-I confirmed that a reactor could create (or breed) more fuel than it consumes.
- This pioneering reactor operated for 12 years before being shut down for the last time in December 1963.
- President Lyndon Johnson dedicated EBR-I as a National Historic Landmark in 1966.

The INL EBR-I site will not be affected by any improvements within the water system planning area.

2.7 UTILITY USE

Culinary water is provided to the residents of the water system by well #01 or well #02 that pump water into the potable water storage tank. The water system is then pressurized by two booster pumps and 4 hydropneumatic 220-gallon tanks. Well #01 pump is controlled by a variable frequency drive (vfd) for power efficient startup and shutdown, well #02 does not have a pump or controller installed at this time, and the two booster pumps are across the line starters. The booster pumps should have vfd controllers and well #02 pump should have a soft start when installed.

2.8 FLOODPLAINS/WETLANDS

The Federal Emergency Management Agency (FEMA) has not completed a study to determine flood hazards for the entire proposed project area. A flood map for the area is available but does not include the Atomic City Area. It shows that the areas immediately adjacent to the study area are within zone C or areas with little or no flooding. The FEMA flood hazard map showing the study area is shown in Figure 2-5.

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The U.S. Fish and Wildlife Service' Wetland Mapper was used to find wetlands in or near the project area. For regulatory purposes under the Clean Water Act, the term wetlands is defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas" (U.S. Environmental Protection Agency, 2021).

Figure 2-8 shows the wetlands located within the project area. There are no wetlands that have been identified within the proposed project planning area. (U.S. Fish & Wildlife Service, 2021).

2.9 WILD & SCENIC RIVERS

The Wild and Scenic Rivers Act of 1968 serves to protect designated free-flowing rivers that have "outstanding remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural and other similar values." The act states these rivers "shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations" (U.S. Fish & Wildlife Service, 2021). There are no designated or proposed wild and scenic rivers in the water system or within the vicinity of the proposed projects.

2.10 PUBLIC HEALTH & WATER QUALITY CONSIDERATIONS

The water system's main source of water is from two drilled water wells. Well #01 located near center of the city and well #02 located on the east side of the city.

The system currently has no way of treating the water if contaminated. The system once had a chlorine injection system, but the system has deteriorated and is no longer functioning.

2.11 IMPORTANT FARMLANDS PROTECTION

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of the Nation's prime farmland (U.S. Dept. of Agriculture, 2021).

Approximately 92% of the land in the study area is designated not prime farmland by the National Resources Conservation Services (NRCS). Most improvements are anticipated to be located within existing or future rights-of-way, which will not affect farmland (See Figure 2-6).

2.12 PROXIMITY TO A SOLE SOURCE AQUIFER

A sole source aquifer is an aquifer that has been designated by EPA as the sole or principal source of drinking water for an area. As such, a designated sole source aquifer receives special protection. EPA designates an aquifer as a sole source based upon a petition from an individual, company, association, or government entity. Three of Idaho's aquifers—the Eastern Snake River Plain Aquifer, the Spokane Valley-Rathdrum Prairie Aquifer, and the Lewiston Basin Aquifer—are classified as sole source aquifers (Idaho Dept. of Environmental Quality, 2021).

The water system is located within the sole source aquifer in the Eastern Snake River Plain Aquifer (ESPA).

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2.13 LAND USE & DEVELOPMENT

The majority of the land use in the project area is ranching and desert range ground. The county's zoning map is included in Figure 2-9. Most of the water system area is zoned Residential with some Commercial and Industrial zones. Little development is expected to occur over the planning period.

2.14 PRECIPITATION, TEMPERATURE AND PREVAILING WINDS

The climate summary (January 1952 through May 2016) for IDAHO FALLS 46 W, IDAHO (104460) the closest station with similar weather, shows average minimum temperatures ranging from 4.6°F to 49.5°F and average maximum temperature ranging from 27.9°F to 87.6°F. Over the same period, the total annual precipitation averaged 8.67 inches with an average snowfall of 26.5 inches. The coldest month is January, the wettest month is May, the hottest month is July, and the driest month is August. (Western Regional Climate Center, 2021). See Table 2-2.

Table 2-2: Climate Data

Month	Average Maximum Temp (°F)	Average Minimum Temp (°F)	Average Precipitation (inches)	Average Total Snowfall (inches)
January	27.9	4.6	0.7	6.5
February	33.4	9.2	0.58	4.7
March	44.1	19.7	0.61	2.8
April	56.4	27.8	0.83	1.7
May	66.7	36.3	1.22	0.6
June	76.5	43.6	1.17	0
July	87.6	49.5	0.49	0
August	85.7	47.2	0.47	0
September	74.6	37.5	0.65	0
October	60.7	26.8	0.58	0.6
November	42.2	17	0.63	3.2
December	30.1	6.7	0.74	6.4
Annual	57.2	27.2	8.67	26.5

2.15 AIR QUALITY & NOISE

Idaho is among the states that have delegated authority by EPA to issue air quality permits and enforce air quality regulations. DEQ's air protection efforts are designed to assure compliance with federal and state health-based air quality regulations. The Clean Air Act of 1970 identified six common air pollutants of concern, called "criteria pollutants." These criteria pollutants are carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide. Fugitive dust is closely regulated as it contributes to particulate matter.

Idaho DEQ monitors air quality and publishes air quality information for areas with populations over 350,000. No air quality data is available, and no noise issues have been identified for the area.

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.

2.16 ENERGY PRODUCTION & CONSUMPTION

The water system currently has moderate utility usage due to the supply of water obtained from groundwater wells. Water flows from the wells to the tank by submersible pump pressure (head) and the distribution system is fed by the booster pumps. Well #01 is connected to the backup power generator for emergency use.

2.17 SOCIOECONOMIC PROFILE/POPULATION STATISTICS

Due to the impact of the COVID-19 pandemic, the Census Bureau changed the 2020 American Community Survey (ACS) release schedule. Instead of providing the standard 1-year data products, the Census Bureau released experimental estimates from the 1-year data. This includes a limited number of data tables for the nation, states, and the District of Columbia. The 2020 ACS 1-year experimental estimates are posted on the 2020 ACS 1-Year Experimental Data Tables page; they are not available on data.census.gov.

Atomic City data was obtained from https://data.census.gov/cedsci/profile?g=1600000US1603970 on December 27, 2021.

Based on the 2020 census, the population of Atomic City was 41 people. Historical and projected populations are found in Section 4.3 of this WFPS.

Of the 39 housing units approximately 28 are occupied. Based on the reported population this equates to 1.5 people per household. For the purposes of this study 2.5 people per household will be used to determine estimated current and projected future water usage.

The median age in the Atomic City area is 64.1 and the median household income is estimated at $33,750 (U.S. Census Bureau, 2021). The median household income in Idaho is $60,999. Educational attainment is defined as the population of bachelor's degree or higher and is equivalent to 0.0%.

2.18 MAPS, SITE PLANS, SCHEMATICS, TABLES, & LETTERS FROM CONSULTED AGENCIES

General maps of environmental conditions are presented in this chapter.

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Figure 2-2: Proposed Project Planning Area

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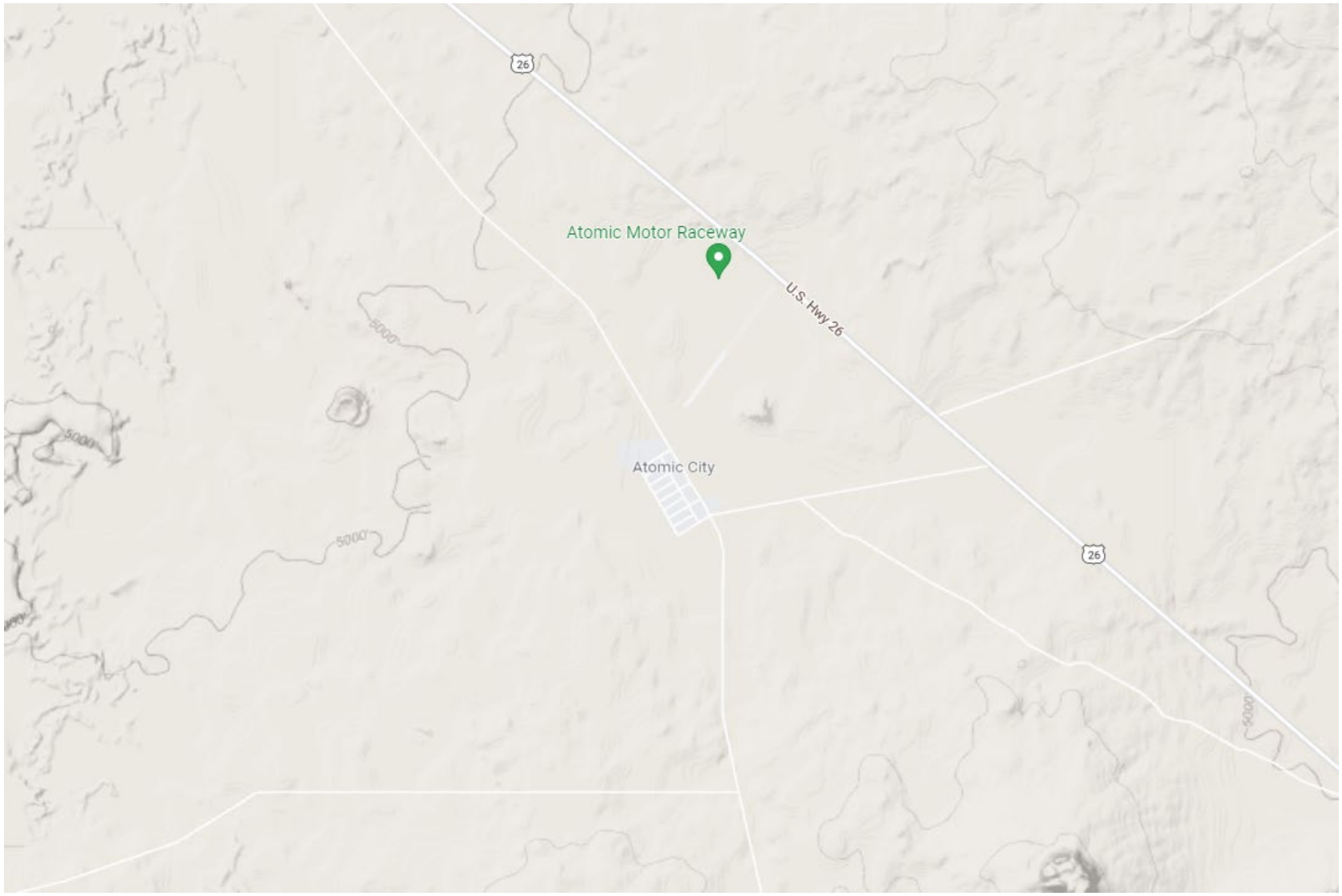

Figure 2-3: Topographic Map

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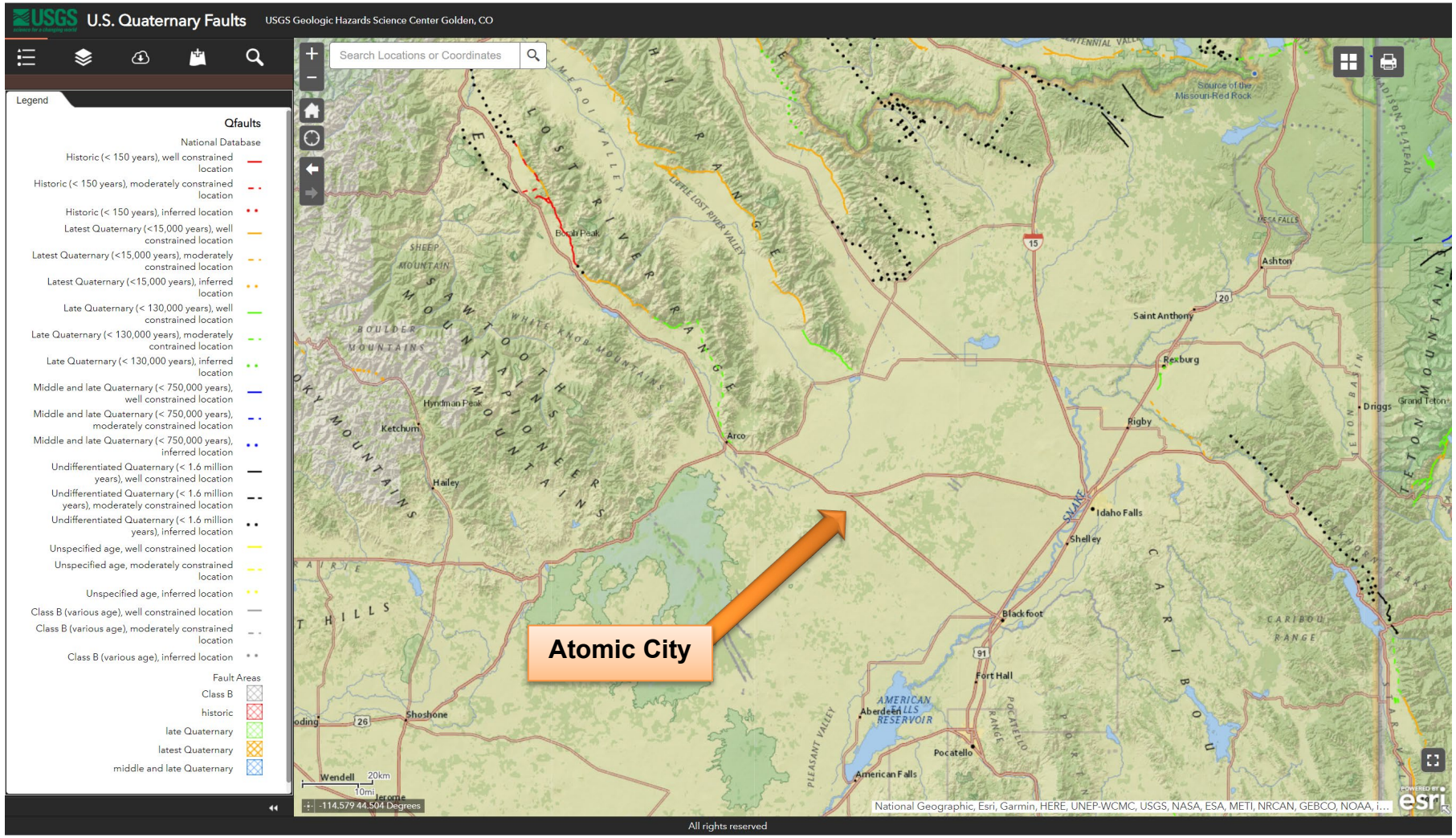

Figure 2-4: Fault Map

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Figure 2-5: Floodplain Map

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Figure 2-6: Prime Farmland Map

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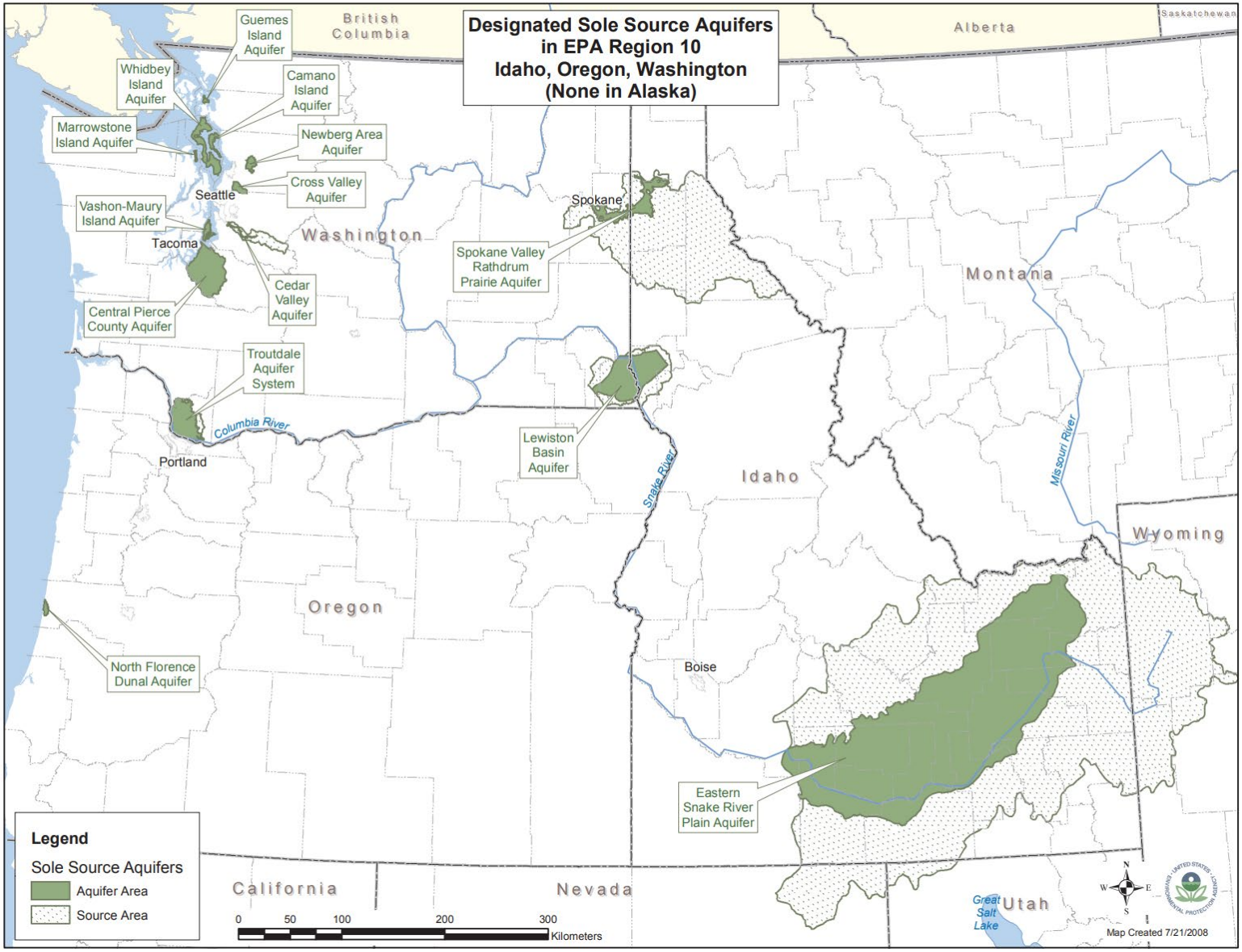

Figure 2-7: Eastern Snake River Plain Aquifer Map

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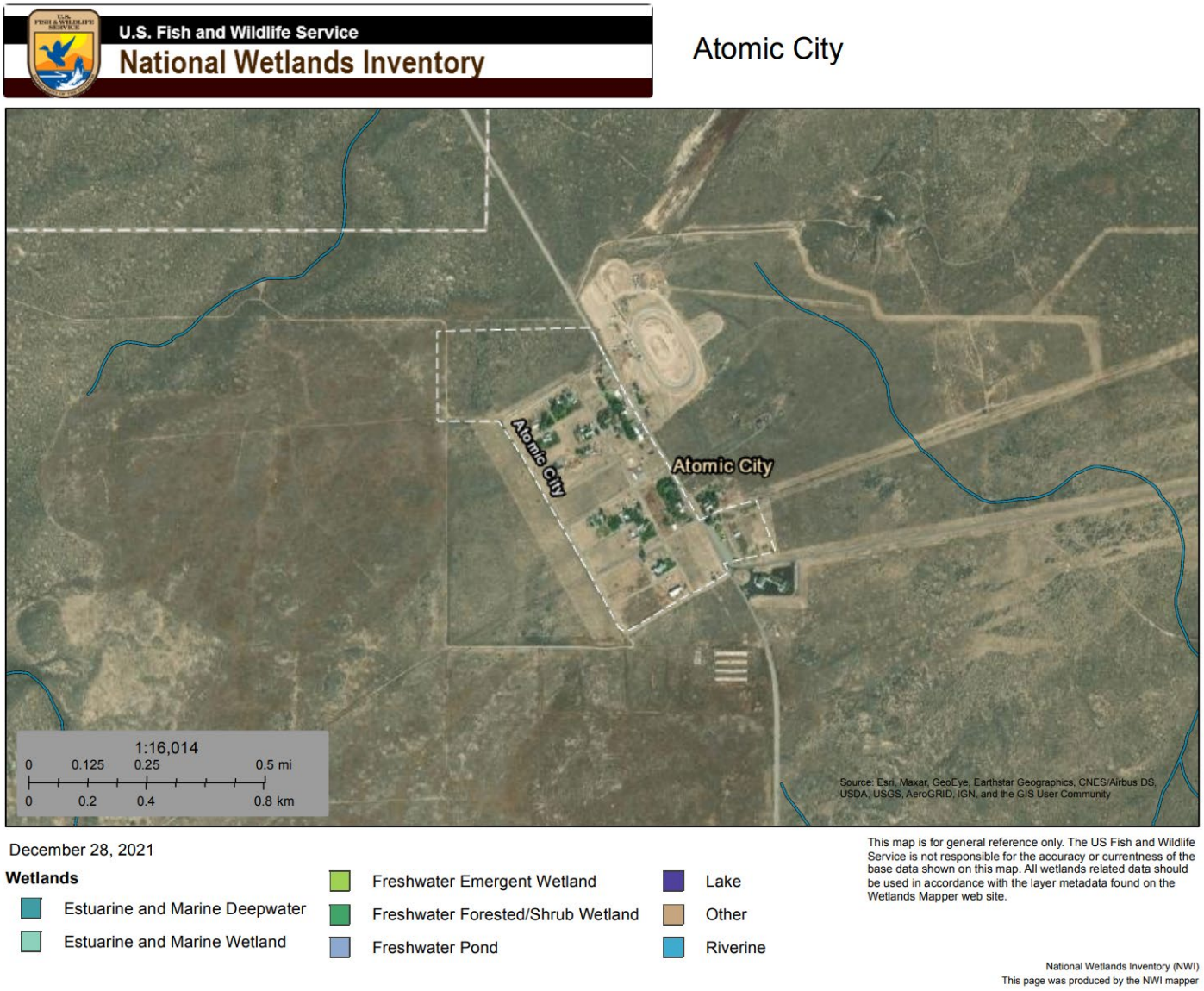

Figure 2-8: Wetland Map

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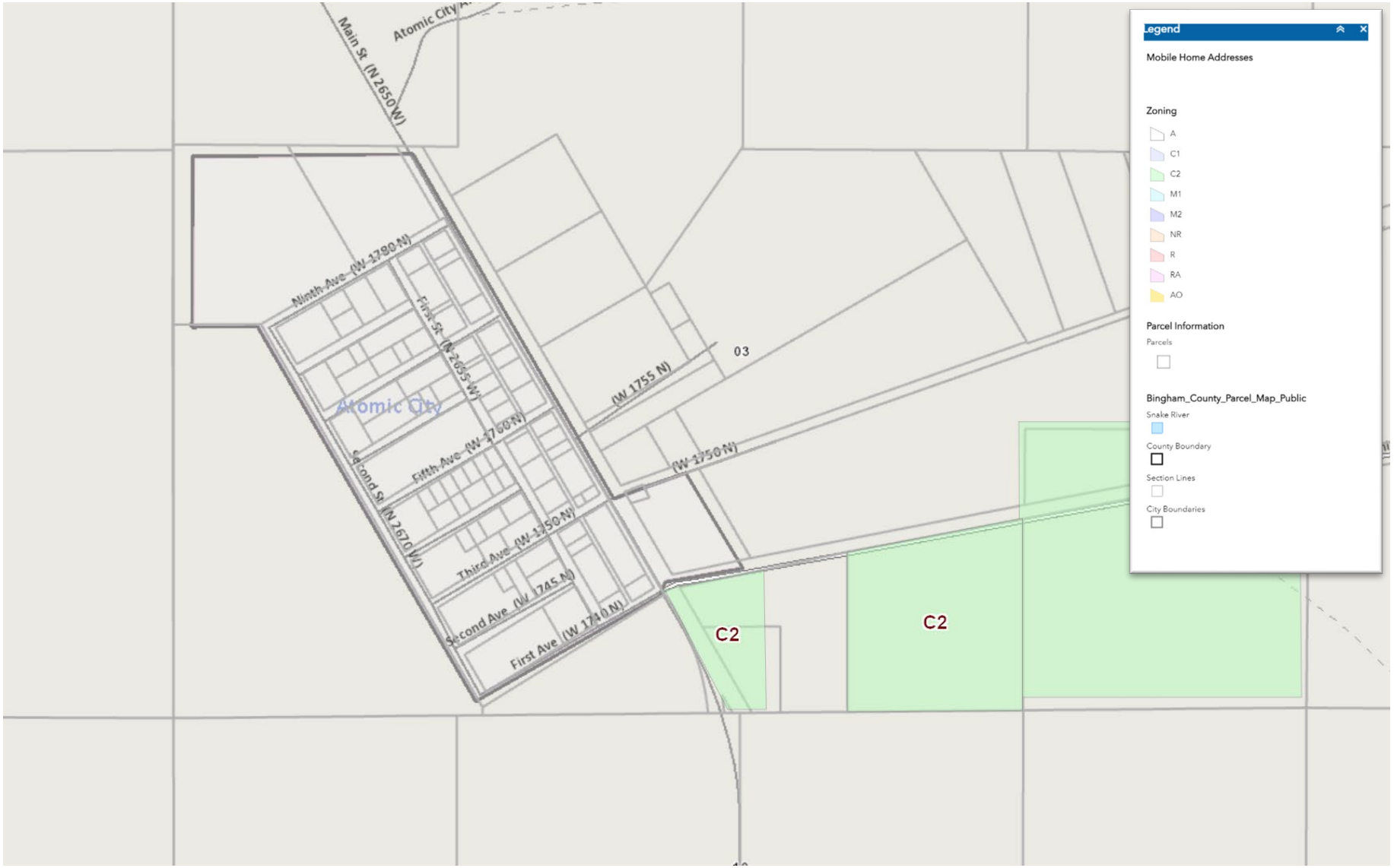

Figure 2-9: County Zoning Map

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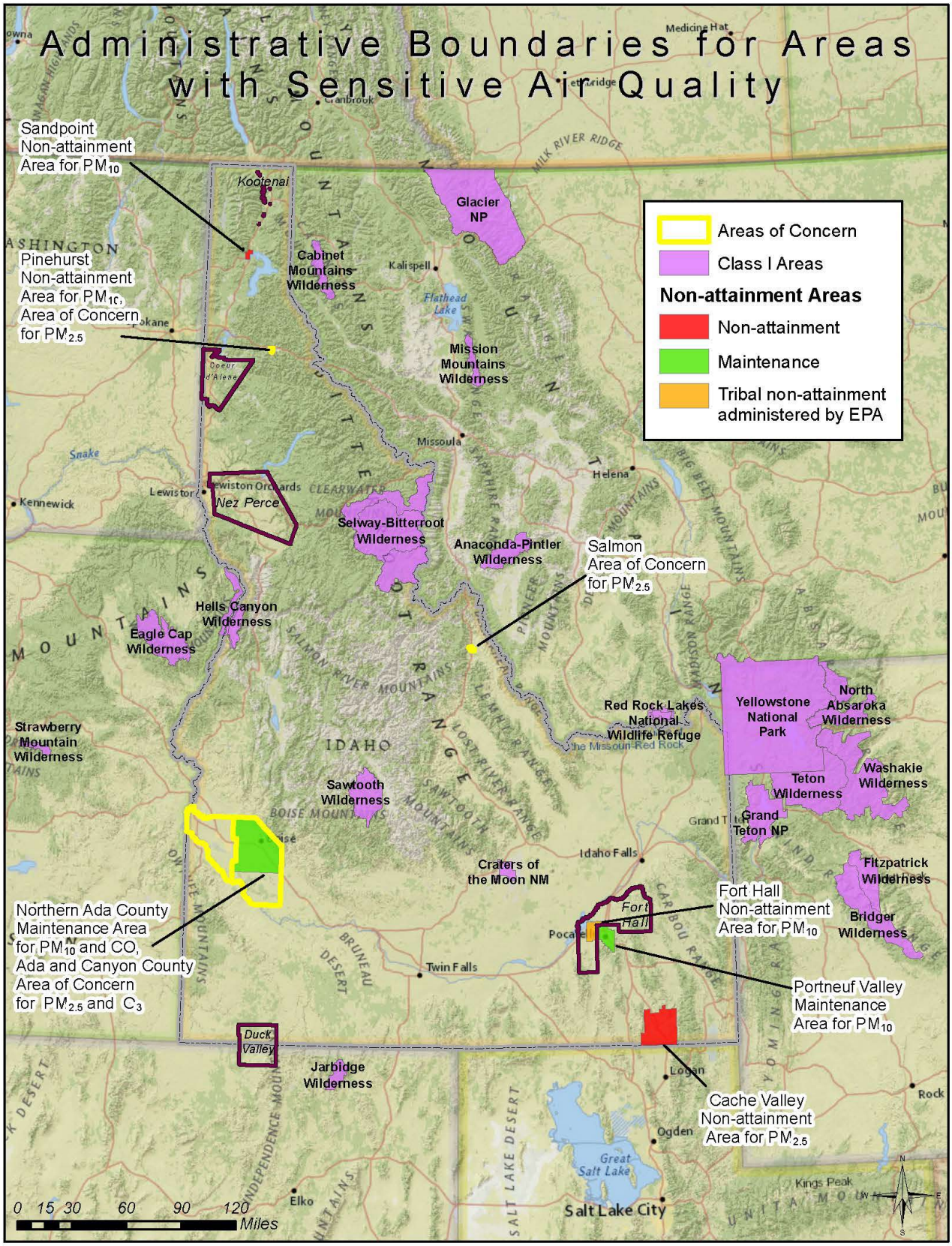

Figure 2-10: Administrative Boundaries for Areas with Sensitive Air Quality

CHAPTER 3 EXISTING FACILITIES CONDITION & EVALUATION

This chapter summarizes existing source, storage, and distribution system conditions for the water system. Regulatory requirements are presented in each section as they pertain to the water system. DEQ sets rules "to control and regulate the design, construction, operation, maintenance, and quality control of public drinking water systems to provide a degree of assurance that such systems are protected from contamination and maintained free from contaminants which may injure the health of the consumer" (Idaho Dept. of Environmental Quality, 2021).

3.1 WATER SOURCES

3.1.1 Source Water Criteria

Requirements for water sources for public water systems are addressed in *The Idaho Rules for Public Drinking Water Systems*. For wells, written approval by DEQ is required before water from any new or reconstructed well may be served to the public[1]. Wells should be located a minimum of 50 ft. from the nearest property line to meet setback requirements from specified sources of contamination set forth in Subsection 900.1. Casings shall extend at least 18" above the final ground surface. All wells should be constructed in accordance with IDAPA 37.03.09. A sample tap suitable for collecting biological samples is required on the discharge piping from every well. A flow meter and check valve are required for each well. Disinfection is not required for wells but is required for systems with a surface water source or ground water source directly influenced by surface water[2].

3.1.2 Well #01

Well #01 is located in the well/booster house as shown in Figure 3-4. The well house sits on land owned by the water system at an elevation of approximately 4,971-feet above sea level. The well has a 25 hp submersible pump capable of producing approximately 100 gpm. The well pumps directly into the water storage tank, has a depth of 638-feet with a 10-inch casing extending to a depth of 38-feet with lava rock the rest of the depth. The 25 hp submersible pump is installed at a depth of approximately 630-feet below ground surface (bgs). The submersible pump is a 480V three phase that is controlled by a vfd in the well/booster house. The pump turns on when the storage tank calls for water through a hydro ranger water level sensor.

3.1.3 Well #02

Well #02 is located southeast of well #01 approximately 800-feet on a well lot. The property is not fenced, and the well is the only thing on the lot. The well has a depth of approximately 670-feet bgs with an 8-inch casing installed to a depth of 60-feet bgs. The well had a 5-inch pvc liner installed in it as it is assumed that the well was drilled and is not straight or has a rock that is protruding enough to rub the electrical wires causing a short and the solution at the time was to install a pvc liner to protect the wires from the rocks. The 5-inch pvc liner was removed in March of 2022. The well currently does not have a pump installed in it but originally had a 25 hp pump installed before the pvc liner and supposedly had a 10 hp pump installed after the pvc liner. It is unknown why there is not a pump installed in the well at this time.

3.2 WATER QUALITY

3.2.1 Water Quality Criteria

Water quality standards are based on the U.S. Environmental Protection Agency (EPA) Safe Drinking Water Act (SDWA) which includes primary standards (legally enforceable) and secondary standards (not legally enforceable). Primary standards are defined to protect public health while secondary standards

[1] IDAPA 58.01.08 – Idaho Rules for Public Drinking Water Systems, § 510
[2] IDAPA 58.01.08 – Idaho Rules for Public Drinking Water Systems, § 300.04

are defined for contaminants that pose no public health issue, but may cause corrosion, odor, unpleasant taste, or staining. Primary standards exist for microorganisms, disinfectants, disinfection byproducts, inorganic chemicals, organic chemicals, and radionuclides. These primary constituents are required to be measured and reported on a regular basis. (U.S. Environmental Protection Agency, 2013). A list of the drinking water regulations for primary and secondary standards is included in Appendix B.

In association with the SDWA the EPA has developed rules to further address water quality. The following drinking water rules are considered priority rulemakings by the EPA. The rules presented below are those typically of concern. The summaries that follow contain only an overview of the associated rule and should in no way be considered authoritative. For additional information consult the EPA's Current Drinking Water Regulations page (U.S. Environmental Protection Agency, 2012).

Ground Water Rule

The purpose of the Ground Water Rule is to reduce the risk of illness caused by microbial contamination in public ground water systems. 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

Total Coliform Rule

This rule was established in 1989 to improve public health protection by reducing fecal pathogens to minimal levels through control of total coliform bacteria, including fecal coliform and E. coli. Sources of these organisms include sewage and animal wastes. Sampling requirements are based on the population served by the utility.

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 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. (U.S. Environmental Protection Agency, n.d.).

Arsenic Rule

Long-term exposure to arsenic in drinking water has been linked to cancer of the bladder, lungs, skin, kidneys, 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).

Disinfectants and Disinfection Byproducts Rule

Disinfectants are used to inactivate many potentially harmful microorganisms, but they may also react with natural organic and inorganic material in the source water forming disinfection byproducts (DBP's). DBP's, such as chloroform, have been shown to be carcinogenic and have been shown to cause reproductive and developmental effects in laboratory animals. The Stage 1 Disinfectants and Disinfection Byproduct Rule was promulgated in December 1998 and establishes maximum residual disinfectant

levels (MRDL) and MCL's for disinfection byproducts. Additionally, this rule addresses removal of total organic carbon (TOC) to minimize the production of DBP's. The Stage 2 Disinfectant and Disinfection Byproducts Rule was promulgated in December 2005 and focuses on decreasing DBP concentration peaks in the transmission and distribution system.

Radionuclide Rule

The Radionuclide Rule was promulgated in December 2000 to address exposure to radionuclides found in drinking water. This rule retains existing MCL's for combined radium-226 and radium-228, gross alpha particle radioactivity, and beta particle and photon activity. The rule establishes an MCL for uranium. The purpose of this rule is to reduce exposure to radionuclides in drinking water due to the increased risk of cancer from exposure.

Nuisance Contaminants

Some of the nuisance contaminants found in municipal water systems are Hydrogen Sulfide, Ammonia, Iron, and Manganese. Where applicable, these 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. Toxicological 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 also used to oxidize constituents such as hydrogen sulfide which causes "rotten egg" taste and odor problems as well as iron and manganese.

3.2.2 Well Water Quality

The wells have been sampled according to DEQ requirements with no known contaminants above allowable limits.

3.2.3 Distribution System Water Quality

The distribution system has been sampled according to DEQ requirements with no known contaminants above allowable limits.

3.3 STORAGE TANK

The water system has one concrete storage tank, for location see Figure 3-4. The tank's roof elevation is approximately 4979.7-feet. A 4-inch line supplies water to the tank and a 4-inch line provides water from the tank to the booster station that is reduced to 1.5-inch at the booster pumps. There is a discharge line and an overflow line coming out of the concrete tank. The overflow line is a 6-inch pvc pipe. There is also a 4-inch pvc bypass line connected so that if needed, the storage tank could be isolated and bypassed.

The new concrete tank was built in 2009 as part of the water infrastructure improvement project. The tank is partially buried with the roof exposed. A partially buried tank provides some insulation during cold weather and helps to protect the walls from deterioration. Access to the interior of the tank is through an access hatch manway in the roof of the tank. A ladder extends from the access hatch down to the floor of the tank. The tank is vented, as required by IDAPA 58.01.08, and can be isolated for cleaning and maintenance. The water storage structure parameters are provided in Table 3-1. Note that the usable volume was conservatively calculated with only a 7-foot usable depth.

Table 3-1: Water Storage Capacity

Description	New Tank
Inside diameter (ft.)	40.0
Total Water Depth (ft.)	8.0
Usable Depth (ft.)	7.0
Total Volume (gal)	75,000
Dead Storage (gal)	9,400
Usable Volume (gal)	**65,600**

3.4 TREATMENT

The water system had a chlorine treatment system that is no longer operational and currently the system does not have a way of treating the water.

3.5 DISTRIBUTION SYSTEM

This section outlines the distribution system pipe materials, pipe conditions, meter conditions, valves, and fire hydrants. A hydraulic analysis of the distribution system is presented in Section 3.11 of this report.

3.5.1 Distribution System Criteria

System Pressures

IDEQ has set specific minimum water pressure requirements. Water pressures at any point in the distribution system must not be below a minimum pressure of 40 psi during peak hour demand conditions excluding fire flow[3]. Water pressure at any point in the distribution system must be maintained above 20

[3] IDAPA 58.01.08 – Idaho Rules for Public Drinking Water Systems, § 552.01.b.v

psi during a MDD and fire flow event[4]. If pressure in the system drops below 20 psi the system is at risk of contamination and in violation of State regulations.

Normal operating pressures should typically range between 60 and 90 psi. Pressures above 100 psi should be controlled with pressure reducing valve stations installed in the distribution main[5]. Higher pressures typically increase the amount of water lost due to leakage and the potential for water main breaks. In systems that rely on pumping to provide pressure, high pressures can be indicative of high energy consumption.

Pipe Sizing

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

- Water lines where fire hydrants are provided must be six (6) inches in diameter or larger. If fire flow is not provided, water mains should not be smaller than three (3) inches in diameter[6].
- Dead end mains should be minimized by looping the system when practical. Dead end lines should be equipped with a means of flushing at a velocity of at least 2.5 fps[7].
- 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 placed 250 to 500 ft apart, depending upon the area served.
- 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.

Cross Connection Control

A cross connection control program should take reasonable and prudent measures to prevent unsafe or contaminating materials from being discharged or drawn into the drinking water system[8]. 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.

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

3.5.2 Pipe Network

The water distribution system was reconstructed in 2009 and is comprised of primarily pvc pipes ranging from 6 to 8 inches in diameter. The existing water system utilizes one pressure zones that have typical pressures that range from 80 psi to 90 psi. The system has been in service for 12 years (distribution system). Figure 3-4 illustrates the distribution system by pipe size.

[4] IDAPA 58.01.08 – Idaho Rules for Public Drinking Water Systems, § 552.01.b.i
[5] IDAPA 58.01.08 – Idaho Rules for Public Drinking Water Systems, § 552.01.b.vi

[6] IDAPA 58.01.08 – Idaho Rules for Public Drinking Water Systems, § 542.06
[7] IDAPA 58.01.08 – Idaho Rules for Public Drinking Water Systems, § 542.09
[8] IDAPA 58.01.08 – Idaho Rules for Public Drinking Water Systems, § 543

3.5.3 System Connections

There are 30 unmetered connections to the system. 28 connections are residential and 2 are commercial.

3.5.4 Fire Hydrants

There are approximately eleven fire hydrants installed in the system even though the system is not currently capable of delivering fire flow to the system.

3.5.5 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. The valves in the system are shown in Figure 3-4. It is reported that these isolation valves have not been regularly operated since they were installed in 2009, due to a lack of staffing.

3.5.6 Cross Connection Control

The water system does not currently have a cross connection control program since the Atomic City was unincorporated in 2020 and is now under the jurisdiction of Bingham County. It is recommended that the system develop a program and enforce it.

3.6 WATER PRODUCTION/CONSUMPTION

The primary water source for the system is groundwater from well #01. Well #02 does not currently have a pump installed. The total water production capacity of the system equals the pumping capacity of the well. Very little data is available for the City's water consumption because there are no flow meters on service connections and the flow meter on the discharge side of the tank does not always accurately record the flow. Table 3-2 shows the available flow based on the pump curve data available.

Table 3-2: Water Production Capacity

Source	Capacity (gpm)
Well #01	95
Well #02	0
Total	**95**

3.6.1 Well #01

Well #01 is located at the well/booster house. The well pumps directly into the water storage tank, has a depth of 638-feet with a 10-inch casing extending to a depth of 38-feet with lava rock the rest of the depth. The well has a 25 hp submersible pump that is installed at a depth of approximately 630-feet below ground surface (bgs). The submersible pump is a 480V three phase that is controlled by a vfd in the well/booster house. The pump turns on when the storage tank calls for water through a hydro ranger water level sensor.

3.6.2 Well #02

Well #02 is located southeast of well #01 approximately 800-feet on a well lot. The property is not fenced, and the well is the only thing on the lot. The well has a depth of approximately 670-feet bgs with an 8-inch casing installed to a depth of 60-feet bgs. The well had a 5-inch pvc liner installed in it as it is assumed that the well was drilled and is not straight or has a rock that is protruding enough to rub the electrical wires causing a short and the solution at the time was to install a pvc liner to protect the wires from the rocks. The 5-inch pvc liner was removed in March of 2022. The well currently does not have a pump installed in it but originally had a 25 hp pump installed before the pvc liner and supposedly had a

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10 hp pump installed after the pvc liner. It is unknown why there is not a pump installed in the well at this time.

3.6.3 Water Balance

The system does not keep regular records on water production or tank outflow because the meters have to be read manually and multiple meters do not work or are not installed. The amount of water loss in the system is difficult to determine due to the inaccurate production logs and the lack of residential water meter consumption records.

Factors that could contribute to system water loss include:

- **Leaky pipelines and services:** The majority of the pipelines are 15 years old. Improper installation, post installation inter-ties, and other utility work can also create leaks.

3.6.4 Water Usage

The propeller meter that was installed in the transmission line from well #01 to the water storage tank measures water pumped into the tank and ultimately the water used by the system. There is limited data available on the flow pumped into the tank. For the purpose of this study the water usage of 125 gallons per person per day will be used which is slightly higher than the typical 100 gallons per person per day. For each home the water usage is calculated assuming approximately 2.5 people per home. As there are 28 connected homes currently within the water system the ADD of the system is 8,750 gpd.

Table 3-3: Estimated Water Usage

Statistic	Estimated Water Usage* Average (gpd)	(gpm)	(gpcd)**
Average Annual Day	8,750	6.1	125
Maximum Day	15,750	10.9	225
Peak Hour	23,625***	16.4	338

* Based on 28 connected homes
** Based on a 24-hour water usage day
*** 984.4 (gph)

As shown in Table 3-3, there is an average annual day per capita usage of 125 gpcd. Typically, in the winter months the potable water demand is lower since outdoor irrigation is limited. Monitoring of the existing flow meters and installation of service flow meters that are properly logged would greatly increase the accuracy of the actual water demand.

3.7 DESIGN WATER USAGE RATES

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 are not available, peaking factors are used and are based on 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 typically expressed in terms of gallons per capita per day (gpcd).

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The MDD is the highest daily water use rate for the year. In smaller cities, peaking factors can usually vary from 1.3 to 4.0 depending on local conditions. Where daily data is not available, the data from the maximum month average day can be related to the MDD. Using information relayed by visual inspection of the flow meter readings during times of high usage, a peaking factor of 1.8 times the ADD will be used for the water system to calculate the MDD.

The PHD is the highest hourly water use rate throughout the year. This factor is difficult to determine unless very detailed flow data is available from the system. Typically, engineering judgment must be used based on past experience for similar sized communities. Based on the visual inspection of the flow meter during peak days a factor of 2.7 times the ADD will be used for the water system to calculate the PHD.

The following flow in Table 3-4 rates were used for the hydraulic analysis of the existing system.

Table 3-4: Design Water Usage Rates

Flow	Peaking Factor	gpm
Average Day Demand (ADD)	--	6.1
Maximum Day Demand (MDD)	1.8	10.9
Peak Hour Demand (PHD)	2.7	16.4

3.8 WATER RIGHTS

A water right is authorization to use water in a prescribed manner, not to own the water itself. Water rights provide the statutory mechanism allowing diversion of water from either surface or groundwater for a beneficial use. Allocation, inventory, and maintenance of water rights assure a reliable supply of water.

Water rights are classified by where the Point of Diversion (POD) is drawing the water and are usually divided into two categories. If the POD is taking water from a river or lake, it is classified as a surface water right. A POD can also be a well, which would require a groundwater right. Water right management is important since municipalities are required to manage their water delivery system in such a manner that water pumping rates do not exceed the water right diversion rates.

A summary of the water systems water rights is presented in Table 3-5. There are two rights for groundwater diversion. A water right report from IDWR for each of the rights is included in Appendix C.

Table 3-5: Water Right Summary

Water Right #	Basis	Priority Date	Div. Rate		Source	Water Use
			cfs	gpm		
35-04209	WR/ Decreed	08/01/1952	0.27	121	Groundwater,	Municipal
35-13701	Partial Decree	1/14/2008	0.26	116	Groundwater	Municipal
		Total	**0.53**	**237**		

It is important to note that some of the water rights have conditions of approval, restrictions, or combined diversion rates. The available municipal water rights are sufficient to meet even the peak hour demands of the system.

3.9 GROUND WATER SOURCE REDUNDANCY

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[9].

The water system currently has well #01 and well #02, the latter is not operable and needs to be rehabilitated.

3.10 FIRE PROTECTION REQUIREMENTS

Providing adequate fire protection in residential, commercial, and industrial zones often governs distribution pipeline sizes, pipe looping requirements, and reservoir storage needs. The *Idaho Rules for Public Drinking Water* requires that the water system maintain residual pressure of 20 psi during a MDD and fire event to minimize the risk of contamination to the water system[10]. Pumping systems supporting fire flow capacity must be designed so that the MDD and FFD may be provided simultaneously with any pump out of service. Fire suppression storage reduces the requirement for redundant pumping capacity[11]. Table 3-6 estimates fire protection requirements based upon the *2000 International Fire Code*, exact requirements are also based upon construction type. The current version of the *International Fire Code* should be consulted for further details. Reduction in fire flow requirements of up to 50% for one- and two-family residential buildings and 75% for buildings other than one- and two-family residential buildings is allowed when the building is equipped with an approved automatic sprinkler system.

[9] IDAPA 58.01.08 – Idaho Rules for Public Drinking Water Systems, § 501.17
[10] IDAPA 58.01.08 – Idaho Rules for Public Drinking Water Systems, § 552.01.b.i
[11] IDAPA 58.01.08 – Idaho Rules for Public Drinking Water Systems, § 501.18

Table 3-6 Typical 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	3,500	4	840,000

The minimum fire flow assumed for residential areas was 1,000 gpm in accordance with the 2018 IFC. The recommended fire flows for larger or commercial buildings were provided by the Idaho Surveying and Rating Bureau (ISRB). Buildings with required flows greater than 1,000 gpm were evaluated individually to assure adequate flows are available. For fire flows up to 2,500 gpm, 2 hours are required. Fire flows from 2,501 to 3,500 gpm require 3 hours and fire flows greater than 3,500 gpm require 4 hours. There are no structures within the system limits that meet these higher flow requirements.

The City of Blackfoot Fire Chief has stated that if the system was able to provide 500 gpm for a minimum of 2 hours would be great for the ability to help the Fire Department fight a fire within the water system area. A higher flow, if possible, would be beneficial as well.

3.11 DISTRIBUTION SYSTEM HYDRAULIC ANALYSIS

EPANET v2.2 was used to create the hydraulic model for the 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 model was analyzed with a fire flow demand at the furthest point from the booster station to determine if the water piping was able to deliver the fire flow demand and maximum day demand without drawing the pressure levels below the minimum allowable at any node in the system.

Requirements for pressure calculations for PHD and FFD scenarios shall be based on the lowest level after operational, equalization and fire suppression storage have been exhausted[12].

3.11.1 Model Development

Information regarding pipe diameters, network connectivity, and material types were determined through available mapping, previous reports, and consultations with staff familiar with the water system. Elevation data for the model is based on Google Earth DEM capabilities (Google, 2021). Demands (flows) were distributed to the nearest nodes based on individual connections within the system.

[12] IDAPA 58.01.08 – Idaho Rules for Public Drinking Water Systems, § 552.01.b.viii

3.11.2 Maximum Day Demand plus Fire Flow Demand (MDD + FFD)

The model was populated with the FFD identified by the Blackfoot Fire Chief. For all areas in the planning area 500 gpm was selected as the minimum flow for the model evaluation. Under MDD (10.9 gpm) and the FFD requirements stated, the system was tested with criterion of pressure not dropping below 25 psi. A maximum velocity constraint was not used. The tank level was assumed to be at the overflow pipe level since this is typically the case.

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. Model results shown in Table 3-8 are only for MDD as the system is currently not able to meet any fire flow demand as the existing booster pumps are only capable of providing 70 gpm flow.

The model found the distribution system cannot meet the MDD + FFD scenario. There is not a single location capable of providing more than 140 gpm with both booster pumps running at the same time. New booster pumps will need to be installed in order to meet MDD + FFD.

3.11.3 Peak Hour Demand

The system was modeled under peak hour demands (PHD) 16.4 gpm to check for pressures in the system dropping below 40 psi. Model results indicate that the distribution system nodes are all above 71 psi. Model results are shown in Table 3-9.

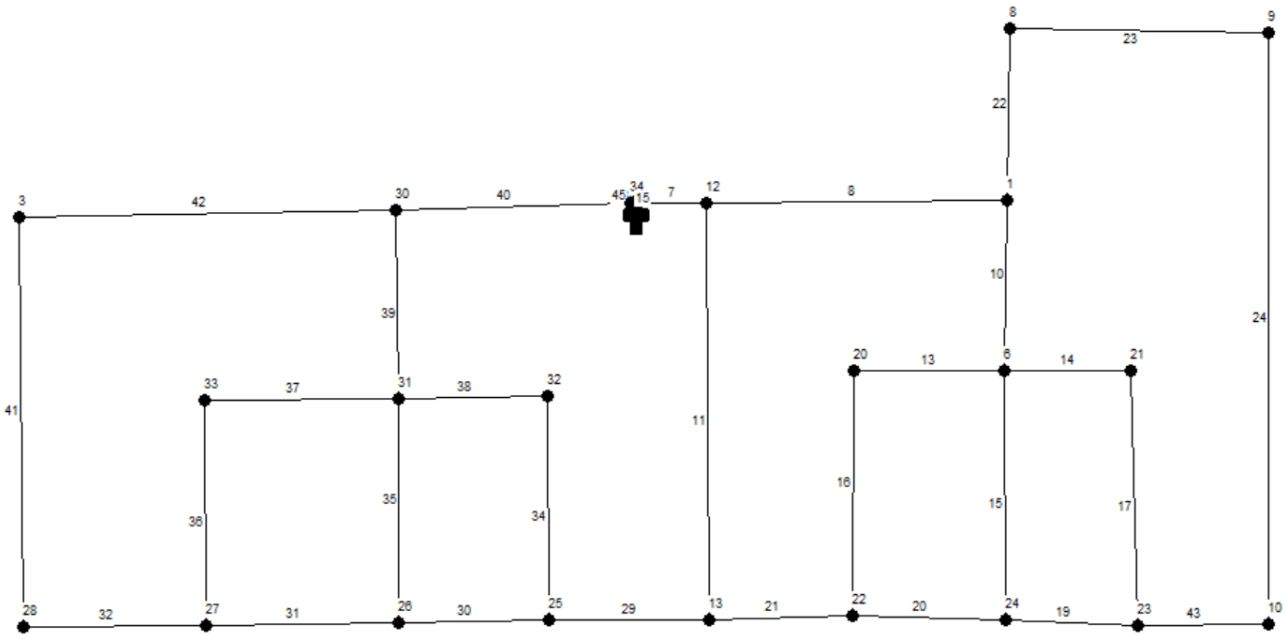

Figure 3-1: Water Model

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Table 3-7 Water Model Results for ADD

Node ID	Demand GPM	Head ft	Pressure psi	Quality
Junc 1	0.7	5178.32	89.83	0.00
Junc 2	0.0	5178.32	89.83	0.00
Junc 3	0.3	5178.32	89.83	0.00
Junc 6	0.3	5178.32	89.83	0.00
Junc 8	0.0	5178.32	89.83	0.00
Junc 9	0.7	5178.32	89.83	0.00
Junc 10	0.0	5178.32	89.83	0.00
Junc 12	1.4	5178.32	89.83	0.00
Junc 13	0.0	5178.32	89.83	0.00
Junc 20	0.3	5178.32	89.83	0.00
Junc 21	0.3	5178.32	89.83	0.00
Junc 22	0.1	5178.32	89.83	0.00
Junc 23	0.0	5178.32	89.83	0.00
Junc 24	0.0	5178.32	89.83	0.00
Junc 25	0.0	5178.32	89.83	0.00
Junc 26	0.0	5178.32	89.83	0.00
Junc 27	0.0	5178.32	89.83	0.00
Junc 28	0.3	5178.32	89.83	0.00
Junc 30	1.4	5178.32	89.83	0.00
Junc 31	0.0	5178.32	89.83	0.00
Junc 32	0.0	5178.32	89.83	0.00
Junc 33	0.3	5178.32	89.83	0.00
Junc 34	0.0	5178.32	89.83	0.00
Tank 15	-6.1	4978.50	3.25	0.00

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Table 3-7 Water Model Results for MDD

Node ID	Demand GPM	Head ft	Pressure psi	Quality
Junc 1	1.2	5175.53	88.62	0.00
Junc 2	0.0	5175.55	88.63	0.00
Junc 3	0.5	5175.54	88.63	0.00
Junc 6	0.5	5175.53	88.62	0.00
Junc 8	0.0	5175.53	88.62	0.00
Junc 9	1.3	5175.53	88.62	0.00
Junc 10	0.0	5175.53	88.62	0.00
Junc 12	2.6	5175.53	88.62	0.00
Junc 13	0.0	5175.53	88.62	0.00
Junc 20	0.5	5175.53	88.62	0.00
Junc 21	0.5	5175.53	88.62	0.00
Junc 22	0.3	5175.53	88.62	0.00
Junc 23	0.0	5175.53	88.62	0.00
Junc 24	0.0	5175.53	88.62	0.00
Junc 25	0.0	5175.54	88.63	0.00
Junc 26	0.0	5175.54	88.63	0.00
Junc 27	0.0	5175.54	88.63	0.00
Junc 28	0.5	5175.54	88.63	0.00
Junc 30	2.6	5175.54	88.63	0.00
Junc 31	0.0	5175.54	88.63	0.00
Junc 32	0.0	5175.54	88.63	0.00
Junc 33	0.5	5175.54	88.63	0.00
Junc 34	0.0	5175.55	88.63	0.00
Tank 15	-10.9	4978.50	3.25	0.00

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Table 3-8 Water Model Results for PHD

Node ID	Demand GPM	Head ft	Pressure psi	Quality
Junc 1	1.7	5173.49	87.74	0.00
Junc 2	0.0	5173.52	87.75	0.00
Junc 3	1.0	5173.49	87.74	0.00
Junc 6	1.0	5173.48	87.74	0.00
Junc 8	0.0	5173.49	87.74	0.00
Junc 9	1.9	5173.48	87.74	0.00
Junc 10	0.0	5173.49	87.74	0.00
Junc 12	3.3	5173.49	87.74	0.00
Junc 13	0.0	5173.49	87.74	0.00
Junc 20	1.0	5173.48	87.74	0.00
Junc 21	1.0	5173.48	87.74	0.00
Junc 22	0.3	5173.49	87.74	0.00
Junc 23	0.0	5173.49	87.74	0.00
Junc 24	0.0	5173.49	87.74	0.00
Junc 25	0.0	5173.49	87.74	0.00
Junc 26	0.0	5173.49	87.74	0.00
Junc 27	0.0	5173.49	87.74	0.00
Junc 28	1.0	5173.49	87.74	0.00
Junc 30	3.3	5173.49	87.74	0.00
Junc 31	0.0	5173.49	87.74	0.00
Junc 32	0.0	5173.49	87.74	0.00
Junc 33	1.0	5173.49	87.74	0.00
Junc 34	0.0	5173.52	87.75	0.00
Tank 15	-16.4	4978.50	3.25	0.00

3.12 WATER STORAGE EVALUATION

3.12.1 Water Storage Criteria

The materials and designs used for finished water storage structures shall provide stability and durability as well as protect the quality of the stored water. Finished water storage structures shall be designed to maintain water circulation and prevent water stagnation[13]. Figure 3-2 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
  - HLE recommends a volume of 10 – 15% of total storage volume for operational storage to prevent water from becoming stagnant
- **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.
  - Where detailed hourly data is available a demand curve of the MDD can be developed and the actual peaking storage volume calculated
  - HLE recommends a volume of 10 – 15% of total storage volume for peaking/equalization storage
- **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). The required fire flow must be verified with the local fire authority
- **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.

[13] IDAPA 58.01.08 – Idaho Rules for Public Drinking Water Systems, § 544

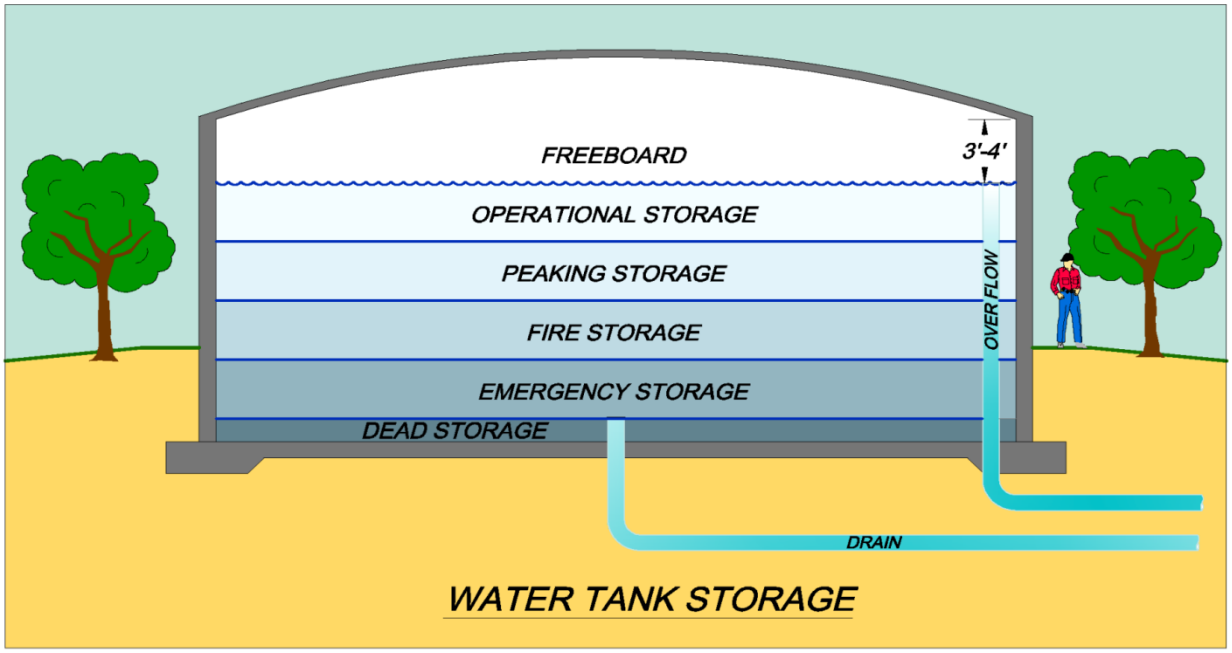

Figure 3-2: Water Tank Storage

In general, there are two types of storage components that can provide equalization storage to maintain flow and pressure as required. The two types of storage described below are shown in Figure 3-3.

- An elevated storage tank (either a high-level ground tank or a structurally elevated tank) develops the required pressures by virtue of the tank elevation.

- A ground level tank with booster pumps to supply flow and pressure to the system. In this event the booster pumps must be able to supply flow and pressure during peak demands with the largest pump out of service in the same capacity as was described for the groundwater sources above.

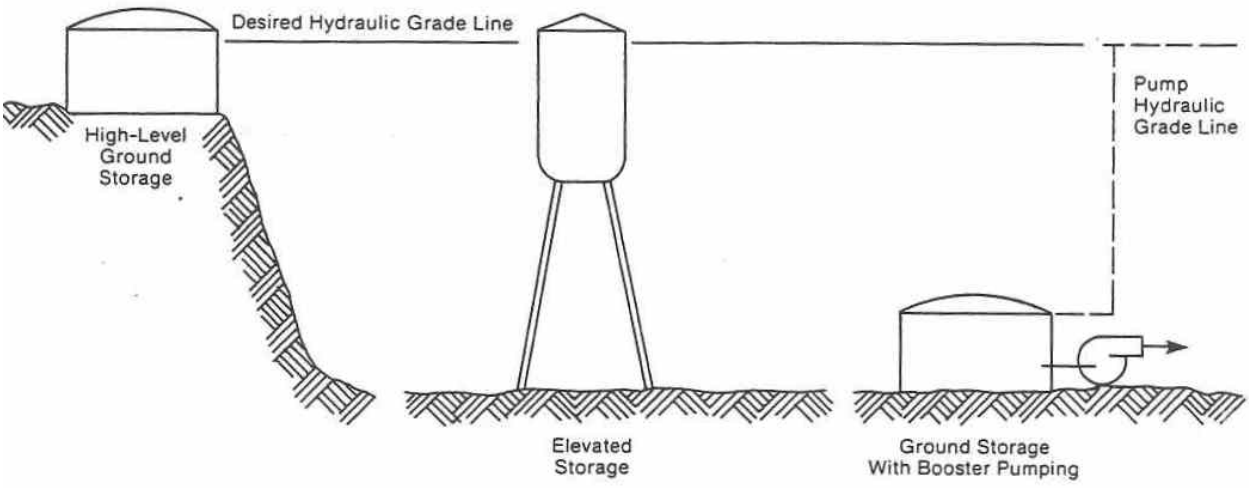

Figure 3-3: Storage Tank Configuration Examples

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3.12.2 Storage Volume Analysis

Table 3-10 presents the minimum recommended storage volumes for the system based on the above discussed criteria for water storage. System demands and fire flow requirements developed in the previous sections are needed and used in the evaluation of storage volumes. Comments regarding the values used are included for clarification.

Table 3-9: Recommended Storage Volumes

Storage Component		Minimum Recommended (gallons)	Comments
Operational Storage		6,560	Use 10-15% to keep water in tank from stagnating
Total Storage (gallons)	65,600		
% of total	10%		
Peaking/Equalization Storage		1,575	Typically, 10 -15% of MDD.
MDD (gpm)	10.9		
% of total MDD usage	10%		
Fire Storage		60,000	Fire Chief Recommended Fire Flow Capability
Fire Demand (gpm)	500		
Duration (hrs)	2		
Emergency Standby Storage		2,928	DEQ requires a minimum of 8 hours of average day demand
ADD (gpm)	6.1		
Duration (hrs)	8		
Offset Storage Needs w/ Source Capacity		<12,000>	Fire storage needs can be offset with source capacity. Source capacity with any pump out of service.
Source Capacity (gpm)	100		
Duration (hrs)	2		
Total		**59,063**	**Adequate storage capacity including fire flow**
Available Usable Storage		**65,600**	

The system has 65,600 gallons of available storage in the tank, therefore adequate storage capacity exists at the present. It is important to note that the fire storage needs were offset with the well pump online. This is assuming that both wells are operational and for the analysis one is offline.

3.12.3 Tank Residence Time

Tank residence time is the duration water remains in the tank which is a function of the incoming flow rate and the tank volume. There is also residence time in the distribution system piping which is not discussed in this section. There are numerous water quality problems which are associated with increased water age. These can be separated into three categories as shown below in Table 3-11:

Table 3-10: Water Quality Issues Associated with Water Age

Chemical Issues	Biological Issues	Physical Issues
*Disinfection by-product formation	*Disinfection by-product biodegradation	Temperature increases
Disinfectant decay	*Nitrification	Sediment Deposition
*Corrosion control effectiveness	*Microbial regrowth/recovery/shielding	Color
Taste and odor	Taste and odor	-

* Denotes water quality problem with direct potential public heath impact.

3.13 RELIABILITY & EMERGENCY OPERATION

Water system improvements constructed after April 2007 are required to 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[14].

3.14 FINANCES

3.14.1 Rate Structure

The existing ordinance contains a user charge system that is based on a flat fee per connection per month for a given size connection. It also allows a "standby" rate for those not currently using water from the system which is billed at one half the regular rate. Residential connections are charged $37 per month for a 1-inch connection, $55 per month for a 1.5-inch connection, commercial connections are $110 per month, and any standby connection is charged $18 per month. There are currently not any standby connections.

Table 3-12: Rate Structure

Connection Type	Rate	# Of Connections	Total Fees
Commercial	$110.00	3	$330.00
Residential (1-inch)	$37.00	34	$1,258.00
Residential (1.5-inch)	$55.50	3	$166.50
Total Monthly Fees			$1,754.50

The system generates $21,054 per year in revenue for operation of the system. The system also bills residences $30/month for garbage services.

3.14.2 Budget

The system has a balanced budget and over all does a good job of managing and planning their accounts. Funds are set aside for reserves, capital improvements, upgrades, and depreciation. A summary of the water fund budgets as well as detailed breakdowns for each are included below.

[14] IDAPA 58.01.08 – Idaho Rules for Public Drinking Water Systems, § 501.07

Table 3-13: Average Annual O&M Costs

Average Annual Operation & Maintenance Costs	
Component	**Annual O&M Cost**
Salaries and Wages	$500
Legal and Acct Expenses	$3,200
Utilities	$4,600
Repairs and Maintenance	$3,000
Parts and Supplies	$200
Testing	$1,000
Total	***$12,500***

3.15 SANITARY SURVEY

A sanitary survey is typically conducted by DEQ every three years for community water systems. As stated on DEQ's website (Idaho Dept. of Environmental Quality, 2021):

> 'A sanitary survey is an 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.'

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, or 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 to improve the overall operation of the water system.

The most recent sanitary survey for the Atomic City Water System was conducted on March 15, 2018. A copy of the sanitary survey letter dated April 13, 2018, can be found in Appendix D. Several deficiencies were identified as result of the sanitary survey. Recommendations and system deficiencies from the Sanitary Survey have been incorporated into the system improvements presented in Section 6.1. Improvements addressed 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.

3.15.1 Significant Deficiencies

As stated in the 2018 Sanitary Survey, the following are a comprehensive list of Significant Deficiencies within the system:

- Well #01 tag # E0007277 is not in such a manner that surface water cannot enter the well, as required by IDAPA 58.01.08.510.03.a-g.
  - Corrected on March 28, 2018
- The manhole access for storage tank tag #T6060006TS1 does not have a cover that is watertight, as required by IDAPA 58.01.08.544.07.c
  - Corrected on March 28, 2018
- There is not a cross connection control program that complies with Rule, as required by IDAAPA 58.01.08.552.06
  - Corrected on March 28, 2018, Old version found

3.15.2 Deficiencies

As stated in the 2018 Sanitary Survey, the following are a comprehensive list of deficiencies within the system:

- As long as the Responsible Designated Operator (DO) is available 24/7, an OP is not required. At such time the DO is not available, an OP will be designated to take over the PWS responsibilities as required by IDAPA 58.01.08.554.03.
  - (no action required at this time)
- The tank supports for the Hydropneumatic tanks are not structurally sound and/or adequate, as required by IDAPA 58.01.08.547.01.b
- 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 evidence of corrosion of metallic and/or electrical components from excessive heat and/or moisture.

3.15.3 Recommendations

Within the 2018 Sanitary Survey, DEQ recommendations include the following:

- DEQ recommends that well #02 tag #D00055090 be protected from unauthorized entry through fencing around the source or using a locking well cap.

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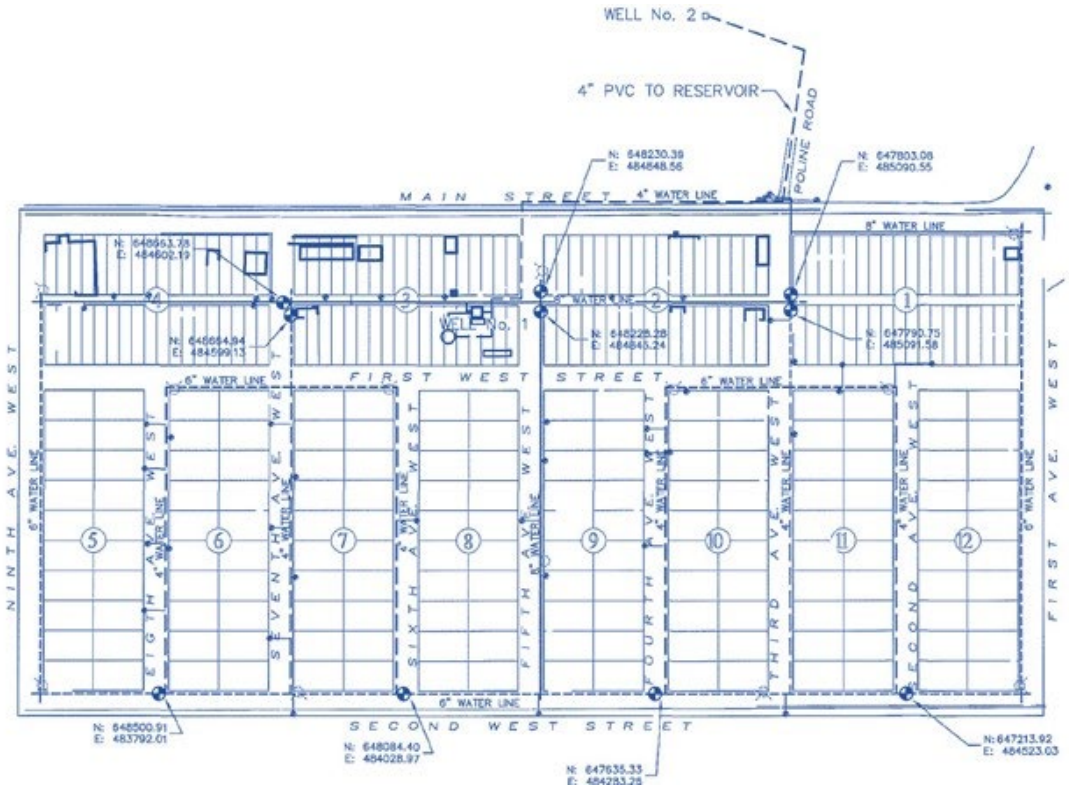

Figure 3-4: Existing Drinking Water System

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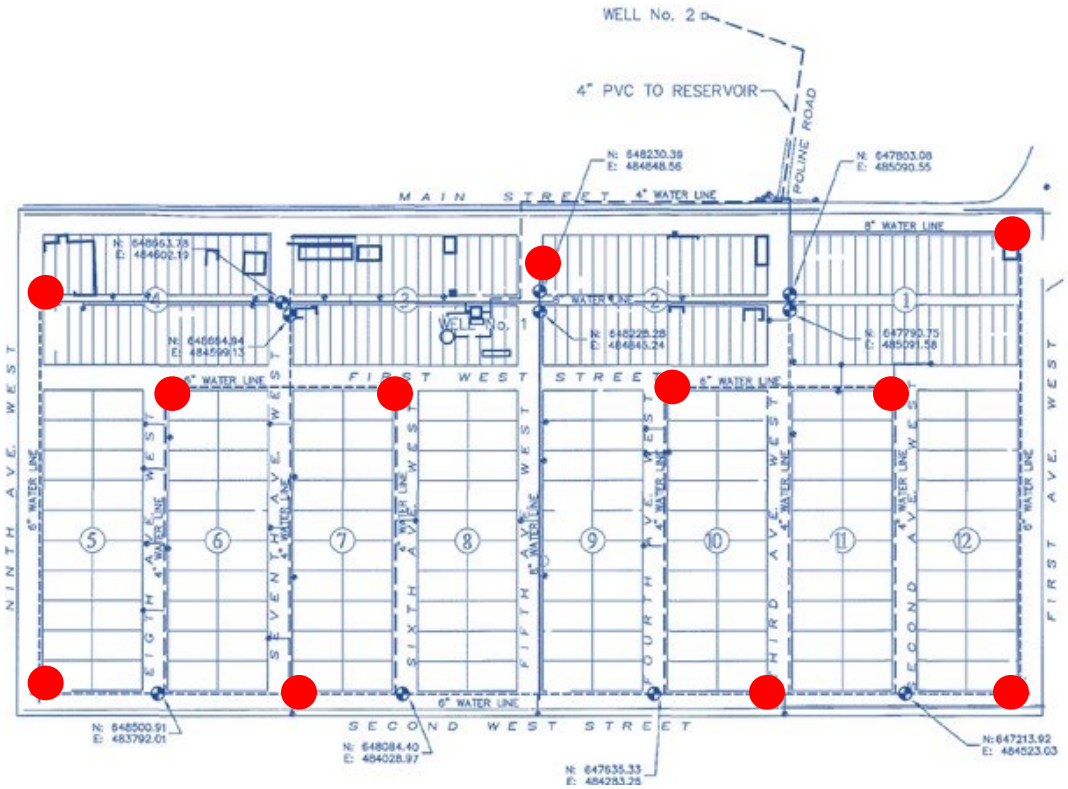

Figure 3-5: Fire Hydrant Locations

CHAPTER 4 FUTURE CONDITIONS

4.1 COMMUNITY COMPREHENSIVE PLANS

Bingham County has a Comprehensive Plan which was updated in 2018. The plan discusses current, future, and desired conditions of the County as well as strategies to accomplish those goals. Please refer to the county planning and zoning website for the most current information at Planning and Zoning (bingham.id.us) https://www.co.bingham.id.us/planning_zoning/planning_zoning.html.

4.2 FUTURE LAND USE

Atomic City is predominately residential with a few small businesses in the area. There is an RV Park on the southeast side of town supporting the transient population of INL/Construction workers. There is the Atomic City Racetrack that is a dirt racetrack that has a few events throughout the summer. There are many lots within the area that are not developed.

There are no major industries or significant commercial establishments in the water system area. The main business would be the INL that is approximately 10 miles to the closest INL facility. The physical boundaries of the planning area are the now unincorporated City limits. This planning area encompasses the entire water system.

The land surrounding the planning area is predominately undeveloped sagebrush ground, with some farm fields or pasture area where soil cover allows. The depth to basalt/lava rock is shallow with some outcroppings of the rock visible at the surface.

4.3 POPULATION TRENDS

The Atomic City area population has had a stagnant trend since 1990 as reported by the US Census. The spike in population from 2010 to 2020 appears to be possibly due to the recent hiring of the INL. The INL facility has projected to hire 5,000-8,000 additional employees over the next 5 years. It is not anticipated that many of those hired employees will locate their residents at the Atomic City area as most of the INL employees reside near Rexburg, Idaho Falls, or Blackfoot and commute to the facility.

Bingham County has seen a growth rate of 5.2% from 2010 to 2020 which will be the growth rate used for purposes of this study. The starting population of 41 in 2021 was used to estimate population projections for the 20- and 40-year design horizons and the associated water demand. Using these factors, Table 4-1 contains population projections for the Atomic City area water system.

Growth Rate % = (FV-IV)/IV*100
FV is the final population
IV is the initial population

Population Growth Formula – $x(t) = x(0) * (1+r)^t$
x(t) is the final population after time t
t is time in years
x(0) is the initial population
r is the growth rate

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Table 4-1: Population Estimates

	Atomic City Area	Bingham County	Idaho
Population 2010	26	45,607	1,576,582
Population 2020	41	47,992	1,839,106
Population, percent change, 2010 to 2020	57.7%	5.2%	16.7%
Population 2041 (20-year Projection)[1]	113	53,113	2,504,659
Population 2061 (40-year Projection)[1]	311	58,781	3,411,067
Percent aged 18 and over (2020)	100%	69.4%	74.8%
Percent under the age of 18 (2020)	0.0%	30.6%	25.2%
Persons under the age 18 (2020)	0	14,677	462,706
Persons aged 18 and over (2020)	41	33,315	1,376,400

1 – used the Bingham County 5.2% growth rate for Atomic City as that is a more likely growth rate for the area.

4.4 WATER DEMAND PROJECTIONS

The volume capability of the existing 25 HP pump installed in well #01 is approximately 100 gallons per minute. For the purpose of this study the water usage of 125 gallons per person per day will be used which is slightly higher than the 82 gallons per person per day according to EPA (www.epa.gov/watersense/statistics-and-facts). The 28 home service connections suggest a peak day demand associated with the present system of about 16.4 gpm. For each home the water usage is calculated assuming approximately 2.5 people per home.

Using the population projections shown in Table 4-1and the usage data developed from the current standards for unmetered systems the water demand projections in Table 4-2 were used for purposes of this study.

Table 4-2: Water Demand Projections

	Year 2021	Year 2041 (20-year design)	Year 2061 (40-year design)
Population	41	113	311
Number of Homes	28	45	124
Average Day Demand*	125 gpcd	125 gpcd	125 gpcd
	8,750 gpd	14,125 gpd	38,875 gpd
	6.1 gpm	9.8 gpm	27.0 gpm
Maximum Day Demand*	Peaking Factor: 1.8 x ADD		
	225 gpcd	225 gpcd	225 gpcd
	15,750 gpd	25,425 gpd	69,975 gpd
	10.9 gpm	17.7 gpm	48.6 gpm
Peak Hour Demand*	Peaking Factor: 2.7 x ADD		
	16.4 gpm	26.5 gpm	72.9 gpm
Total Annual Demand	3.2 MG	5.2 MG	14.2 MG

*Demand projections (gpd) based on number of homes multiplied by 2.5 people per home and 125 gpcd

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4.5 WATER RIGHTS & SUPPLY VERSUS FUTURE DEMAND

The system currently has 237 gpm in water rights, which is currently able to meet peak hour demands for the 20-yr and 40-yr planning period. It should be noted that since the system currently relies heavily on the well #01 for potable water, that during an extended drought static water levels could decrease from the historical levels and the system currently does not have a backup water supply as well #02 does not currently have a pump installed in the well.

Source capacity needs to equal or exceed the MDD or there is the risk of running out of water. The current MDD of 10.9 gpm is less than the system capacity of 237 gpm. Table 4-3 below compares current production with future MDD.

Table 4-3: Future Water Production Needs

	Year 2021	Year 2041 (20-year design)	Year 2061 (40-year design)
Maximum Day Demand (gpm)	10.9	17.7	48.6
2021 Water Production Capacity (gpm)	237	237	237
Production Excess	**226.1**	**219.3**	**188.4**

The table shows that current source production does meet the future planning demands.

4.6 FUTURE DISTRIBUTION SYSTEM CONDITIONS

The demands for the 40-yr planning period were used to evaluate the future needs and conditions of the distribution system. For modeling purposes, it was anticipated that future residential water connections will fill in empty fields and lots along the existing water lines within the water system.

4.7 FUTURE STORAGE NEEDS

There is a deficiency in storage for the existing conditions for the growth pattern that is identified for the 40-yr planning period. Using the same assumptions that were used in the storage evaluation for the existing conditions in combination with the 2061 demands presented in Table 3-10, there will be a storage deficiency of 8,918 gallons (14%) as shown in Table 4-4. There are a variety of ways this future storage deficiency can be addressed by the system and will be discussed in Chapter 5.

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Table 4-4: Future Storage Needs 2061

Storage Component		Minimum Recommended (gallons)	Comments
Operational Storage		6,560	Use 10-15% to keep water in tank from stagnating
Total Storage (gallons)	65,600		
% of total	10%		
Peaking/Equalization Storage		6,998	Typically, 10 -15% of MDD.
MDD (gpm)	48.6		
% of total MDD usage	10%		
Fire Storage		60,000	Fire Chief Recommendation
Fire Demand (gpm)	500		
Duration (hrs)	2		
Emergency Standby Storage		12,960	DEQ requires a minimum of 8 hours of average day demand
ADD (gpm)	27.0		
Duration (hrs)	8		
Offset Storage Needs w/ Source Capacity		<12,000>	Fire storage needs can be offset with source capacity. Source capacity with any pump out of service.
Source Capacity (gpm)	100		
Duration (hrs)	2		
Total Storage Required		**74,518**	**14% under capacity including fire flow (8,918 gallons)**
Available Usable Storage		**65,600**	

CHAPTER 5 DEVELOPMENT & EVALUATION OF ALTERNATIVES

The Atomic City water system has been operating since the last major system update in 2008 with minimal improvements since then. The water system operator has brought up multiple operational system improvements that he would like to see completed, which are included below. 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 grants, timelines, and evaluation of all upgrades is required. Improvements should 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.

Per the Idaho DEQ facility planning study requirements, each of the design alternatives are planned to meet the needs for a 20-year minimum period for facilities (i.e. well houses, pump stations, etc.), and a 40-year minimum period for the piping in the distribution system, or an equivalent development benchmark for the discussed growth rate. It is important to note that the 20-year and 40-year design horizons rely on the assumptions that were made for the demands and populations 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, however, the information presented meets the industry standard for these types of predictions.

With supporting data from population projections presented in Chapter 4 and the computerized hydraulic analysis in Section 3.11, we anticipate that the water system would be out of compliance with public drinking water standards due to deficiencies in available fire flow protection and potential deficiencies in redundant water supply. A typical consequence of this type of non-compliance would be the system's inability to approve any additional new water connections until these issues are resolved. Furthermore, the system could be subject to enforcement actions by the Department of Environmental Quality.

Various alternatives exist to correct the identified system deficiencies. The alternatives presented in the following chapter are evaluated on their ability to resolve the system's need, 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, and contingency to compensate for changes in the cost of construction and unexpected conditions.

5.1 OPTIMUM OPERATION OF EXISTING FACILITIES

The existing system operation strategy is efficient given the physical constraints of the existing infrastructure. Well #01 currently is the only operating well in the system with well #02 needing a new pump and controls to operate. Well #01 is operated by a vfd and turned on automatically from a level transducer installed in the tank. Well #01 turns on when the tank level reaches the low point, and the level transducer calls for water. The booster pumps pressurize the water system and four (4) hydropneumatic pressure tanks. The booster pumps are currently operated by a pressure switch that calls for more pressure in the system, with the pumps hard wired without a vfd controller. The booster pumps would greatly benefit for longevity and lower power consumption if controlled by a vfd. The 15 hp booster pumps could be replaced with pumps that have a better operating curve to meet the system curve which would provide more pump efficiency and power savings.

With proposed improvements, optimization of facilities will be a goal, but it will not correct any of the identified deficiencies by itself.

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

5.2 REGIONALIZATION

The closest municipal water system to Atomic City is Butte City located 28.5 miles northwest along Highway 26. Costs to connect the systems would be quite high. Connecting with this system would not correct the City's deficiencies. 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 26 in previously disturbed property that is known to have lava/basalt rock near the ground surface. It would not be a cost-effective approach.

5.3 WATER SUPPLY ALTERNATIVES

A water supply and distribution system must be designed to meet the Peak Hour Demand (PHD) or the Maximum Day Demand (MDD) with Fire Flow Demand (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 the two supply sources and storage. Under existing conditions, the current production capabilities of well #01 exceed the MDD.

The transmission line carrying water from well #01 and well #02 will be addressed as part of the distribution system alternatives.

5.3.1 No Action Alternative

Based on 2061 demand estimates presented in Chapter 4, the MDD is predicted not to exceed the current supply capabilities. A potential downfall of the no action alternative is if the water elevation in well #01 is significantly decreased due to a prolonged drought, then the potable water supply would be at risk.

The no action alternative is not a viable alternative for Atomic City's water supply.

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

5.3.2 Rehabilitate Well #02

Well #02 has the potential to be able to be rehabilitated in that the previous well pump installer stated that the previous 25 hp pump was removed due to the electrical conduit rubbing against the well sidewall which is likely due to the well being drilled slightly curved (not straight). As such they removed the 25 hp pump installed a 5-inch pvc liner in the well and installed a 10 hp pump. The 10 hp pump and controller has since been removed apparently due to failure. The pump installer was able to remove the 5-inch pvc liner in March of 2022. The use of electrical conduit can be utilized to protect the wiring from rubbing against the sell sidewall. This method would allow the re-installation of the 25 hp pump and maximize the water production of the existing well.

Environmental Impacts: This alternative would not have any direct environmental impacts as this alternative takes advantage of existing facilities/previously developed assets.

5.3.3 General Water Conservation

The water system could consider policy, public outreach, and capital improvement efforts to promote water conservation.

- Consider newspaper, websites, or radio advertisements to promote water conservation topics.
- Involve schools and students in promoting awareness such as video contests, radio ads, and other campaigns.
- Educate the public regarding the net effect of small actions with specific examples of water conservation and water wastefulness. This could be done through flyers that are sent out with the monthly water bill. For example, quantify how much water is wasted through small household leaks over the course of a year, running hoses continuously, or the habit of running tap water to let it get cold as opposed to refrigerating drinking water.
- Host lawn care and landscaping classes identifying optimum water usage and highlighting consumption rate limits for typical lawns, gardens, and shrubs. More water is not necessarily better when it comes to irrigating lawns.
- Require water saving fixtures on all new residential construction. Consider a retrofit water saving fixture program. Pipe insulation provides faster hot water and eliminates the need to run water to prevent pipes from freezing.
- Water meters on all connections for usage-based billing. Additional information is provided in Section 5.6.
- Aggressive leak detection and repair program for water mains

Environmental Impacts: Water conservation would only have positive environmental impacts. This would increase the longevity of the existing water sources without disturbing ground for new sources.

5.4 WATER STORAGE ALTERNATIVES

Water storage is needed when the source 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. The existing storage tank in Atomic City has a storage capacity of 65,600 gallons.

5.4.1 No Action Alternative

The available storage for the water system, including required fire flows, is not adequate for the 40-yr planning period based on the projections presented in Chapter 4. When the system reaches the 40-year population projection it is estimated the system will have a storage deficiency of 8,918 gallons. To offset this future storage deficiency there are essentially three items that can be addressed by the system which include: reduce demand (See Sections 5.3 and 5.6), increase supply (See Section 5.3), or increase storage. The most cost-effective method to achieve this is to reduce the existing potable water demands. The no action storage alternative is a viable option for the system.

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

5.4.2 New Water Tank

A new 10,000-gallon storage tank could be constructed to address the outlined fire flow shortfall. A potential location for the new tank would be adjacent to the system's existing tank. It would be recommended that the new tank be built near the same elevation as the existing tank, to enable the tanks to be hydraulically connected to one another. Concrete storage tanks typically have the least amount of required maintenance and last longer than steel tanks. Since this tank would likely be 10,000 gallons other materials may be considered.

Environmental Impacts: Construction of a new water tank would have minor impacts to land use and the existing vegetation.

5.5 DISTRIBUTION SYSTEM IMPROVEMENT ALTERNATIVES

Improvements needed to the distribution system were identified by consulting with the operators, onsite observations of fire flow capabilities, and from scenario results generated by the computerized hydraulic model. There are areas within the distribution system that would greatly benefit from increasing the line size from the tank to the booster pumps, pump to waste hydrants, flow meter after booster pumps, and isolation/control/bypass valve installation. Future conditions for development were also considered and are presented.

5.5.1 No Action Alternative

The distribution system operates sufficiently during normal operation but is not able to meet fire flow requirements throughout the system. If the system were to do nothing to improve the delivery of fire flow demand (FFD) in the system, the points not currently meeting the FFD design criteria will continue to be an issue. As the system grows in population and more demand is added, the condition will 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. The no action alternative will not be considered further because it cannot provide the flows required to meet IDAPA regulations.

The no action alternative is not viable in as pump to waste from the wells and isolation/control/bypass valve installation is needed for proper system operation.

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

5.5.2 Installation of Isolation/Control/Bypass Valving

The water system is currently set up with a flow meter for well #01, a bypass valve, and flushing hydrant for well #01. Well #02 does not have piping/valving set up so that well #02 is able to be pumped to waste. There is not a flow meter installed after the booster pumps to know what is being pumped into the system accurately after the booster pumps, and the piping from the tank to the booster pumps reduces from a 4-inch to a 1.5-inch pipe and is undersized to adequately feed the booster pumps.

Environmental Impacts: Installation of a pump to waste flushing hydrant, isolation/control/bypass valving, and upsizing the pipe form the tank to the booster pumps would have minimal impact as all the work would take place where the ground has been previously disturbed.

5.5.3 Replacement of Booster Pumps and Pump House and Chlorine Treatment

There are currently two 15 hp booster pumps that are not correctly sized for the system demand and there is not any fire flow booster pump(s). The installation of new booster pumps sized for system demand as well as two fire flow pumps (one for redundancy) would be needed for proper system water supply. The new pumps would be controlled by vfds for proper system operation and efficiency. The system currently does not have an operating chlorine treatment system and a new system would need to be installed so that treatment is able to be provided as needed. The new pumps, electrical controls, and chlorine system will be housed in a new building as the current booster pump house does not meet current standards.

Environmental Impacts: Impacts from this alternative would be minimal since all the work would take place where the ground has been previously disturbed.

5.6 WATER SERVICE METER INSTALLATION

Usage based billing can be an effective way of reducing potable demands. The annual average per capita demand for the water system is 125 gallons per capita per day. It is probable the system could see a reduction in the system demands by installing meters and moving to consumption-based billing schedule.

Individual users would find specific ways to reduce demands on their own terms. This option would require the installation of meters on all the existing connections and require them on all future connections.

Metering and conservation are likely to reduce the per capita demands and greatly extend the use of the existing water supplies. This will provide the system with the advantage of time to build up savings for adding new water sources to the system.

There are two basic types of high-quality municipal service water meters: positive displacement (nutating disc or reciprocating piston) and magnetic. The meter body has historically been made of bronze but with recent regulations to decrease the amount of lead in drinking water, some manufacturers have developed composite alloy materials that have no lead in them. The final component to a flow meter is the register which reports the amount of water measured by a flow meter. The register can be a direct read (the numbers have to be read by sight), configured to touch read (a meter reader wand is used), or radio read (the information is sent by radio signal to a receiver). Direct read meters have the lowest capital cost but are more time intensive to read because personnel have to open each meter pit and write down the reading. Touch read is faster than direct read because each meter pit lid does not have to be opened, just touched, but each meter still has to be physically visited. These two types of registers are difficult to read in winter months due to snow. Radio read meters have some additional capital cost for the radio equipment, but time requirements to read the meters each month are much less than the other two types. Reading can be accomplished by driving down each street with the receiver or the system could be set up so that the meters can be read from a central location such as the water system booster pump/generator building.

5.6.1 No Action Alternative

If the population of the system grows, there is a potential in the future that the maximum day demand could exceed the current water right supply. If the well production becomes reduced due to an extended drought or geological shifts, a continued high usage rate may place strain on the system's users. Continuing unmetered practices does not generally promote water conservation. Although water meters can be a good asset, the no action alternative is viable.

Environmental Impacts: Impacts from this alternative could potentially be water supply deficiencies if the water production is reduced.

5.6.2 Install Water Service Meters

Under this approach, new meters would be installed on all of the water service connections in the system. This would include all residential, and commercial connections being metered and billed accordingly. The system then could set up a new billing structure to charge residents for the volume of water that they use. There are various water conservation grants that can be used for installation of water meters. The meters would likely be installed in meter pits near the shutoff valves.

A decision on the type of meter, meter body materials, and register would need to be made all of which affect the capital cost as well as the operation and maintenance costs.

Environmental Impacts: Impacts from this alternative would be minor since all of the work would take place where the ground has been previously disturbed when the original service lines were installed.

5.7 MISC. SYSTEM IMPROVEMENTS

There are several other improvements to be considered that would affect the quality and safety of the water delivered to the residents. The most recent DEQ sanitary survey identified the following needs.

5.7.1 No Action Alternative

Deficiencies noted by DEQ in the sanitary survey need to be addressed to avoid non-compliance issues. Significant deficiencies have the potential to cause risk to health and safety or could affect the reliable delivery of safe drinking water. The no action alternative is not recommended.

Environmental Impacts: This alternative has the potential to negatively impact public health.

5.7.2 Misc. Items

From the DEQ sanitary survey and discussions with operations personnel, the following items have been identified.

Deficiencies:

- Cross connection control program that complies with Rule, as required by IDAPA 58.01.08.552.06. System has old version of compliance plan and needs to submit an updated version.
- The hydropneumatic tanks are not structurally sound and/or adequate, as required by IDAPA 58.01.08.547.01.b.

Recommendations:

- DEQ recommends that well #02 tag #D00055090 be protected from unauthorized entry through fencing around the source or using a locking well cap.

Environmental Impacts: These improvements would minimize risk to public health.

5.8 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. The distribution system is evaluated based on the population served by the system. The breakdown of population is shown in Table 5-1.

Table 5-1 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

Alternatives not screened out should be compared for the potential effect they may have on system classification. For distribution system classification, the population is not projected to exceed 1,500 so there will be no change in classification. For the treatment system, no changes were evaluated which would change the treatment classification. Since none of the alternatives will impact system classification and required operator licensure, no additional consideration will be given in comparing the proposed alternatives for system classification.

5.9 FINAL SCREENING OF ALTERNATIVES

Alternatives that were not initially screened as unsuitable were further evaluated. Capital costs, O&M costs, public input, and environmental effects are used to compare alternatives for system improvements and to select the preferred alternatives. Costs include contingency and professional fees.

The cost estimates are based on our perception of current conditions at the project location. This estimate reflects our opinion of probable costs currently and is subject to change as the project design matures. HLE 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. HLE cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the cost presented herein.

5.9.1 Final Screening of Water Supply Alternatives

The viable supply alternatives include the no action alternative and well #02 rehabilitation.

No Action
The "no action" alternative would not currently meet the needs of the system for water supply redundancy and therefore is not a viable option.

Well #02 Rehabilitation
Well #02 has the potential to be able to be rehabilitated in that the previous well pump installer stated that the previous 25 hp pump was removed due to the electrical conduit rubbing against the well sidewall which is likely due to the well being drilled slightly curved (not straight). As such they removed the 25 hp pump installed a 5-inch pvc liner in the well and installed a 10 hp pump. The 10 hp pump and controller has since been removed apparently due to failure. The pump installer was able to remove the 5-inch pvc liner, allowing the well to be rehabilitated if desired.

Table 5-2 Opinion of Estimated Well #02 Rehabilitation Costs

Description	Cost
Removal of Liner	$1,800
New 25 HP Pump	$15,000
New Well Pump Controller	$15,000
Misc. Expenses	$13,200
Total	**$45,000**

5.9.2 Final Screening of Storage Alternatives

The viable storage alternatives include the "no action" alternative and building a new tank. The no action alternative is the least cost alternative which does not meet the system's current needs and does not meet the 40-year planning estimates.

The system currently has a storage shortage as shown in Section 4.7, due to the lack of fire flow storage. Rather than spending several hundred thousand dollars on a new storage tank, the system plans to look at ways to reduce current consumption levels. Reducing water leaks and water consumption will reduce the amount of peaking demand storage required for the system. As the system continues to grow the need for fire flow will increase at which time the system will need to further determine if it is able to install an additional water storage tank.

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Table 5-3 Opinion of Estimated Storage Tank Costs

Description	Cost
New 10,000-gallon tank	$100,000
Piping From Tank to System	$10,000
Misc.	$10,000
Total	**$120,000**

5.9.3 Final Screening of Distribution System Alternatives

The viable distribution alternatives include the installation of isolation/control/bypass valving, replacement of booster pumps, pump house, and chlorine treatment system.

No Action

The distribution system operates sufficiently during normal operation but is not able pump to waste from well #02, there is not a flow meter installed after the booster pumps, and the piping from the tank to the booster pumps is reduced and likely causing the booster pumps to cavitate due to the piping being too small.

The no action alternative is not viable in as pump to waste from the wells and isolation/control/bypass valve installation is needed for proper system operation.

Installation of Isolation/Control/Bypass Valving

The water system is currently set up with a flow meter for well #01 and a bypass valve and flushing hydrant for well #01, but there is not piping/valving set up so that well #02 is able to be pumped to waste. There is not a flow meter installed after the booster pumps to know what is being pumped into the system accurately after the booster pumps, and the piping from the tank to the booster pumps reduces from a 4-inch to a 1.5-inch pipe and is undersized to adequately feed the booster pumps.

Table 5-4 Opinion of Estimated Isolation/Control/Bypass Valving Costs

Description	Cost
Pipe from tank to booster pumps	$5,000
Pump to Waste Piping and Valves	$15,000
Booster Pump Flow Meter and Vault	$20,000
Total	**$40,000**

Replacement of Booster Pumps, Pump House, and Chlorine Treatment

There are currently two 15 hp booster pumps that are not correctly sized for the system demand and there is not any fire flow booster pump(s). The installation of new booster pumps sized for system demand as well as two fire flow pumps (one for redundancy) would be needed for proper system water supply. The new pumps would be controlled by vfds for proper system operation and efficiency. The system currently does not have an operating chlorine treatment system and a new system would need to be installed so that treatment is able to be provided as needed. The new pumps, electrical controls, and

chlorine system will be housed in a new building as the current booster pump house does not meet current standards.

Table 5-5 Opinion of Estimated Pump House, Booster Pumps, and Chlorine Treatment Costs

Description	Cost
Pump House (20'x30')	$120,000
Booster Pumps and Controls	$70,000
Chlorine Treatment	$10,000
Fire Flow Pumps and Controls	$50,000
Total	**$250,000**

The distribution system operates sufficiently during normal operation but is not able to meet fire flow requirements throughout the system. If the system were to do nothing to improve the delivery of fire flow demand (FFD) in the system, the points not currently meeting the FFD design criteria will continue to be an issue. As the system grows in population and more demand is added, the condition will 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. The no action alternative will not be considered further because it cannot provide the flows required to meet IDAPA regulations. It is recommended to install booster pumps in the booster station that would allow the system to meet the required fire flow.

The option for a chlorine treatment system would be the liquid chlorine injection.

5.9.4 Final Screening of New Water Meters

The viable water meter alternatives include the "no action" alternative and installing water meters. The no action alternative is the least cost alternative and meets the City's current needs. An evaluation of new water meters has been developed to provide the system additional information on this effective water conservation method.

To implement new water meters, the administration would modify the existing user rate and structure it to charge a fixed fee plus a demand charge for every 1,000 gallons of water consumed.

A potential meter type that could be installed is the Sensus AccuStream meter, which is a composite body, piston displacement type meter. This meter can utilize the touch read or radio read systems. A radio read system would require the purchase of the radio for each meter and some upgraded modules for the reader. Table 5-5 shows capital costs, installation, and operation and maintenance costs and computes the present worth for the new meter option. Assuming a life of 20 years and an interest rate of 1.75% (from a potential DEQ loan offer) the meter was compared for the touch read vs. radio read option.

Table 5-6 Meter Replacement – All at Once

	Meter
Description	**AccuStream**
Touch Read Option	
Capital Cost	$12,000
Annual O&M ($/yr)	$500
Radio Read Option	
Capital Cost	$14,000
Annual O&M ($/yr)	$150

The benefit of installing radio read meters is saving the system one day's worth of time for the operator to walk to all the meters within the system once per month. The cost of either system is very similar, and the benefit of the radio read option would be much easier in overall effort to read the meters, especially during winter months.

5.9.5 Misc. Improvements

The items identified in the last Sanitary Survey have been corrected except for the fencing around well #02 site. Fencing around the site provides protection and security for the water system from possible contamination due to unauthorized

Table 5-7 Opinion of Estimated Misc. Improvements Costs

Description	Cost
Fencing Around Well #02 Site	$15,000
Total	**$15,000**

5.9.6 Public Participation

HLE met with the City Council prior to Atomic City being disincorporated and are now meeting with Bingham County Commissioners for finalization of this study. In an October 2020 City Council meeting, the city formally adopted the study findings. These improvements will be described in more detail in Chapter 6.

CHAPTER 6 IMPLEMENTATION & FUNDING ANALYSIS

6.1 PREFERRED ALTERNATIVES

Bingham County selected the following alternatives for improvements to their system. No change in operator licensing will be required with the implementation of the selected improvements.

6.1.1 Preferred Supply Alternative

The selected supply alternative of rehabilitating well #02 is the least cost with the quickest method to get a redundant water supply for the system.

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6.1.2 Preferred Storage Alternative

The alternative selected for storage was the no action alternative. The system plans to perform routine cleaning and inspection to ensure the tank condition is maintained. This is the lowest cost alternative to meet current storage needs.

6.1.3 Preferred Distribution System Improvements

The alternative selected for distribution system improvements was the no action alternative. The county does not want to proceed with the installation of isolation, control, and bypass valving.

6.1.4 Preferred Water Meter Alternative

The alternative selected for water meters was the no action alternative. The county does not want to proceed with the installation of water meters as users currently do not want meters.

6.1.5 Misc. Improvements

To bring the system into compliance with IDAPA rules, well #02 site fencing improvements that have been identified in the most recent sanitary survey completed by IDEQ need to occur.

6.2 CAPITAL IMPROVEMENT PLAN

A capital improvement plan (CIP) has been developed for the Atomic City water system. The CIP outlines a prioritization schedule and provides an opinion of probable cost for those improvements. The CIP summarizes the recommended system improvements that will likely require capital beyond routine maintenance practices.

The prioritization schedule in the CIP was established through communication with the City. Priority for these projects was assigned based on a review of the design criteria for the water system and an evaluation of the water system needs with respect to the City's goals.

The CIP summary shown in Table 6-1 includes infrastructure upgrades that are considered immediate needs for the water system. The immediate needs include rehabilitation of well #02, piping improvements at well/booster house, flow meters at services, new well/booster station house and pumps, and miscellaneous system improvements to meet IDAPA requirements.

Table 6-1 Capital Improvement Plan

Atomic City Water System

Water Facility Planning Study		
Capital Improvement Plan		
ID	**Item Description**	**Estimated Cost**
1	Rehabilitation of Well #02	$45,000.00
2	New Booster Station and Pumps	$250,000.00
3	Isolation/Control/Bypass Valves	$40,000.00
4	Water Meters	$14,000.00
5	Sanitary Survey Improvements	$15,000.00
	Estimated Total	**$364,000.00**

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6.3 SYSTEM OPERATION & MAINTENANCE

The proposed improvements will have some impact on the operation and maintenance costs of the water system. The pipeline replacements will have a positive impact on the system by reducing the time and money spent on repairs as well as reducing water loss. The existing water tank has not been cleaned in several years and should be inspected and cleaned within the next 5 years. The cost to clean a tank varies depending on the amount of sediment that has settled, but usually ranges from $5,000 to $10,000.

The system will need to plan for ongoing maintenance and replacement costs associated with infrastructure throughout the system. Planning for annual system replacement costs is vital to keeping the system functioning over the next several decades. A capital improvement fund is also recommended. This fund would grow by the amount shown in the table and should be used to fund needed replacements of pipelines, valves, pumps, and other infrastructure.

Table 6-2 Estimated System Annual O&M Costs

Item	Quantity	Unit Cost	Life Cycle	Annual Cost
Well Pump Replacement	2	$15,000	10	$3,000
Well Control Replacement	2	$15,000	10	$3,000
Booster Pump Replacement	2	$5,000	10	$1,000
Pump Control Replacement	2	$5,000	10	$1,000
Tank Replacement	1	$250,000	50	$5,000
Tank Cleaning	1	$5,000	5	$1,000
Tank Level Control	1	$2,500	10	$250
Valves	15	$1,500	20	$1,125
Hydrants	11	$6,500	20	$3,575
Water Services	28	$2,500	20	$3,500
Water Testing	1	$1,000	1	$1000
Employee Cost(s)	1	$500	1	$500
Legal/Accounting	1	3,200	1	$3,200
Utilities	1	$4,600	1	$4,600
Misc. Parts and Supplies	1	$200	1	$200
Misc. Repairs and Maintenance	1	$3,000	1	$3,000
			Total Annual Cost	**$39,950**

6.4 FUNDING ANALYSIS

In November 2020 the City of Atomic City residents voted to disincorporate and as such the water system and components thereof are now under the jurisdiction of Bingham County. The Department of Environmental Quality (DEQ) grant has since been renegotiated to be with Bingham County. HLE met with the City Council prior to Atomic City being disincorporated and are now meeting with Bingham County Commissioners for finalization of this study. In recent discussions with Bingham County, the County is planning on utilizing American Rescue Plan Act (ARPA) funds to address deficiencies and for the implementation of the proposed system improvements. The use of ARPA funds would result in no additional costs to the current user rates.

Other possible funding for the implementation of the system improvements may come from several sources. The primary source of funds for the recommended system improvements may 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 that the community may be eligible for might include grants from the Army Corps of Engineers, Idaho Department of Commerce [Community Development Block Grant Program (CDBG)], Special Congressional Appropriations, Bureau of Reclamation, and Homeland Security Grant Programs.

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

Eligibility for USDA-Rural Development funding is based partially on the median household income for the community. For the community to be competitive for USDA grant funds the minimum monthly 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 in the proposed project to be eligible for USDA-RD monies. Rural Development grant funds are awarded based on need as measured by a community's median household income (MHI). The MHI is determined by the most recent census data.

The U.S. Bureau of Reclamation (USBR) offers WaterSMART water and energy efficiency grants. They will fund municipal water metering projects and distribution system meters associated with production. There are two funding groups available: Group 1 – Up to $300,000 for small project that take up to two years and Group 2 – Up to $1,000,000 for phased projects with up to 50% grant match. For the water system this grant opportunity could be used for flow meters.

The system could apply for funding through the U.S. Army Corps of Engineers (ACOE) through their Section 595 Program for Rural Idaho. ACOE provides this opportunity to projects owned by public entities. Assistance can be for design-only, design and construction, or construction-only projects.

The system could apply for a maximum of $500,000 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. If the system decided to try to pursue this option, grant applications for public facilities are due annually in November.

Private project funding options for the water system include the Idaho Bond Bank Authority (IBBA). Financing through the IBBA is a relatively new program and is available to public entities in Idaho. The Bond Bank typically pools loans from multiple participants, offers Federal and State Tax Exempt status, and pledges statewide sales tax revenues as security to bond holders – with a combined result in competitive bonds for Idaho communities. The program is typically used to finance water and wastewater projects with a variety of terms and financing strategies. Recent interest rates have typically ranged from 1.5% to 4%, with the higher interest rate corresponding to long term bonds. Use of the funding does not trigger Davis Bacon or other federal requirements associated with subsidized loans/grants (i.e. IDEQ-SRF, USDA-RD). Once the bonds are sold, the full amount of funding is immediately available to the municipality and the repayment obligation begins.

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 also difficult to predict.

To incur indebtedness, the system must either pass a bond election or go through the 'Ordinary and Necessary' Judicial Confirmation process. Bond elections can only be held twice per year, once in May and once in November. The Judicial Confirmation process requires a hearing with a judge who will review the needs, proposed solution, and impacts to the system and make a ruling on whether or not the project is ordinary and necessary. Some funding sources require that a bond election be passed rather than the Judicial Confirmation process.

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6.5 RATE ANALYSIS

The use of ARPA funds by Bingham County to address deficiencies and for the implementation of the proposed system improvements (see Section 6.4) would result in no additional costs to the current user rates.

The water system assesses a flat fee of $37.00 per month for residences with 1-inch service, $55.00 per month for residences with 1.5-inch, and $110 per month for commercial services. Water rates should be set based upon the loan amounts that the system will receive plus the operation and maintenance costs. In order to be able to complete all of the identified projects and pay the loan payment (plus a 10% debt service reserve), additional O&M, and a capital improvement fund would need to raise monthly user rates. In addition to raising user rates, it is recommended that the connection fee be increased 2-3% 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.

6.6 PROJECT IMPLEMENTATION AND SCHEDULE

HLE has worked to analyze the water system and develop improvements that will have lasting impacts on the community. If seeking funding from a State/Federal agency an Environmental Information Document (EID) will need to be completed and approved by DEQ prior to proceeding with the implementation of this study and the identified projects. The EID is only viable for 5 years so it is not prudent to include all the items identified in the CIP, only those items that will be started within the five-year window after the EID is completed should be included. It is possible that identified projects could fall under a Categorical Exclusion, which would reduce the amount of time required for report completion.

If the county plans to self-fund the improvements an EID will not be required to be completed unless the funds require an EID specifically.

Developing a schedule to implement system improvements provides a timeline that will help motivate project development, identification of funding sources, education of the public, and establish deadlines for major project milestones. A preliminary project schedule is presented in Table 6-3.

Table 6-3 Preliminary Project Schedule

Event	Date
Apply for Funding	May 2022
Start Environmental Document	February 2022
Finish Environmental Document	August 2022
Bond Election	September 2022
Finalize Funding w/ Agencies	November 2022
Begin Design of Priority 1 Improvements	December 2022
DEQ Review	February 2023
Bid	March 2023
Begin Construction	April 2023
Complete Construction	October 2023

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Appendix A Reference Information

- NRCS Soil Report
- Endangered Species List
- Biological Assessment
- Existing System Drawings

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Butte County Area, Idaho, Parts of Butte and Bingham Counties

April 19, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:6,560 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Butte County Area, Idaho, Parts of Butte and Bingham Counties
Survey Area Data: Version 19, Sep 9, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 29, 2014—Nov 14, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
2	Atom silt loam, 1 to 3 percent slopes	22.0	20.4%
16	Coffee-Nargon-Atom complex, 2 to 12 percent slopes	85.6	79.6%
Totals for Area of Interest		**107.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Butte County Area, Idaho, Parts of Butte and Bingham Counties

2—Atom silt loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2n5w
Elevation: 5,400 to 5,600 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 70 to 90 days
Farmland classification: Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium

Map Unit Composition

Atom and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Atom

Setting

Landform: Lava plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

A - 0 to 9 inches: silt loam
Bk1 - 9 to 33 inches: silt loam
Bk2 - 33 to 60 inches: silt loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 30.0
Available water supply, 0 to 60 inches: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): 6s
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: R011XB001ID - LOAMY 8-12 - Provisional
Hydric soil rating: No

Minor Components

Tenno

Percent of map unit: 5 percent

Splittop
Percent of map unit: 5 percent

Lesbut
Percent of map unit: 5 percent

Bockston
Percent of map unit: 5 percent

16—Coffee-Nargon-Atom complex, 2 to 12 percent slopes

Map Unit Setting
National map unit symbol: 2n5r
Elevation: 4,500 to 5,500 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 70 to 110 days
Farmland classification: Not prime farmland

Map Unit Composition
Coffee and similar soils: 35 percent
Nargon and similar soils: 25 percent
Atom and similar soils: 15 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Coffee

Setting
Landform: Lava plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium over basalt

Typical profile
A - 0 to 7 inches: silt loam
Bk - 7 to 25 inches: silt loam
Bkq - 25 to 48 inches: silty clay loam
2R - 48 to 58 inches: bedrock

Properties and qualities
Slope: 2 to 12 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)

Sodium adsorption ratio, maximum: 35.0
Available water supply, 0 to 60 inches: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): 6s
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: R011XB001ID - LOAMY 8-12 - Provisional
Hydric soil rating: No

Description of Nargon

Setting

Landform: Lava plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium over bedrock derived from basalt

Typical profile

A - 0 to 5 inches: loam
Bk - 5 to 15 inches: clay loam
Bkq - 15 to 22 inches: stony loam
2R - 22 to 32 inches: bedrock

Properties and qualities

Slope: 2 to 12 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: C
Ecological site: R011XB001ID - LOAMY 8-12 - Provisional
Hydric soil rating: No

Description of Atom

Setting

Landform: Lava plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

A1 - 0 to 3 inches: silt loam
A2 - 3 to 10 inches: silty clay loam
Bkq - 10 to 29 inches: silt loam
Bk - 29 to 60 inches: silt loam

Properties and qualities

Slope: 2 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 30.0
Available water supply, 0 to 60 inches: Moderate (about 7.1 inches)

Interpretive groups

Land capability classification (irrigated): 6s
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: R011XB001ID - LOAMY 8-12 - Provisional
Hydric soil rating: No

Minor Components

Deuce

Percent of map unit: 10 percent

Splittop

Percent of map unit: 5 percent

Packmo

Percent of map unit: 5 percent

Rock outcrop

Percent of map unit: 5 percent
Hydric soil rating: Unranked

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IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Bingham County, Idaho

Local office

Idaho Fish And Wildlife Office

(208) 378-5243
(208) 378-5262

1387 South Vinnell Way, Suite 368
Boise, ID 83709-1657

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird

species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Cassin's Finch Carpodacus cassinii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15
Evening Grosbeak Coccothraustes vespertinus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Rufous Hummingbird selasphorus rufus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds Apr 15 to Jul 15
Sage Thrasher Oreoscoptes montanus This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9433	Breeds Apr 15 to Aug 10

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ

"Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

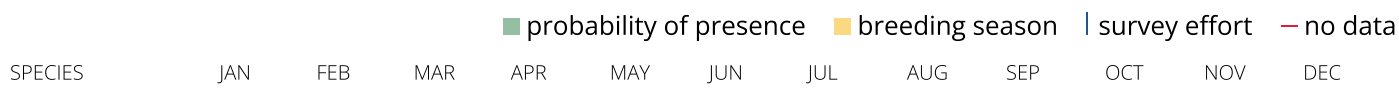
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

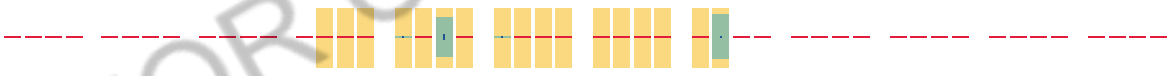


Cassin's Finch BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Evening Grosbeak BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Rufous Hummingbird BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Sage Thrasher BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review.

Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Atomic City Water System

Biological Assessment

Prepared using IPaC

Generated by Kyle Jones (kylej@hleinc.com)

December 28, 2021

The purpose of this Biological Assessment (BA) is to assess the effects of the proposed project and determine whether the project may affect any Federally threatened, endangered, proposed or candidate species. This BA is prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act (16 U.S.C. 1536 (c)).

In this document, any data provided by U.S. Fish and Wildlife Service is based on data as of December 28, 2021.

Prepared using IPaC version 5.68.0

Atomic City Water System Biological Assessment

Table Of Contents

1 Description Of The Action

1.1 Project Name
Atomic City Water System

1.2 Executive Summary
the plan is to replace old piping, add some valving for better water system control, a new flush hydrant for capability to flush water from well in case the well water is contaminated, and replace the existing well/booster building with a new building.

Effect determination summary

1.3 Project Description

1.3.1 Location


LOCATION
Bingham County, Idaho

1.3.2 Description of project habitat

no idea. ground is flat and piping is underground. building is old and will be replaced with a new building.

1.3.3 Project proponent information

Provide information regarding who is proposing to conduct the project, and their contact information. Please provide details on whether there is a Federal nexus.

Requesting Agency

HLE, Inc.

FULL NAME
Kyle Jones

STREET ADDRESS
800 W. Judicial

CITY
Blackfoot

STATE
ID

ZIP
83221

PHONE NUMBER
(208) 785-2977

E-MAIL ADDRESS
kylej@hleinc.com

Lead agency

Lead agency is the same as requesting agency

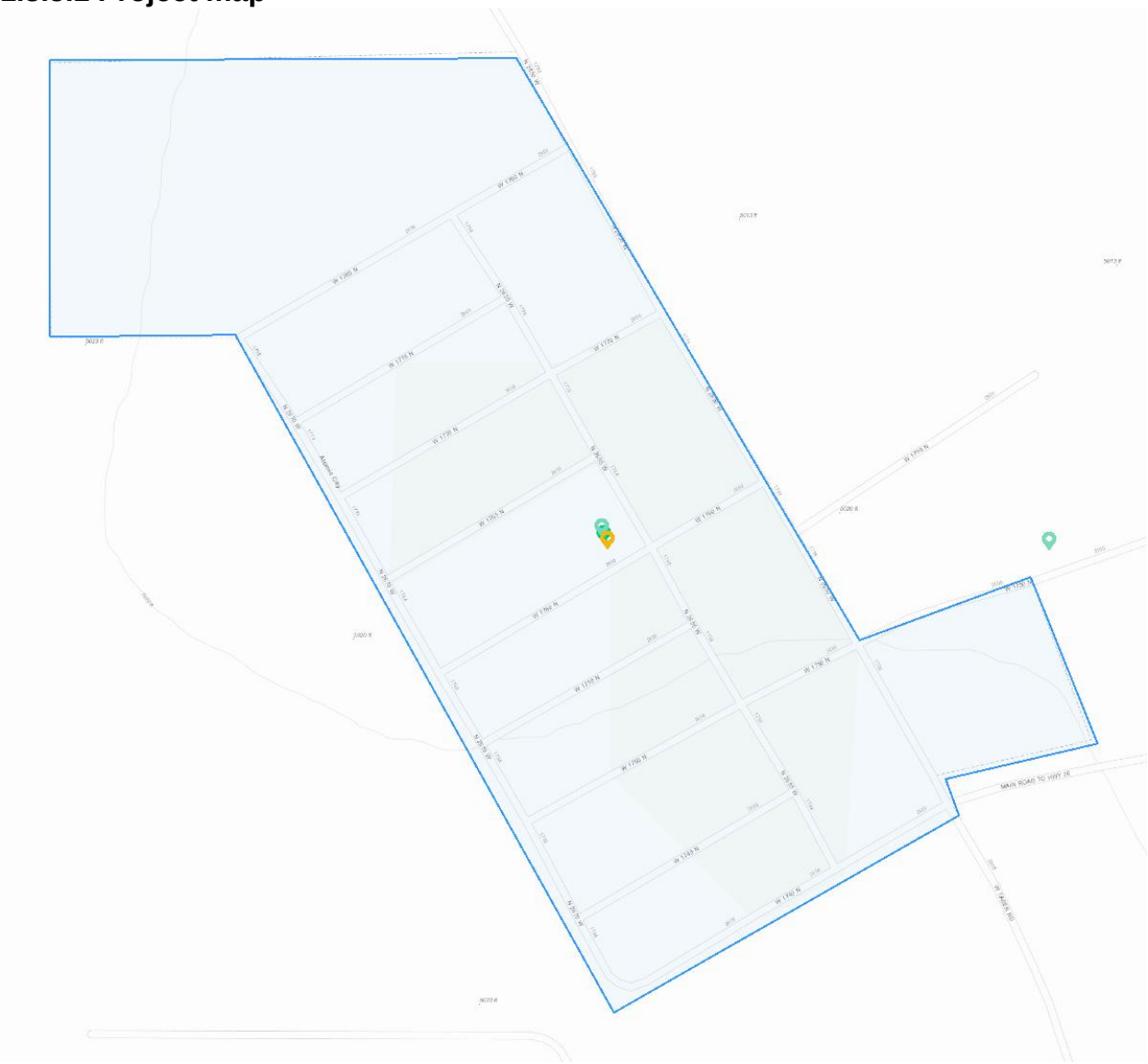
1.3.4 Project purpose

This project is for water system improvements of already constructed pipelines, wells, or booster stations.

1.3.5 Project type and deconstruction

This project is a pipeline operation & maintenance project.

1.3.5.1 Project map



LEGEND

Project footprint

New Well/Booster House: Building (structure)

Piping Misc.: Excavate soils/sediments, replace existing structure, replace terrestrial subsurface pipeline segment, restore vegetation, building (structure)

Piping and Well Improvements: Replace existing structure, replace terrestrial subsurface pipeline segment, restore vegetation

1.3.5.2 building

Structure completion date
October 31, 2022

Removal/decommission date (if applicable)
November 01, 2022

Stressors

LANDFORM (TOPOGRAPHIC) FEATURES

- Increase in impervious surfaces

HUMAN ACTIVITIES

- Increase in human presence
- Increase in vehicle traffic

Description
removal of existing building and construction of a new building at the same location.

1.3.5.3 excavate soils/sediments

Activity start date
July 28, 2022

Activity end date
October 31, 2022

Stressors

ENVIRONMENTAL QUALITY FEATURES
- Increase in soil moisture/saturation

SOIL AND SEDIMENT
- Increase in dust

HUMAN ACTIVITIES
- Increase in human presence
- Increase in noise
- Increase in soil disturbance

Description
excavation for replacement of piping

1.3.5.4 replace existing structure

Activity start date
August 01, 2022

Activity end date
October 31, 2022

Stressors
This activity is not expected to have any impact on the environment.

Description
The project is to replace the existing well/booster house as it does not meet current codes and is not adequate for the water system needs. The new building will be at the same location as the existing.

1.3.5.5 replace terrestrial subsurface pipeline segment

Activity start date
Unspecified

Activity end date
Unspecified

Stressors

ENVIRONMENTAL QUALITY FEATURES

- Increase in nutrients
- Increase in soil moisture/saturation

SOIL AND SEDIMENT

- Increase in dust
- Increase in soil compaction

HUMAN ACTIVITIES

- Increase in aircraft traffic
- Increase in human presence
- Increase in noise
- Increase in soil disturbance
- Increase in vehicle traffic

Description
replace existing piping around well/booster house

1.3.5.6 restore vegetation

Activity start date
August 01, 2022

Activity end date
October 31, 2022

Stressors

ENVIRONMENTAL QUALITY FEATURES

- Increase in nutrients
- Increase in soil moisture/saturation

HUMAN ACTIVITIES

- Increase in human presence
- Increase in soil disturbance
- Increase in vehicle traffic

Description
revegetate areas that are disturbed during construction of piping or well/booster house.

1.3.6 Anticipated environmental stressors

Describe the anticipated effects of your proposed project on the aspects of the land, air and water that will occur due to the activities above. These should be based on the activity deconstructions done in the previous section and will be used to inform the action area.

1.3.6.1 Environmental Quality Features

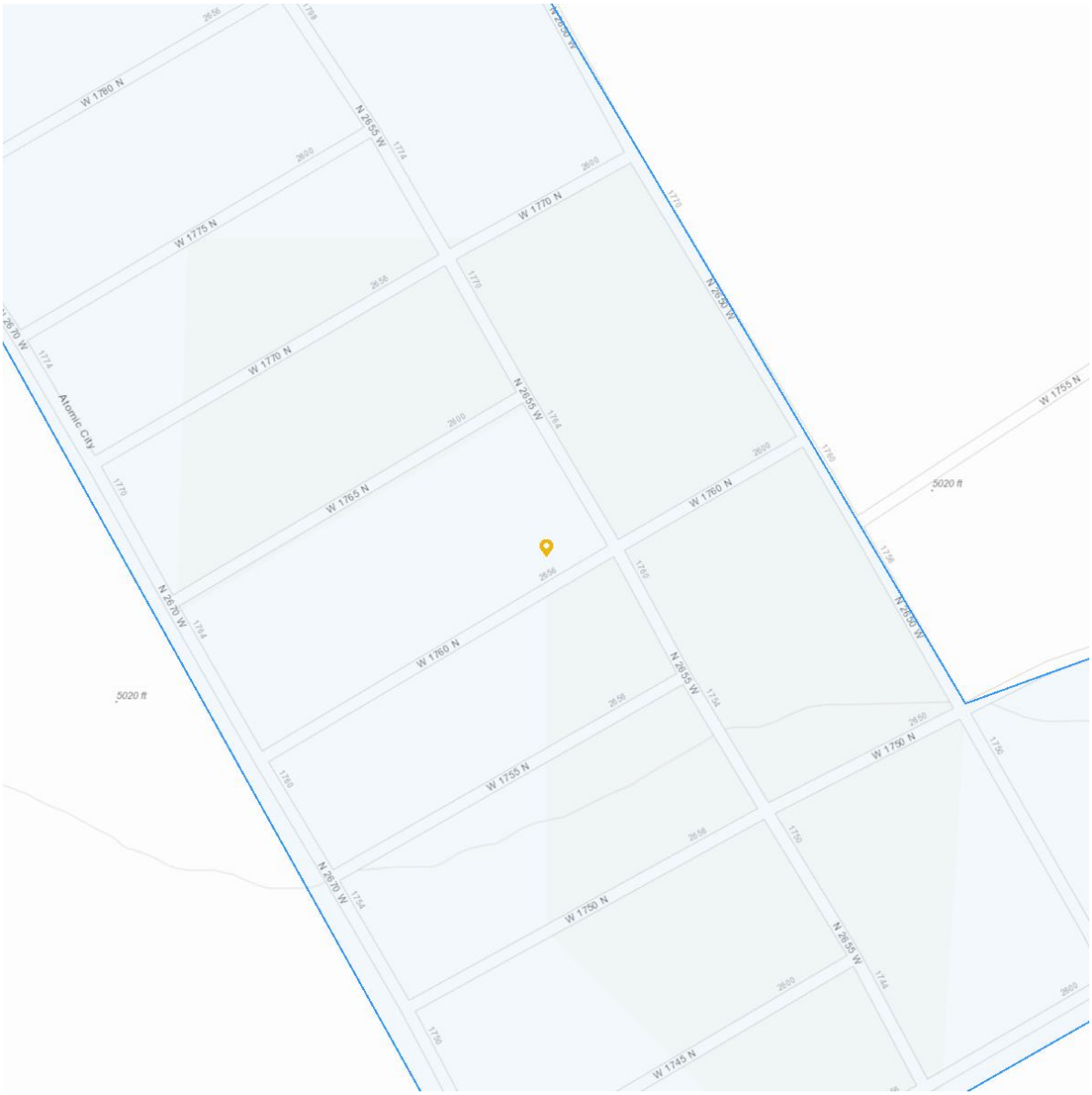
Abiotic attributes of the landscape (e.g., temperature, moisture, slope, aspect, etc.).

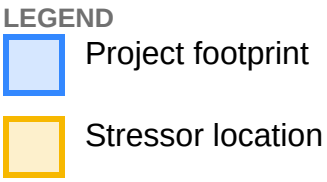
1.3.6.1.1 Increase in nutrients

ANTICIPATED MAGNITUDE

we will likely want to fertilize the vegetation that is planted in the disturbed areas so that the new vegetation will live and take root.

STRESSOR LOCATION




LEGEND
Project footprint
Stressor location

CONSERVATION MEASURES

No conservation measures for this stressor

STRUCTURES AND ACTIVITIES

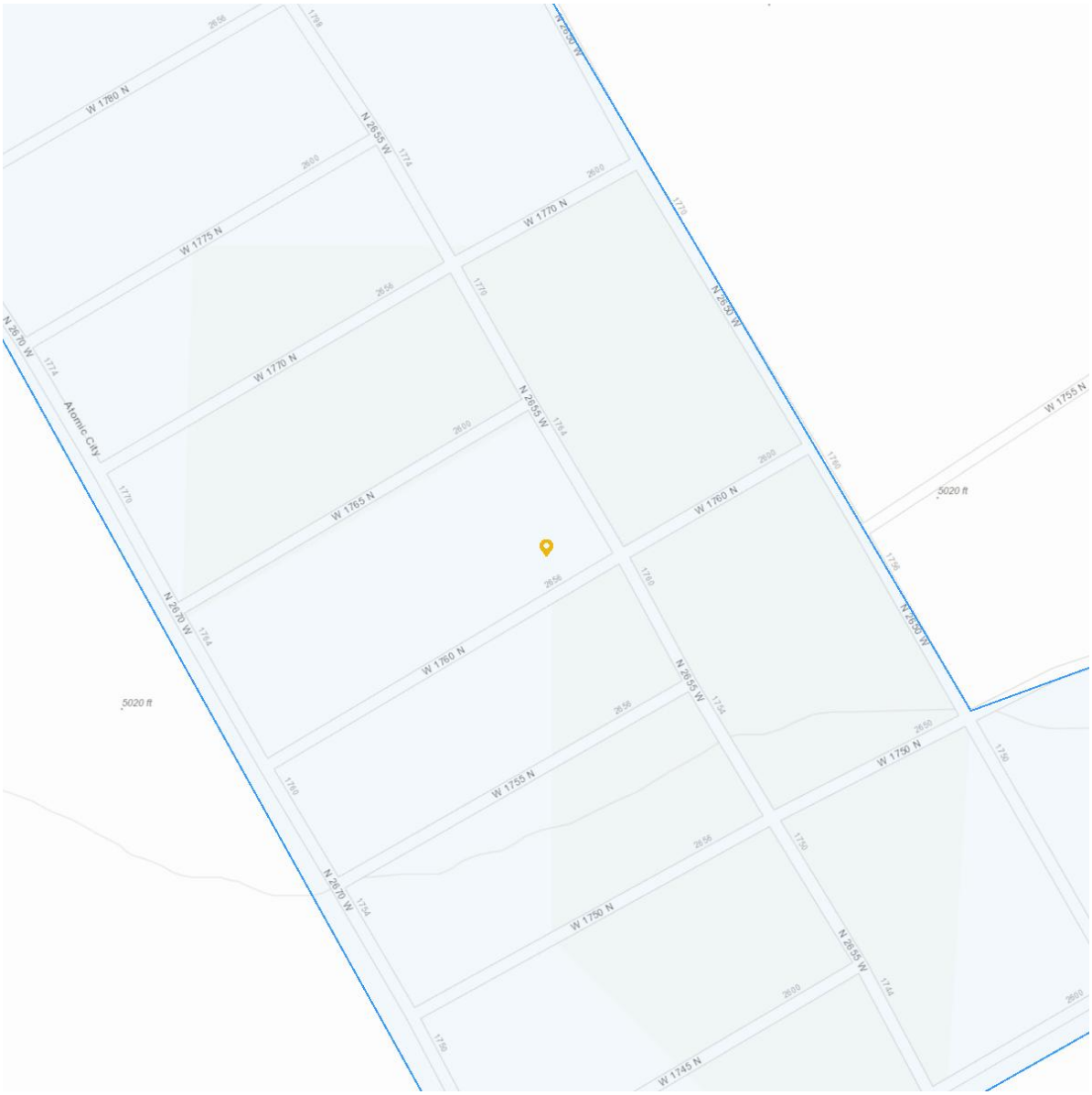
- Restore vegetation
- Replace terrestrial subsurface pipeline segment

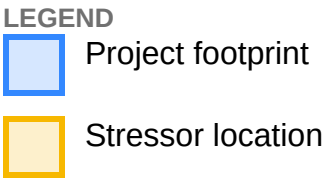
1.3.6.1.2 Increase in soil moisture/saturation

ANTICIPATED MAGNITUDE

we will want to water areas disturbed to limit dust

STRESSOR LOCATION




LEGEND
Project footprint
Stressor location

CONSERVATION MEASURES

No conservation measures for this stressor

STRUCTURES AND ACTIVITIES

- Restore vegetation
- Replace terrestrial subsurface pipeline segment
- Excavate soils/sediments

1.3.6.2 Landform (topographic) Features

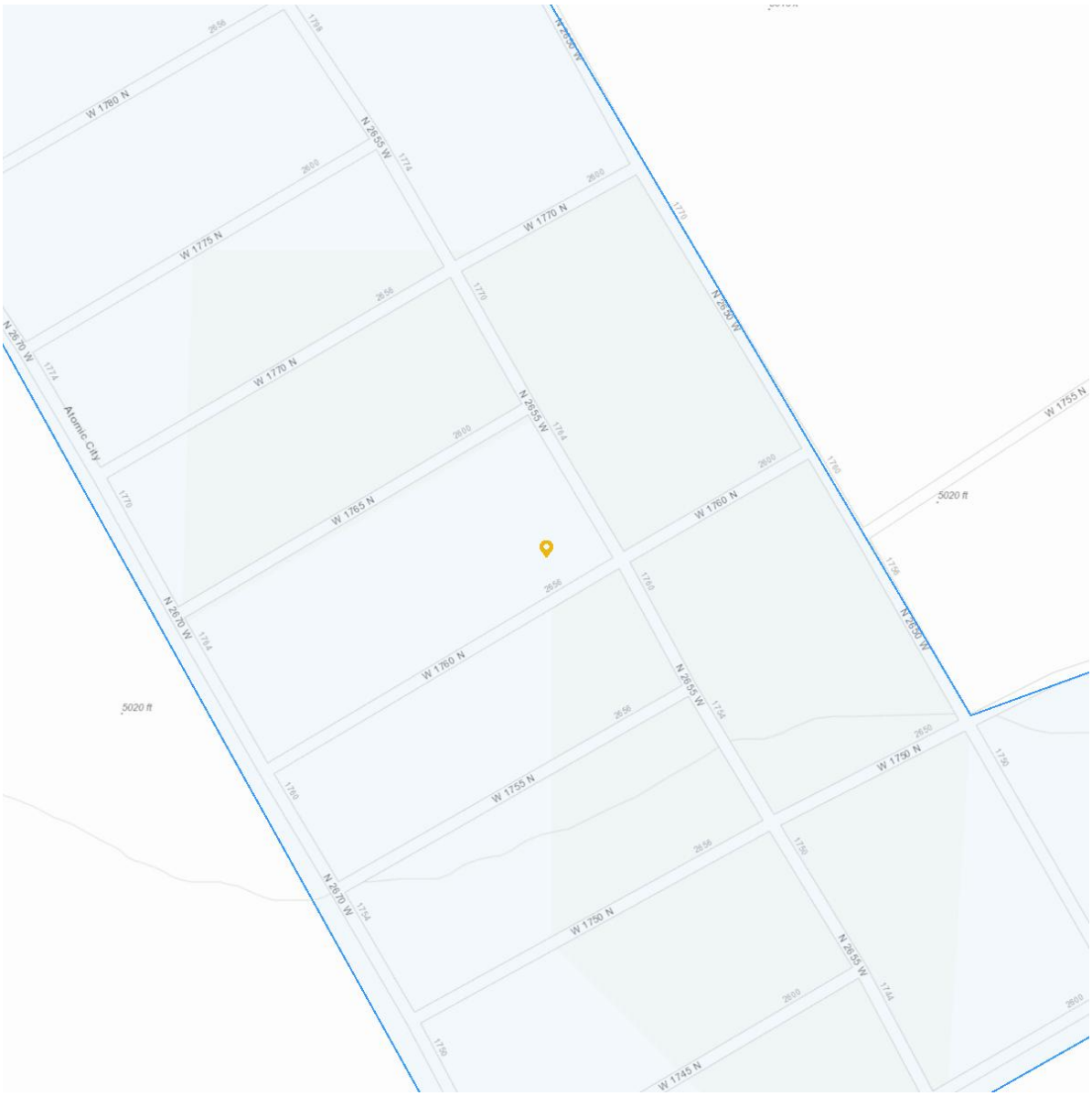
Topographic (landform) features that typically occur naturally on the landscape (e.g., cliffs, terraces, ridges, etc.). This feature does not include aquatic landscape features or man-made structures.

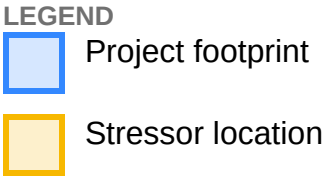
1.3.6.2.1 Increase in impervious surfaces

ANTICIPATED MAGNITUDE

the new building may be slightly larger than existing building

STRESSOR LOCATION




LEGEND
Project footprint
Stressor location

CONSERVATION MEASURES

No conservation measures for this stressor

STRUCTURES AND ACTIVITIES

- Building

1.3.6.3 Soil and Sediment

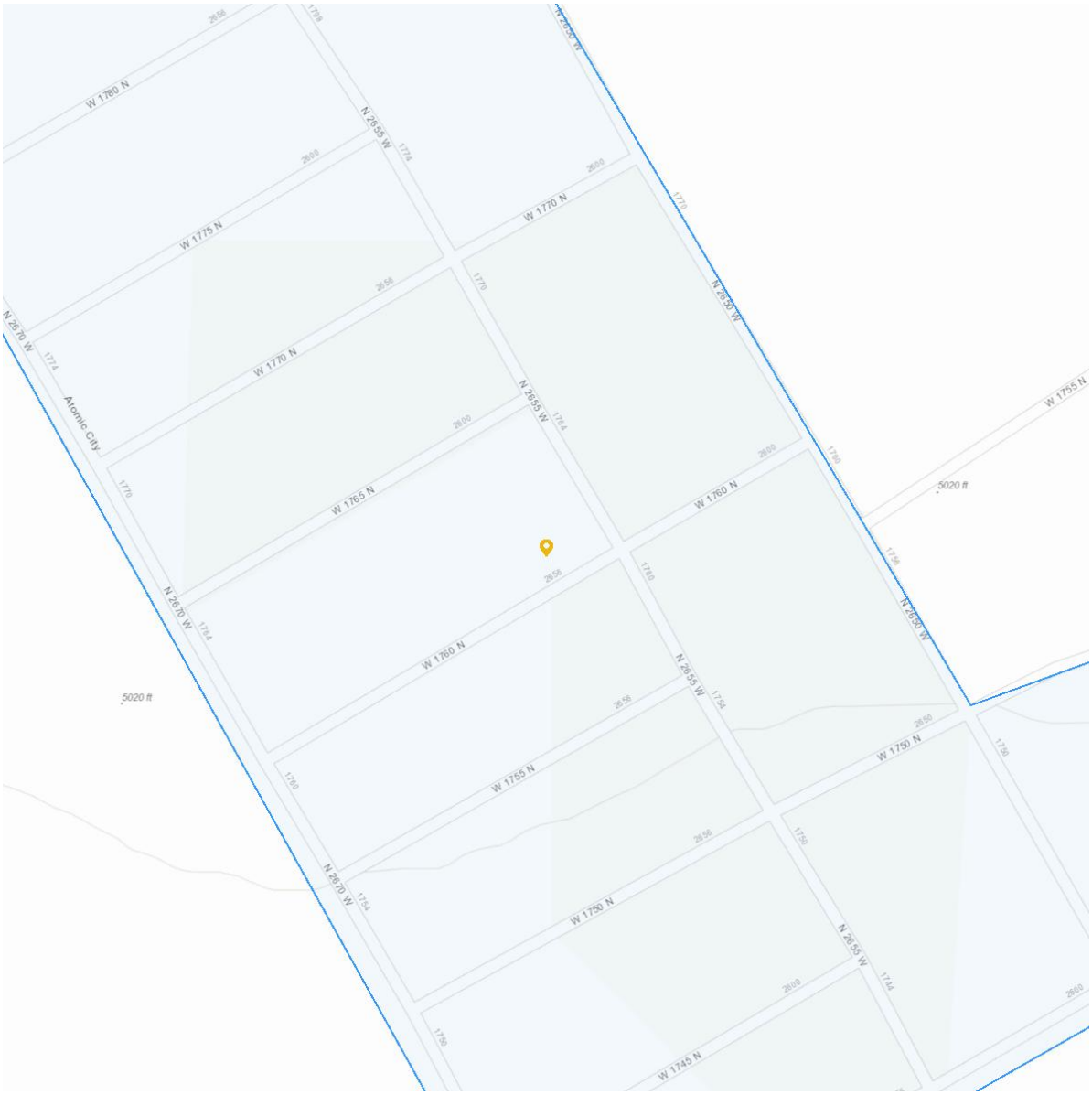
The topmost layer of earth on the landscape and its components (e.g., rock, sand, gravel, silt, etc.). This feature includes the physical characteristics of soil, such as depth, compaction, etc. Soil quality attributes (e.g, temperature, pH, etc.) should be placed in the Environmental Quality Features.

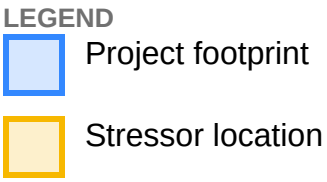
1.3.6.3.1 Increase in dust

ANTICIPATED MAGNITUDE

we will water the areas disturbed when replacing piping near well/booster house. very limited dust would likely be generated

STRESSOR LOCATION




LEGEND
Project footprint
Stressor location

CONSERVATION MEASURES

No conservation measures for this stressor

STRUCTURES AND ACTIVITIES

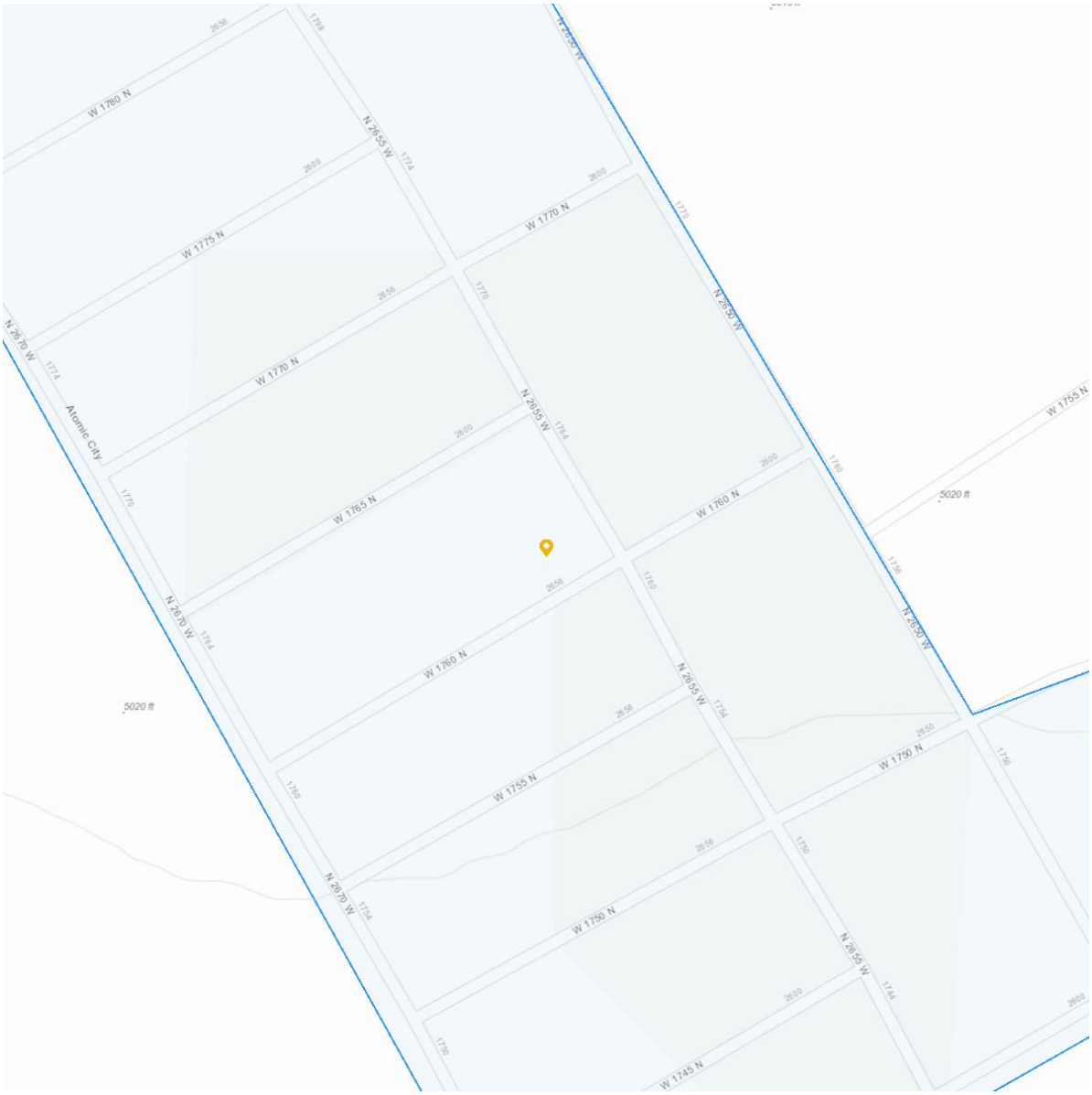
- Replace terrestrial subsurface pipeline segment
- Excavate soils/sediments

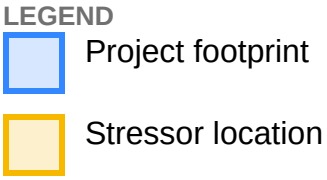
1.3.6.3.2 Increase in soil compaction

ANTICIPATED MAGNITUDE

the ground will be compacted when installing new piping and the construction of the new building. compaction is usually 92-95%.

STRESSOR LOCATION




LEGEND
Project footprint
Stressor location

CONSERVATION MEASURES

No conservation measures for this stressor

STRUCTURES AND ACTIVITIES

- Replace terrestrial subsurface pipeline segment

1.3.6.4 Human Activities

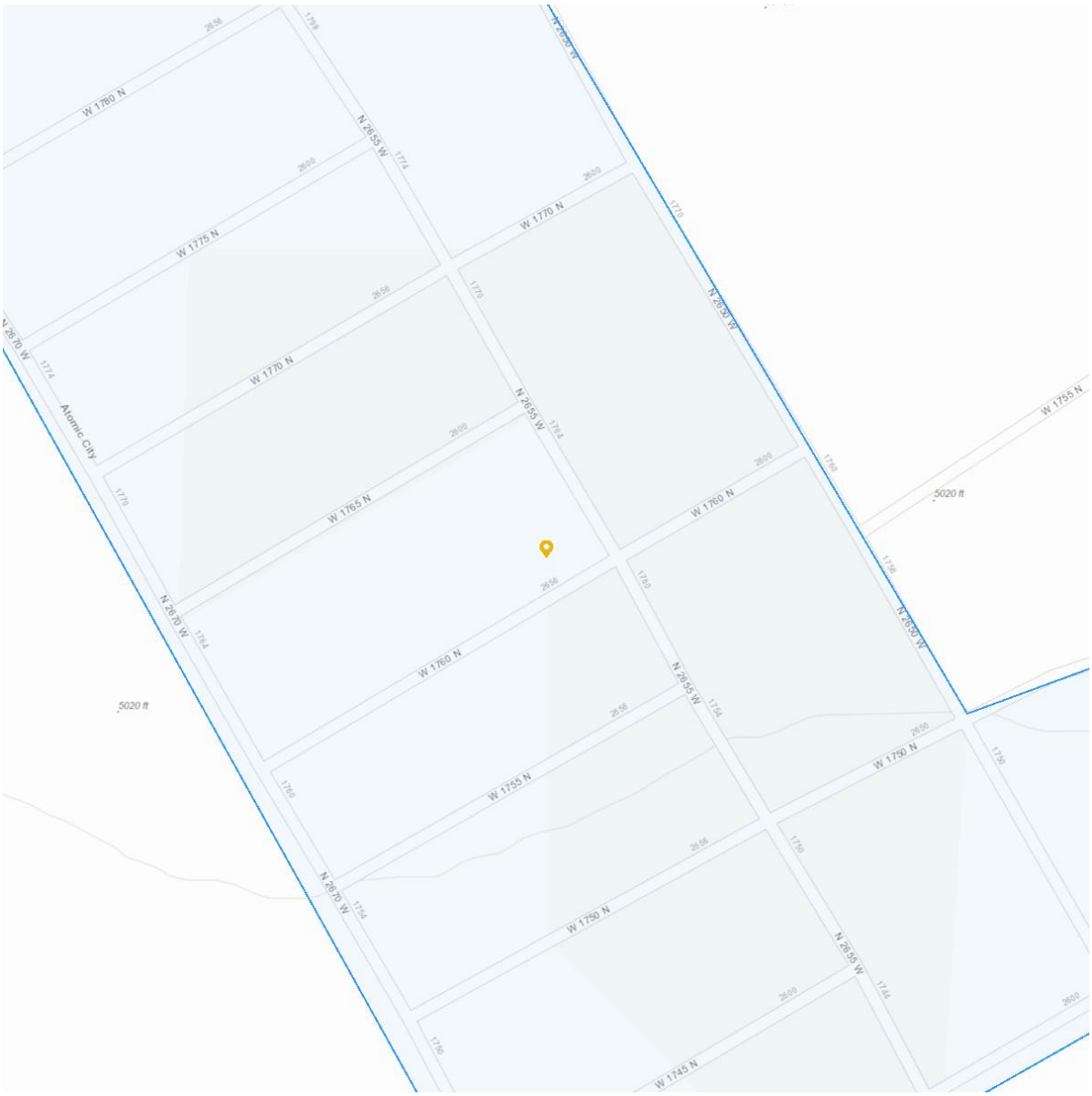
Human actions in the environment (e.g., fishing, hunting, farming, walking, etc.).

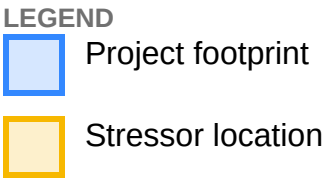
1.3.6.4.1 Increase in aircraft traffic

ANTICIPATED MAGNITUDE

there shouldn't be any aircraft traffic as part of this project.

STRESSOR LOCATION




LEGEND
Project footprint
Stressor location

CONSERVATION MEASURES

No conservation measures for this stressor

STRUCTURES AND ACTIVITIES

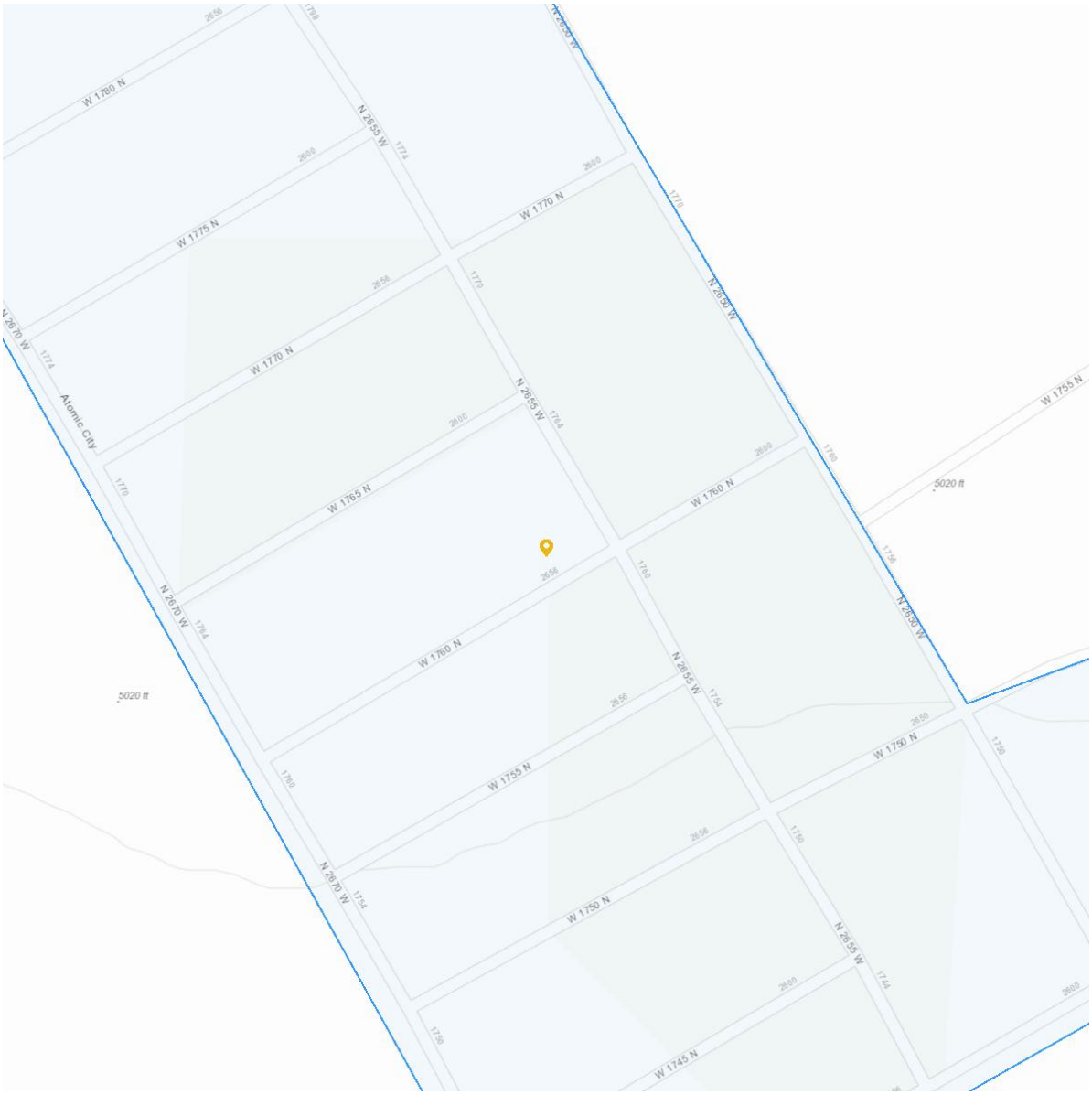
- Replace terrestrial subsurface pipeline segment

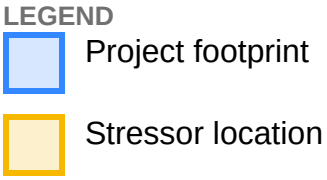
1.3.6.4.2 Increase in human presence

ANTICIPATED MAGNITUDE

the project needs a construction company to come and construct the project which will require people to come and do the work.

STRESSOR LOCATION




LEGEND
Project footprint
Stressor location

CONSERVATION MEASURES

No conservation measures for this stressor

STRUCTURES AND ACTIVITIES

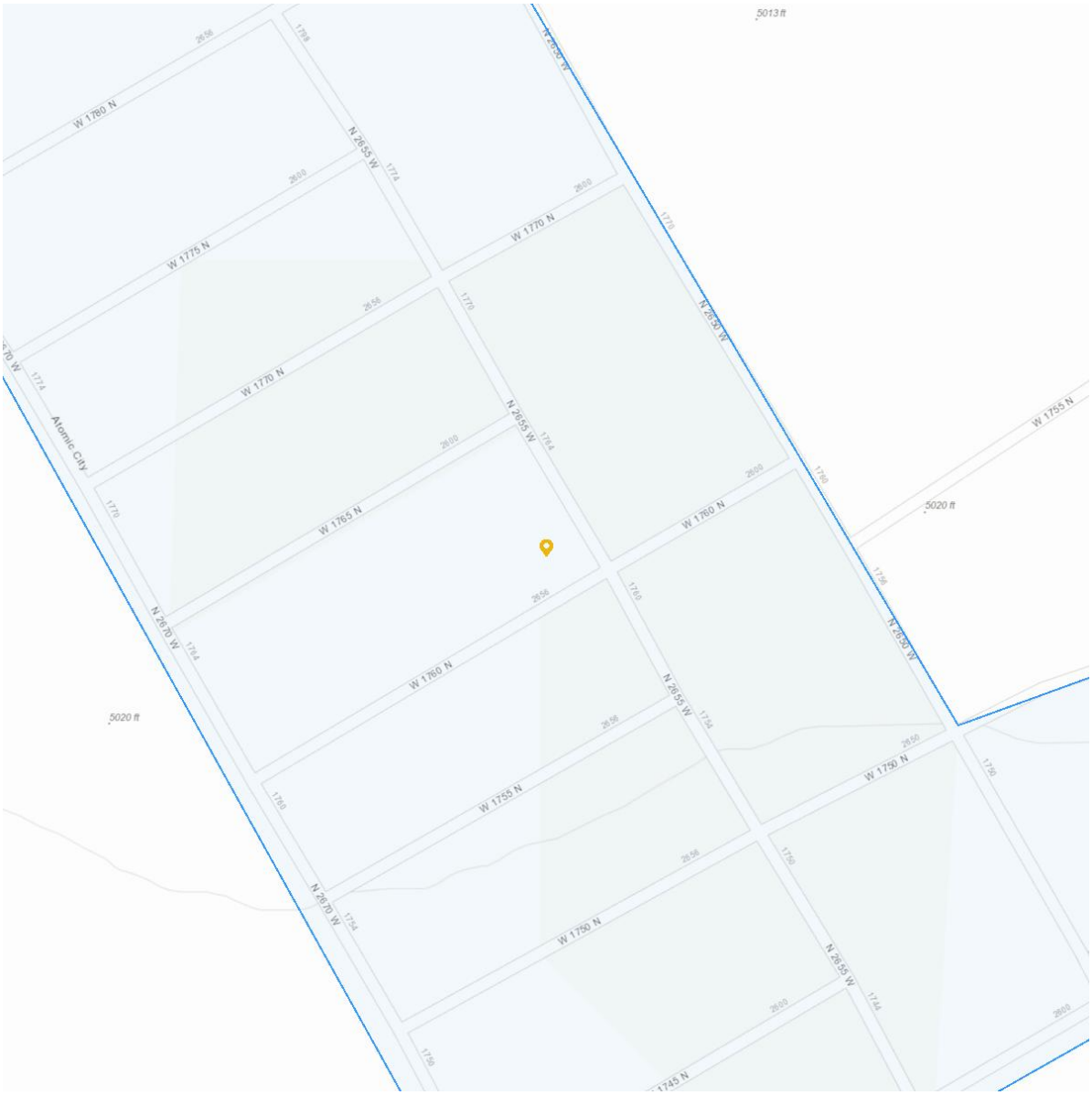
- Restore vegetation
- Replace terrestrial subsurface pipeline segment
- Building
- Excavate soils/sediments

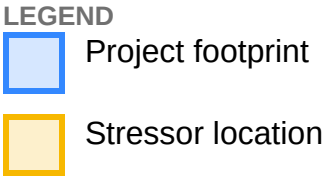
1.3.6.4.3 Increase in noise

ANTICIPATED MAGNITUDE

construction of the piping replacement and the new well/booster house will include construction equipment which can be noisy.

STRESSOR LOCATION




LEGEND
Project footprint
Stressor location

CONSERVATION MEASURES

No conservation measures for this stressor

STRUCTURES AND ACTIVITIES

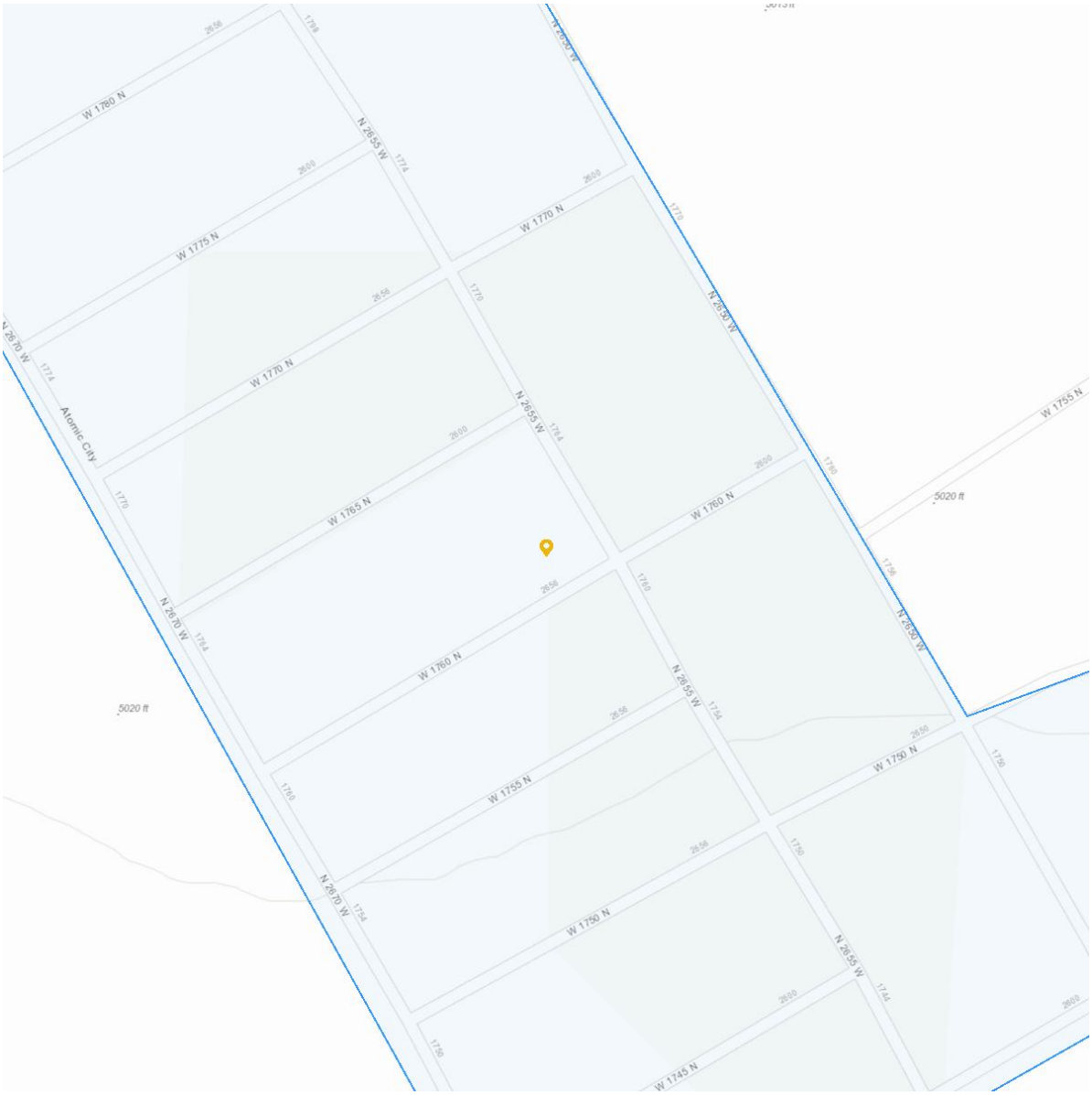
- Replace terrestrial subsurface pipeline segment
- Excavate soils/sediments

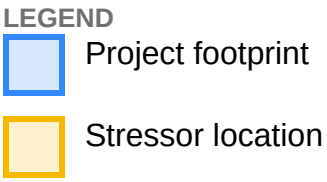
1.3.6.4.4 Increase in soil disturbance

ANTICIPATED MAGNITUDE

limited soil disturbance for the piping replacement and the new well/booster house

STRESSOR LOCATION




LEGEND
Project footprint
Stressor location

CONSERVATION MEASURES

No conservation measures for this stressor

STRUCTURES AND ACTIVITIES

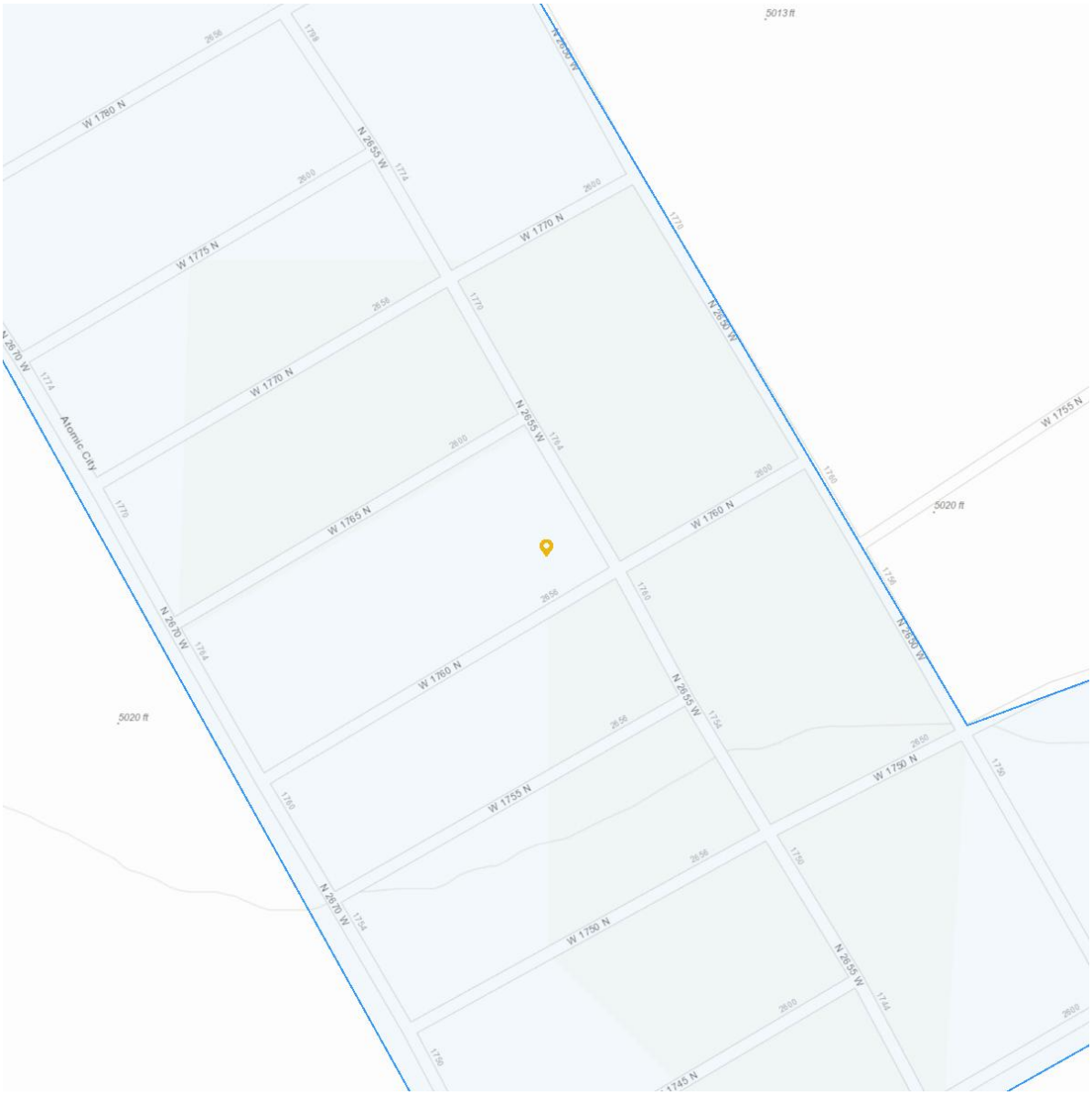
- Restore vegetation
- Replace terrestrial subsurface pipeline segment
- Excavate soils/sediments

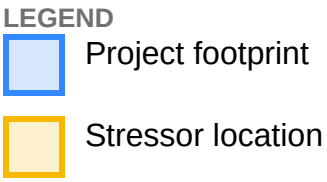
1.3.6.4.5 Increase in vehicle traffic

ANTICIPATED MAGNITUDE

the construction will require a construction company and they will have vehicles to get to/from construction site during construction

STRESSOR LOCATION




LEGEND
Project footprint
Stressor location

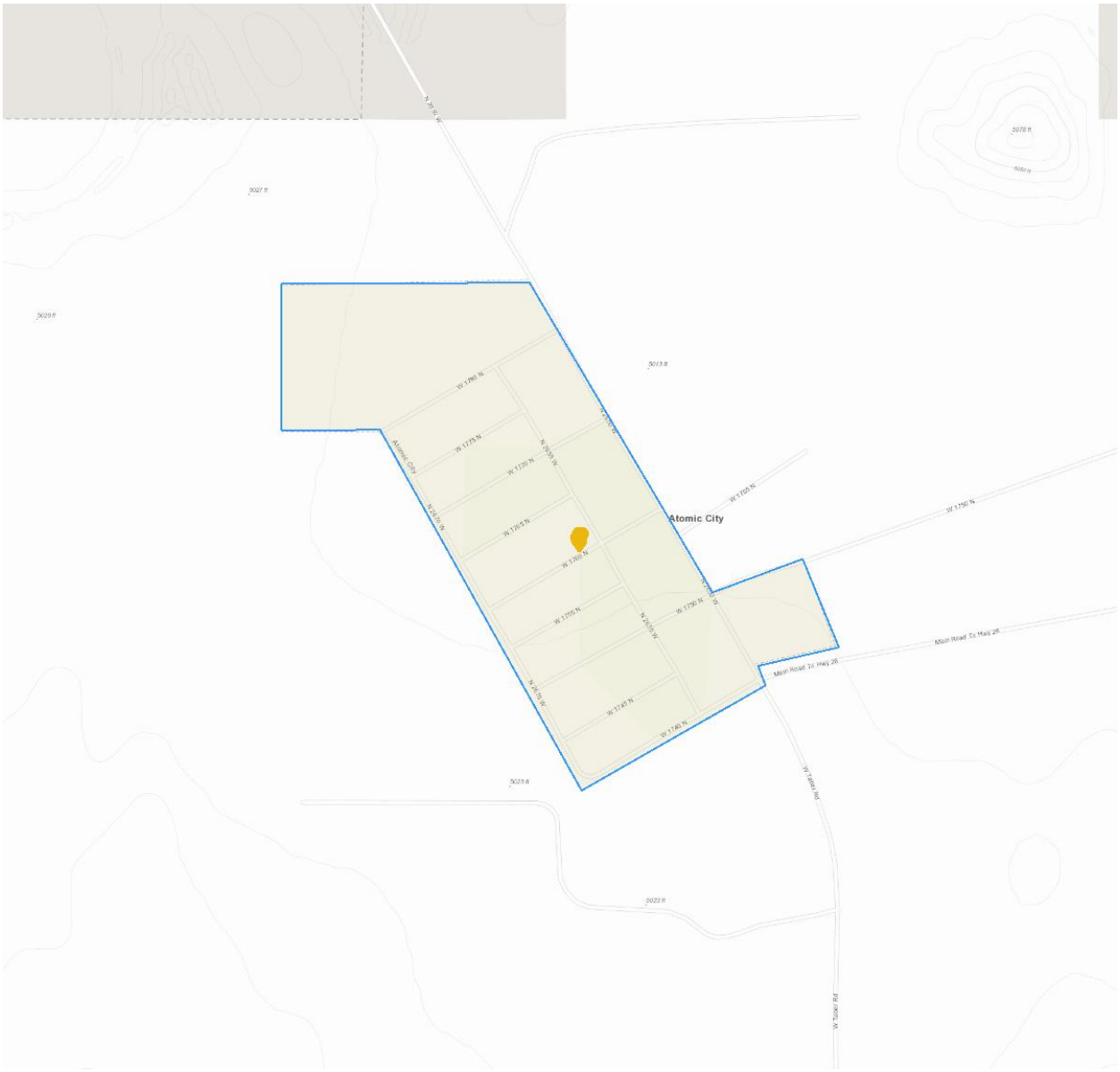
CONSERVATION MEASURES

No conservation measures for this stressor

STRUCTURES AND ACTIVITIES

- Restore vegetation
- Replace terrestrial subsurface pipeline segment
- Building

1.4 Action Area



1.5 Conservation Measures

Describe any proposed measures being implemented as part of the project that are designed to reduce the impacts to the environment and their resulting effects to listed species. To avoid extra verbiage, don't list measures that have no relevance to the species being analyzed.

No conservation measures have been selected for this project.

1.6 Prior Consultation History

none

1.7 Other Agency Partners And Interested Parties

Bingham County is the owner of the system as Atomic City voted to disincorporate recently.

1.8 Other Reports And Helpful Information

none

2 Species Effects Analysis

This section describes, species by species, the effects of the proposed action on listed, proposed, and candidate species, and the habitat on which they depend. In this document, effects are broken down as direct interactions (something happening directly to the species) or indirect interactions (something happening to the environment on which a species depends that could then result in effects to the species).

These interactions encompass effects that occur both during project construction and those which could be ongoing after the project is finished. All effects, however, should be considered, including effects from direct and indirect interactions and cumulative effects.

2.1 Monarch Butterfly

2.1.1 Status of the species

This section should provide information on the species' background, its biology and life history that is relevant to the proposed project within the action area that will inform the effects analysis.

2.1.1.1 Legal status

The Monarch Butterfly is federally listed as 'Candidate' and additional information regarding its legal status can be found on the ECOS species profile.

2.1.1.2 Recovery plans

Available recovery plans for the Monarch Butterfly can be found on the ECOS species profile.

2.1.1.3 Life history information

Note - the monarch is a candidate species and not yet listed or proposed for listing. There are generally no section 7 requirements for candidate species (see our Section 7 Questions and Answers on the monarch here - https://www.fws.gov/savethemonarch/FAQ-Section7.html), but we encourage all agencies to take advantage of any opportunity they may have to conserve the species.

For information on monarch conservation, visit https://www.fws.gov/savethemonarch/, http://www.mafwa.org/?page_id=2347, and, for the West, https://wafwa.org/committees-working-groups/monarch-working-group/.

Adult monarch butterflies are large and conspicuous, with bright orange wings surrounded by a black border and covered with black veins. The black border has a double row of white spots, present on the upper side of the wings. Adult monarchs are sexually dimorphic, with males having narrower wing venation and scent patches. The bright coloring of a monarch serves as a warning to predators that eating them can be toxic.

During the breeding season, monarchs lay their eggs on their obligate milkweed host plant (primarily Asclepias spp.), and larvae emerge after two to five days. Larvae develop through five larval instars (intervals between molts) over a period of 9 to 18 days, feeding on milkweed and sequestering toxic chemicals (cardenolides) as a defense against predators. The larva then pupates into a chrysalis before emerging 6 to 14 days later as an adult butterfly. There are multiple generations of monarchs produced during the breeding season, with most adult butterflies living approximately two to five weeks; overwintering adults enter into reproductive diapause (suspended reproduction) and live six to nine months.

In many regions where monarchs are present, monarchs breed year-round. Individual monarchs in temperate climates, such as eastern and western North America, undergo long-distance migration, and live for an extended period of time. In the fall, in both eastern and western North America, monarchs begin migrating to their respective overwintering sites. This migration can take monarchs distances of over 3,000 km and last for over two months. In early spring (February-March), surviving monarchs break diapause and mate at the overwintering sites before dispersing. The same individuals that undertook the initial southward migration begin flying back through the breeding grounds and their offspring start the cycle of generational migration over again.

Identified resource needs

Bank

No idea

2.1.1.4 Conservation needs

no idea

2.1.2 Environmental baseline

*The environmental baseline describes the species' health **within the action area only** at the time of the consultation, and does not include the effects of the action under review. Unlike the species information provided above, the environmental baseline is at the scale of the Action area.*

2.1.2.1 Species presence and use

no idea

2.1.2.2 Species conservation needs within the action area

no idea

2.1.2.3 Habitat condition (general)

no idea

2.1.2.4 Influences

no idea

2.1.2.5 Additional baseline information

no idea

2.1.3 Effects of the action

This section considers and discusses all effects on the listed species that are caused by the proposed action and are reasonably certain to occur, including the effects of other activities that would not occur but for the proposed action.

2.1.3.1 Indirect interactions

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
Bank (no idea)			***This resource is not present in the action area*** don't know, there isn't a bank in the project area	***There will be no impacts to this resource, so no individuals will be affected.***

2.1.3.2 Direct interactions

No direct interactions leading to effects on species are expected to occur from the proposed project.

2.1.4 Cumulative effects

no idea

2.1.5 Discussion and conclusion

Determination: NE

3 Critical Habitat Effects Analysis

No critical habitats intersect with the project action area.

4 Summary Discussion, Conclusion, And Effect Determinations

4.1 Effect Determination Summary

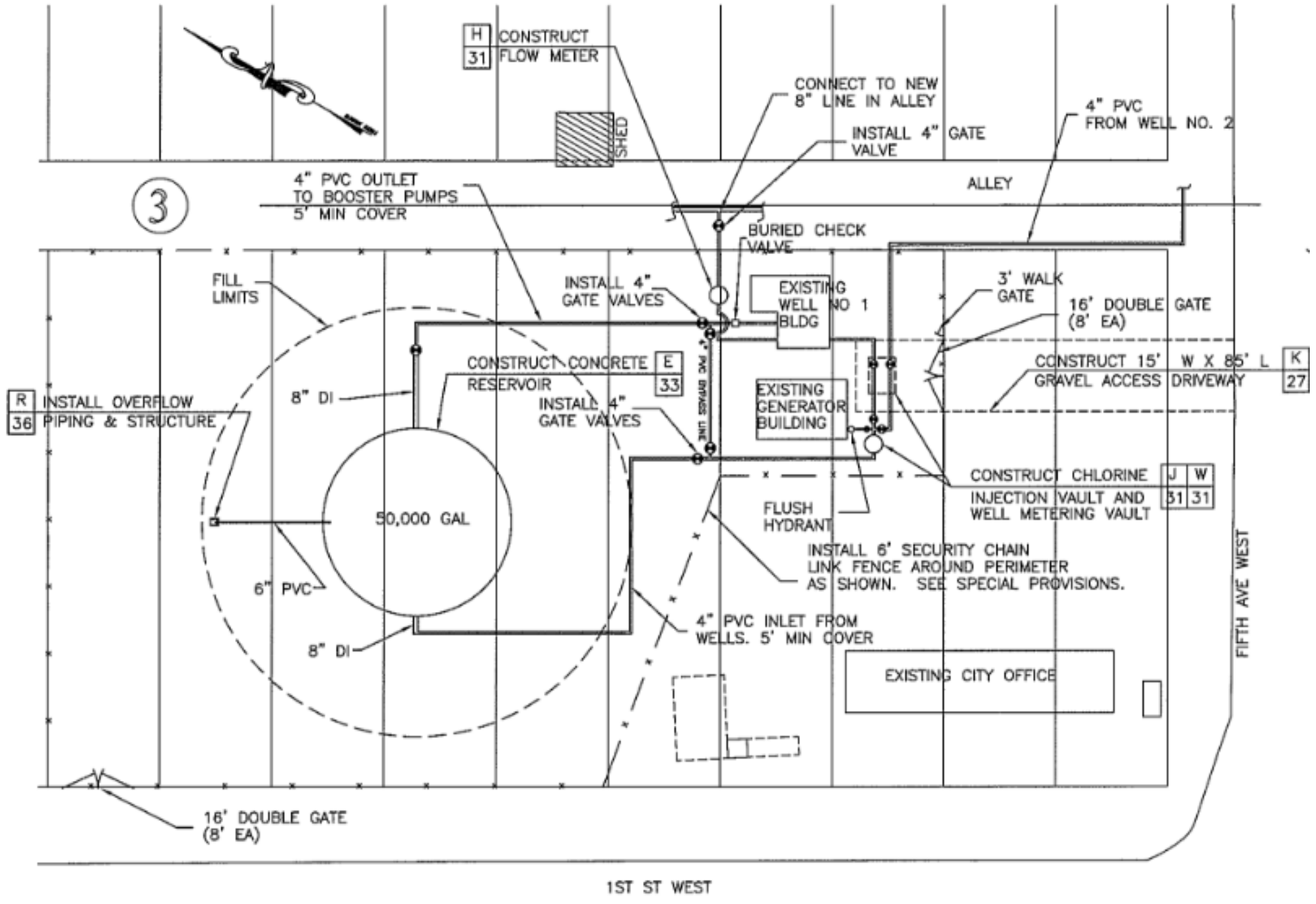
SPECIES (COMMON NAME)	SCIENTIFIC NAME	LISTING STATUS	PRESENT IN ACTION AREA	EFFECT DETERMINATION
Monarch Butterfly	Danaus plexippus	Candidate	Yes	NE

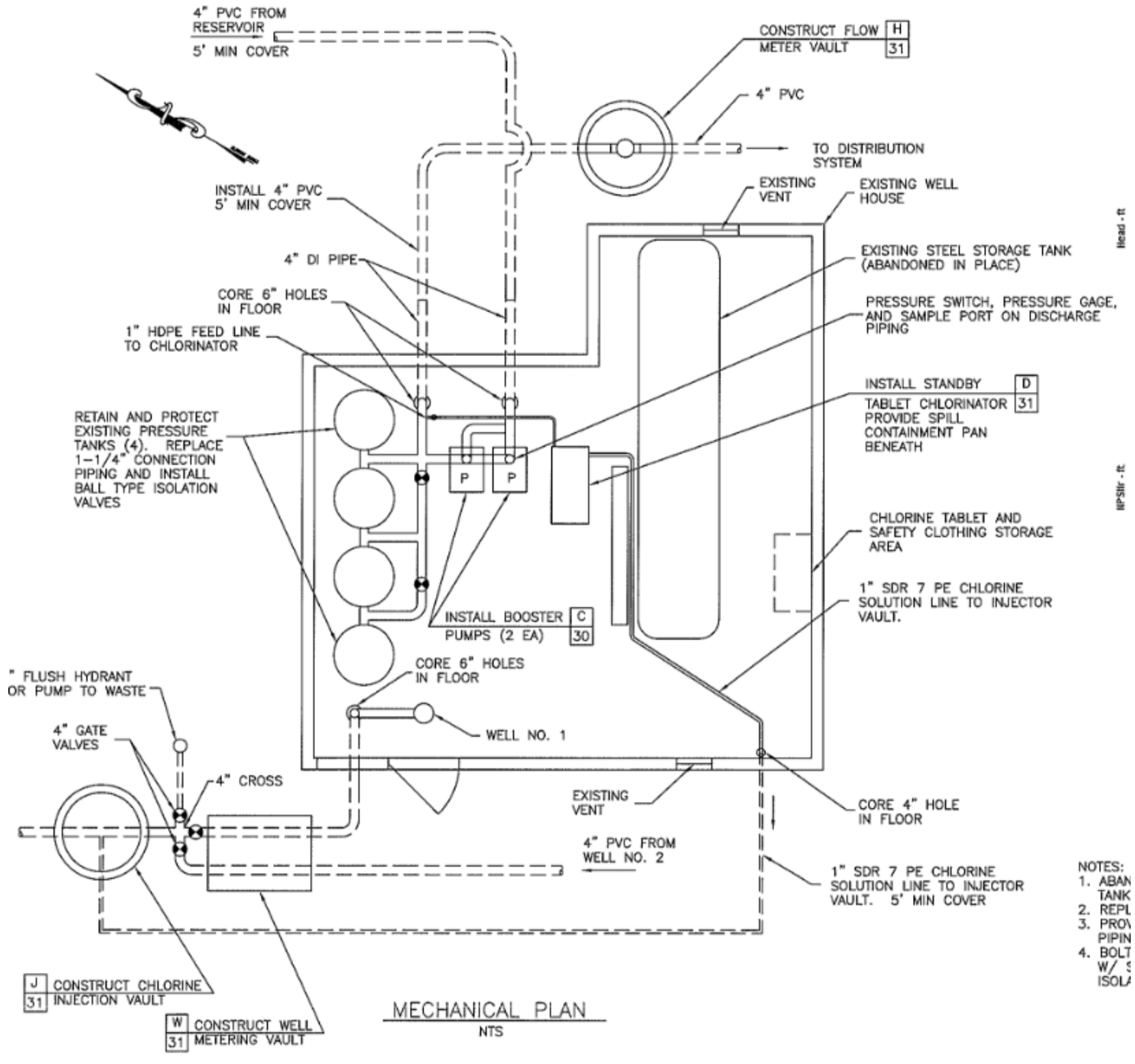
4.2 Summary Discussion

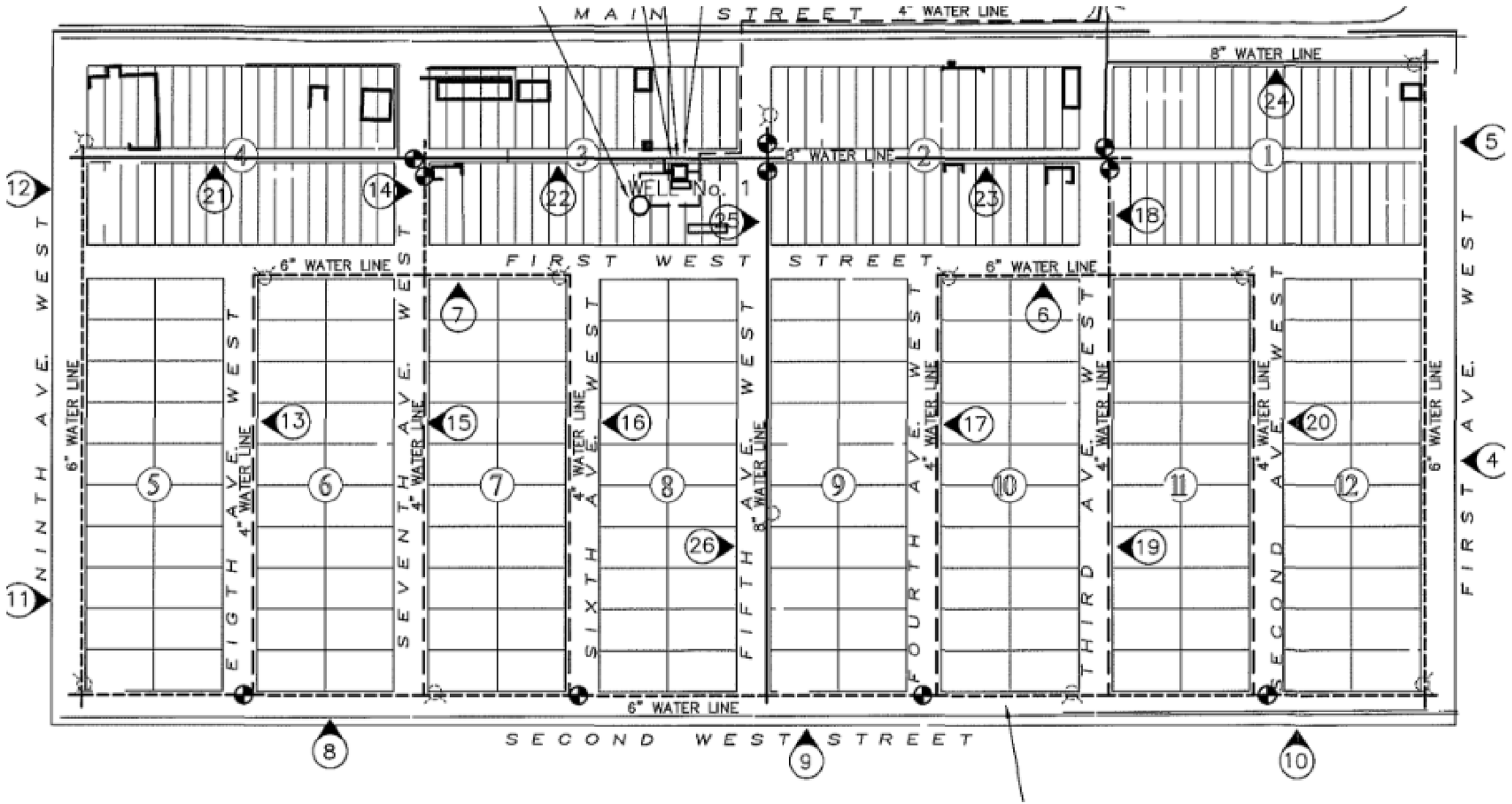
no idea

4.3 Conclusion

the area to be disturbed is area that already was disturbed when the piping was originally installed and to replace an old well/booster house with a new building.


H
31
CONSTRUCT
FLOW METER
SHED
CONNECT TO NEW
8" LINE IN ALLEY
INSTALL 4" GATE
VALVE
4" PVC
FROM WELL NO. 2
ALLEY
3
4" PVC OUTLET
TO BOOSTER PUMPS
5' MIN COVER
BURIED CHECK
VALVE
FILL
LIMITS
INSTALL 4"
GATE VALVES
EXISTING
WELL NO 1
BLDG
3' WALK
GATE
16' DOUBLE GATE
(8' EA)
CONSTRUCT CONCRETE
RESERVOIR
E
33
4" PVC BYPASS LINE
CONSTRUCT 15' W X 85' L
GRAVEL ACCESS DRIVEWAY
K
27
R
36
INSTALL OVERFLOW
PIPING & STRUCTURE
8" DI
INSTALL 4"
GATE VALVES
EXISTING
GENERATOR
BUILDING
CONSTRUCT CHLORINE
INJECTION VAULT AND
WELL METERING VAULT
J
31
W
31
50,000 GAL
FLUSH
HYDRANT
INSTALL 6' SECURITY CHAIN
LINK FENCE AROUND PERIMETER
AS SHOWN. SEE SPECIAL PROVISIONS.
6" PVC
4" PVC INLET FROM
WELLS. 5' MIN COVER
8" DI
EXISTING CITY OFFICE
16' DOUBLE GATE
(8' EA)
1ST ST WEST
FIFTH AVE WEST


4" PVC FROM RESERVOIR
5' MIN COVER
CONSTRUCT FLOW METER VAULT H 31
4" PVC
TO DISTRIBUTION SYSTEM
INSTALL 4" PVC 5' MIN COVER
EXISTING VENT
EXISTING WELL HOUSE
4" DI PIPE
EXISTING STEEL STORAGE TANK (ABANDONED IN PLACE)
CORE 6" HOLES IN FLOOR
PRESSURE SWITCH, PRESSURE GAGE, AND SAMPLE PORT ON DISCHARGE PIPING
1" HDPE FEED LINE TO CHLORINATOR
INSTALL STANDBY D
TABLET CHLORINATOR 31
PROVIDE SPILL CONTAINMENT PAN BENEATH
RETAIN AND PROTECT EXISTING PRESSURE TANKS (4). REPLACE 1-1/4" CONNECTION PIPING AND INSTALL BALL TYPE ISOLATION VALVES
P
P
CHLORINE TABLET AND SAFETY CLOTHING STORAGE AREA
1" SDR 7 PE CHLORINE SOLUTION LINE TO INJECTOR VAULT.
INSTALL BOOSTER C
PUMPS (2 EA) 30
CORE 6" HOLES IN FLOOR
" FLUSH HYDRANT OR PUMP TO WASTE
WELL NO. 1
4" GATE VALVES
4" CROSS
EXISTING VENT
CORE 4" HOLE IN FLOOR
4" PVC FROM WELL NO. 2
1" SDR 7 PE CHLORINE SOLUTION LINE TO INJECTOR VAULT. 5' MIN COVER
J CONSTRUCT CHLORINE
31 INJECTION VAULT
W CONSTRUCT WELL
31 METERING VAULT
MECHANICAL PLAN
NTS
NOTES:
1. ABAN TANK
2. REPL
3. PROV PIPIN
4. BOLT W/ S ISOLA
Head - ft
NPSHr - ft


MAIN STREET
4" WATER LINE
8" WATER LINE
WELL No. 1
FIRST WEST STREET
6" WATER LINE
NINTH AVE. WEST
EIGHTH AVE. WEST
SEVENTH AVE. WEST
SIXTH AVE. WEST
FIFTH AVE. WEST
FOURTH AVE. WEST
THIRD AVE. WEST
SECOND AVE. WEST
FIRST AVE. WEST
SECOND WEST STREET

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Appendix B Water Quality Data

- National Primary and Secondary Drinking Water Regulations

National Primary Drinking Water Regulations

Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
OC Acrylamide	TT[4]	Nervous system or blood problems; increased risk of cancer	Added to water during sewage/ wastewater treatment	zero
OC Alachlor	0.002	Eye, liver, kidney or spleen problems; anemia; increased risk of cancer	Runoff from herbicide used on row crops	zero
R Alpha/photon emitters	15 picocuries per Liter (pCi/L)	Increased risk of cancer	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation	zero
IOC Antimony	0.006	Increase in blood cholesterol; decrease in blood sugar	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder	0.006
IOC Arsenic	0.010	Skin damage or problems with circulatory systems, and may have increased risk of getting cancer	Erosion of natural deposits; runoff from orchards; runoff from glass & electronics production wastes	0
IOC Asbestos (fibers >10 micrometers)	7 million fibers per Liter (MFL)	Increased risk of developing benign intestinal polyps	Decay of asbestos cement in water mains; erosion of natural deposits	7 MFL
OC Atrazine	0.003	Cardiovascular system or reproductive problems	Runoff from herbicide used on row crops	0.003
IOC Barium	2	Increase in blood pressure	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	2
OC Benzene	0.005	Anemia; decrease in blood platelets; increased risk of cancer	Discharge from factories; leaching from gas storage tanks and landfills	zero
OC Benzo(a)pyrene (PAHs)	0.0002	Reproductive difficulties; increased risk of cancer	Leaching from linings of water storage tanks and distribution lines	zero
IOC Beryllium	0.004	Intestinal lesions	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries	0.004
R Beta photon emitters	4 millirems per year	Increased risk of cancer	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation	zero
DBP Bromate	0.010	Increased risk of cancer	Byproduct of drinking water disinfection	zero
IOC Cadmium	0.005	Kidney damage	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints	0.005
OC Carbofuran	0.04	Problems with blood, nervous system, or reproductive system	Leaching of soil fumigant used on rice and alfalfa	0.04
OC Carbon tetrachloride	0.005	Liver problems; increased risk of cancer	Discharge from chemical plants and other industrial activities	zero
D Chloramines (as Cl_2)	MRDL=4.0[1]	Eye/nose irritation; stomach discomfort; anemia	Water additive used to control microbes	MRDLG=4[1]
OC Chlordane	0.002	Liver or nervous system problems; increased risk of cancer	Residue of banned termiticide	zero
D Chlorine (as Cl_2)	MRDL=4.0[1]	Eye/nose irritation; stomach discomfort	Water additive used to control microbes	MRDLG=4[1]
D Chlorine dioxide (as ClO_2)	MRDL=0.8[1]	Anemia; infants, young children, and fetuses of pregnant women: nervous system effects	Water additive used to control microbes	MRDLG=0.8[1]
DBP Chlorite	1.0	Anemia; infants, young children, and fetuses of pregnant women: nervous system effects	Byproduct of drinking water disinfection	0.8
OC Chlorobenzene	0.1	Liver or kidney problems	Discharge from chemical and agricultural chemical factories	0.1
IOC Chromium (total)	0.1	Allergic dermatitis	Discharge from steel and pulp mills; erosion of natural deposits	0.1
IOC Copper	TT[5]; Action Level = 1.3	Short-term exposure: Gastrointestinal distress. Long-term exposure: Liver or kidney damage. People with Wilson's Disease should consult their personal doctor if the amount of copper in their water exceeds the action level	Corrosion of household plumbing systems; erosion of natural deposits	1.3
M *Cryptosporidium*	TT[7]	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero

LEGEND

D Disinfectant | IOC Inorganic Chemical | OC Organic Chemical

DBP Disinfection Byproduct | M Microorganism | R Radionuclides

Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
IOC Cyanide (as free cyanide)	0.2	Nerve damage or thyroid problems	Discharge from steel/metal factories; discharge from plastic and fertilizer factories	0.2
OC 2,4-D	0.07	Kidney, liver, or adrenal gland problems	Runoff from herbicide used on row crops	0.07
OC Dalapon	0.2	Minor kidney changes	Runoff from herbicide used on rights of way	0.2
OC 1,2-Dibromo-3-chloropropane (DBCP)	0.0002	Reproductive difficulties; increased risk of cancer	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards	zero
OC o-Dichlorobenzene	0.6	Liver, kidney, or circulatory system problems	Discharge from industrial chemical factories	0.6
OC p-Dichlorobenzene	0.075	Anemia; liver, kidney or spleen damage; changes in blood	Discharge from industrial chemical factories	0.075
OC 1,2-Dichloroethane	0.005	Increased risk of cancer	Discharge from industrial chemical factories	zero
OC 1,1-Dichloroethylene	0.007	Liver problems	Discharge from industrial chemical factories	0.007
OC cis-1,2-Dichloroethylene	0.07	Liver problems	Discharge from industrial chemical factories	0.07
OC trans-1,2-Dichloroethylene	0.1	Liver problems	Discharge from industrial chemical factories	0.1
OC Dichloromethane	0.005	Liver problems; increased risk of cancer	Discharge from drug and chemical factories	zero
OC 1,2-Dichloropropane	0.005	Increased risk of cancer	Discharge from industrial chemical factories	zero
OC Di(2-ethylhexyl) adipate	0.4	Weight loss, liver problems, or possible reproductive difficulties	Discharge from chemical factories	0.4
OC Di(2-ethylhexyl) phthalate	0.006	Reproductive difficulties; liver problems; increased risk of cancer	Discharge from rubber and chemical factories	zero
OC Dinoseb	0.007	Reproductive difficulties	Runoff from herbicide used on soybeans and vegetables	0.007
OC Dioxin (2,3,7,8-TCDD)	0.00000003	Reproductive difficulties; increased risk of cancer	Emissions from waste incineration and other combustion; discharge from chemical factories	zero
OC Diquat	0.02	Cataracts	Runoff from herbicide use	0.02
OC Endothall	0.1	Stomach and intestinal problems	Runoff from herbicide use	0.1
OC Endrin	0.002	Liver problems	Residue of banned insecticide	0.002
OC Epichlorohydrin	TT[4]	Increased cancer risk; stomach problems	Discharge from industrial chemical factories; an impurity of some water treatment chemicals	zero
OC Ethylbenzene	0.7	Liver or kidney problems	Discharge from petroleum refineries	0.7
OC Ethylene dibromide	0.00005	Problems with liver, stomach, reproductive system, or kidneys; increased risk of cancer	Discharge from petroleum refineries	zero
M Fecal coliform and *E. coli*	MCL[6]	Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes may cause short term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems.	Human and animal fecal waste	zero[6]
IOC Fluoride	4.0	Bone disease (pain and tenderness of the bones); children may get mottled teeth	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories	4.0
M *Giardia lamblia*	TT[7]	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
OC Glyphosate	0.7	Kidney problems; reproductive difficulties	Runoff from herbicide use	0.7
DBP Haloacetic acids (HAA5)	0.060	Increased risk of cancer	Byproduct of drinking water disinfection	n/a[9]
OC Heptachlor	0.0004	Liver damage; increased risk of cancer	Residue of banned termiticide	zero
OC Heptachlor epoxide	0.0002	Liver damage; increased risk of cancer	Breakdown of heptachlor	zero
M Heterotrophic plate count (HPC)	TT[7]	HPC has no health effects; it is an analytic method used to measure the variety of bacteria that are common in water. The lower the concentration of bacteria in drinking water, the better maintained the water system is.	HPC measures a range of bacteria that are naturally present in the environment	n/a

LEGEND

D Disinfectant
DBP Disinfection Byproduct
IOC Inorganic Chemical
M Microorganism
OC Organic Chemical
R Radionuclides

Contaminant		MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
OC	Hexachlorobenzene	0.001	Liver or kidney problems; reproductive difficulties; increased risk of cancer	Discharge from metal refineries and agricultural chemical factories	zero
OC	Hexachlorocyclopentadiene	0.05	Kidney or stomach problems	Discharge from chemical factories	0.05
IOC	Lead	TT5; Action Level=0.015	Infants and children: Delays in physical or or mental development; children could show slight deficits in attention span and learning abilities; Adults: Kidney problems; high blood pressure	Corrosion of household plumbing systems; erosion of natural deposits	zero
M	*Legionella*	TT7	Legionnaire's Disease, a type of pneumonia	Found naturally in water; multiplies in heating systems	zero
OC	Lindane	0.0002	Liver or kidney problems	Runoff/leaching from insecticide used on cattle, lumber, gardens	0.0002
IOC	Mercury (inorganic)	0.002	Kidney damage	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and croplands	0.002
OC	Methoxychlor	0.04	Reproductive difficulties	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock	0.04
IOC	Nitrate (measured as Nitrogen)	10	Infants below the age of six months 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.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	10
IOC	Nitrite (measured as Nitrogen)	1	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	1
OC	Oxamyl (Vydate)	0.2	Slight nervous system effects	Runoff/leaching from insecticide used on apples, potatoes, and tomatoes	0.2
OC	Pentachlorophenol	0.001	Liver or kidney problems; increased cancer risk	Discharge from wood-preserving factories	zero
OC	Picloram	0.5	Liver problems	Herbicide runoff	0.5
OC	Polychlorinated biphenyls (PCBs)	0.0005	Skin changes; thymus gland problems; immune deficiencies; reproductive or nervous system difficulties; increased risk of cancer	Runoff from landfills; discharge of waste chemicals	zero
R	Radium 226 and Radium 228 (combined)	5 pCi/L	Increased risk of cancer	Erosion of natural deposits	zero
IOC	Selenium	0.05	Hair or fingernail loss; numbness in fingers or toes; circulatory problems	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines	0.05
OC	Simazine	0.004	Problems with blood	Herbicide runoff	0.004
OC	Styrene	0.1	Liver, kidney, or circulatory system problems	Discharge from rubber and plastic factories; leaching from landfills	0.1
OC	Tetrachloroethylene	0.005	Liver problems; increased risk of cancer	Discharge from factories and dry cleaners	zero
IOC	Thallium	0.002	Hair loss; changes in blood; kidney, intestine, or liver problems	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories	0.0005
OC	Toluene	1	Nervous system, kidney, or liver problems	Discharge from petroleum factories	1
M	Total Coliforms	5.0 percent[8]	Coliforms are bacteria that indicate that other, potentially harmful bacteria may be present. See fecal coliforms and *E. coli*	Naturally present in the environment	zero
DBP	Total Trihalomethanes (TTHMs)	0.080	Liver, kidney or central nervous system problems; increased risk of cancer	Byproduct of drinking water disinfection	n/a[9]
OC	Toxaphene	0.003	Kidney, liver, or thyroid problems; increased risk of cancer	Runoff/leaching from insecticide used on cotton and cattle	zero
OC	2,4,5-TP (Silvex)	0.05	Liver problems	Residue of banned herbicide	0.05
OC	1,2,4-Trichlorobenzene	0.07	Changes in adrenal glands	Discharge from textile finishing factories	0.07
OC	1,1,1-Trichloroethane	0.2	Liver, nervous system, or circulatory problems	Discharge from metal degreasing sites and other factories	0.2
OC	1,1,2-Trichloroethane	0.005	Liver, kidney, or immune system problems	Discharge from industrial chemical factories	0.003
OC	Trichloroethylene	0.005	Liver problems; increased risk of cancer	Discharge from metal degreasing sites and other factories	zero

LEGEND

D Disinfectant
DBP Disinfection Byproduct
IOC Inorganic Chemical
M Microorganism
OC Organic Chemical
R Radionuclides

Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
M Turbidity	TT[7]	Turbidity is a measure of the cloudiness of water. It is used to indicate water quality and filtration effectiveness (e.g., whether disease-causing organisms are present). Higher turbidity levels are often associated with higher levels of disease-causing microorganisms such as viruses, parasites and some bacteria. These organisms can cause short term symptoms such as nausea, cramps, diarrhea, and associated headaches.	Soil runoff	n/a
R Uranium	30µg/L	Increased risk of cancer, kidney toxicity	Erosion of natural deposits	zero
OC Vinyl chloride	0.002	Increased risk of cancer	Leaching from PVC pipes; discharge from plastic factories	zero
M Viruses (enteric)	TT[7]	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
OC Xylenes (total)	10	Nervous system damage	Discharge from petroleum factories; discharge from chemical factories	10

LEGEND

D Disinfectant
DBP Disinfection Byproduct
IOC Inorganic Chemical
M Microorganism
OC Organic Chemical
R Radionuclides

NOTES

1 Definitions

- Maximum Contaminant Level Goal (MCLG)—The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.
- Maximum Contaminant Level (MCL)—The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.
- Maximum Residual Disinfectant Level Goal (MRDLG)—The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- Maximum Residual Disinfectant Level (MRDL)—The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- Treatment Technique (TT)—A required process intended to reduce the level of a contaminant in drinking water.

2 Units are in milligrams per liter (mg/L) unless otherwise noted. Milligrams per liter are equivalent to parts per million (ppm).

3 Health effects are from long-term exposure unless specified as short-term exposure.

4 Each water system must certify annually, in writing, to the state (using third-party or manufacturers certification) that when it uses acrylamide and/or epichlorohydrin to treat water, the combination (or product) of dose and monomer level does not exceed the levels specified, as follows: Acrylamide = 0.05 percent dosed at 1 mg/L (or equivalent); Epichlorohydrin = 0.01 percent dosed at 20 mg/L (or equivalent).

5 Lead and copper are regulated by a Treatment Technique that requires systems to control the corrosiveness of their water. If more than 10 percent of tap water samples exceed the action level, water systems must take additional steps. For copper, the action level is 1.3 mg/L, and for lead is 0.015 mg/L.

6 A routine sample that is fecal coliform-positive or *E. coli*-positive triggers repeat samples--if any repeat sample is total coliform-positive, the system has an acute MCL violation. A routine sample that is total coliform-positive and fecal coliform-negative or *E. coli*-negative triggers repeat samples--if any repeat sample is fecal coliform-positive or *E. coli*-positive, the system has an acute MCL violation. See also Total Coliforms.

7 EPA's surface water treatment rules require systems using surface water or ground water under the direct influence of surface water to (1) disinfect their water, and (2) filter their water or meet criteria for avoiding filtration so that the following contaminants are controlled at the following levels:

- *Cryptosporidium*: 99 percent removal for systems that filter. Unfiltered systems are required to include Cryptosporidium in their existing watershed control provisions.
- Giardia lamblia: 99.9 percent removal/inactivation
- Viruses: 99.99 percent removal/inactivation
- *Legionella*: No limit, but EPA believes that if *Giardia* and viruses are removed/inactivated according to the treatment techniques in the surface water treatment rule, *Legionella* will also be controlled.
- Turbidity: For systems that use conventional or direct filtration, at no time can turbidity (cloudiness of water) go higher than 1 nephelolometric turbidity unit (NTU), and samples for turbidity must be less than or equal to 0.3 NTU in at least 95 percent of the samples in any month. Systems that use filtration other than conventional or direct filtration must follow state limits, which must include turbidity at no time exceeding 5 NTU.
- HPC: No more than 500 bacterial colonies per milliliter
- Long Term 1 Enhanced Surface Water Treatment; Surface water systems or ground water systems under the direct influence of surface water serving fewer than 10,000 people must comply with the applicable Long Term 1 Enhanced Surface Water Treatment Rule provisions (e.g. turbidity standards, individual filter monitoring, *Cryptosporidium* removal requirements, updated watershed control requirements for unfiltered systems).
- Long Term 2 Enhanced Surface Water Treatment; This rule applies to all surface water systems or ground water systems under the direct influence of surface water. The rule targets additional *Cryptosporidium* treatment requirements for higher risk systems and includes provisions to reduce risks from uncovered finished water storages facilities and to ensure that the systems maintain microbial protection as they take steps to reduce the formation of disinfection byproducts. (Monitoring start dates are staggered by system size. The largest systems (serving at least 100,000 people) will begin monitoring in October 2006 and the smallest systems (serving fewer than 10,000 people) will not begin monitoring until October 2008. After completing monitoring and determining their treatment bin, systems generally have three years to comply with any additional treatment requirements.)
- Filter Backwash Recycling: The Filter Backwash Recycling Rule requires systems that recycle to return specific recycle flows through all processes of the system's existing conventional or direct filtration system or at an alternate location approved by the state.

8 No more than 5.0 percent samples total coliform-positive in a month. (For water systems that collect fewer than 40 routine samples per month, no more than one sample can be total coliform-positive per month.) Every sample that has total coliform must be analyzed for either fecal coliforms or *E. coli*. If two consecutive TC-positive samples, and one is also positive for *E. coli* or fecal coliforms, system has an acute MCL violation.

9 Although there is no collective MCLG for this contaminant group, there are individual MCLGs for some of the individual contaminants:

- Haloacetic acids: dichloroacetic acid (zero); trichloroacetic acid (0.3 mg/L)
- Trihalomethanes: bromodichloromethane (zero); bromoform (zero); dibromochloromethane (0.06 mg/L)

National Secondary Drinking Water Regulation

National Secondary Drinking Water Regulations are non-enforceable guidelines regarding contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. EPA recommends secondary standards to water systems but does not require systems to comply. However, some states may choose to adopt them as enforceable standards.

Contaminant	Secondary Maximum Contaminant Level
Aluminum	0.05 to 0.2 mg/L
Chloride	250 mg/L
Color	15 (color units)
Copper	1.0 mg/L
Corrosivity	noncorrosive
Fluoride	2.0 mg/L
Foaming Agents	0.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Odor	3 threshold odor number
pH	6.5-8.5
Silver	0.10 mg/L
Sulfate	250 mg/L
Total Dissolved Solids	500 mg/L
Zinc	5 mg/L

For More Information

EPA's Safe Drinking Water Web site:
http://www.epa.gov/safewater/

EPA's Safe Drinking Water Hotline:
(800) 426-4791

To order additional posters or other ground water and drinking water publications, please contact the National Service Center for Environmental Publications at :
(800) 490-9198, or
email: nscep@bps-lmit.com.

United States Environmental Protection Agency

EPA 816-F-09-004
May 2009

CIVIL & STRUCTURAL ENGINEERING
MATERIALS TESTING & LAND SURVEYING
101 S. Park Avenue, Idaho Falls, ID 83402, (208)524-0212
800 W. Judicial Street, Blackfoot, ID 83221, (208)785-2977

Appendix C Well Logs and Water Rights

- Well #02 Log
- Water Right Report 35-04209
- Water Right Report 35-13701

Form 238-7
11/97
10/01
Independent

RECEIVED
JUL 13 2009
Department of Water Resources
Eastern Region

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT
Use Typewriter or Ballpoint pen

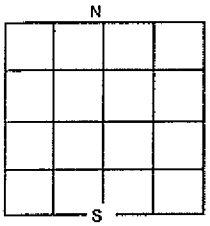
Location Corrected by IDWR To:
T01N R31E Sec. 3 NESW
By: mciscell 2012-12-27

Lat: : : Long: : :

1 WELL TAG NO.
DRILLING PERMIT NC
Other IDWR NO. D0055090

2 OWNER:
Name: City of Atomic City
Address: PO Box 34
City: Atomic City State: ID Zip 83215

3 LOCATION OF WELL by legal description.



Twp 1 ☑ North ☐ South
Rge 31 ☑ East ☐ West
Sec 3 ____ 1/4 NE 1/4 SW 1/4
10 Acres 40 Acres 160 Acres
Gov't Lot County Bingham
Lat:43:26.547 Long:112:48.548

Address of Well Site:
City: Atomic City
(Give at least name of Road + Distance to Road or Landmark)
Lot No. Blk No. Subd. Name:

4 USE:
☐ Domestic ☑ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

5 TYPE OF WORK:
☑ New Well ☐ Modify ☐ Abondonment ☐ Other

6 DRILL METHOD:
☑ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other

7 SEALING PROCEDURES:

SEAL/FILTER PACK	From	To	AMOUNT	Method
Bentonite	0	-5'	200 Lbs/4 Bags	Annular
Cement	-5'	-58'	2162 Lbs	Tremie

Was drive shoe used? ☐ Yes ☑ No Shoe Depth(s)
Was drive shoe seal tested? ☐ Yes ☐ No How?

8 CASING/LINER:

Dia.	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
8	+2'	-58'	Sch40	Steel	☑	☐	☑	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of headpipe: Length of Tailpipe:

9 PERFORATIONS/SCREENS:

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

 # STATIC WATER LEVEL OR ARTESIAN PRESSURE:
601 ft below ground Artesian Pressure: lb

Describe access port or control devices: Well Cap

11 WELL TESTS:
☐ Pump ☐ Bailer ☑ Air ☐ Flowing Artesian
Flowing Artesian

Yield	Drawdown	Pumping Level	Time
100			

Water Temp Cold Bottom hole temp
Water Quality test or comments:

12 LITHOLOGIC LOG:

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
12	0	6	Clay		X
12	6	39	Gray Basalt		X
12	39	43	Basalt Fractured		X
12	43	56	Brown Basalt		X
12	56	58	Gray Basalt		X
8	58	66	Gray Basalt		X
8	66	79	Fractured (Lost Return)		X
8	79	145	Firm Basalt		X
8	145	179	Hard Basalt		X
8	179	210	Fractured Basalt		X
8	210	225	Hard Basalt		X
8	225	235	Fractured Loose Broken		X
8	235	260	Firm Basalt		X
8	260	460	Hard Basalt with fractures		X
8	460	466	Hard Basalt		X
8	466	474	Fractures		X
8	474	670	Hard Basalt with fractures	X	

670 ft
Date Started: 06/02/09
Date Completed: 06/30/09

13 DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Firm: Independent Drilling MD Firm No. 343
Firm Official: Date: 6/30/2009
and
Supervisor/Operator: Date: 6/30/2009

1998 SEP 15 PM 02:00
DISTRICT COURT - SRBA
TWIN FALLS CO., IDAHO
FILED _____

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE
STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

In Re SRBA	)	PARTIAL DECREE PURSUANT TO
	)	I.R.C.P. 54(b) FOR
Case No. 39576	)	
_____	)	Water Right 35-04209

NAME AND ADDRESS: CITY OF ATOMIC CITY
PO BOX 34
ATOMIC CITY, ID 83215

SOURCE: GROUNDWATER

QUANTITY: 0.27 CFS
28.00 AFY

PRIORITY DATE: 08/01/1952

POINT OF DIVERSION: T01N R31E S03 NWSW Within Bingham County

PURPOSE AND PERIOD OF USE:

PURPOSE OF USE	PERIOD OF USE	QUANTITY
Municipal	01-01 TO 12-31	0.27 CFS 28.00 AFY

PLACE OF USE:

Municipal	Same as Other Use

RULE 54(b) CERTIFICATE

With respect to the issues determined by the above judgment or order, it is hereby CERTIFIED, in accordance with Rule 54(b), I.R.C.P., that the court has determined that there is no just reason for delay of the entry of a final judgment and that the court has and does hereby direct that the above judgment or order shall be a final judgment upon which execution may issue and an appeal may be taken as provided by the Idaho Appellate Rules.

Daniel C. Hurlbutt, JR.
Presiding Judge
Snake River Basin Adjudication

State of Idaho
Department of Water Resources

Water Right License

WATER RIGHT NO. 35-13701

Priority: January 14, 2008 Maximum Diversion Rate: 0.26 CFS

It is hereby certified that CITY OF ATOMIC CITY
PO BOX 34
ATOMIC CITY ID 83215 has complied with the terms and conditions of the permit, issued pursuant to Application for Permit dated January 14, 2008; and has submitted Proof of Beneficial Use on June 25, 2010; and a water right has been established as follows:

SOURCE
GROUND WATER

BENEFICIAL USE	PERIOD OF USE	DIVERSION RATE
MUNICIPAL	01/01 to 12/31	0.26 CFS

LOCATION OF POINT(S) OF DIVERSION:

GROUND WATER	NE¼SW¼	Sec. 3	Twp 01N	Rge 31E, B.M.	BINGHAM County
GROUND WATER	SE¼SW¼	Sec. 3	Twp 01N	Rge 31E, B.M.	BINGHAM County

PLACE OF USE: MUNICIPAL

Twp Rge Sec	NE				NW				SW				SE				Totals
	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
01N 31E 3							X	X	X	X	X	X					
							L4	L3									

CONDITIONS OF APPROVAL

1. Use of water under this right will be regulated by a watermaster with responsibility for the distribution of water among appropriators within a water district. At the time of this approval, this water right is within State Water District No. 120.
2. A lockable device subject to the approval of the Department shall be maintained on the diverting works in a manner that will provide the watermaster suitable control of the diversion.
3. Prior to diversion and use of water under this right, the right holder shall install and maintain acceptable measuring device(s) at the authorized point(s) of diversion, in accordance with Department specifications.
4. Upon specific notification of the Department, the right holder shall install and maintain data loggers to record water usage information at the authorized point(s) of diversion in accordance with Department specifications.
5. Municipal use is for in house use only and does not include lawn, garden, landscape, parks, golf courses, sports activities field or other types of irrigation.

This license is issued pursuant to the provisions of Section 42-219, Idaho Code. The water right confirmed by this license is subject to all prior water rights and shall be used in accordance with Idaho law and applicable rules of the Department of Water Resources.

Signed this 21st day of December, 2015.

JAMES CEFALO
Water Resources Program Manager

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

TRANSFER OF WATER RIGHT
TRANSFER NO. 81250

This is to certify that: CITY OF ATOMIC CITY
PO BOX 34
ATOMIC CITY, ID 83215

has requested a change to the water right(s) listed below. This change in water right(s) is authorized pursuant to the provisions of Section 42-222, Idaho Code. A summary of the changes is also listed below. The authorized change for each affected water right, including conditions of approval, is shown on the following pages of this document.

Summary of Water Rights Before the Proposed Changes

Water Right	Origin/Basis	Priority Date	Diversion Rate	Diversion Volume	Acre Limit	Total Acres	Source
35-4209	WR/DECREED	8/1/1952	0.270 cfs	28.0 af	N/A	N/A	GROUND WATER

Purpose of Transfer (Changes Proposed)

Current Number	Split	POD	POU	Add POD	Period of Use	Nature of Use
35-4209	NO	YES	NO	YES	NO	NO

Summary Of Water Rights After the Approved Change

Existing Right	New No. (Changed Portion)	Transfer Rate	Transfer Volume	Acre Limit	Total Acres	New No. (remaining portion)	Remaining Rate	Remaining Volume	Remaining Acre Limit	Remaining Total Acres
35-4209	35-4209	0.270 cfs	28.0 af	N/A	N/A	N/A	N/A	N/A	N/A	N/A
COMBINED TOTALS		**0.270 cfs**	**28.0 af**	**N/A**	**N/A**		**N/A**	**N/A**	**N/A**	**N/A**

This water right(s) is subject to all prior water rights and shall be administered in accordance with Idaho law and applicable rules of the Department of Water Resources. Detailed Water Right Description(s) attached.

Dated this 29th day of November, 2016.

Water Resources Program Manager

WATER RIGHT NO. 35-4209

As Modified by Transfer No. 81250

In accordance with the approval of Transfer No. 81250, Water Right No. 35-4209 is now described as follows:

Right Holder: CITY OF ATOMIC CITY
PO BOX 34
ATOMIC CITY, ID 83215

Priority Date: 8/1/1952

Source: GROUND WATER

BENEFICIAL USE	From	To	Diversion Rate	Diversion Volume
MUNICIPAL	1/01	to 12/31	0.270 cfs	28.0 af
			0.270 cfs	28.0 af

LOCATION OF POINT(S) OF DIVERSION

GROUND WATER	NESW	Sec 3	Twp 01N Rge 31E	BINGHAM County
GROUND WATER	SESW	Sec 3	Twp 01N Rge 31E	BINGHAM County

PLACE OF USE: MUNICIPAL

			NE				NW				SW				SE				
Twp	Rng	Sec	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	Totals
01N	31E	3							X	X	X	X	X	X					
									L 4	L3									

CONDITIONS OF APPROVAL

1. Place of use is within the service area of the Atomic City municipal water supply system as provided for under Idaho Law.
2. A map depicting the place of use boundary for this water right at the time of this approval is attached to this document for illustrative purposes.
3. Use of water under this right will be regulated by a watermaster with responsibility for the distribution of water among appropriators within a water district. At the time of this approval, this water right is within State Water District No. 120.
4. A lockable device subject to the approval of the Department shall be maintained on the diverting works in a manner that will provide the watermaster suitable control of the diversion.
5. Prior to diversion and use of water under Transfer approval 81250, the right holder shall install and maintain acceptable measuring device(s) at the authorized point(s) of diversion, in accordance with Department specifications.

WATER RIGHT NO. 35-4209

As Modified by Transfer No. 81250

CONDITIONS OF APPROVAL

6. Upon specific notification of the Department, the right holder shall install and maintain data loggers to record water usage information at the authorized point(s) of diversion in accordance with Department specifications.

7. This right does not grant any right-of-way or easement across the land of another.

8. The right holder shall accomplish the change authorized by this transfer within one year of the date of this approval.

9. Failure of the right holder to comply with the conditions of this transfer is cause for the Director to rescind approval of the transfer.

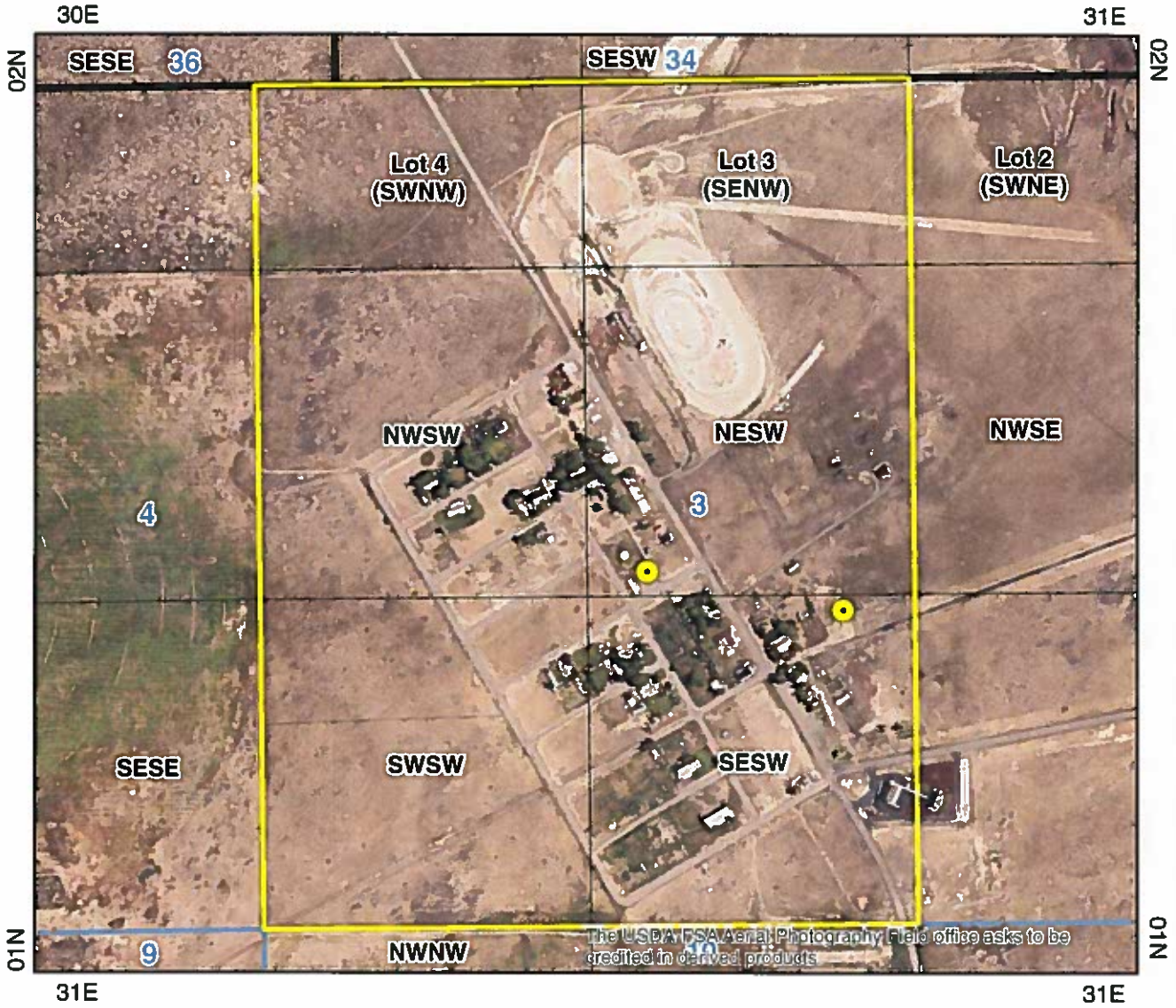
10. Pursuant to Section 42-1412(6), Idaho Code, this water right is subject to such general provisions necessary for the definition of the rights or for the efficient administration of water rights as determined by the Snake River Basin Adjudication court in the final unified decree entered 08/26/2014.

City of Atomic City

Transfer of Water Right

Transfer No. 81250

This map depicts the Municipal place of use boundary for water right 35-4209 at the time of this approval and is attached to the appoval document solely for illustrative purposes.



0 0.075 0.15 0.3 Miles

- Water Right POD
- Water Service Area Boundary
- Townships
- PLS Sections

N

CIVIL & STRUCTURAL ENGINEERING
MATERIALS TESTING & LAND SURVEYING
101 S. Park Avenue, Idaho Falls, ID 83402, (208)524-0212
800 W. Judicial Street, Blackfoot, ID 83221, (208)785-2977

Appendix D Water System Sanitary Survey

- Sanitary Survey Letter

State of Idaho Public Water System Enhanced Sanitary Survey

WATER SYSTEM INVENTORY INFORMATION

SURVEY DATE: 3/15/2018 (mm/dd/yyyy) | PWS #: 6060003

Name of Public Water System: **ATOMIC CITY**

# of Ground Water Sources: 2 | # of Storage Facilities: 1

#of Surface Water Sources: 0 | Total Storage (gal): 50,000

Date of Last Survey: 03/26/2013

Health District: ☐ N/A — SOUTHEASTERN IDAHO PUBLIC HEALTH

DEQ Region: ☑ N/A

County: BINGHAM

Number of Service Connections: 41

Residential Population: 35

Status: ☑ Approved ☐ Disapproved

Water Purchased From: ☑ N/A — PWS #: — Name:

Water Sold To: ☑ N/A — PWS #: — Name:

Owner Type: 1

Legal Entity: GA

Water System Classification:
- ☑ Community Water System
- ☐ Nontransient Noncommunity
- ☐ Transient Noncommunity - NC

Combined Sources? ☑ Yes ☐ No
If yes, ☐ Well Field ☑ Manifold/Spring Box
Sources Combined: WELLS #1-2

System Classification: Distribution: VSWS
Treatment: ☑ N/A

Seasonal Operation Dates: ☑ N/A
Date Open:
Date Closed:

Responsible Charge Operator (DO): ☐ No DO ☐ N/A - Identify Operator for GW-NC PWS

☑ Mr. ☐ Ms. ANTONIO DG CHISHAM

Properly Licensed? ☑ Yes ☐ No ☐ N/A-GW-NC

License Type: DWD1 ☐ N/A

License Number: DWD1-18605

Expiration Date:

Mailing Address: P.O. BOX 196

City, State, Zip Code: ARCO, ID 83213

Telephone
Day: 208-527-8294
Night:
Fax:

E-mail: arcomaintenancedept2013@gmail.com

Legal Owner's Name:

☐ Mr. ☐ Ms. ATOMIC CITY

Mailing Address: 2654 W 1760 N

City, State, Zip Code: ATOMIC CITY, ID 83215

Telephone
Day:
Night:
Fax:

E-mail:

Substitute Responsible Charge Operator (OP): ☐ No OP ☐ N/A for GW-NC PWS

☐ Mr. ☐ Ms. TONY BANDIERA

Individuals present during inspection:

Properly Licensed? ☐ Yes ☑ No ☐ N/A-GW-NC

License Type: ☐ N/A

License Number:

Expiration Date:

Mailing Address: 1764 N 2650 W

City, State, Zip Code: ATOMIC CITY, ID 83215

Telephone
Day: 208-681-8442
Night:
Fax:

E-mail: atomiccitypwd@gmail.com

Name: TONY BANDIERA — Title: WATER OPERATOR
Name: CHRIS POLATIS — Title: MAYOR
Name: — Title:

Physical location of the PWS (Township, Range, Section): T 1N R 31E SEC 3

Samples taken at the time of survey by inspector? ☐ Yes ☑ No

If yes, what:

Survey performed by:
Name: CAROLEE COOPER
Title: PUBLIC WATER SYSTEM COORDINATOR
Phone #: 208-239-5274

Agency: ☐ IDEQ ☑ Health Dept. ☐ Other:

General Information

yes	no	n/a	unk	note	
☐	☐	☑	☐	☐	1. Have previously required Significant Deficiencies been addressed?
☑	☐	☐	☐	☐	2. Does the system owner have a written sample siting plan that is representative of water throughout the distribution system?
☑	☐	☐	☐	☐	3. Are TCR/RTCR monitoring samples being taken in accordance with the sample siting plan?
☐	☑	☐	☐	☐	4. Have material modifications been made to the PWS since the last ESS?
☐	☐	☑	☐	☐	5. If yes, were plans and specs submitted to and approved by DEQ?
☐	☑	☐	☐	☐	6. Are there any known issues or problems with equipment or operation of the PWS that could negatively effect the quality of the water produced? (*If yes, comment*)

Comments:

Sanitary Survey Index

Modules used:	#
☑ General Information	1
☑ Well Source	2
☐ Spring Source	
☑ Storage	1
☑ Hydropneumatic Tanks	1
☑ Distribution	1
☑ Pumping	1
☑ Financial Capacity	1
☑ Managerial Capacity	1
☐ Treatment Application	
☐ Disinfection	
☐ Gas Cl2	
☐ Notes	
☑ Photo Log	1
Total Modules	**10**

WELL SOURCE - PG.1

SURVEY DATE (mm/dd/yyyy): 3/15/2018

PWS #: 6060003

A separate sources form must be filled out for **each** well associated to the PWS.

Tag #:	Common Name of Source:	Source associated with a:	Is this Source Treated?
E0007277	WELL #1	☐ Wellfield ☑ Manifold	☐ Yes ☑ No

Physical Location: CORNER OF 1ST AND 5TH ST. NEXT DOOR TO THE COMMUNITY TRAILER. 2654 W 1760 N

Treatment Objective: ☑ N/A

Treatment Types: ☑ N/A *(Identify Treatment Train in Comments)*

Is there a well log for the well source? ☑ Yes ☐ No ☐ N/A ☐ Unk

Pump Capacity (GPM)	Casing Size (In)	Date Drilled:	Well Depth (Ft)	Casing Depth (Ft)	Grout Depth(Ft)	Static Water Depth (Ft)
☑ Unk	10 TO 6 ☐ Unk	3/27/1996 ☐ Unk	685 ☐ Unk	21 ☐ Unk	20 ☐ Unk	595 ☐ Unk

Is the Casing Screened?	Screen Depth (Ft): ☑ N/A ☐ Unk	Is the Casing Perforated?	Perforation Depth (Ft): ☑ N/A ☐ Unk
☐ Yes ☑ No ☐ Unk ☐ N/A	From: To:	☐ Yes ☑ No ☐ Unk ☐ N/A	From: To:

Latitude (Decimal): 43.2637.6476 ☑ Verified as accurate

Longitude (Decimal): -112.4843.6356 ☑ Verified as accurate

All Sources

1. This source is:
   ☑ Active ☐ Proposed
   ☐ Inactive ☐ Emergency (Unplanned use)

COMMENTS: (Please indicate question number)

WELL INFORMATION

yes	no	n/a	unk	note		
☑	☐	☐	☐	☐	2.	Is the well on a separate lot? *(applicable if constructed after 11/1/77)*
☐ Significant	☐ Deficiency					
						Are the following minimum distances from the PWS well being met?
☑	☐		☐	☐	3.	- Nearest property line.....50 Ft.
☑	☐		☐	☐	4.	- Any potential source of contamination.....50 Ft. *(add comment)*
☑	☐		☐	☐	5.	- Livestock.....50 Ft.
☑	☐		☐	☐	6.	- Canals, streams, ditches, lakes, ponds and tanks used to store nonpotable substances.....50 Ft.
☑	☐		☐	☐	7.	- Storm water facilities disposing storm water originating off the well lot.....50 Ft.
☑	☐		☐	☐	8.	- Class A Municipal Reclaimed Wastewater Pressure distribution line.....50 Ft.
☑	☐		☐	☐	9.	- Gravity wastewater line.....50 Ft.
☑	☐		☐	☐	10.	- Pressure wastewater line.....100 Ft.
☑	☐		☐	☐	11.	- Septic tank.....100 Ft.
☑	☐		☐	☐	12.	- Drainfield field.....100 Ft.
☑	☐		☐	☐	13.	- Seepage pit.....100 Ft.
☑	☐		☐	☐	14.	- Privies.....100 Ft.
☑	☐		☐	☐	15.	- Absorption module - large soil absorption system....150 - 300 Ft.
☑	☐		☐	☐	16.	- Municipal or industrial wastewater treatment plant....500 Ft.
☑	☐		☐	☐	17.	- Biosolids application site.....1000 Ft.
☑	☐		☐	☐	18.	- Reclamation and reuse of municipal and industrial wastewater sites.....Permit specific
☑	☐	☐	☐	☐	19.	Are frost free hydrants placed a minimum of five (5) feet away from the well? *(N/A if protected by AVB)*
☐	☑		☐	☐	20.	Are pesticides, herbicides, fertilizers, portable containers of petroleum products, or other toxic or hazardous materials stored on the well lot?
☐	☑		☐	☐	21.	Are pesticides, herbicides, or fertilizers applied to the well lot without prior approval from the Department?
☐	☑		☐	☐	22.	Is the well in a pit? If yes, Date constructed:
☐	☐	☑	☐	☐	23.	Was the well that is located in a pit installed after 11/5/64?
☐	☐	☑	☐	☐	24.	If pit was installed prior to 11/5/64 – Has DEQ granted an exception and does the pit have water tight construction of pit walls and floor, a floor drain and an acceptable pit cover?
☑	☐	☐	☐	☐	25.	Is the well protected from unauthorized entry? *(Recommended)*

Common Name	SURVEY DATE (mm/dd/yyyy)	PWS #
WELL #1	3/15/2018	6060003

WELL INFORMATION (cont.)

yes	no	n/a	unk	note		
☑	☐	☐	☐	☐	26. Does the casing extend a minimum of 18 inches above the final ground surface or 12 inches above the pump house floor?	☐ Significant ☐ Deficiency
☑	☐	☐	☐	☐	27. Is the well vented with the open end of the vent screened with a 24 mesh and terminated downward at least 18 inches above the final ground surface or 12 inches above the pump house floor?	
☑	☐		☐	☐	28. Is the well provided with an approved cap that prevents surface water entry?	
☐	☑		☐	☐	29. Is the well cased and sealed in such a manner that surface water cannot enter the well?	
☑	☐	☐	☐	☐	30. Is there a smooth nosed sample tap provided on the well discharge pipe prior to treatment?	
☑	☐	☐	☐	☐	31. Is an instantaneous and totalizing flow meter equipped with nonvolatile memory installed on the pump distribution line of the well and is it maintained and working properly? ____ gallons	☐ Unnecessary
☑	☐	☐	☐	☐	32. Is a pressure gauge provided on all discharge piping and is it maintained and working properly? 70 psi.	
☑	☐	☐	☐	☐	33. Can the well be pumped to waste at the design capacity of the well via an approved air gap at a location prior to the first service connection without depressurizing the distribution system?	☐ Significant ☐ Deficiency

PUMP HOUSE *(Only pump houses that contain a ground water source)*

yes	no	n/a	unk	note		
☑	☐	☐	☐	☐	34. Is the source located in a pump house?	
☑	☐	☐	☐	☐	35. Is the pump house kept clean and in good repair?	
☑	☐	☐	☐	☐	36. Is the pump house protected from unauthorized personnel?	
☑	☐	☐	☐	☐	37. Does the pump house have adequate lighting throughout?	
☐	☐	☑	☐	☐	38. Are all threaded hose bibs installed in the pump house equipped with an appropriate backflow prevention device?	
☐	☑	☐	☐	☐	39. Is adequate ventilation provided in the pump house for dissipation of excess heat and moisture from the equipment?	☐ Significant ☐ Deficiency
☑	☐	☐	☐	☐	40. Is adequate heating provided in the pump house to provided safe and efficient operation of equipment to prevent freezing?	☐ Significant ☐ Deficiency
☑	☐	☐	☐	☐	41. Is the pump house protected from flooding, have adequate drainage, and is the ground surface graded so as to lead surface water away from the pump house? (Unless otherwise approved by the Department)	
☐	☐	☑	☐	☐	42. Is the sump for pump house floor drains closer than 30 feet from the well?	

COMMENTS:

(Please indicate question number)

#31 THE METERS ARE LOCATED IN THE BOTTOM OF A PIT AND A READING WAS NOT TAKEN AT TIME OF SURVEY FOR FLOW METER AND GAUGE. #33 THEY CAN PUMP TO WASTE THROUGH THE FIRE HOSE CONNECTION. #39 RUST IS BUILDING UP IN PIPES IN PUMP HOUSE. THERE IS NOT A VENT TO LET MOISTURE ESCAPE FROM THE ROOM.

WELL SOURCE - PG.1

SURVEY DATE: 3/15/2018 (mm/dd/yyyy) | PWS #: 6060003

A separate sources form must be filled out for **each** well associated to the PWS.

Tag #:	Common Name of Source:	Source associated with a:	Is this Source Treated?
D00055090	WELL #2	☐ Wellfield ☑ Manifold	☐ Yes ☑ No

Treatment Objective: ☑ N/A

Physical Location: 1745 N. 2600 W. JUST AS YOU COME INTO ATOMIC CITY ON THE RIGHT.

Treatment Types: ☑ N/A
(Identify Treatment Train in Comments)

Is there a well log for the well source? ☑ Yes ☐ No ☐ N/A ☐ Unk

Pump Capacity (GPM)	Casing Size (In)	Date Drilled:	Well Depth (Ft)	Casing Depth (Ft)	Grout Depth(Ft)	Static Water Depth (Ft)
100 ☐ Unk	8 ☐ Unk	6/30/2009 ☐ Unk	670 ☐ Unk	58 ☐ Unk	58 ☐ Unk	601 ☐ Unk

Is the Casing Screened?	Screen Depth (Ft): ☑ N/A ☐ Unk	Is the Casing Perforated?	Perforation Depth (Ft): ☑ N/A
☐ Yes ☑ No ☐ Unk ☐ N/A	From: To:	☐ Yes ☑ No ☐ Unk ☐ N/A	From: ☐ Unk To:

Latitude (Decimal): 43.2636.1572 ☑ Verified as accurate

Longitude (Decimal): -112.4832.8788 ☑ Verified as accurate

All Sources

1. This source is:
   ☑ Active ☐ Proposed ☐ Inactive ☐ Emergency (Unplanned use)

COMMENTS: (Please indicate question number)

WELL INFORMATION

yes	no	n/a	unk	note	
☑	☐	☐	☐	☐	2. Is the well on a separate lot? *(applicable if constructed after 11/1/77)*
☐ Significant ☐ Deficiency					
					Are the following minimum distances from the PWS well being met?
☑	☐		☐	☐	3. - Nearest property line.....50 Ft.
☑	☐		☐	☐	4. - Any potential source of contamination.....50 Ft. *(add comment)*
☑	☐		☐	☐	5. - Livestock.....50 Ft.
☑	☐		☐	☐	6. - Canals, streams, ditches, lakes, ponds and tanks used to store nonpotable substances.....50 Ft.
☑	☐		☐	☐	7. - Storm water facilities disposing storm water originating off the well lot.....50 Ft.
☑	☐		☐	☐	8. - Class A Municipal Reclaimed Wastewater Pressure distribution line.....50 Ft.
☑	☐		☐	☐	9. - Gravity wastewater line.....50 Ft.
☑	☐		☐	☐	10. - Pressure wastewater line.....100 Ft.
☑	☐		☐	☐	11. - Septic tank.....100 Ft.
☑	☐		☐	☐	12. - Drainfield field.....100 Ft.
☑	☐		☐	☐	13. - Seepage pit.....100 Ft.
☑	☐		☐	☐	14. - Privies.....100 Ft.
☑	☐		☐	☐	15. - Absorption module - large soil absorption system....150 - 300 Ft.
☑	☐		☐	☐	16. - Municipal or industrial wastewater treatment plant....500 Ft.
☑	☐		☐	☐	17. - Biosolids application site.....1000 Ft.
☑	☐		☐	☐	18. - Reclamation and reuse of municipal and industrial wastewater sites.....Permit specific
☑	☐	☐	☐	☐	19. Are frost free hydrants placed a minimum of five (5) feet away from the well? *(N/A if protected by AVB)*
☐	☑		☐	☐	20. Are pesticides, herbicides, fertilizers, portable containers of petroleum products, or other toxic or hazardous materials stored on the well lot?
☐	☑		☐	☐	21. Are pesticides, herbicides, or fertilizers applied to the well lot without prior approval from the Department?
☐	☑		☐	☐	22. Is the well in a pit? If yes, Date constructed:
☐	☐	☑	☐	☐	23. Was the well that is located in a pit installed after 11/5/64?
☐	☐	☑	☐	☐	24. If pit was installed prior to 11/5/64 – Has DEQ granted an exception and does the pit have water tight construction of pit walls and floor, a floor drain and an acceptable pit cover?
☐	☑	☐	☐	☐	25. Is the well protected from unauthorized entry? *(Recommended)*

WELL SOURCES - PG. 2

Common Name	SURVEY DATE (mm/dd/yyyy)	PWS #
WELL #2	3/15/2018	6060003

yes	no	n/a	unk	note	WELL INFORMATION (cont.)
☑	☐	☐	☐	☐	26. Does the casing extend a minimum of 18 inches above the final ground surface or 12 inches above the pump house floor? ☐ Significant ☐ Deficiency
☑	☐	☐	☐	☐	27. Is the well vented with the open end of the vent screened with a 24 mesh and terminated downward at least 18 inches above the final ground surface or 12 inches above the pump house floor?
☑	☐		☐	☐	28. Is the well provided with an approved cap that prevents surface water entry?
☑	☐		☐	☐	29. Is the well cased and sealed in such a manner that surface water cannot enter the well?
☑	☐	☐	☐	☐	30. Is there a smooth nosed sample tap provided on the well discharge pipe prior to treatment?
☑	☐	☐	☐	☐	31. Is an instantaneous and totalizing flow meter equipped with nonvolatile memory installed on the pump distribution line of the well and is it maintained and working properly? ☐ Unnecessary ☐ gallons
☑	☐	☐	☐	☐	32. Is a pressure gauge provided on all discharge piping and is it maintained and working properly? 34 psi.
☑	☐	☐	☐	☐	33. Can the well be pumped to waste at the design capacity of the well via an approved air gap at a location prior to the first service connection without depressurizing the distribution system? ☐ Significant ☐ Deficiency

yes	no	n/a	unk	note	PUMP HOUSE *(Only pump houses that contain a ground water source)*
☐	☐	☑	☐	☐	34. Is the source located in a pump house?
☐	☐	☑	☐	☐	35. Is the pump house kept clean and in good repair?
☐	☐	☑	☐	☐	36. Is the pump house protected from unauthorized personnel?
☐	☐	☑	☐	☐	37. Does the pump house have adequate lighting throughout?
☐	☐	☑	☐	☐	38. Are all threaded hose bibs installed in the pump house equipped with an appropriate backflow prevention device?
☐	☐	☑	☐	☐	39. Is adequate ventilation provided in the pump house for dissipation of excess heat and moisture from the equipment? ☐ Significant ☐ Deficiency
☐	☐	☑	☐	☐	40. Is adequate heating provided in the pump house to provided safe and efficient operation of equipment to prevent freezing? ☐ Significant ☐ Deficiency
☐	☐	☑	☐	☐	41. Is the pump house protected from flooding, have adequate drainage, and is the ground surface graded so as to lead surface water away from the pump house? (Unless otherwise approved by the Department)
☐	☐	☑	☐	☐	42. Is the sump for pump house floor drains closer than 30 feet from the well?

COMMENTS:
(Please indicate question number)

#31 THE METERS ARE LOCATED IN THE BOTTOM OF A PIT AND A READING WAS NOT TAKEN AT TIME OF SURVEY FOR FLOW METER AND GAUGE. #33 THEY CAN PUMP TO WASTE THROUGH THE FIRE HOSE CONNECTION.

STORAGE

SURVEY DATE: 3/15/2018 (mm/dd/yyyy) | PWS #: 6060003

A separate storage form must be filled out for **each** storage unit in the PWS.

Storage Structure Name: STORAGE TANK	Storage Structure ID #: T6060006TS1	COMMENTS: (Please indicate question number)
Physical Location: 50' NORTH OF WELL HOUSE	Date in service: 2010 ☐ Unk	#16 MANHOLE COVERS ON TANK NEED NEW SEALS.
	Volume (gal): 50,000 ☐ Unk	

Storage Type: ☑ Reservoir/Tank ☐ Standpipe

Construction: ☐ Above-Ground ☐ Ground-Level ☑ Partially Buried ☐ Below-Ground

Type of material: ☐ Plastic ☐ Wood ☐ Fiberglass ☐ Metal ☑ Concrete ☐ Naturally Contained

Total Days Supply (This structure):	Date Last: Inspected:	Cleaned:
1 ☐ Unk	2010 ☐ Unk	2010 ☐ Unk

How is the water level measured? ☐ Unk

PESSURE CENSORS

ALL STORAGE STRUCTURES

yes	no	n/a	unk	note		
☑	☐	☐	☐	☐	1.	Is the storage structure safely accessible to the inspector?
☐	☑	☐	☐	☐	2.	Is the PWS storage tank located within 500 feet of any municipal or Industrial wastewater treatment plant or any land which is spray irrigated with wastewater or used for sludge disposal?
☐	☑	☐	☐	☐	3.	Are any of the storage structure drains directly connected to a sewer or storm drain?
☑	☐	☐	☐	☐	4.	Is an overflow provided that discharges to daylight in a way that will preclude the possibility of backflow to the reservoir and, where practical, provided with an expanded metal screen installed within the pipe that will exclude rodents and deter vandalism?
☑	☐	☐	☐	☐	5.	Are overflows brought down to an elevation between 12 and 24 inches above the receiving surface? *(2X the diameter of the discharge pipe above a basin rim)*
☑	☐	☐	☐	☐	6.	Do overflows discharge over a drainage inlet structure or splash plate?(storm or sanitary)
☑	☐	☐	☐	☐	7.	Is the storage structure secure from unauthorized access?
☑	☐	☐	☐	☐	8.	Does the storage reservoir have a watertight roof or cover and is it sloped to facilitate drainage?
☑	☐	☐	☐	☐	9.	Is the storage water protected from contamination?
☑	☐	☐	☐	☐	10.	Is the storage structure structurally sound?
☐	☑	☐	☐	☐	11.	Could vegetation in the area potentially impact the storage structure?*(Recommended)*
☑	☐	☐	☐	☐	12.	Is the storage structure designed so that it can be isolated from the distribution system without necessitating loss of pressure in the distribution system?
☐	☑	☐	☐	☐	13.	Is leakage evident at time of inspection?
☐	☑	☐	☐	☐	14.	Is the storage structure interior coating or liner peeling or cracked?
☑	☐	☐	☐	☐	15.	Is the storage structure used to store finished water?
☐	☑	☐	☐	☐	16.	Are access manhole openings for the storage structure 4 inches or greater above the surface of the roof, with a cover 2 inches overlapping, water tight, hinged and locked?
☑	☐	☐	☐	☐	17.	Are all vents extended 12 inches above the roof and constructed to exclude potential sources of contamination? *(The overflow pipe shall not be considered a vent)*

ABOVE GROUND STORAGE

yes	no	n/a	unk	note		
☐	☐	☑	☐	☐	18.	Do all vents open downward and are they fitted with a 24 mesh non-corrodible screen?

GROUND-LEVEL, PARTIALLY BURIED, or BELOW-GROUND STORAGE

yes	no	n/a	unk	note		
☐	☐	☑	☐	☐	19.	Does the overflow for the storage structure have a vertical section of pipe at least 2 pipe diameters in length?
☐	☐	☑	☐	☐	20.	Is the overflow for the storage structure provided with either a 24 mesh non-corrodible screen installed within the pipe when practical, or an expanded metal screen installed within the pipe plus a weighted flapper or check?
☐	☐	☑	☐	☐	21.	Is the area surrounding the storage structure graded in a manner that will prevent surface water from standing within 50 feet of it?
☐	☐	☑	☐	☐	22.	Are all vents for the storage structure open downward with the opening at least 24 inches above the roof or the ground level and covered with 24 mesh non-corrodible screen to exclude potential contamination?

PARTIALLY BURIED OR BELOW-GROUND STORAGE

yes	no	n/a	unk	note		
☑	☐	☐	☐	☐	23.	Are "ALL" manholes elevated 24 inches above the surface of the roof or the ground level, which ever is higher?
☑	☐	☐	☐	☐	24.	Is there a minimum distance of 50 feet between the storage structure and any non-potable main, standing water, or other possible source of contamination?

HYDROPNEUMATIC TANKS

SURVEY DATE: 3/15/2018 (mm/dd/yyyy) | PWS #: 6060003

One form for **all** Hydropneumatic Tanks.

Tank ID#:	Physical Location:	Brand:	Model:	Bladder: (yes/no)	Size: (gal.)	Installation Date:
1	PUMP HOUSE	H2 PRO	H2PL90	YES	90	2012
2	PUMP HOUSE	H2 PRO	H2PL91	YES	90	2009
3	PUMP HOUSE	H2 PRO	H2PL92	YES	90	2009
4	PUMP HOUSE	CHAMPION		YES	100	2009

yes	no	n/a	unk	note	ALL HYDROPNEUMATIC TANKS
☑	☐	☐	☐	☐	1. Is the tank(s) located above normal ground surface and completely housed?
☐ Significant	☐ Deficiency				
☑	☐	☐	☐	☐	2. Can the hydropneumatic tank(s) be isolated from the system, permitting operation of the system?
☑	☐	☐	☐	☐	3. Are the exterior and/or interior (non-bladder) surfaces in good condition?
☐	☑	☐	☐	☐	4. Are tank supports structurally sound and adequate?
☑	☐	☐	☐	☐	5. Is there a pressure gauge and pressure operated start-stop controls?
☑	☐	☐	☐	☐	6. Does the PWS using the hydropneumatic (pressure) tank(s) serve less than 150 homes?
yes	no	n/a	unk	note	**Non-bladder Tanks Only**
☐	☐	☑	☐	☐	7. Is the recharge air free of pollutants such as oil from an air compressor?
					Do all non-bladder hydropneumatic tank(s) have the following?
☐	☐	☑	☐	☐	8. - A drain?
☐	☐	☑	☐	☐	9. - Means to add air?
☐	☐	☑	☐	☐	10. - Automatic or manual air blow-off?
☐	☐	☑	☐	☐	11. - An access manhole (24 inches in diameter where practical)?
☐	☐	☑	☐	☐	12. - Water sight glass?
☐	☐	☑	☐	☐	13. Has the non-bladder pressure tank(s) been tested for structural integrity in the past 5 years? *(Recommended)*

COMMENTS:
(Please indicate the question number)

DISTRIBUTION

One form for **all** distribution systems in the PWS.

SURVEY DATE: 3/15/2018 (mm/dd/yyyy)

PWS #: 6060003

What are water lines made of:

Material(s): ☐ Unk

☑ Steel ☐ HDPE (black) ☐ Asbestos/Cement

☑ PVC ☐ Ductile Iron ☐ Copper

☐ Other:

Size(s): ☐ Unk

6"

How many services are metered?

29 out of **29**

Number of Fire Hydrants:

0

COMMENTS:
(Please indicate the question number)

#1 LEVEL SENSOR WAS GOING OUT. 312 THE SYSTEM IS SET UP TO ACCOMMODATE FIRE HYDRANTS ON EACH CORNER.

yes	no	n/a	unk	note	DISTRIBUTION
☑	☐	☐	☐	☐	1. Have there been any interruptions in service during the past year? (including pressure loss)
☐	☐	☑	☐	☐	2. If a loss of pressure occurred (<20 psi), did the PWS provide public notice and disinfect the system? *(Reminder)*
☑	☐	☐	☐	☐	3. Is the PWS able to maintain a minimum pressure of twenty (20) psi throughout the distribution system (including fire flow), or forty (40) psi for PWSs constructed after 7/1/1985 (excluding fire flow), during maximum hourly demand conditions?
☑	☐	☐	☐	☐	4. Was the pressure observed at a service connection?
					5. If yes: **60** psi.
					Location: HOSE BIB ON SIDE OF PUMP HOUSE
					Time: **12:30** ☐ A.M. ☑ P.M.
☐	☐	☑	☐	☐	6. Do all water mains that provide fire flow have a diameter of at least 6 inches?
☑	☐	☐	☐	☐	7. Are valves exercised regularly? *(Recommended)*
					If yes, how often? QUARTERLY
☑	☐	☐	☐	☐	8. Is there a leak detection program? *(Recommended)*
☐	☑	☐	☐	☐	9. Does the system have leaking water mains that need to be repaired or replaced?
☑	☐	☐	☐	☐	10. Is a water conservation program in effect? *(Recommended)*
☑	☐	☐	☐	☐	11. Is an adequate map of the distribution system maintained? *(Recommended)*
☑	☐	☐	☐	☐	12. Does the system flush all main lines annually? *(Recommended)*
☑	☐	☐	☐	☐	13. Are all dead end water mains equipped with a means to flush?
☑	☐	☐	☐	☐	14. If yes, are the deadends flushed at least semiannually?
☐	☑	☐	☐	☐	15. Are there any distribution materials used that should not be in contact with the drinking water? *If yes, explain in comments section.*
☑	☐	☐	☐	☐	16. Is the system adequately protected from freezing?
☐	☑	☐	☐	☐	17. Is there a cross connection control program that complies with the Rules and is it being implemented? (Community PWSs Only)
☑	☐	☐	☐	☐	18. Is the operator trained in cross connection control? *(Recommended)*
☐	☑	☐	☐	☐	19. Are there any known unprotected cross connections or were any unprotected cross connections observed during the course of the survey?
☐	☐	☑	☐	☐	20. If a separate non-potable irrigation system is provided for the consumer, are all mains, hydrants, and appurtenances easily identified as non-potable? (Purple Tape or other) *(Recommended)*

yes	no	n/a	unk	note	**Air/Vacuum Relief Valves** - *Placed at high points in water mains.*
☐	☐	☑	☐	☐	21. Are all automatic air relief valves equipped with a means of backflow protection?

PUMPING - PG. 1

SURVEY DATE: 3/15/2018 (mm/dd/yyyy) | PWS #: 6060003

One form for **all** Pumps.

PUMPS, PUMPHOUSES, AND CONTROLS

Pump ID#:	Physical Location:	Type of Pump:	Brand:	Model:	Horsepower:	Purpose:
1	WELL #1	SUBMERSIBLE	SIEMENS		25	PUMP TO STORAGE TANK
2	WELL #2	SUBMERSIBLE	SIEMENS		10	PUMP TO STORAGE TANK
3	PUMP HOUSE	BOOSTER	AURORA	09-1861687-1	10	PUMP TO DISTRIBUTION
4	PUMP HOUSE	BOOSTER	AURORA	09-7584687-2	10	PUMP TO DISTRIBUTION

yes	no	n/a	unk	note	
					ALL PUMPS
☐	☑	☐	☐	☐	1. Does the pump(s) cycle excessively? *(Recommended)*
☑	☐	☐	☐	☐	2. Are all pumps provided with readily available spare parts and tools?
☑	☐	☐	☐	☐	3. Does the system have an approved method to prevent excessive pressure development?
☑	☐	☐	☐	☐	4. Is a standard pressure gauge installed and functioning on the discharge line?
					WELL PUMPS
☑	☐	☐	☐	☐	5. Is there an accessible check valve installed in the discharge line of each well between the pump and the shut-off valve?
☐	☐	☑	☐	☐	6. If the system has a vertical turbine motor driven pump(s), is an air release-vacuum relief valve located upstream from the check valve, with exhaust/relief piping terminating in a down-turned position at least 18 inches above the floor and covered with a 24 mesh corrosion resistant screen?
☐	☐	☑	☐	☐	7. If the pump(s) is "oil lubricated", is the oil NSF approved and suitable for human consumption?
					WATER PUMPS *(not well pumps)*
☑	☐	☐	☐	☐	8. Is an accessible check valve on the discharge side between the pump and the shut-off valve?
					AUXILIARY POWER
☑	☐	☐	☐	☐	9. Is there auxiliary power on-site? (Community PWSs Only)
☐ Significant	☐ Deficiency				
☑	☐	☐	☐	☐	10. Is auxiliary power tested? *(Recommended)*
☐	☐	☑	☐	☐	11. If a diesel or gasoline fueled engine is used on the well lot; is the fuel tank and connecting piping double walled?
☑	☐	☐	☐	☐	12. Is the fuel tank above ground?
☑	☐	☐	☐	☐	13. Is a certified operator present during the filling of the fuel tank?
☐	☐	☑	☐	☐	14. If the engine is in the well house, is the engine exhaust directly discharged outside the well house?
☑	☐	☐	☐	☐	15. Is a spill containment structure surrounding all fuel tanks adequate? *(Secondary containment - 110% fuel tank volume)*
					Community Systems Only
☑	☐	☐	☐	☐	16. (*Community Systems built or substantially modified after 4/15/07 only*) Is on-site power or standby storage provided so water can be treated and supplied to pressurize the entire distribution system during a power outage for a minimum of 8 hours?
☑	☐	☐	☐	☐	17. (*Community Systems built or substantially modified after 4/15/07 only*) If standby power is provided, is there a minimum of 8 hours of fuel stored and located on site?

COMMENTS:
(Please indicate the question number)

CUSHMANS AND PUMPTECH

PUMPING - PG. 2

COMMENTS: (Please indicate the question number)

yes	no	n/a	unk	note		
					BOOSTER PUMPS	
☑	☐	☐	☐	☐	18. Is an instantaneous and totalizing flow meter installed where the booster pump is directly connected to the distribution system?	☐ Unnecessary
☑	☐	☐	☐	☐	19. Are all in-line booster pumps supplied with an automatic cutoff that activates when intake pressure is less than or equal to 5 psi?	
☐	☑	☐	☐	☐	20. Is the booster pump located on a suction line that is directly connected to any storage reservoir?	
☐	☐	☑	☐	☐	21. If yes, are all booster pumps protected by an automatic cutoff to prevent pump damage and avoid excessive reservoir drawdown?	
yes	no	n/a	unk	note		
					PUMP HOUSE *(Only pump houses that don't contain a ground water source)*	
☐	☐	☑	☐	☐	22. Is the pump house kept clean and in good repair?	
☐	☐	☑	☐	☐	23. Is the pump house protected from unauthorized personnel?	
☐	☐	☑	☐	☐	24. Does the pump house have adequate lighting throughout?	
☐	☐	☑	☐	☐	25. Are all non-sample taps installed in the pump house equipped with an appropriate backflow prevention device?	
☐	☐	☑	☐	☐	26. Is adequate ventilation provided in the pump house for dissipation of excess heat and moisture from the equipment?	☐ Significant ☐ Deficiency
☐	☐	☑	☐	☐	27. Is adequate heating provided in the pump house to provided safe and efficient operation of equipment *(prevent moisture buildup and/or freezing)*?	☐ Significant ☐ Deficiency
☐	☐	☑	☐	☐	28. Is the pump house protected from flooding, have adequate drainage, and is the ground surface graded so as to lead surface water away from the pump house? (Unless otherwise approved by the Department)	
☐	☐	☑	☐	☐	29. Is the sump for pump house floor drains closer than 30 feet from the well?	
☐	☐	☑	☐	☐	30. Is the floor drain connected to sewer, storm drains, chlorination room drains, or any other source of contamination? (Unless otherwise approved by the Department)	

FINANCIAL CAPACITY

SURVEY DATE 3/15/2018 (mm/dd/yyyy)

PWS # 6060003

yes	no	n/a	unk	note	FINANCIAL CAPACITY
☑	☐	☐	☐	☐	1. Is the PWS current with the payment of drinking water fees?
☑	☐	☐	☐	☐	2. Does the PWS charge a drinking water fee to the user?
					If yes, what is the fee: $ **37 $/M**
☑	☐	☐	☐	☐	3. Is the PWS in the business of selling water?
					#3 Note: → - If no, identify why in the comments section and mark "N/A" on questions 4 - 19.
☑	☐	☐	☐	☐	4. Does the PWS provide and use an annual budget? *(Recommended)*
☐	☐	☑	☐	☐	5. If applicable, is the PWS fund separate from the waste water/sewer utility fund? *(Recommended)*
☑	☐	☐	☐	☐	6. Do water system revenues exceed expenditures? *(Recommended)*
☐	☐	☐	☑	☐	7. Are controls established to prevent expenditures from exceeding revenues?
☑	☐	☐	☐	☐	8. Has an independent financial audit been completed? *(Recommended)*
☐	☐	☑	☐	☐	9. If yes, is a copy of the most recent balance sheet for the water system available? *(Recommended)*
☑	☐	☐	☐	☐	10. Does the water system include a cash budget within its annual budget for cash flow? *(Recommended)*
☑	☐	☐	☐	☐	11. Does the water system management review the user fee, user charge, or rate system at least annually? *(Recommended)*
					12. When was the last user fee, user charge, or rate system adjustment?
yes	no	n/a	unk	note	**2017** *mm/dd/yyyy*
☑	☐	☐	☐	☐	13. Does the water system management review financial reports at least monthly? *(Recommended)*
☑	☐	☐	☐	☐	14. Does the PWS provide and use a capital budget? *(Recommended)*
☑	☐	☐	☐	☐	15. Has this PWS produced and does it currently utilize a capital improvements plan? *(Recommended)*
					16. If yes, when was the capital improvements budget produced?
					2017 *mm/dd/yyyy*
☑	☐	☐	☐	☐	17. Has the capital improvement budget been updated in the last 18 months? *(Recommended)*
☑	☐	☐	☐	☐	18. Does the water system budget provide funding for depreciation of existing plant in service and/or for the funding of reserves for system replacement?
☑	☐	☐	☐	☐	19. Are there sufficient funds for training personnel?

COMMENTS:
(Please indicate the question number)

MANAGERIAL CAPACITY

SURVEY DATE: 03/15/2018 (mm/dd/yyyy) | PWS #: 6060003

MANAGERIAL CAPACITY

yes	no	n/a	unk	note		
☑	☐	☐	☐	☐	1.	Is a properly licensed operator available at all times? (N/A for GW-NC PWS)
☑	☐	☐	☐	☐	2.	Does this PWS have a governing body or board of directors?

If no, please indicate:

- ☐ Sole Proprietorship
- ☐ Partnership
- ☐ Limited Liability Corp.
- ☐ Other: CITY COUNCIL

3. How often does the board meet? ☐ N/A

- ☐ weekly ☐ semi-annually ☐ never
- ☑ monthly ☐ annually ☐ unknown
- ☐ bimonthly ☐ as necessary ☐ other:

Are the following records maintained onsite or located near by?

☑	☐	☐	☐	☐	4.	- Bacteriological Analysis - **5 years retention.**
☑	☐	☐	☐	☐	5.	- Chemical Analysis - **10 years retention.**
☑	☐	☐	☐	☐	6.	- Records of actions taken to correct violations - **3 years retention.**
☑	☐	☐	☐	☐	7.	- Copies of reports, summaries or communication related to sanitary surveys - **10 years retention.**
☑	☐	☐	☐	☐	8.	- Reports concerning variances or exemptions - **5 years retention.**
☑	☐	☐	☐	☐	9.	- Copies of public notices issued - **3 years retention.**
☐	☐	☑	☐	☐	10.	- Daily free chlorine residuals *(required disinfection)* - **1 year retention.**
☑	☐	☐	☐	☐	11.	Does the system owner have an Asset Management Plan? *(Recommended)*
☐	☑	☐	☐	☐	12.	Is an operation and maintenance manual(s) provided for the PWS and does it include; water system specific operations plans; maintenance information and checklists; and manufacturer's product information, etc?
☐ Significant	☑ Recommend					
☑	☐	☐	☐	☐	13.	Is there a clear plan of organization and control among the people responsible for management and operations of the water system? *(Recommended)*

Are any samples of the following parameters past due?

yes	no	n/a	unk	note		
☐	☑	☐	☐	☐	14.	Coliform
☐	☑	☐	☐	☐	15.	Nitrates
☐	☑	☐	☐	☐	16.	Nitrites
☐	☑	☐	☐	☐	17.	Lead and Copper
☐	☑	☐	☐	☐	18.	IOCs
☐	☑	☐	☐	☐	19.	VOCs
☐	☑	☐	☐	☐	20.	SOCs
☐	☐	☑	☐	☐	21.	Disinfection Byproducts
☐	☑	☐	☐	☐	22.	Radionuclide
☑	☐	☐	☐	☐	23.	Is a written total coliform rule (TCR) sample site plan available for review?
☑	☐	☐	☐	☐	24.	Does the (TCR) sample site plan meet the minimum requirements?
☑	☐	☐	☐	☐	25.	Does the system have a sufficient supply of approved sampling bottles properly stored? *(Recommended)*
☐	☑	☐	☐	☐	26.	Does the PWS provide stairways, ladders and handrails where needed?
☐	☐	☑	☐	☐	27.	Are treads of non-slip material provided where needed?
☐	☑	☐	☐	☐	28.	Is a health concern produced from inadequately protected electrical wiring?
☑	☐	☐	☐	☐	29.	Does the system have any confined spaces?
☑	☐	☐	☐	☐	30.	If yes, are protocols followed for confined space entry? *(Recommended)*
☐	☑	☐	☐	☐	31.	Are there any unused subsurface water storage tanks that need to be abandoned?
☐	☑	☐	☐	☐	32.	Are there any water supply wells that are no longer being used that need to be abandoned?
☐	☑	☐	☐	☐	33.	Does the system utilize SCADA?

COMMENTS:
(Please indicate the question number)

State of Idaho
Department of Environmental Quality
Photo Log

Name of Facility:		Inspection Date		PWS#
ATOMIC CITY		3/15/2018 (mm/dd/yyyy)		6060003
Camera Type: ☐ Digital ☐ 35mm ☐ Other:	Camera Brand: CANNON	Camera Model: SURESHOT	Camera ID#:	

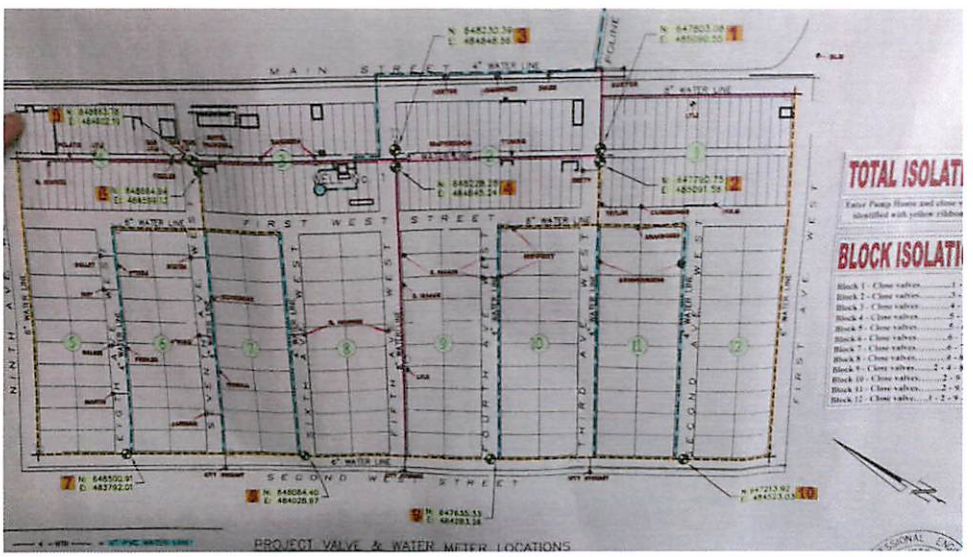
Photo:	Date:	By: (initials)	Direction: (N,S,E,W, etc.)	File Name:	Description:
1	3\15\2018	CC	W	2155	GATED PUMP HOUSE
2	3\15\2018	CC	W	5650	AUXILIARY STORAGE BUILDING
3	3\15\2018	CC	NW	8463	WELL #1
4	3\15\2018	CC	W	9908	HYDROPNEUMATIC TANKS
5	3\15\2018	CC	W	5196	BOOSTER PUMPS
6	3\15\2018	CC	E	7941	SHUTTOFF VALVES
7	3\15\2018	CC	NW	2408	HEATER
8	3\15\2018	CC	SW	7991	GATE VALVE TO WELL #1
9	3\15\2018	CC	NW	9319	SAMPLE TAP WELL #1
10	3\15\2018	CC	DOWN	5136	SAMPLE TAP WELL #2
11	3\15\2018	CC	NW	5950	FLOW METERS AND GAUGES FOR BOTH WELLS AND A DILAPIDATED LADDER
12	3\15\2018	CC	DOWN	7368	HYDARNT FLUSH
13	3\15\2018	CC	SW	2448	MANHOLE TO TANK
14	3\15\2018	CC	E	1346	OVERFLOW OF TANK
15	3\15\2018	CC	E	7095	MANHOLE LID MISSING SEAL
16	3\15\2018	CC	DOWN	6817	INSIDE OF TANK
17	3\15\2018	CC	NW	4502	PROPANE FOR THE GENERATOR
18	3\15\2018	CC	NW	1319	GENERATOR
19	3\15\2018	CC	W	7885	PUMP ALARMS
20	3\15\2018	CC		6134	DISTRIBUITION MAP 1
21	3\15\2018	CC		0425	DISTRIBUITION MAP 2
22	3\15\2018	CC		2612	DISTRIBUITION MAP 3
23	3\15\2018	CC		5498	DISTRIBUITION MAP 4

The photographers signature below signifies that the images identified on this photo log have not been tampered with and are representative of what was seen in the field.

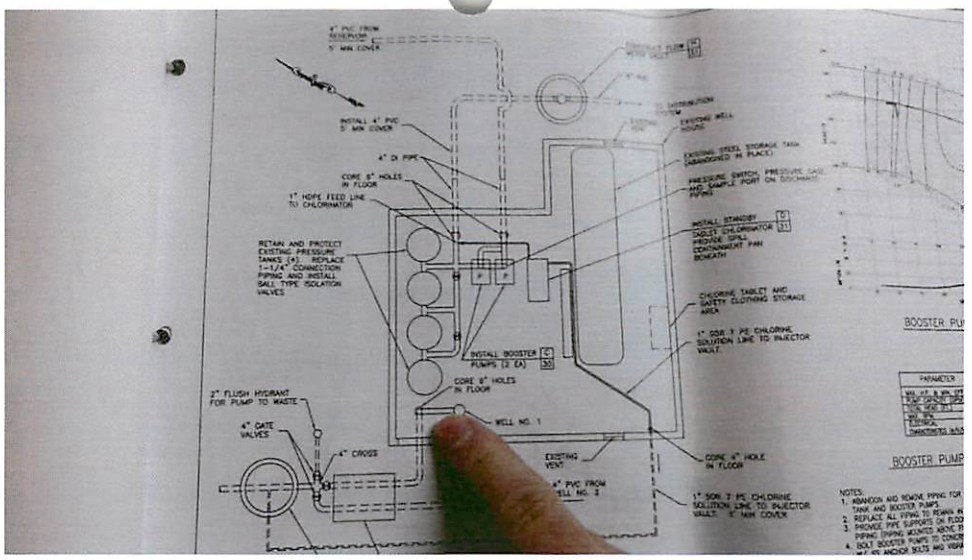
Photographer(s) Signature(s): Caroline Clay Date: 3/14/2018

Gated pump house

Gated generator house



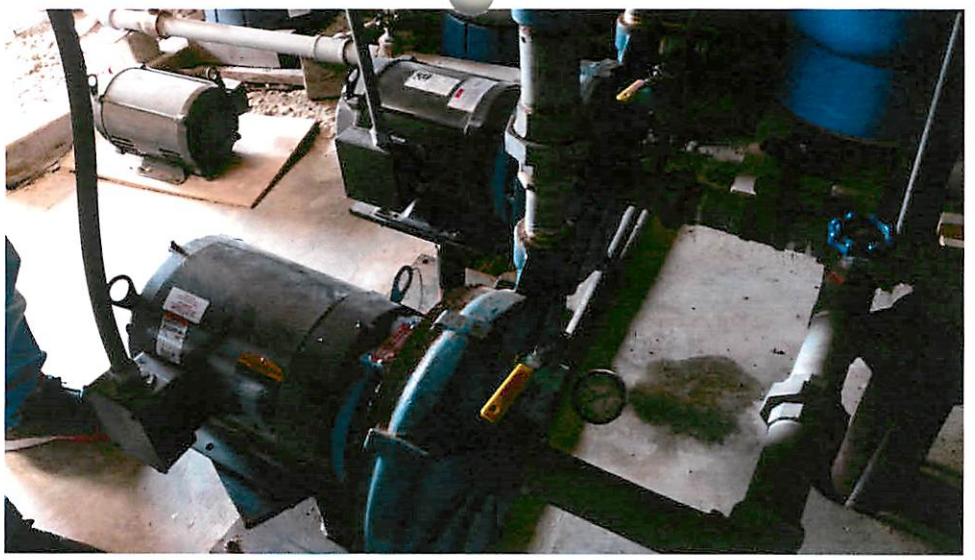
Distribution Map



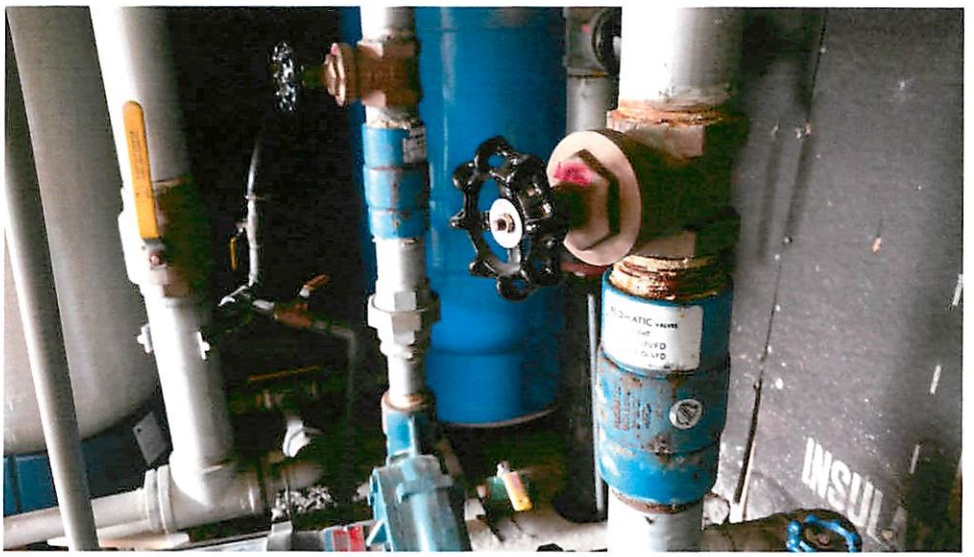
Pump House map

Well #1

Hydropneumatic tanks and shut off valves. Unstable base.



Booster Pumps, gauges, and valves.



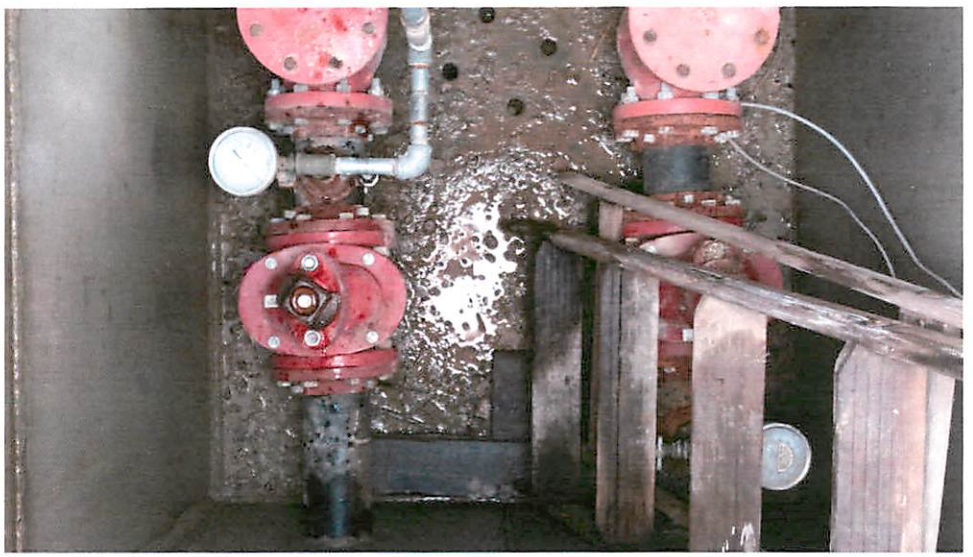
Booster pump valves and check valves.

Heater.

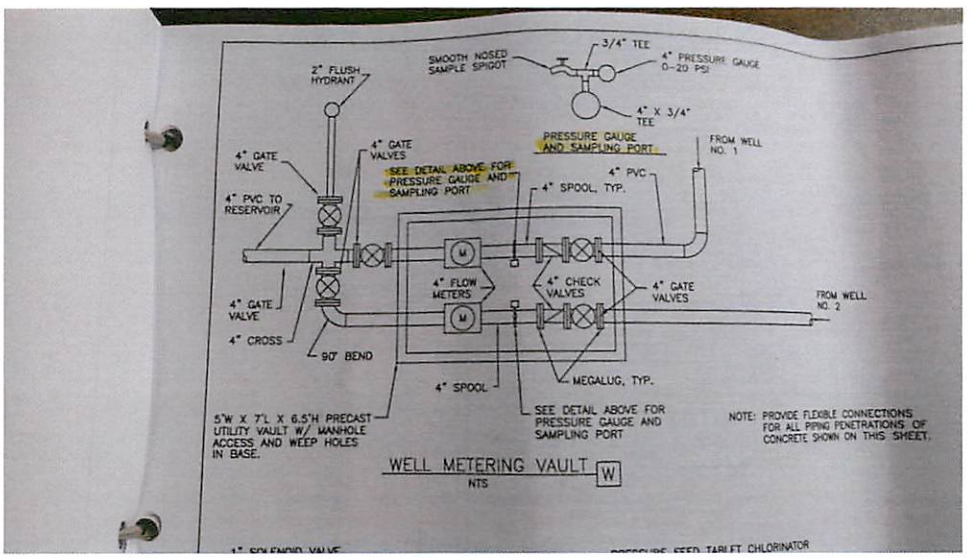
Well #1 and sample tap

Gate valve well #1

Access to pit where flow meters are for well #1and #2.

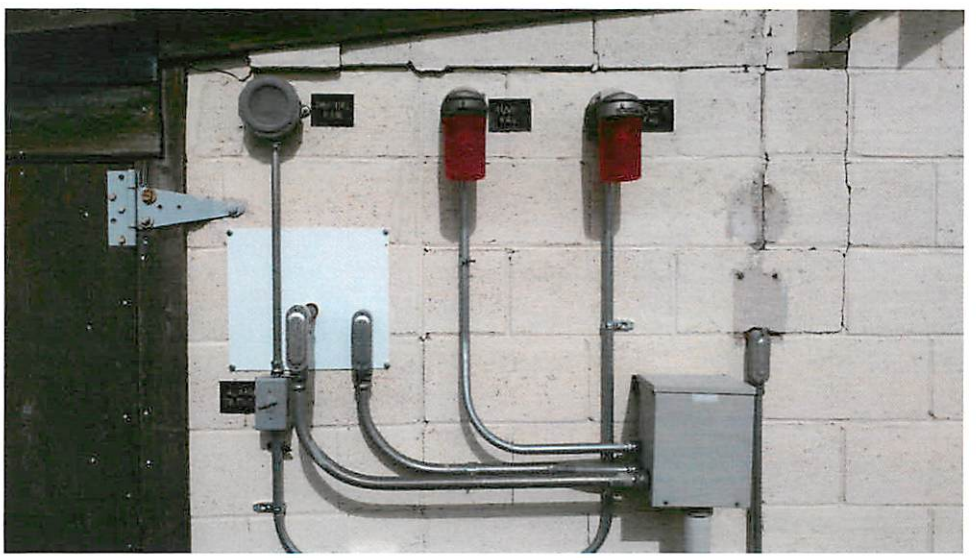


Well #1 and # flow meters and gauges in a pit.



Map of well #1 and #2 lines within and right outside of pit

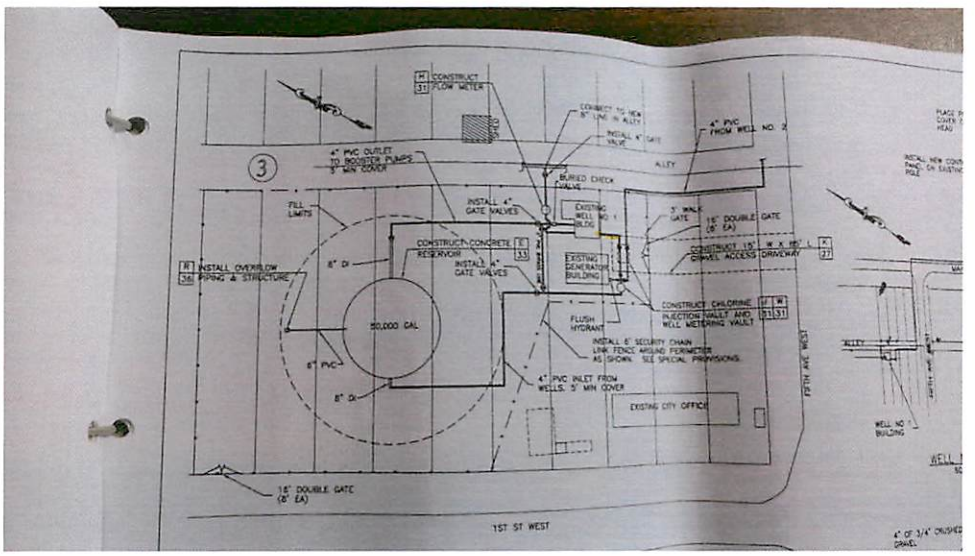
Hydrant flush.



Pump failure alarms

Auxiliary power generator

Propane tank for generator



Map of storage tank and piping.

Inside of storage tank

Manhole lid without seal

Overflow of storage tank

Manhole of storage tank

Well #2